



## ***Early explorations of Rio Arriba County, New Mexico and adjacent parts of southern Colorado***

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# EARLY EXPLORATIONS OF RIO ARriba COUNTY, NEW MEXICO AND ADJACENT PARTS OF SOUTHERN COLORADO<sup>1</sup>

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## INTRODUCTION

Early American history is not all recorded in the chronicles of the States of the Atlantic Seaboard nor even in the stirring story of exploration and settlement along the main lines of transcontinental migration westward. Even such and until recently remote and quiet backwater as Rio Arriba County, New Mexico, has had its share in the events that constitute the story of our national development. The following brief summary of early explorations in Rio Arriba County comprises a selection by a geologist, writing for other geologists, of a few items that it is hoped may have geographic and even geologic interest to them and to others.

It is less than 25 years since the first paved all-weather road crossed Rio Arriba County, and as recently as 1936, to the writer's personal knowledge, grain was threshed on some isolated farms in the primitive fashion by the treading hooves of goats driven round on hard puddled-clay floors. Yet this county included within its limits a capital city of European peoples a decade before the settlement of Jamestown, and its written history, though comparatively meager, goes back for more than 400 years. Most of this time it has been a real frontier—at first between the agricultural Indian tribes of the pueblo settlements and the nomadic tribes to the north and west, and later between the Spanish-speaking peoples and their nomadic neighbors. The striking and sudden impact on the region of the English-speaking peoples from the East began only in the early years of the nineteenth century, and until very recently has had only superficial effect on the social, cultural, and economic background.

## EARLIEST HISTORY

"Rio Arriba", the region "upstream" along the Rio Grande and its tributaries from their capital city of Santa Fe, as it was known to the early Spanish settlers, included the northern group of the Rio Grande Indian pueblos and presumably also the region to the north inhabited by nomadic Indian tribes, chiefly the Yutas, the present-day Utes. The northern part of Rio Arriba had been occupied by pueblo-dwelling Indians during prehistoric times, but during the earliest European expeditions into northern New Mexico, those of Coronado in 1540, the most northerly inhabited pueblos of the Rio Grande region were apparently located at or close to those that exist today. San Juan was, and is, about 25 miles northwest of Santa Fe near the junction of the Rio Chama and the Rio Grande; Santa Clara is on the west side of the Rio Grande a few miles below this junction; Taos is about 50 miles north-northeast of Santa Fe; and Jemez, in Sandoval County, is located about 45 miles west of Santa Fe. (see figure 1).

Although the boundaries of Rio Arriba County have been changed considerably from time to time since its establishment in 1852, it now includes much of the area that would have been regarded as "Rio Arriba" in early days. The pueblos of Santa Clara and San Juan fall within the county boundaries in its southeastern part. Spanish occupation of the Rio Grande pueblos was continuous after

Onate's conquest in 1598-9, with a temporary interruption during the decade of the Pueblo Revolt (1680-91). Onate's capital city was at "San Juan" (in the general vicinity of the present San Juan) for several years following the conquest. The original plans to build a larger city at San Juan were later abandoned in favor of the present location of the capital at Santa Fe. There is little indication at this time of exploration or knowledge of the country to the north occupied by the Yutas. First communication with Yutas is said to have been made by Governor Otermin about 1679 (Bancroft, 1889, p. 171).

Archeological investigations (Roberts, 1930) show that numerous pueblo sites on the Piedra River in southwestern Colorado and in several canyons to the south in northern Rio Arriba County were occupied at some time during and following the Pueblo Revolt (1680-1691) and the subsequent reconquest. Presumably these sites were occupied by Jemez people, perhaps those who were defeated during one of the battles of the reconquest, and consequently fled to the Navajo country.

Some contact between these people and those who remained in the original pueblos of the Rio Grande area under Spanish influence must surely be assumed.

