Island-Dump Hypothesis—Daly

In his book (1972) and in several letters (1985) Daly asserted that the mountains near coastlines were most likely formed, like offshore islands as well, during the Flood in the form of gigantic dumpheaps of sediments and remains draining off nearby land. He assumes that these offshore Flood deposits remained on the continental shelves. He has sited many examples of offshore islands as evidence in support of such an orogenic view.

His proposal for the origin of mountains surrounding the Pacific Ocean is as follows:

> The 'Ring of Fire' around the Pacific fits smoothly into the Flood theory. Flood debris from the continents poured into the receding Flood waters. The velocity automatically decreased. Debris and mud with quite a quantity of animal and fish life was precipitated in a Pacific "ring". . . of mountains. They are set back from present shorelines because the water line had not yet receded. All over the world this phenomenon of mountains set back from the present beaches exists and is explained by this debris dump hypothesis. (1985)

Mountains far inland—such as those along the continental divide—Daly (1972) also feels were formed by the Flood itself:

> As the highest part of each continent first sank beneath the rising water, and then again rose out of receding Floodwater mud, a long, thick bank of alluvium was thrown up first along the submerged crest, and then along the shore of the rising continental divide, forming the Himalayas, Andes, and all other ranges that run along the crests of high level watersheds. pp. 294-5.

It is hoped that this brief paleobotanical introduction and summary of views of orogeny will whet the readers' interest toward carefully considering how mountains influence climate today in the next article and then how mountains arose (in the subsequent four papers).

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References

CRSQ—Creation Research Society Quarterly

Andrews, H. H. Jr. 1947. Ancient plants and the world they lived in. Comstock Publishing Associates—Cornell University Press, Ithaca, NY.

Andrews, H. N. Jr. 1961. Studies in Paleobotany. John Wiley and Sons, Inc. New York.

Arnold. C. A. 1947. An introduction to paleobotany. McGraw-Hill Book Co., New York.

Axelrod. D. I. 1961. Lectures at National Science Foundation Desert Biology Institute, Arizona State University, Tempe, AZ. Also personal conversation with G. F. Howe after one lecture.

Clutter, T. 1985. The Clarkia fossil bowl. *American Forests* 91(2):22-25.

Daly, R. M. 1972. Earth's most challenging mysteries. Craig Press, Nutley, NJ.

Daly, R. M. 1985. Private correspondence with G. F. Howe.

Darrah, W. C. 1960. Principles of paleobatony. Second edition. The Ronald Press, New York.

Golike, S.. and G. Howe. 1975. The Grand Canyon—a winter ecology laboratory. *Bible-Science Newsletter* 13(2):1-3.

Howe, G. F. 1968. Seed germination, sea water, and plant survival in the great Flood. *CRSQ* 5:105-12.

Howe, G. F. 1980. Biogeography from a creationist perspective I: taxonomy, geography, and plate tectonics in relation to created kinds of angiosperms. *CRSQ* 16:38-44.

Howe, G. F. 1981. Which woody plants grow where at the Grand Canyon. *CRSQ* 17:19-26.

James, D. 1985. Private correspondence with G. F. Howe

Morton, G. 1983. A letter to the editor—Reply to Woodmorappe. *CRSQ* 20:56-9.

Taggart, R. E. and A. T. Cross. 1980. Vegetation change in the Miocene Succor Creek flora of Oregon and Idaho: a case study in paleosuccession. in Dilcher, D. L. and T. N. Taylor, Editors. Biostratigraphy of fossil plants. Dowden, Hutchinson and Ross, Inc. Stroudsburg. PA.

Westberg, V. L. n. d. The master architect. Napa, CA.

Westberg, V. L. 1986. How God made mountains. Unpublished paper available from the author, Napa, CA.

Woodmorappe, J. 1983a. A letter to the editor. Concerning several matters. *CRSQ* 20:53-6.

Woodmorappe, J. 1983b. A diluvial treatise on the stratigraphic separation of fossils. *CRSQ* 20:133-85.

Woodmorappe, J. 1985. A letter to the editor—Some additional comments on several matters. (Part 1) *CRSQ* 21:209-10.

Woodmorappe, J. 1986. A letter to the editor—Some additional comments on several matters. (Part II) *CRSQ* 23:79-83.

MOUNTAINS AND LEESIDE CLIMATE: AN INDICATOR OF CHANGE

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Abstract

There is substantial evidence that significant changes have occurred in the plant distribution found today in the American West and other mountainous regions as compared to those of earlier times. My purpose in this paper is to summarize the ways in which existing mountains modify climate on their own slopes and on leeward land masses nearby, possibly accounting for the observed patterns of plant distribution. An alternative suggestion is also briefly discussed.

