Chapter 20

TECTONICS AND PALEOMAGNETISM

The truth about plate tectonics and paleomagnetism

This chapter is based on pp. 831-863 of Other Evidence (Volume Three of our three-volume Evolution Disproved Series). Not included in this present chapter are at least 35 statements in the chapter of the larger book, plus 70 more in its appendix. You will find them, plus much more, on our website: evolution-facts.org.

A much larger collection of material dealing with this will be found on our website. Go to the chapter entitled, "*Paleomagnetism.*" However, this present chapter includes much more than will be found on our shorter paperback, *The Evolution Handbook*, or its predecessor, *The Evolution Cruncher.*

Continental drift, plate tectonics, magnetic reversals, and seafloor spreading are not explained by evolutionary theory, nor by the evidence offered to prove them. As you will see below, the available evidence is better explained by the worldwide Flood.

New words are being heard in scientific circles: Plate tectonics, continental drift, wandering poles, paleomagnetism, seafloor spreading, field reversals, and transforming faults. What does it all mean? How does it relate to the creation-evolution controversy? Is part or all of it true? Does any portion of it prove evolution?

In this chapter we will briefly survey this broad topic which, suddenly in the 1960s, became accepted as the majority view of various geological and oceanographic scientists.

In the first section, we will consider the various lines of evi-

dence that led up to a general acceptance of plate tectonics and what is involved; in the second section, we will briefly focus on the principle concern: paleomagnetism and its "paleomagnetic dating" *implications.*

This chapter is actually an extension of chapter 14, Effects of the Flood. A review of that chapter will better help you understand the material in this present one.

> "Why then do a few crabbed earth scientists refuse to accept some or all of the tenets of the 'new global tectonics'? . .
>
> "Strictly speaking, then, we do not have a scientific hypothesis, but rather a pragmatic model, reshaped to include each new observation . . Obviously, this kind of model is not testable in any rigorous scientific *sense."—John C. Maxwell, "The New Global Tectonics," in Geotimes, January 1973, p. 31.*
>
> "The theories of continental drift and sea-floor spreading are highly conjectural."*—Daniel Behrman, New World of Oceans (1973), p.* 209.

1 - EVIDENCES FOR PLATE TECTONICS

CONTINENTS WERE ONCE LINKED—Evolutionists declare that at some earlier time in earth history the continents were all joined together. Citing certain evidence which they believe indicates this, they have decided that the continents *moved* into their present locations from a mythical, single massive continent. This theory is called ***"continental drift."***

> "Continental drift . . was quite popular after it was first suggested by Wegener. Subsequently, it fell into disrepute and only relatively recently has it been revived. Today it is widely accepted. One author described it as having in the space of the last 25 years 'made the transition from lunatic fringe to accepted dogma, the paradigm of the geological sciences.' "*—John W. Klotz, Studies in Creation (1985), p. 138.*

Three possible evidences for this theory are explained below, each of which can be explained just as easily by events prior to, during, and immediately following the Flood. In addition, there is also evidence which is specifically opposed to the moving continent theory.

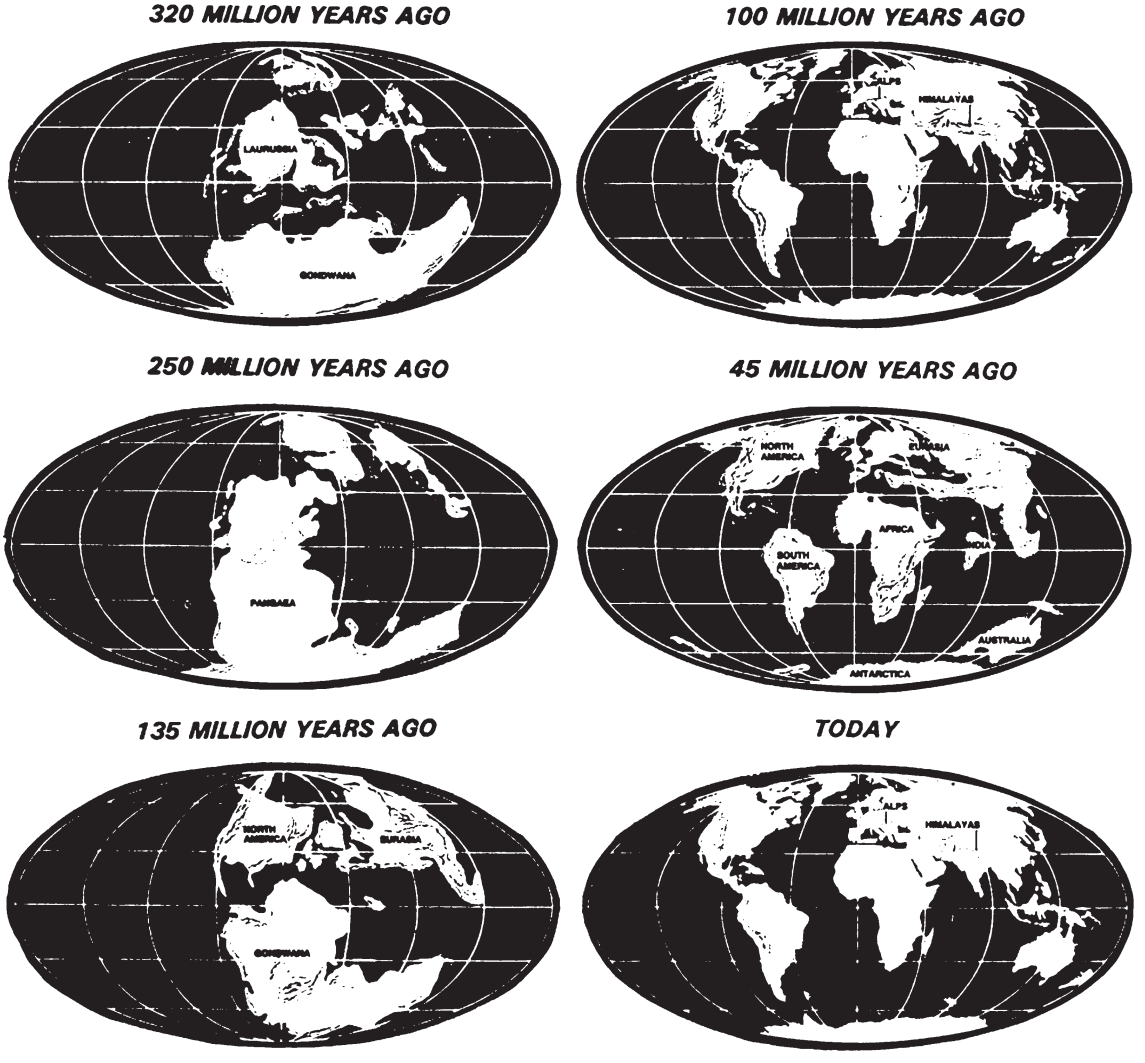
1 - Continental match. **The outstanding evidence for continental drift is the manner in which the coastal outline of eastern South America appears to somewhat match that of the**

