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ABORIGINAL REMAINS IN NEVADA AND UTAH

By M. S. DUFFIELD

It should be of interest to students of ethnology to learn of a new field that awaits exploration and study. The writer is a mining engineer by profession and not versed in ethnologic or archeologic research, consequently he made no study of the many evidences of former aboriginal occupancy which he encountered during an extended investigation of the mining possibilities of the country to be traversed by the new San Pedro, Los Angeles and Salt Lake Railroad ; yet it seems to be worth while to note a few observations in the hope that they may interest others with time and facilities for systematic study of the remains encountered.

The field noted lies mainly in Lincoln county, Nevada, and in Washington county, Utah ; it is quite accessible either from the Santa Fé Railroad system or from Salt Lake City via the new San Pedro, Los Angeles and Salt Lake Railroad as far as its present terminus, Calientes, thence by stage to Las Vegas ranch. Or if one goes by the Santa Fé, the main line is left at Blake, San Bernardino county, California, whence he proceeds northward on a spur to Manvel, thence by stage to Las Vegas ranch. The stage distance is about the same by either route. Manvel, Good Springs, and Las Vegas ranch form good stopping places.

In Spring mountains, a monoclinic block-tilting of enormous thicknesses of red sandstones (Devonian) and limestones, there are numerous aboriginal remains to be studied. On the higher slopes of the mountain are many mescal-pits and old dwelling places in the cavernous limestone bluffs. The cavities have been formed by erosion along shear zones and fracture planes. About many of these are found fragments of pottery, stone implements, etc. No one has ever investigated them and little is known about them. There are only two small ranches in the entire Las Vegas valley, and the ranchmen know only what they see in crossing the moun-

tains by an old trail. Nor have many prospectors ever been over the range.

The strata of the main axis of Spring mountains, contrary to the rule of the Great Basin ranges, dip to the west; thus the eastern face of the range presents a precipitous front, in which the red sandstones, graywacke, and limestones can be readily distinguished. In the southern end of the range the red sandstone rises from the level of the mesa toward the north, reaching a perpendicular height of about 2,000 feet opposite Cottonwood Springs, an abandoned ranch at the base of the great red bluff. Above this red sandstone rise gray sandstones for about 1,200 feet, forming precipitous bluffs similar to those of the red sandstone; and lastly above this graywacke tower are imposing strata of limestone which culminate toward the north in Charleston peak (13,000 feet). Although the mountain presents a formidable appearance from the valley, when once the sandstone cliffs are surmounted, which is done by ascending favorable cañons, the upper limestone areas are easily traversed.

But by far the most interesting data for ethnological study are the picture-writings that occur so numerous in the faces of the bluffs. Particularly are they noticeable in the red sandstone. These cliffs have been elevated by orogenic movements from the level of the mesa along some grand line of faulting, and the friction caused by this elevation has resulted in large, smooth faces in the cliffs. The slickened surfaces of these spaces have resisted erosion and presented favorable opportunity for primitive man to perpetuate his records. In many cases the picture-writings are so high up the face of the bluff that it seems as though they had been made only by means of lowering from the heights above, a not inconsiderable undertaking. Higher up in the white sandstone strata there are similar inscriptions, but their meaning must remain unknown until some student of aboriginal petroglyphs deciphers them.

As may be judged by their name, Spring mountains have numerous springs, but these are rare in the neighboring desert region; in fact, these mountains afford the only water within sixty miles to the east and for great distances to the south and west. The greater elevations are covered with a dense growth of piñon, the nuts of which were no doubt a great luxury. The cliffs and precipitous

heights afford shelter from wind and storm. At the base of the mountains the dry arroyos are thickly grown with mesquite and mescrew brush, which affords edible beans. In fact there not only is evidence that the mountains were long peopled, but every reason that they should have been.

Not far from Spring mountains, in the igneous region to the southeast, and also farther south in the western foothills of Providence mountains, are several producing turquoise properties. In every case the discovery of these was due to the finding of old pits and workings, near which many stone implements have been found. Chalchihuitl and calaite, the minerals so greatly prized by the Aztecs and by the Pueblo tribes of New Mexico and Arizona, are found here in paying quantities.

Along the cliffs of Virgin river southward to the Rio Colorado and northward to the Mormon settlements are found a few picture-writings; but the Spring Mountain region affords the largest area for the ethnologist, as well as the least known. In the summer the climate is too hot for successful investigation, except in the higher levels of Charleston mountain, but the early spring months, or the fall, should be favorable seasons for exploration. There are easy stage routes to Las Vegas ranch, and the new San Pedro, Los Angeles and Salt Lake Railroad will pass within eight miles of some of the best picture-writings. The possibilities of the field seemed to me to be such as to warrant systematic investigation.