Introduction

Mountains act as barriers and alter the prevailing windflow. The effect of mountain distribution on precipitation can be significant. It is not the mountain or mountain range alone that determines the result, but a combination of factors that characterizes the synthesis between the mountains and the atmosphere as emphasized by Barry (1981):

> Mountains have three types of effects on weather in their vicinity. First, there is substantial modification of synoptic weather systems or airflows, by

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> dynamic and thermodynamic processes, through a considerable depth of the atmosphere. Second, there is the recurrent generation of distinctive regional weather conditions, involving dynamically and thermally induced wind systems, cloudiness, and precipitation regimes and so on . . . The third type of mountain effect is a result of slope and aspect variations. It operates primarily at the local scale of tens to hundreds of metres to form a mosaic of topoclimates. p. 10

Precipitation Effects

In the synoptic or overall case, it has been shown that precipitation is normally enhanced on the windward side and decreased on the leeside when there is a significant wind component perpendicular to the mountain. The windward effect on precipitation is referred to as the "orographic component," while the leeside effect is referred to as the "sheltering" or "rain shadow" effect.

In the western United States and Canada, the mountain ranges are generally aligned in a north-south direction. Frontal systems predominate in the winter, sweeping in from the Pacific with a generally west to east movement. We would expect a significant orographic component to the precipitation on the windward mountain slopes, as Barry also asserted:

> Reinelt shows that the orographic component for the Rocky Mountains in Alberta averages 37 percent of the total annual precipitation and exceeds 50 percent during September through April. (1981, p. 189)

Although the size and the orientation of mountains are important, it is not necessary for the mountains to be particularly high to produce these effects under certain meteorological conditions as Barry and Chorley have shown (1970):

> Even quite low hills such as the Chilterns and South Downs (in Great Britain) cause a rise in rainfall, receiving about 12-13 cm (5 in.) per year more than the surrounding lowlands. Indeed detailed studies in Sweden show that wooded hills rising only 20-50 meters (100-150 ft.) above the surrounding plains may cause precipitation amounts during cyclonic spells to be increased by 50-80% compared with the average falls over the lowland. However, in most countries, the rain gauge networks are too coarse to detect such small-scale variations. p. 192

Mountains and Arid Climates

It is therefore possible that some desert or arid climates, including those of the western United States, owe their origin to the presence of mountains—Odum (1983):

> Regions having less than 10 inches of rainfall, or sometimes regions with greater rainfall that is very unevenly distributed, are generally classed as deserts . . . Scarcity of rainfall may be due to (1) high subtropical pressure, as in the Sahara and Australian deserts, (2) geographical position in rain shadows, as in the western North American deserts, or (3) high altitude, as in Tibetian, Bolivian and Gobi deserts . . . p. 535

The fossil strata indicate that a more temperate climate existed in areas which are more arid today—see paper by Howe in this symposium. There are at least three possible mechanisms that could account for this. The geology, the climate or both, were evidently vastly different in millenia past.

From a geological point of view, the mountains could have been much lower in early times. This would explain how plants that need warmer average low temperatures and greater, more evenly distributed amounts of rainfall could have existed in regions that have since been dominated by steeper vertical temperature gradients and the rain shadow effects of high mountains. As we have shown, the resulting rain shadow is sufficient to maintain arid climates today. It is therefore likely that an uplift of mountains could have indured the leeside climate change as well.

From a meteorological point of view, however, it is conceivable that the mountains have always been there to some extent. Yet the climate could have differed from today's climate that induces a significant orographic component on the windward side and rain shadows on the leeside. Likewise the current vertical thermal lapse rate was probably less steep than it is today. Therefore, if mountains coexisted with the more temperate plant life found in the fossil record, precipitation or some form of moisture must have been distributed differently. Perhaps this was true because mountain ranges in the preFlood world were not as tall as they are now.

At any rate, the thermal lapse rate (at least up to the levels of the mountains), would have to have been more nearly isothermal to support the observed plant life. Some sort of 'greenhouse effect,' perhaps resulting from an atmospheric water vapor canopy, may have been sufficient to produce these effects—Whitcomb and Morris (1961):

> The most immediate and obvious of these effects would be to cause a uniformly warm temperate climate around the earth . . . This effect in turn would largely inhibit the atmospheric circulations which characterize the present troposphere . . . The constant battle of "fronts" would mostly be absent . . . p 240.

In this article, I am not necessarily proposing a water vapor canopy, and its subsequent elimination, as the mechanism to explain local or global climate changes. My point, rather, is that a 'greenhouse effect' would allow the fossil plant life found on the mountains and in their rainshadows today to have existed with the mountains we see now. However, this may be evidence to support the existence of a preFlood canopy. More work needs to be done in this area.

Summary

It has been shown that within today's observed atmospheric circulations, mountains act as barriers producing rain shadow effects on the lee side. These shadow effects are recognized by others to be sufficient to have originated and now to maintain more arid climates than in the past. Therefore, there appears to have been a time when the mountains or the earth's climate, or both, were vastly different than today. From the meteorological evidence presented here, we cannot rule out the possibility that mountains may have been relatively recent additions. If they were postFlood additions then it is possible that their origin in early postFlood times has caused some of the peculiar patterns of plant distribution seen today. Possible mechanisms in support of this idea appear in the following articles.