west coast of Africa. Other continental outline matches have also been devised; but, as a rule, they require greater stretches of the imagination to work out. Continental match may not sound like very outstanding scientific evidence, especially since continents have to be twisted around a bit to make them even partly match. But this remains one of the best evidences that the continental drift advo-

CONTINENTAL DRIFT

Ilustrated below is the floating continent theory. It is foolish to begin with, to imagine that granite continents move here and there and change shape as they go. But, not content with the ridiculous, evolutionists speculate that they can decipher exactly how continents formed and reformed, moved and removed for millions upon millions of years in the past—and then be able to tell what position those continents were in at various periods so many millions of years ago!

Foolish theories, once begun, have a way of gradually growing into fantastic dream worlds. Reason seems to have been abandoned and desperation takes its place. The recipie for atheistic assurance has come to be complex theories, strange new names, and the dating of imagined events far into the past.



cates have to offer.

> "Neither the hypothesis of continental drift nor that of evolution was *proved* true before it won acceptance."—*D.J. Futuyma, Science on Trial.*

Flood geology can explain continental match quit adequately—and without having to resort to far-fetched ideas of continents traveling sideways thousands of miles! Prior to the Flood there were only broad rivers and shallow seas. The continents were close together and joined at that earlier time, except for shallow, river-like, narrow seas which may have been between them. As the seas filled and continents rose, some of these original outlines may have remained in match—just as the two sides of a river will match in outline.

Matching of continental borders has been a primary reason why continental drift was initially accepted by scientists. But *Corliss explains that the "matching coastlines" proof is no proof at all.

> "Continental Drift, once anathema and now enshrined, faces scores of technical objections. To illustrate one class of objections, it has been noted that many continents fit together well regardless of where they now 'float.' Australia, for example, locks well into the U.S. *East Coast.* Like evolution, Continental Drift seems to explain too many things too superficially."—**William Corliss, Unknown Earth: A Handbook of Geologic Enigmas (1980), p. 444 (emphasis his).*

2 - *Fossil match.* It has been observed that some fossils in Antartica match the type of fossil plants and animals found in the southern continents—South America and Africa, and in North America, Arctic, and Siberian region.

This fact of similar animals on nearby continents theoretically could support either view (Flood geology or moving continents), yet Flood geology would only take us back a few thousand years for fossil remains of similar animals; whereas continental drift would require millions of years to bring us back to a time when plants and animals were on both continents. At the beginning of the Flood, a uniformly warm climate would have produced the floral and faunal similarities noted today in fossil remains.

***3 - Vegetation and mineral match.* Similar vegetation has been found on the east coast of South America and the west coast of Africa.** This is said to be one of the strongest evidences of continental drift. In addition, in some cases there are similar miner-

als. For example, the small and inconsequential diamond fields in northern South America and the large dimond mines in South Africa are thought to be evidence that the two continents were once joined. But, in reality, these facts would support either view.

Either view would recognize a prior partial or total uniting of South America and Africa. Hence the similarity of plants and minerals on different continents. However, later predation and climatic changes could affect which animals would survive on which continents, thus explaining why there now is different animal life in South America, Africa, Australia, etc.

According to evolutionary theory, vegetation has continually evolved into different things. According to continental drift theory, the continents separated millions of years ago. How then can there be similar vegetation on those separated continents today?

Major Faults*—It is well-known that there are major fault lines on the globe. These fault lines are the cause of the "ring of fire"—faults which produce the volcanoes that surround the Pacific area. *Plate tectonics teaches that these cracks are caused by gigantic plates which are sliding beneath each other.

In contrast, **Flood geology would suggest that when the continents rose and ocean basins sank during and shortly after the Flood, the immense stress placed on the underlying foundations produced these geologic fault lines.** The problem here is *"geostasy,* "or the balancing of massive areas of the earth. As one part goes down, another part must move up to equalize or balance the load. An example of this would be the oceanic *"trenches,"* which are the deepest places in the oceans. These narrow canyon-like depths always match corresponding curved island groups produced by volcanoes bringing magma up from deeper areas. It was the volcanic ejections which produced the nearby trenches. Present-day *tsunamis* (seismic or "tidal" waves) frequently originate from adjusting movements in those trenches.

There is no evidence that theoretical massive sideways movements are now occurring, such as are claimed to have produced all the oceans, containing as they do five-sixths of the area of earth's surface! These *"subduction"* zones are definitely not producing the large sideways movement predicted by the plate tecton-

ics theory. It is not enough to say that, "given enough time, it could have happened."

