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## EROSION: A REAL MENACE IN THE SOUTHWEST<sup>1</sup>

By B. P. FLEMING

DEAN OF ENGINEERING, NEW MEXICO STATE COLLEGE

THAT erosion by wind and water is the principal factor in giving character to the topography of the Southwest is familiar to any one who has lived or traveled in this region. Accelerated erosion by winds and water due to man's comparatively recent occupation of the Southwest is not so generally recognized as responsible for profound changes in topography. Nevertheless, it is generally admitted and believed that the problem of erosion in the Southwest had its beginning coincident with our Anglo-Saxon occupation of this region. Marked vegetative changes have occurred on the vast ranges used for grazing. Box canyons and deep arroyos are now found where some of the early settlers located their home ranches, river beds have risen and adjoining areas of once fine agricultural lands have become water-logged and alkali.

Arroyo floods and the debris swept along the

arroyos by these floods and deposited at the mouth of the arroyos in the form of great delta fans are responsible for the loss of many thousands of acres of lands in the river valleys, while the choking of culverts and flood passages beneath bridges by arroyo debris greatly increases the problem of maintenance of railroads and highways.

Many of us are inclined to the view that the melancholy results of accelerated erosion, which are so evident in many parts of our Southwest are to some extent, if not wholly, due to man's occupation and exploitation of this region. In confirmation of this view we have the evidence of old settlers and the physical evidence which we are free to interpret ourselves. In the valleys below Elephant Butte Reservoir we have probably one of the oldest inhabited regions of the Southwest. It has supported some sort of civilization for much over 300 years. Prior to the coming of the white man, it was occupied by the villages of the pueblo type Indian. Some of

<sup>1</sup> Address at the thirteenth annual meeting of the Southwestern Division of the American Association for the Advancement of Science, Las Cruces, New Mexico, May 1 to 4, 1933.

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