BASIN RANGE TYPES
By Professor W. M. DAVIS
HARVARD UNIVERSITY

During the first 30 years following Gilbert’s explanation, offered in 1874,1 for the mountains of the Basin and Range province as dissected fault blocks, the evidence of their uplift on faults was physiographic in the sense of being dependent on facts of surface form; namely, a simple base line indifferent to the structure of a range-block along at least one of its sides. The evidence was all the better if post-faulting erosion had advanced so little as not to have altogether destroyed those modified remnants of the fault face seen in the spur-end facets by wearing them too far back from the initial fault plane; it was all the worse if post-faulting erosion had advanced so far as not only to consume the spur-end facets, but also to wear the mountain face well back from the fault trace and thereby give it an irregular base line. Physiographic evidence of faulting would then be lost and the origin of a range so much eroded would remain, as far as such evidence goes, uncertain.

The second 30 years of the Basin Range problem was opened by Louderback’s account of the Humboldt Lake ranges of northwestern Nevada,2 which proved their fault-block origin by evidence of a geological nature, in the sense of involving the repetition of a similar structural sequence in two adjacent ranges. This evidence was all the better if the structural sequence was highly specialized; all the worse if it were not. In the case that Louderback brought forward, the sequence involved a body of compressionally deformed and well-worn-down strata unconformably covered by lava sheets of prefauluting eruption, the lava sheets and the surface of erosion on which they rest unconformably dipping in the same direction.

1 G. K. Gilbert, Wheeler Survey, Progress Report, 1874, 50; also, ibid., Vol. 9, 1878, 735, 744.
76 (1968)

Science 76 (1968), 8-260.

http://science.sciencemag.org/content/76/1968.citation

http://www.sciencemag.org/help/reprints-and-permissions

Use of this article is subject to the Terms of Service

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. 2017 © The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works. The title Science is a registered trademark of AAAS.