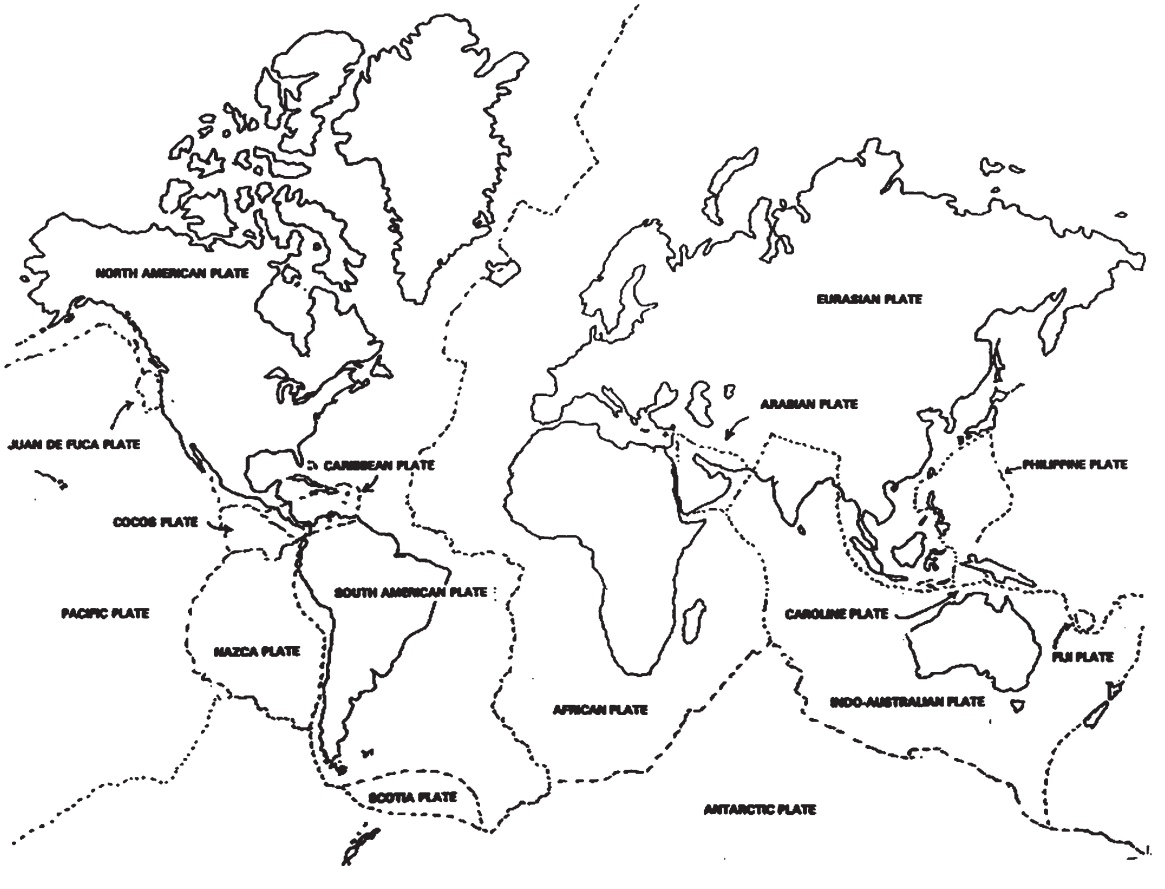
In the chapter, *Age of the Earth*, we learned that the earth cannot be over 6,000-10,000 years old! Item after item of evidence points to this fact, negating the possibility of long ages of earth prehistory. In the chapter, *Dating Methods*, we learned that not one method used to provide evolutionists with long prehistory dating has ever proved reliable! Each one of them is subject to a number of serious flaws, any one of which would ruin the predictability of their clocks.

1 - Plate tectonic explanation of continental shape. The "plate tectonics" theory is breathtaking in scope. According to this theory, **massive plates are continually moving sideways. Each plate is**

PLATE TECTONICS

The chart below will provide you with a brief overview of plate tectonics. Uncertainty and confusion as to the location of some of the plates continues on up to the present.

Earthquake data reveals that there definitely are several major cracks in Planet Earth (running around the Pacific, through the Mediterranian, etc.). But the existence of such cracks does not support the peculiar "boiling water" theory of rotating plates theory which currently enraptures geologists.



a piece of earth's crust, several hundred miles thick and generally thousands of miles in length and width. Each plate is theorized to be moving horizontally.

Where one plate meets another, its thousands-of-feet thick, solid rock gently "bends" at a sharp angle and moves downward through solid rock!

This is said to result in theorized seafloor spreading and continental drift. The latter would better be termed "continental travel," and is the wandering apart of all the continents of the globe from two original continents (the larger *"Gondwana,"* and the smaller *"Laurentia")* which are said to have existed 320 million years ago, later becoming *"Pangaea"* in the *"Tethys Sea,"* 250 million years ago; and, still later, they journeyed into the present positions and shapes of all our continents.

2 - Alternate explanation of continental shape. We have already mentioned the pre-Flood factors of closely connected continental masses and rising waters between them during the deluge. Another reason for the present shape of the continents would be the wearing, depositing action of water and ice, and the balancing of geostasy, by which one land mass would rise to compensate for another that had lowered. Our present continental shapes are the result, not of traveling land masses, but of hydraulic effects of the Genesis Flood.

2 - PALEOMAGNETISM

EARTH'S MAGNETIC FIELD—The *key item* which convinced earth and marine scientists to accept the new theory of plate tectonics—was the evidence produced by a study of paleomagnetism.

