Planation surface and strath terraces point to a Flood origin for the Chinese Loess Plateau

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As the Genesis Flood water ran off the uplifting continents, massive erosion produced a number of remarkable features on the surface of the earth that are very difficult, if not impossible, to explain by uniformitarianism.[1] Such unique features include planation surfaces, tall erosional remnants, long-transported resistant rocks, erosional escarpments, water and wind gaps, pediments, submarine canyons, and the continental shelf and slope.[2,3] I have observed and documented these features mostly over North America. However, they also occur worldwide, as we would expect from a *global* Flood.

Ordos Plateau planation surface

The Ordos Plateau of central China is a rectangular area bounded by the Yellow River (Huang He) on three sides that spreads out of the northeastern Tibetan Plateau. The river first flows north along the western Ordos Plateau, then east through the Hetao graben, and then south through the 700 km long Jinshaan Canyon (figure 1). The Ordos Plateau covers about 100,000 km^2 sloping down towards the east at a mean altitude of 1,000–1,500 m above sea level. It is a planation surface that truncates tilted sandstone and shale and was formed by currents flowing westward, opposite the general slope of the surface today. Thus, the planation surface must have been tilted eastward due to the rise of the Tibetan Plateau.[4] Such a large planation surface provides evidence of sheet flow erosion and planation in China during the Abative Phase of the Recessive Stage of the Flood in Walker's biblical geological model (figure 2).[5,6]

Planation surface roughened and dissected with strath terrace formation

Following planation, the surface of the Ordos Plateau was roughened and dissected. This is consistent with the transition from sheet flow to channelized flow during the Dispersive Phase of the Recessive Stage of the Flood.[6] Such dissection caused the Jinshaan Canyon, averaging 170 m deep, to form along the eastern margin of the Ordos Plateau.[7] Jinshaan Canyon is bordered on the east by the Lüliang Mountains, which would have funnelled channelized Flood runoff to the south once the water left Hetao graben.

During the dissection of Jinshaan Canyon, five strath terraces formed, mostly on both sides of the canyon. They are 25–173 m above the river in the Wubao area, but are higher above the river downstream.

Strath terraces are the dissected remnants of valley-wide planation surfaces cut in bedrock along valley slopes and covered with a thin layer of coarse gravel. Uniformitarian scientists believe strath terraces are remnants of a broad, flat bedrock floor, called a strath, that once extended across the *whole* valley from an earlier age in which the river eroded *laterally* and not downward. Upon subsequent downward cutting of the bedrock, a strath terrace is formed along the sides of the valley that is capped by a thin veneer of coarse gravel.[8]

Strath terraces are common in valleys all over the world. There are numerous strath terraces in the western United States.[9] Most of the terraces along rivers and streams draining the western Oregon Coast Range are strath terraces.[10] The idea of strath terraces formed by the lateral swing of a river from valley-side to valley-side without cutting downward is not observed and contradicts the uniformitarian principle. Rivers normally cut downward and though rarely they may truncate the rock of the river bank during a flood,[11] they do

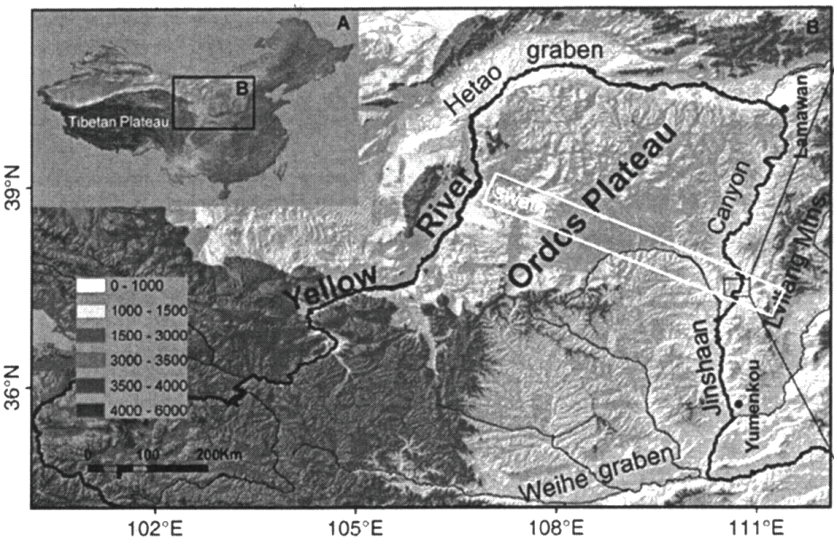

Figure 1. Map of central China showing the major features (from Pan *et al.*[4]).

