

GEOLOGICAL UNCONFORMITIES: WHAT ARE THEY AND HOW MUCH TIME DO THEY REPRESENT?

By Everett Coates

What are unconformities and what do they mean to young-earth, biblical creationists? The simple definition is that they are surfaces, usually seen as a linear contact in a vertical rock outcrop or exposure, that separate younger overlying rock strata or layers from the older strata below. They are interpreted by uniformitarian (evolutionist and "old-earth creationist") geologists as gaps in the record, each gap representing missing time and sediments. But is this interpretation warranted by the field evidence?

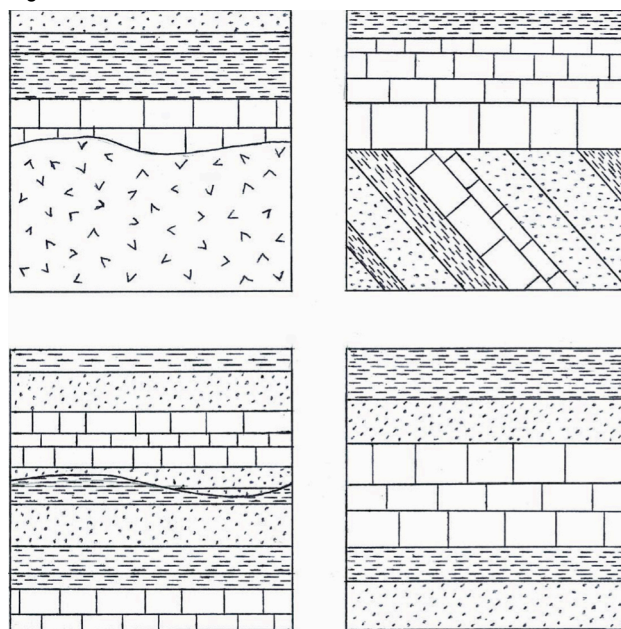
There are four subgroups of unconformities that are recognized by geologists, illustrated by the diagrams in Figure 1. The first is called a nonconformity. A nonconformity is a type of unconformity in which there is a surface between underlying older metamorphic or igneous rocks and younger sedimentary rocks above. These contacts are usually very sharp and clear. Some period of time must have passed at these contacts between the exposure by erosion of the rock below and the deposition of the sedimentary strata.

Angular unconformities are the most spectacular of the four types of unconformities because they separate rock layers that are not parallel to each other. Rocks on one side of the contact, usually below, are angled with respect to the horizontal strata above.

Disconformities occur when strata on both sides of the contact are parallel to each other. This is usually a point at which there is some evidence of erosion, normally only a few tens of feet deep at most, also indicating the passage of some amount of time.

Paraconformities are the most controversial type of unconformities. That's because they are the most difficult to locate. Even uniformitarian geologists have admitted in reports that these contacts really appear to be nothing more than flat, paper-thin bedding planes showing no evidence of erosion or even of interruption of the deposition of the sediments that formed the rock strata. So if they look like bedding planes, why do evolutionary geologists believe that paraconformities represent large

Figure 1



Top left: nonconformity

Bottom left: disconformity

Top right: angular unconformity

Bottom right: paraconformity

amounts of time? Much time is said to have passed because the fossils contained in the rocks above and below the supposed contact are assumed to be far apart on the evolutionary time line. Of course, fossils don't come with labels telling us just how old they really are. We have to guess or assume. We need to remember that when geologists look at the local rock record seen in exposures at many places on the earth they're trying to figure out the geologic history that the rock strata represent. In other words, what they're trying to determine is how did the different rocks get there, how long did it take, and how long ago did it happen? It's essential to also remember a most important fact, that is, that history is beyond the realm of science.

To illustrate that fact let me ask a question. Who was the first president of the United States? George Washington, of course. But can anybody conduct an experiment in a laboratory to prove that a man by that name ever lived

and served as the first President? No, it can't be proven by experimentation. The only way we can know what happened in the past is if there were eyewitnesses who wrote down their first-hand accounts of the events that took place, what they saw happen.