> "It is now clear that paleomagnetic data provide the crucial evidence in favor of continental drift, sea floor spreading and plate tectonics, and the other ingredients of what has been called the 'new global tectonics' in which the oceans are not only the youngest part of the Earth but are still being formed. The idea of global mobility has become the central dogma of Earth science. Naturally enough, like most dogmas it has attracted uncritical adherents."—**Nature, 227:776 (1970).*

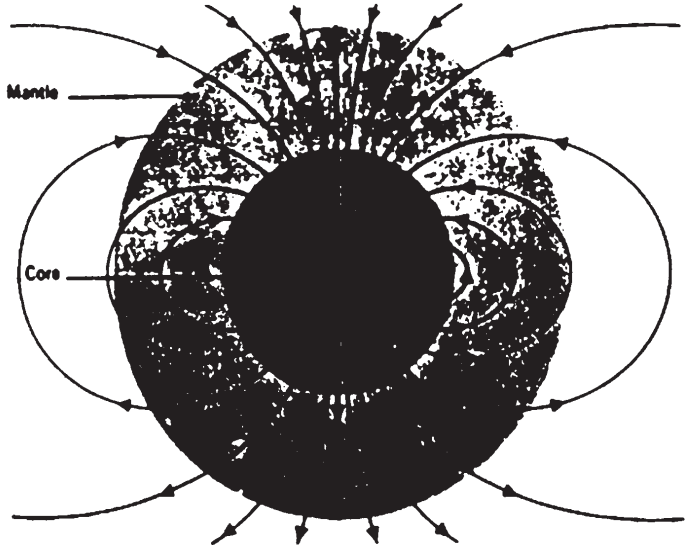
Our planet acts like a giant magnet. If this were not true, compasses would not work; they would not point to the magnetic

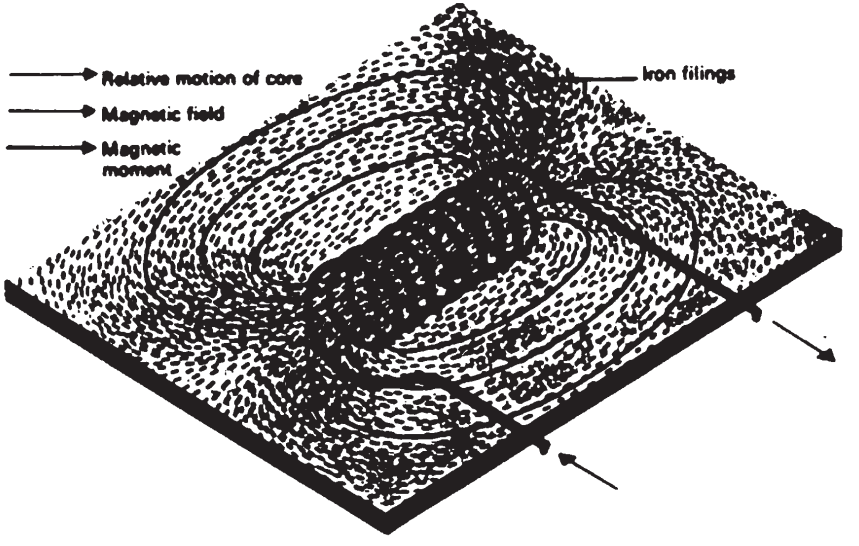
EARTH'S MAGNETIC FIELD

Here are portrayed two views of our planet's geomagnetic field. ***On the left*** is the earth split open, with the north pole at the top and the south pole at the bottom. The magnetic core is shown darker in the center, with the lighter-colored mantle around it.

On the right is a typical coil of wire with electricity running through it, producing a small magnetic field.

The intensity of earth's magnetic field is strongest at the poles and weakest at the equator. The location of the magnetic poles change gradually over a period of time. At the present time, the field is inclined about 11° to the spin axis of the planet. Earth's magnetic field comprises about 90 percent of of the magnetic field observed at ground level; the remainder is charged particles from the sun.





north pole. Scientists have only a vague understanding of the cause of this magnetic field. But the great majority of them believe that it is probably caused by a gigantic iron core (called the "*magnetic* core") in the middle of the planet. It is generally agreed that part or all of this iron inner magnetic core is liquid.

Both magnets and the earth itself have *north and south poles.* Unlike poles attract each other while like poles repel each other, thus the south, or north-seeking, pole of a compass needle is always drawn toward the north magnetic pole. (For purposes of simplification, we will generally speak only of the north pole in this study, even though there are two poles.)

The center of the magnetic north pole gradually moves from place to place. At the present time it is centered in the Arctic in northern Siberia. This fact alone indicates that there is something unstable about earth's magnetic field, indicating a liquid core. Why should the magnetic north pole keep moving around? You might wonder how we can know that the magnetic poles move. We know it because rocks contain magnetic records of the past.

MAGNETIC PROPERTIES OF ROCKS—Most people do not realize that **a large number of the rocks in the world have tiny magnets in them.** These can be small iron particles within larger rocks. Lava, flowing out from volcanoes, cools into rocks containing tiny crystals of magnetite. At the time when that cooling of lava takes place, the iron magnetite becomes permanently magnetized in accordance with where the north pole was located at the time that the rock cooled! Achilles Delesse, a French physicist, in 1849 was the first to discover that such rocks were magnetized in parallel with the earth's magnetic field, as if the rocks were all recording compasses. This fact raised the possibility that earlier locations of the north pole could be ascertained.

WANDERING EARTH OR WANDERING POLES—Then, in 1906, *Bernard Brunhes, another French physicist, made the startling discovery that some rocks are magnetically oriented in exact opposition to the earth's field! Brunhes suggested that this might be caused by an earlier reversal in polarity of the global magnetic field.

Soon rocks were gathered up from all over the countryside and brought in for analysis with the astatic magnetometer. **Variations were found, some of which may have been due to faulty col-**

lection methods, so clear results were not obtained. One rock would vary from another rock. Rocks can be kicked around, moved by tree roots, hurtled down hills by earth tremors or heavy rains.