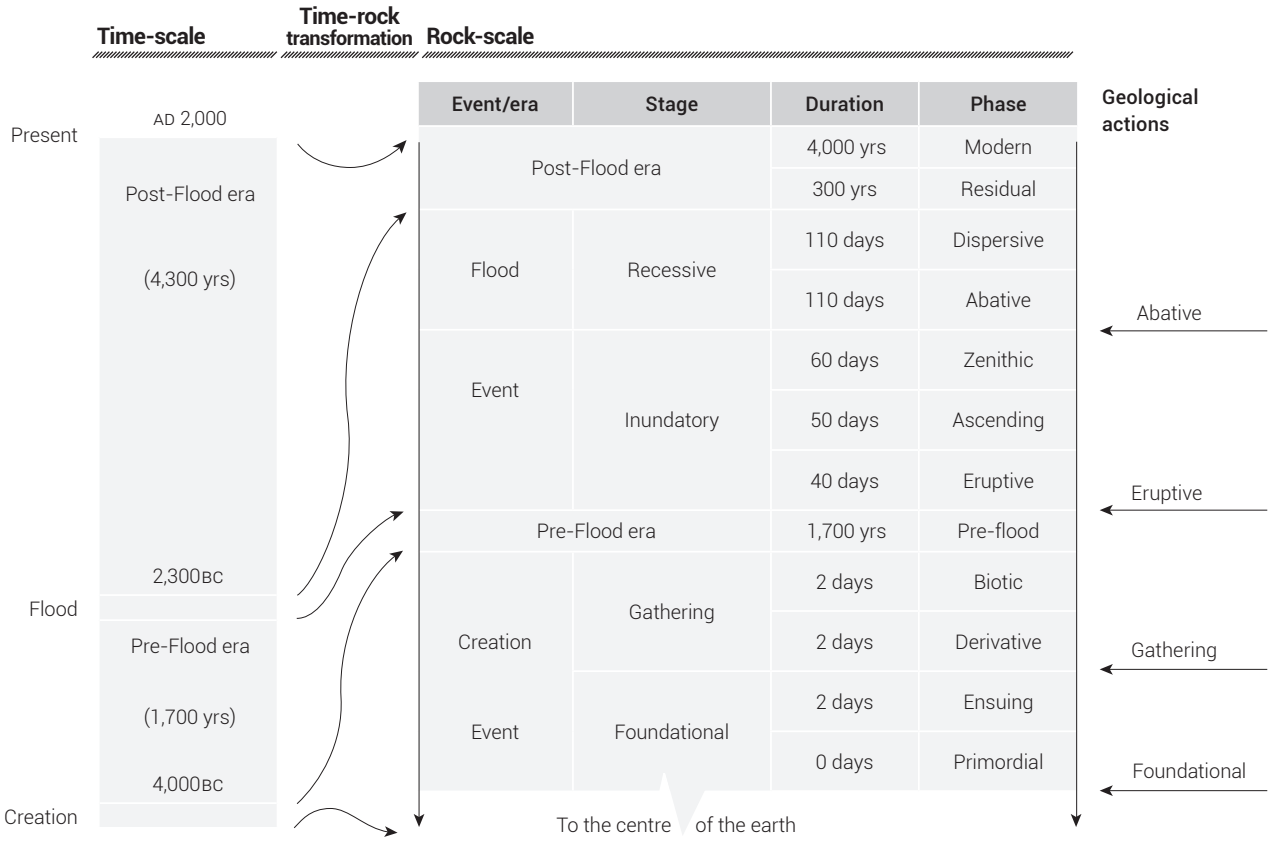

Figure 2. Tas Walker's biblical geological model.

not cut the hard rocks across the whole valley. That is why it is unsurprising that the origin of strath terraces is poorly understood by uniformitarian scientists:

> "Despite the widespread use of strath terraces in fluvial and tectonic geomorphology, the conditions surrounding planation of a strath surface are not well understood".[12]

It takes a large flood the width of the valley to form strath terraces. Strath terraces in narrow valleys could have occurred during the Ice Age, such as during catastrophic melting or the bursting of Ice Age lakes. The lower strath terraces in the upper Wind River Basin of northwest Wyoming were formed by floods during deglaciation of the Wind River Mountains.[13]

Other than these few glacial runoff features, most strath terraces must have been formed during channelized Flood runoff, which reflects the origin of pediments, which most strath terraces likely are. So, the strath terraces in Jinshaan Canyon, far from the source of any deglaciation runoff at the end of the Ice Age, are remnants of channelized Flood planation surfaces.

