

**REPORT OF THE GEOLOGY
OF THE
ROUTE, NEAR THE THIRTY-
SECOND PARALLEL**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649258642

Report of the geology of the route, near the thirty-second parallel by William P. Blake

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WILLIAM P. BLAKE

**REPORT OF THE GEOLOGY
OF THE
ROUTE, NEAR THE THIRTY-
SECOND PARALLEL**

EXPLORATIONS AND SURVEYS FOR A RAILROAD ROUTE FROM THE MISSISSIPPI RIVER TO THE PACIFIC OCEAN.
WAR DEPARTMENT.

ROUTE NEAR THE THIRTY-SECOND PARALLEL, FROM THE RED RIVER TO THE RIO GRANDE,
EXPLORED BY BVT. CAPT. JOHN POPE, TOP. ENGINEERS, IN 1854.

REPORT

ON

THE GEOLOGY OF THE ROUTE,

NEAR THE THIRTY-SECOND PARALLEL:

PREPARED FROM THE COLLECTION AND NOTES OF CAPT. POPE,

BY

WILLIAM P. BLAKE,

GEOLOGIST OF THE OFFICE OF THE UNITED STATES PACIFIC RAILROAD SURVEYS.

WASHINGTON, D. C.
1856.

WASHINGTON, D. C., *December, 1855.*

SIR: I herewith submit some observations upon the geology of the region explored by Captain Pope, near the 32d parallel, in 1854, based upon the collection of rocks and fossils which were placed in my hands by you for description.

This collection of rocks, taken from various points along the route, is very interesting and complete, and doubtless presents a fair view of the mineral characters of the formations. A list of the collection, and descriptions of the most important specimens, will be found in this report. The fossils, although not numerous, are from interesting localities; but there are no species which have not been previously described and figured.

I have made free use of the descriptions of the main features of the country contained in Captain Pope's report; and in the absence of all geological sections, I have been guided by the topographical and general descriptions in assigning the boundaries of the different formations.

Respectfully, yours,

WILLIAM P. BLAKE,
*Geologist of the Office of the U. S. Pacific
Railroad Explorations and Surveys.*

Captain A. A. HUMPHREYS,
*U. S. Topographical Engineers, in charge of the
Office of U. S. Pacific Railroad Explorations and Surveys.*

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REPORT.

CHAPTER I.

General Remarks on the Physical Geography of the region explored.

Extent and boundaries of the region.—Mountain ranges.—Trend and elevation.—Table-lands, their extent and elevation.—Llano Estacado.—Two slopes of the plain.—Altitude.—Bluff character of its northern borders.—Limit of the Llano on the east.

THE strip of country explored by Captain Pope, extending from Preston, on the Red river of Texas, in a direction south of west, to the Pecos river, and thence nearly west to the valley of the Rio Grande at El Paso and Doña Ana in New Mexico, embraces within its limits geological formations of great variety and interest. Its western end is crossed by the ranges of the great central mountain chain of the continent; its eastern reaches to the comparatively low plains of the Red river; while the central portion of the route is upon the extended and elevated desert plain of the Llano Estacado.

As it is very desirable and interesting to note the connexion of the geology with the prominent physical features of the region, I purpose to precede the more particular geological descriptions by some general remarks, based upon the observations of the survey, and which are given in the profile of the route.

The physical features of the region, though strongly marked, are very simple. On the west, the mountain ranges break the monotony of the plains, and form, by their numbers and parallelism, a series of longitudinal valleys extending nearly north and south; but to the eastward of these, and over the greater part of the country Captain Pope traversed, an almost unbroken horizontal plain is found.

These mountain ranges are three in number, and are there known by the following names: Organ mountains, Hucco mountains, and Guadalupe mountains. The prolongations of these ranges towards the north at Albuquerque and Santa Fé have other and local names—Sacramento mountains, Sierra Blanco, &c.; but the whole series form a part of the main central chain, known in its northern portions as the Rocky mountains. The general direction or trend of the Organ mountains and the Hucco mountains is north and south—the former deflecting slightly towards the west. The Guadalupe range, however, does not conform to this direction, but diverges and trends towards the east; its mean direction, as it is given upon Captain Pope's map, being N. 38° E. According to the report of Lieutenant Garrard¹, this range extends southeasterly for seventy or eighty miles beyond the high peak, becoming more impassable as you proceed southward, and finally uniting with a chain of mountains having a northwest and southeast trend. The point which has generally been considered as the termination of the range, he found to be a spur running out into the Salt Plain. The northern terminus, according to Captain Pope's observations, is about sixty miles north of the 32d parallel, where it

¹ Report of Captain Pope, page 63.