In addition, **there is a very real problem of the extreme weakness of the magnetic field in rocks. It is so small that errors can be made in analyzing it.** At first, scientists recognized this high margin of error factors inherent in using magnetic orientation to date rocks. But **later in the 1960s and onward, they tended to ignore these weaknesses.**

> "The scientific establishment was not particularly impressed by these findings, and for good reason—the science of paleomagnetism was and remains an inexact one. Rocks are at best undependable recorders of the magnetic field, and interpreting their secrets requires numerous tests with plenty of room for error. Many scientists thought that the paleomagnetic evidence for continental drift was based on inadequate sampling, inaccurate measurements and unjustified assumptions."—**Thomas A. Lewis, Continents in Collision (1983), p. 83.*

A related problem is that the magnetic particles in a given rock do not line up exactly the same. **They generally point in one direction, but it is only something of a generalized pointing.** All of these factors must be taken into consideration.

Some rocks only partially magnetize, and are less reliable. Pressure, high temperature, and lightning strikes can also change the magnetism. There is no way to know past conditions experienced by a given rock.

Another factor which complicates the picture somewhat is that of *"secondary magnetization."* **A rock that has been moved from its original position can later, over a period of time, acquire a secondary magnetic orientation.** However, rocks with *"natural remanent magnetism" tend to* keep *their original magnetic orientation.*

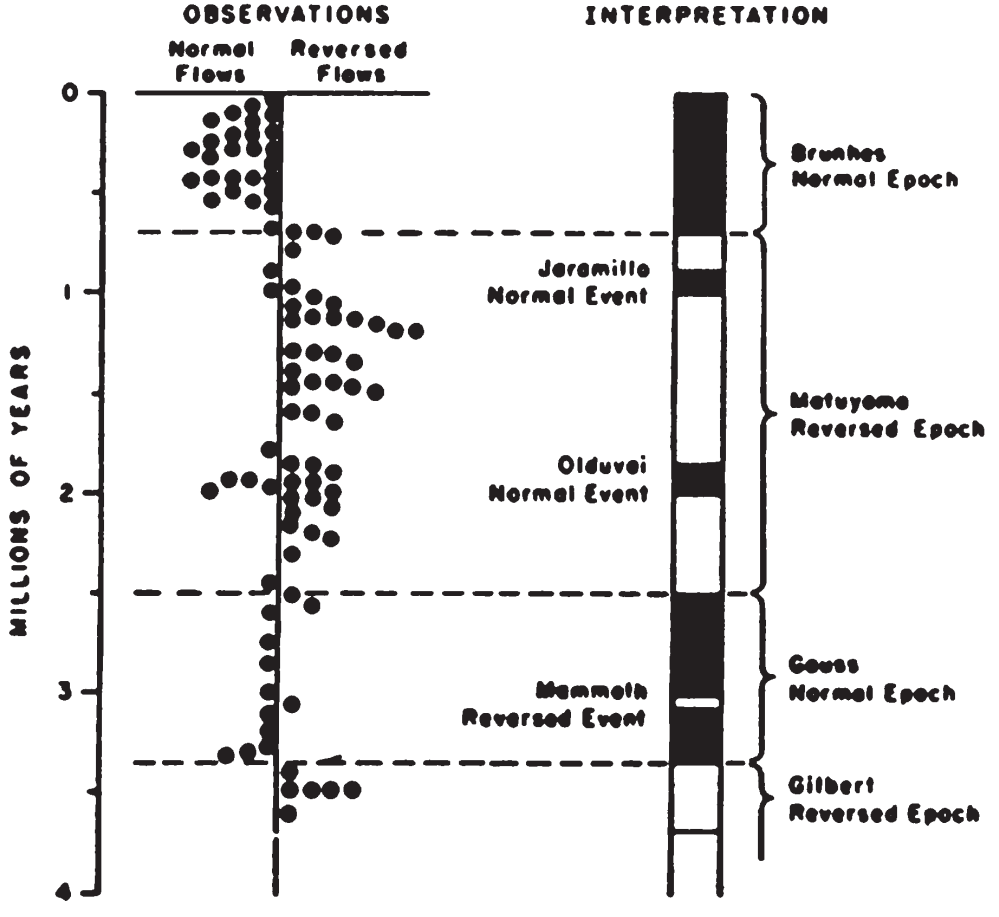
A serious problem is that **rocks and sediments in stream beds have been found to magnetically align with the direction of the water current**, which, of course, has nothing to do with the north pole. In spite of these problems, some scientists like to think that lake and ocean bottoms are relatively "quiet" and free from currents and disturbance by animal life. But evidence indicates both concepts are incorrect.

MAJOR GEOMAGNETIC REVERSALS

Nearly 100 volcanic formations on several continents in both hemispheres were analyzed for their average ambient direction; that is, the direction toward which their magnetic lava most frequently pointed. On this basis, it appeared clear that there were four major geomagnetic reversals at some unknown time in the past. These four major periods were termed "polarity epochs," during which time the field was predominantly of one polarity. Within them were shorter-length reversals, which were called "polarity events."

Then, superimposed on all this, were dates in the millions of years, arbitrarily borrowed from the 19th century rock strata dating theory!

Yet all of these reversals of earth's magnetic core could easily have occurred over that small period during and after the Flood when so many underground upheavals, collapses, and explosions occurred.



Many rocks have what is known as ***"anistropoic magnetic properties."*** **Rocks having this quality are relatively easy to magnetize—or re-magnetize.**

Magnetic storms can also result in changes in rock magnetization in a local area or over far wider regions. They are caused by earth's gravitational field interacting with sunspot radiations:

> "These temporal changes are due to internal and external sources of field and may be intensity and/or directional changes . . Magnetic storms can cause fluctuations as high as 500 gammas or 1% of the 50,000 gamma GMF [the total *geomagnetic field* of earth's core]. Typical diurnal changes are 50 gammas or 0.1 % of the GMF and are caused by the effects of fast charge particles from the sun on the earth's ionosphere and thus the earth's GMF."—*Ivan Rouse, "Paleomagnetism 1," in Origins, January 1983, p. 28.*

Seasonal variations in the strength of earth's magnetic field (the GMF) can also lessen or increase rock remagnetization.