In historical geology there are no eyewitness accounts to read to find out what happened to form the rocks. So in the case of unconformities, the so-called gaps in the vertical sequence of rock layers that supposedly separate strata of vastly different geological ages, geologists have to examine the rocks and decide whether the feature in question is really an unconformity or just an ordinary bedding plane. Unfortunately, when field data are interpreted, the bias or set of assumptions of the observer controls the interpretation. In other words, what they believe about the past predetermines how the data are interpreted. An atheist and a biblical Christian will interpret the facts very differently.

Unconformities were some of the first geologic structures noted by the earliest old-earth uniformitarian geologists that seemed to support their idea that the earth was far more ancient than the mere 6,000 years described in the Bible.

Sedimentary rocks were originally thought to have been formed by crystallization of minerals from the early ocean. This late 18th century theory was known as "Neptunism" after Neptune, the Roman god of the sea. This idea was discredited in the minds of most geologists by the early 19th century, primarily because of the writings of James Hutton, a Scottish geologist, who thought correctly that the sandstones, siltstones, and other such rocks he had seen and described in Scotland were formed from sediments deposited under the oceans.

Hutton held to the theory of "Plutonism" (after Pluto, the mythical ruler of the underworld). This theory said that the lowest and oldest rocks (granitic rock types) were formed deep in the earth (large granite bodies are still known as "plutons", one of which, the Rolesville pluton, underlies most of eastern Wake County). These rocks were pushed up and eroded to supply the particles laid down to form the sedimentary rocks we see in many parts of the world.

Hutton discovered the "Hutton Unconformity" which can be seen in various geologically famous locations in Scotland. This unconformity is primarily an angular unconformity marked by nearly vertically dipping sedimentary and metamorphic rocks overlain by horizontal or nearly horizontal sedimentary strata.

This unconformity described by Hutton had an immediate and profound impact on other scientists of the day. John Playfair, another Scottish scientist and professor, on

an expedition with Hutton and others wrote the following about the unconformity:

On us who saw this phenomenon for the first time the impression will not easily be forgotten... We felt necessarily carried back to a time when the [schist] on which we stood was yet at the bottom of the sea, and when the sandstone before us was only beginning to be deposited, in the shape of sand or mud, from the waters of the supercontinent ocean. The mind seemed to grow giddy by looking so far back into the abyss of time; and whilst we listened with earnestness and admiration to the philosopher [Hutton] who was now unfolding to us the order and series of these wonderful events, we became sensible how much further reason may sometimes go than imagination may venture to follow.¹

Ironically, although Playfair thought that intellectual reason was the dominant force, he failed to understand that imagination, or bias, actually led the way for reason in interpreting the rocks and unconformities they saw. Hutton was using his vivid imagination fueled by his intense and documented desire to discredit the biblical account of creation and the global flood of Genesis in order to craft a fictional earth history that made Playfair's mind "grow giddy" with the new-found millions of years of time demanded by this unconformity. Hutton's anti-supernaturalist (read that atheistic) presupposition forced him to interpret the unconformity as confirming his theory of an earth that was millions of years old. It did so, however, only because he wanted it to. He hated God and the Bible.

In looking at the various types of unconformities, it appears that some amount of time has passed. But exactly how much time are these gaps in the rock record supposed to represent according to the evolutionists?

The sedimentary layers that extend from eastern Utah into western Colorado include a number of various types of unconformities throughout the sequence of strata. According to the calculated sedimentation rate based on the assumed amount of time in all of the geologic ages involved, the total thickness of all the supposedly missing strata (and the corresponding amount of supposed geologic time) is greater than that of the strata present in the local rock column. Interestingly, as the strata are traced horizontally some of the supposed unconformities between them disappear. It's important to note that there is no evidence of the same type of deep erosion that forms the canyons and mesas that we see in this area along any of the unconformities between any of

¹ McCirdy A, Gordon J, Crofts R (2007) *Land of Mountain and Flood: The Geology and Landforms of Scotland*. Birlinn Ltd., Edinburgh. Birlinn, 253

the strata, even the disconformities. The current topography in Utah and Colorado supposedly took millions of years to form by slow erosion processes.

If that is true, there should be evidence, along each of the unconformities, of repeated episodes of sediment deposition followed by deep erosion that formed canyons and mesas. There should be a very complex pattern with each unconformity being crossed and cut by one or more unconformities. Instead what is seen is a series of nearly parallel planar contacts that show essentially no evidence of erosion. The deep erosion surfaces (canyons, buttes, etc.) we should see if the unconformities truly represented millions of years of time don't actually exist. As we can see, the present is not the key to the past (the mantra of uniformitarianism) when interpreting unconformities.