The location of the Flood/post-Flood boundary in the area

Such features in China can also help discern events during Flood runoff and suggest the location of the Flood/post-Flood boundary with respect to the geologic column concept.[14] The planation surface is claimed to have stopped eroding about 3.7 Ma ago,[4] which is the middle Pliocene of the late Cenozoic. So, the Abative Phase erosion ended in the middle Pliocene in this area. Moreover, the highest strath terrace is claimed to have formed 1.2 Ma ago based on paleomagnetism. So, the lower 4 strath terraces would be younger than 1.2 Ma. Since these strath terraces very likely formed during channelized Flood runoff, the runoff must have ended in the middle Pleistocene, which is defined as from 781–126 thousand years ago, before the 'last' Ice Age within the uniformitarian multiple-Ice-Age model.[15]

The middle Pleistocene Flood/post-Flood boundary in the area is reinforced by the thickness of sedimentary rocks in some of the surrounding basins, since post-Flood sedimentation is not expected to be very deep. For instance, there are 2,000 m of Pleistocene deposits along the western margin of the Ordos Plateau.[16] Moreover, there are up to 7,000 m of Cenozoic deposits with the Pleistocene deposits reaching 1,200 m deep in the Weihe graben, just south of the Ordos Plateau.[17]

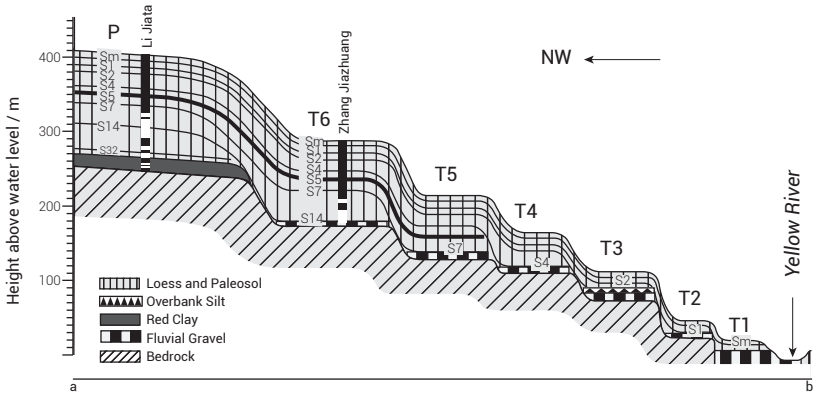

Figure 3. Sketch of the Jinshaan Canyon near Wubao showing the lowest gravel terrace and the five strath terraces capped by water-lain coarse gravel (from Pan *et al.*[4]). Notice that the thickness of silt decreases from the top of the Plateau down to the lowest terrace. 'P' refers to the planation surface while 'Sm' to 'S32' refer to what are believed to be buried soils, paleosols, within the silt. Li Jiata and Zhang Jiazhuang are drill cores.

Origin of the Chinese Loess Plateau

The Chinese Loess Plateau covers the southern part of the Ordos Plateau up to 144 m deep.[18] It is composed of a huge volume of mostly silt covering an area 640,000 km^2 in the upper and middle reaches of the Yellow River at an average depth of 50–80 m, but with maximum depths up to about 250 m. The silt, called 'loess' because it is considered wind-blown, cannot be directly connected to glaciation. Uniformitarians believe that all this silt accumulated mostly during the numerous Quaternary glaciations from winds off the surrounding deserts. However, what is its origin from a Flood point of view? Was the Chinese Loess Plateau formed during the Flood, after the Flood, or both?

We can estimate the timing of the Chinese Loess Plateau within the biblical worldview from the distribution of the silt on the Ordos Plateau and the strath terraces of the Jinshaan Canyon. In North America loess is thicker in river valleys where it was piled up during Ice Age glacial winds, but the opposite occurs in the Jinshaan Canyon. The silt *decreases* in thickness from the Ordos Plateau to the lowest strath terrace near the bottom of the river (figure 3).[19] It appears that the silt was deposited soon after the planation formed on the Ordos Plateau and *during* the formation of the strath terraces, suggesting that the silt was deposited during channelized Flood runoff in the Dispersive Phase. It is of course expected that post-Flood winds would rework the top of the silt and that post-Flood erosion would occur.

References

1. I am aware that most mainstream scientists consider themselves 'actualists' and not 'uniformitarians'. Actualism is similar to uniformitarianism, except that adherents of the former believe in a few large catastrophes sprinkled throughout earth history, such as meteorite impacts. They also admit that the present is not necessarily the key to the past, but that geology must always invoke natural processes operated in the past. I believe this philosophical point of view (i.e. naturalism) can be used as an excuse when deductions from the rocks and fossils are contradicted by present processes. But since few people understand the distinction between actualism and uniformitarianism, I will continue using the term 'uniformitarianism', especially since this latter doctrine was the philosophical principle used in geology to dismiss the Flood.
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