> "The semiannual variation [in earth's magnetic field] occurs because of the greater ability of the earth's field to trap particles when one pole is tipped toward the sun. Pulsations are believed to be the magnetic affects of hydrodynamic waves trapped in the magnetosphere."—*lbid.*

Two other problems are **lightning strikes** and the pheonomen called *"self-reversal."* Lightning striking a rock can instantly reverse its polarity. It is known that, at any given time, there are more than 2,000 lightning storms taking place on our planet.

"Self-reversal rock" is even stranger. At the time when volcanic rock is cooling, it is known that it can suddenly reverse polarity!

> "Self-reversal is a phenomena in which rocks can be spontaneously magnetized at 1800 to the ambient field at the time of cooling."—*lvan E. Rouse, "Paleomagnetism II," in Origins, July 1983, p. 76.*

A fundamental difficulty is that **it is impossible to know the temperature of a given rock in past ages and whether it has changed in any way**—physically, chemically, or positionally.

Thus we see that there are a number of events that can suddenly change the magnetization of a rock. It is not a simple task to figure out "paleomagnetism," **which is the study of earth's magnetic field in earlier times. It clearly is NOT an exact science.**

"*Secondary magnetizations* are, by definition, those magneti-

> zations that have occurred more recently than the original formation of the rock. They include *viscous remanent magnetization* (VRM), *chemical remaient magnetization* (CAM), lightning magnetization, and weathering magnetization. These can cause numerous complications in determining the primary magnetization of a rock."—*Ibid., p. 33.*

If solar storms can thus affect earth's magnetic core, think of the shaking power of the Flood on that core—when earth's surface broke open, water geysered out of its depths, ran down cracks into the interior, encountered molten rock, with resulting explosions and hundreds of volcanic eruptions!

EARTH'S FLUID CORE—In *addition to externally caused influences on earth's magnetic field, there are also causes within the earth itself.* This includes the most powerful effect of all: actual reversals in the polarity of our planet! Evidence from cooled surface lava flows indicate that this has indeed occurred at earlier times.

A basic factor here is an underlying instability within the magnetic core of our planet. This instability is due to the fact that, as mentioned in the above quotation, a major part—if not all—of the core is fluid in nature.

> "Careful observation of the non-dipolar part of the GMF has shown that it drifts westward by about 0.18° annually indicating that its primary source is most likely to be within the earth and below the crust."—*Ibid., p. 25.*

At the present time, it is generally thought that there have been nine *major* reversals and a varying number (over a hundred) of smaller ones.

Data based on rocks gathered here and there are not very reliable. We have already learned that storms, currents, flash floods, sunspots, magnetic storms, pressure, heat, various movements of the rocks by animals, people, water, landslides, etc., and many other factors can influence the magnetic bearing of those rocks.

DATING THE REVERSALS WITH POTASSIUM-ARGON—Although reversals may have occurred, we can place absolutely no confidence in the methods currently used to date those reversals! Underline that fact. Consistently, the methods of choice have been radioactive dating techniques. In the chapter, *Dating Methods*, we learned how notoriously inaccurate such methods are!

So many unreliability factors are involved, that those methods are little more than a laughingstock.

Among the very worst of these dating methods is potassium argon (K-Ar). —And now we discover that **the primary method used to date magnetic rocks, both on land and sediments, in the ocean bottom—is potassium-argon! Potassium-argon is far more unreliable than even the totally unreliable uranium/thorium dating methods!**

Here are several of the serious problems involved in trying to date anything by potassium-argon: (1) The radioactive decay rates for potassium are not clear; there is too much variation. You cannot date by a clock when it cannot keep time! (2) As radioactive potassium decays, it produces argon. Argon is a rare gas and quickly escapes into the air. Yet the experts try to date a rock in accordance with the ratio of potassium and argon remaining in it!

> "The two principal problems have been the uncertainties in the radioactive decay constants of potassium and in the ability of minerals to retain the argon produced by this decay."—**G.W. Wetherill, Radioactivity of Potassium and Geologic Time," in Science, September 20, 1957, p. 545.*

Astoundingly enough, in attempting to date those possibly reversed rocks and ocean sediments—**the test results of the useless potassium-argon technique are then compared with an imaginary dating method, that of rock strata dating!** This is the theoretical geologic column dating method invented in the 19th century, also called *stratigraphic dating.* A theory was conceived by which fossils and sedimentary levels were arbitrarily dated at so many millions of years each, and then the solemn declaration was made that "index fossils" (tiny undatable marine creatures) had done the dating!

Only those test results from potassium-argon dating which agree with stratigraphic theory are used; the rest are tossed out. THAT is how magnetically reversed rocks and sediments are dated!

We have here the blind walking with the blind, leading the blind. Useless dating methods combine to fool the gullible, and the results are called the "advance of science." So when you read that so many millions of years ago a certain magnetic polar reversal occurred, know that the date came from a few test results based on a combi-

nation of potassium-argon and stratigraphic dating.

> "To obtain an 'absolute' age for the rocks and thus for their primary *remanence*, either standard stratigraphic correlation techniques [rock strata dating] or radiometric methods, typically potassium-argon dating, are used. It should be cautioned that there are numerous difficulties that can be encountered with both relative and absolute dating methods, and the experimenter must proceed with great care."*—Ivan E. Rouse, "Paleomagerism II, "in Origins, July 1983, p. 67.*

Lava rocks formed in 1801 near Hualalai, Hawaii, were potassium-argon dated at 160 to 3 billion years. For more information on this, see *Journal of Geophysical Research,* July 15, 1968.