So, if the evidence for canyon-forming erosion between strata in the rock record is absent, then what do the rocks actually show? There are field data that show without doubt that at least some of the assumed unconformities, particularly disconformities and paraconformities, which supposedly represent hundreds of millions of years, are in fact continuous bedding planes representing no time gap at all.

In 1929 L. F. Noble described the contact between the Hermit Shale and the underlying Esplanade Sandstone exposed in Grand Canyon as an "unconformity of regional extent".² In other words, it was seen locally as a sharp boundary that apparently extended for many hundreds of miles. Interestingly, he and others even noted evidence that implied that the lower, older Esplanade Sandstone was not hardened into rock when the Hermit Shale sediments were deposited, in that no fragments of the underlying sandstone are found in the bottom part of the shale.

The contact between the Hermit and Esplanade at Soap Creek Rapid on the Colorado River, rather than being a sharp boundary, shows multiple cycles of interfingering of the two formations. This indicates that there was no stoppage of sedimentation here and, therefore, anywhere else along the contact. A contact that is a sharp, flat "erosion surface" supposedly representing millions of years in one place is a record of continual deposition in another, which means that the millions of years of time gap don't exist. This type of change is not unusual when contacts are traced laterally from certain well-described unconformity locations. The evolutionists who identified the breaks didn't look far enough to find this

contradictory evidence, probably because they didn't think they needed to.

Higher in the strata sequence, the unconformity between the younger Coconino Sandstone and the Hermit Shale below is flat and paper-thin. Neither rock layer contains fossils that would demand the millions-of-years time break the evolutionists assume. However, in central Arizona a formation that is up to 2,000 feet thick has been discovered lying between the Coconino and Hermit formations, which means that at least 10 million years must have passed at the perfectly flat contact in the Grand Canyon while the sediments were being deposited several hundred miles away. Deposition was likely continual at both locations, with sediments from another source added between the sand and silt beneath the central Arizona location.

Of course, when we think about angular unconformities, it is obvious that sufficient time passed to allow the lower sediments to be tilted, eroded flat, and covered by later sediments. If the slow and steady assumption of the old-earth is true, then, again, millions of years would be required by these breaks. But is that much time necessary? We must keep in mind the destructive power of deep, fast-moving water. Think about the videos we saw of the devastating tsunami in Japan moving millions of tons of steel and concrete debris as it pushed the remains of cities inland from the ocean. Multiply the hydraulic force of the surging water and the tectonic force (a powerful earthquake at a crustal plate subduction zone) that caused it by a factor of hundreds of thousands onto a global scale and it's not so hard to see how sediments could be deposited, tilted and eroded, and covered by more sediments in literally hours or days at most.

So once again, it is clear that the anti-biblical bias of some early geologists has been responsible for setting in stone, as it were, the thinking of those who have followed them in interpreting rocks, fossils, and the so-called unconformities found all over the world. But it is equally clear that a correct historical starting point changes interpretive outcomes. After all, since we are talking about historical events preserved in the rocks, it's important to remember that we do have a Divinely-inspired eyewitness account of those events found in the first book of the Bible. So just as surely as we know that George Washington was the first President of the United States because of human eyewitness accounts, we also know that the entire geologic record represents no more than about one year of time based on the Divine eyewitness account that we have, and unconformities record the passage of mere days at most and not hundreds of millions of years. ❧

² Austin SA, ed., (1994) *Grand Canyon Monument to Catastrophe Santee*, Institute for Creation Research, Santee, CA, 50

COMING EVENTS

Thursday, June 14, 7:00 P.M., Providence Baptist Church, 6339 Glenwood Ave., Raleigh, Room 631

Video: *The Beauty and Design of Butterflies: Metamorphosis* by Illustra Media. Spectacular photography, computer animation, and magnetic resonance imaging open once hidden doors to every stage of a butterfly's life cycle—from an egg the size of a pinhead to a magnificent flying insect. It is a transformation so incredible biologists have called it "butterfly magic. Go to <http://www.metamorphosisthefilm.com/index.php> for a preview.

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