References

Barry, R. G. 1981. Mountain weather and climate. Methuen and Co, New York.

Barry, R. G. and R. J. Chorley. 1970. Atmosphere, weather and climate. Holt, Rinehart, and Winston, Inc. New York.

Odum, E. P. 1983. Basic ecology. Saunders College Publishing, New York.

Whitcomb, J. C. and H. M. Morris. 1981. The Genesis Flood. Baker Book House, Grand Rapids, MI.

Comment and Question from Waisgerber to Nash

Climatic conditions on this planet are controlled by other factors among which are (1) three dimensional motion of ocean water, (2) the presence of continental barriers to ocean water circulation, (3) probable change in poles, as well as (4) tectonism.

(1) When relating climate to fossil distribution of plants why do certain areas known as Precambrian Shields yield no plants but exhibit apparent ice age conditions? (2) Could the Canadian Shield of eastern Canada, the Baltic Shield of Europe and the Angara Shield of Asia have been the north pole area for a prior earth?

Reply by Nash

(1) Although there-might be several possible answers, I will only suggest three: (a) the shield areas exhibit ice age conditions because they were indeed once covered with ice soon after their formations, i.e. no plants ever lived there: (b) plant fossils are not found because the conditions for forming fossils were never met even though plants actually existed, ice age conditions occurred afterwards. (c) The apparent ice age conditions were formed by a much different mechanism than the advance and retreat of glaciers, and the lack of fossil plants may be related directly to this mechanism.

(2) I suppose it is possible. If these Precambrian Shields were in fact evidence of a prior north pole location, then we should find temperate and tropical/ equatorial fossils in the resulting mid and low latitudes.

Questions from Waisgerber to Nash

(3) Can meteorological evidence be interpreted to suggest that the earth always exhibited polar, temperate and equatorial regions?

(4) Presuming the existence of three climatic regions during the ancient past, could not arid conditions be a part of any of the three climatic regions?

Reply by Nash

(3) My opinion is no. “Always” is a strong, restrictive word. I am not prepared to say that polar, temperate and equatorial climate regions always coexisted. Another opinion I have is that if we resist the temptation to chop up the earth’s past into segments of time, it appears the predominant feature of our past climate (singular) is warm: i.e. ice “ages” are an anomalous feature.

(4) Yes. In fact aridity does not appear to be limited by latitude. From a precipitation standpoint some of the driest places on earth are on the ice caps and over large areas of the tropical oceans (there are obviously plenty of dry places on land too!).

Question from Waisgerber to Nash

(5) Presuming a prior North Pole for the earth within the shield areas, would not the areas exhibiting warm climate fossil plants exist about an ancient temperate region or even an equatorial region?

Reply by Nash

(5) Yes, I would think so. See answer to (2).

PANORAMA OF SCIENCE

Barbed Wire Placed in World War II Already Petrified

Editor’s Note: This selection is taken from an article in *Illustrert Vitenskap* (1986) October, p. 26 sent to me by Olav Wik. Mr. Wik also provided a translation which has been edited for clearer reading.

Norwegian geologists examining a barbed wire sandstone in Jaren (near Stavanger), Norway have discovered that petrification can occur very rapidly, geologically speaking. During World War II the Germans, fearing an invasion from England across the North Sea, built a complex defense system along the coast of southwestern Norway. The German occupation forces placed tons of barbed wire on some of the long beaches which extended nearly uninterrupted from Sola to Ogna as part of the defenses.

After the war, most of the barbed wire was removed. However some of it was covered with windblown sand. After winter storms in 1981, some of the buried wire was uncovered on the shore of Hellestrio in the municipality of Sola after about 40 years of burial. The buried wire had been transformed into lumps of sandstone sediment.

While sandstones which occur naturally in the mountain areas of Jaren are heavily deformed and are dated up to 800 millions years (Precambrian), this sandstone is of far younger age and can be dated accurately. From scientific literature it is known that similar sandstones are formed when iron corrodes. The chemical reaction starts when iron which is buried in sand begins to corrode. It seems that FeO_2 combines with CO_2 and $CaCO_3$ to form a hard crystalline substance that is precipitated between the grains of sand.

As this process only can be demonstrated in close proximity to the barbed wire, it is clear that iron from the wire plays an essential role for the sediment to be precipitated and petrified. A third ingredient needed, of course, is either salt or fresh water to start the process. The stratification of the sediment is probably due to an episodic supply of salt or fresh water which penetrated the pores in the sandstone.

Translated and Contributed by Olav Wik

Editor’s Note: The rapid hardening of sediments is a very fertile area of research for some creationist chemist.