> "Volcanic rocks produced by lava flows which occurred in Hawaii in the years 1800-1801 were dated by the potassium-argon method. Excess argon produced apparent ages ranging from 160 million to 2.96 billion years . .
>
> "A series of volcanic rocks from Reunion Island in the Indian Ocean gives K/Ar ages ranging from 100,000 to 2 million years, whereas the Pb^{206}/U^{238} ages are from 3.2 to 4.4 billion years. The factor of discordance between 'ages' ranges as high as 14,000 in some samples.*"—R.E. Kofahi and K.L Segraves, Creation Explanation (1975), pp. 200, 201.*

OCEAN FLOOR EVIDENCE—In the mid-1950s, a U.S. government research ship surveyed 280,000 square miles of ocean floor off the coast of Oregon, Washington, British Columbia, and the Yukon Territory. The ship towed a "*mag-fish"* behind it, a torpedo-shaped metal box which collected data on various magnetic intensities of the ocean floor beneath. Scientists analyzed this data, and found it to be zebra-stripped in arrangement. Later surveys revealed similar magnetic patterns in adjacent areas of the Pacific. In 1962, the same type of ocean-floor zebra patterns were found in the Indian Ocean.

"Continental drift" advocates theorized that the stripped patterns were caused by magnetic reversals during "seafloor spreading" which pushed the continents apart.

But the magnetic stripes may have been caused by variations in magnetic intensity, instead of changes in direction (reversals). Keep in mind that the researchers have assumed that reversals would bring a change in magnetic strength, with the stripes therefore indicating reversals. But those stripes may not actually be evidence of reversals! To this day, we cannot know whether the

cause of the zebra markings were changes in magnetic intensity or changes in magnetic direction. We will here assume reversals, but that may not be the cause.

It would be well to keep in mind that, in regard to ocean floor evidence, we are primarily discussing sediments. Earlier in this chapter we discussed a number of factors which would greatly weaken confidence in paleomagnetic conclusions, based on studies of sedimentation.

At the April 1966 meeting of the *American Geophysical Union, slides of these stripes were shown, and the audience was told that this proved that it was evidence of seafloor spreading. It was noted that the stripes went outward from fracture zones—that had volcanic activity within them. These oceanic fault lines were given the name, "*transform faults*. Then, when it was discovered that shaking movements had occurred in these faults, it was decided that only seafloor spreading could cause those earthquakes. ***—But just because earthquakes occur at faults, does not indicate seafloor spreading.***

The 1967 meeting of the *American Geophysical Union was taken by storm by the enthusiastic advocates of seafloor spreading, continental drift, and plate tectonics. The primary evidence was core samples taken in the Pacific. The core samples showed evidence of alternate strong-weak magnetic patterns, which were interpreted as evidence of reversals.

The core samples were dated by a combination of potassium-argon dating, plus assumed seafloor spreading rates:

> "The younger rocks are typically dated by potassium argon dating, but the older samples from the ocean floor can only be dated assuming constant spreading rates for the ocean floors."—*Ibid., p. 80*.

Then, in September 1968, three enthusiastic supporters of the new theory announced "still stronger evidence": They had found that earthquakes are less powerful at a distance from the "plate edges," and stronger near them. —**But that is not evidence! We always knew that earthquakes tend to center at fault lines.**

Finally, in 1972 and 1974, scientists found small amounts of lava flowing from a crack in middle of the Atlantic Ocean. That was considered even greater evidence! —**But would not lava be**

expected to flow out of cracks in the earth?

VOLCANIC EVIDENCE—Research studies were made of nearly 100 volcanoes in both North and South America. It was found that about 50 percent of the flows from these volcanoes were reversed in polarity from what earth's magnetic core now has. We earlier mentioned indication of there having been 171 reversals. This volcanic study revealed only four primary clusters of reversals (not nine as some other studies indicated).

WHAT IS THE MEANING OF THE EVIDENCE?

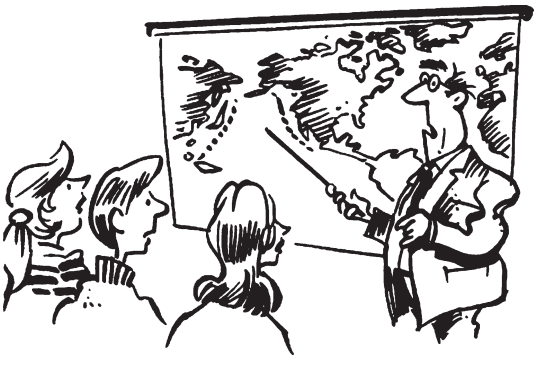
We shall here interpret this evidence produced in defense of the new theory in light of Flood geology. In the process we shall learn that the evidence nicely dovetails with Flood geology!

The Flood was the greatest physical crisis our planet has ever undergone. There has never been anything like it. After the earth, and all that is in it was created in the six literal days of Creation Week, the world continued on peacefully for nearly 1700 years. Then, at the command of God, Noah entered the Ark. The last look outside was probably long remembered, for the world would never be the same again. Seven days after that door was shut, a tremendous upheaval began.

The immense vapor canopy in the skies poured down upon the ground. The earth shuddered as massive jets of water poured up from the bowels of the earth. Massive rocks were heaved up into the air. Great holes were gouged out of the ground. Large fisures and cracks appeared. The subterranean water system was being emptied out. The earth itself was rent and torn as a result. **But then the water ran down those cracks and made contact with the molten rock below. Immense explosions occurred; the earth shook to its very heart under the impact of hundreds of explosions** rivaling that of Krakatoa in 1883, when water from the Indian Ocean went down one *(just one)* rent hole—and caused one of the two greatest explosions in modern history. (The other one was the explosion of Mount Tambora in 1815 near Java).

Under the impact of all this, the liquid core itself shook, and the poles reversed themselves a number of times. Polar reversals may seem astonishing to us today, but it would be a simple event for earth's liquid magnetic core; all that would be required

"I find that the more I move model continents around, the more matches I find. The problem is that everything can be made to match everything, just by juggling it a little bit."



"Earthquakes tend to occur at fault lines, so that proves the continents are falling into the bowels of the earth."

"Well, there are 42 reasons why magnetic readings of rocks are unreliable. But just disregard them; the theory is more important."

"Don't you understand? We have to use potassium-argon to date the reversals. That's the only way we can get long ages out of them!"

"The way to do it is just keep holding scientific meetings—and snow them with theories, imaginative charts, and more theories. That's how we won them over to continental drift."

"Professor, why doesn't the compass just make up its mind and point one direction!"

would be the kind of conditions occurring at the time of the Flood. Intense shock waves sent down from those massive multi-explosions could easily cause the reversals. Keep in mind that the earth was so torn up at that time, that the subterranean explosions could occur very deep within the ground. Volcanic explosions today take place relatively close to earth's surface, and lack the power and proximity to send similar reverberations down to the magnetic core.

The shaking of Earth's liquid core was all that was needed, and it happened a number of times. Reversals continued to occur. In between the reversals, geologic history was being made. Immense layers of sediments were being laid down, land was draining, oceans were filling, volcanoes were exploding, mountains were rising, strata was crumpling and folding, continents were rising.

Volcanoes would spew out their lava. Upon cooling, it would freeze its paramagnetism solidly in line with the poles and the magnetic orientation just then in place. A number of reversals occurred, for **hundreds of volcanoes were erupting at the time and several major surface and below-ground explosions could be expected to have taken place.** The effects were dutifully recorded as fresh lava flowed out and hardened into magnetic patterns, toward the north, then toward the south, and back again.

It is of interest that **lava from two nearby volcanos in Japan each have different polarities, even though their flow fields are both on the surface!** Such evidence violates the evolutionary theory of long ages between each reversal! Instead, only an obviously short time could have elapsed between one reversal and the other. **Yes, there were reversals, but they occurred close together—not over a period of long ages.**

> "Jacobs . . [mentions that] surface lavas along the Japanese coast were normally magnetized in some areas and reversely magnetized in other areas close by. Jacobs apparently felt that the lavas flowed too closely together in time to record a field reversal taking millions of years to occur, so he raised the question of reversal by other means."—*D. Russell Humphreys, "Has the Earth's Magnetic Field Ever Flipped?" Creation Research, Society Quarterly, December 1988, pp. 133-134.*

*J.A. Jacobs recognized that it would be impossible for surface lavas to have two different polarities—if reversals only occur

millions of years apart!

It is of interest that **the great majority of all extinct and live volcanoes and earthquake epicenters are located in oceans, or on land within 100 miles from an ocean.** Just as in the time of the Flood: It may well be that it is the coming in contact of water with molten rock that produces a major share of the underground violence, resulting in the largest volcanic eruptions and the biggest earthquakes. Lateral vents, as well as vertical ones, can let ocean water enter cracks and cause explosions.

Before the seas sank and the continents raised, volcanic activity in the *"subduction faults,"* produced outfiowing volcanic lava. Cooling as it went, it would register the latest magnetic reversals. The magnetic imprint was recorded in stripes. ***It was the lava that was spreading, not the seafloor!***

Then the oceans began filling. We today know of other volcanoes in the oceans. Scientists call them *sea mounts* or *guyots.* Although hundreds of feet below the ocean's surface, their flattened tops reveal that the ocean was earlier much lower and gradually filling. These thousands of flat-top, extinct volcanoes stand as mute evidence of a world in transition, as the oceans were rising during the Flood.

Gradually the oceans filled, separating continents that once were closely linked together, with similar vegetation and minerals. Why do some of the continents appear to "fit together?" Because they were once joined or nearly joined, and when the Flood came, it sent mighty streams down between them that carved out great rivers separating them. As these widened into massive seas, the outline similarities between the continents remained.

Does the above Flood model answer all the questions about paleomagnetism? It answers a remarkable number of them. Does evolutionary theory answer as many? No, it does not. We will let an expert speak on the subject:

> "The foregoing discoveries led the author to one conclusion only, that paleomagnetic data are still so unreliable and contradictory that they cannot be used as evidence either for or against the hypothesis of the relative drift of continents or their parts."—*I.A. Rezanov, "Paleomagnetism and Continental Drift, "International Geology Review, Vol. 10, July 1968, p. 775.*

The following sentence is important and summarizes the situation very well:

"Since it was primarily the paleomagnetic data that led to the acceptance of continental drift in the first place, it is evident that the entire construct rests on a very tenuous foundation."—*Henry Morris and Donald Rohrer, Decade of Creation (1981), p. 20.*

CHAPTER 20 - STUDY AND REVIEW QUESTIONS
TECTONICS AND PALEOMAGETISM

GRADES 5 TO 12 ON A GRADUATED SCALE

Use the data found in chapter 26, Paleomagnetism, on our website, in preparing answers to the following:

1 - Write a brief paragraph giving several reasons why the continental drift theory is incorrect.

2 - Prepare a brief report on paleomagnetism and why it need not indicate long ages of time. You may want to refer back to chapter 14 in this book, *Effects of the Flood,* which helps explain the events which took place at the Flood and afterward.

3 - Scientists find it very difficult to obtain reliable data from magnetic rocks on land. Give several reasons why this is so.

4 - Define and explain one of the following: (1) earth's fluid core; (2) a magnetic field; (3) earth's magnetic field [GMF]; (4) reversed polarity.

5 - Write a brief report on geo-magnetic reversals (reversals in earth's magnetic field).

6 - Potassium-argon is the primary dating method used to try to date reversals. From the evidence available, explain why this technique is totally unreliable.

7 - Prepare a half-page report on the unreliability of ocean core dating.

8 - Basing your reply on Flood geology, explain the facts discovered about the ocean floor, in relation to stripes and fault lines.

9 - Write a brief paper on the flaws in the plate tectonics theory that renders it unscientific.

"It may come as a shock to some, but fewer than 50 percent of the radiocarbon dates from geological and archaeological samples in northeastern North America have been adopted as 'acceptable' by investigators."—**J. Gordon Ogden III, "Use and Abuse of Radiocarbon Dates," Annals of the New York Academy of Sciences, 288:187 (1977).*