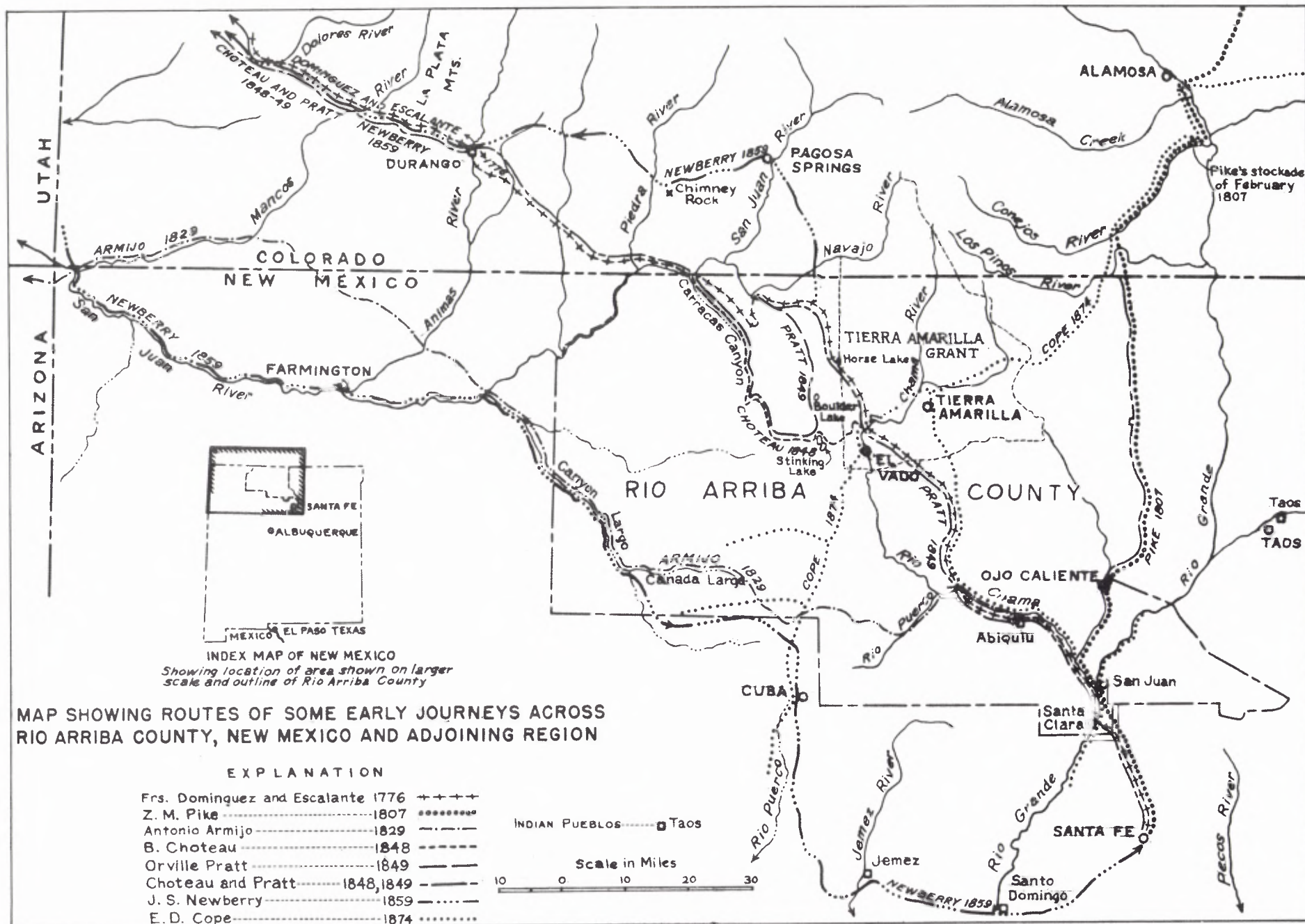
DeVargas in 1694 led an expedition northward from Santa Fe into the San Luis Valley of southern Colorado by way of Taos but returned southward along the west side of the Rio Grande via Ojo Caliente—and thereafter this region remained within the zone of Spanish influence (Espinosa, 1939, p. 88).

## THE SETTLEMENT OF ABIQUIU

For about a century and a half after the Onate conquest the northern frontier of Spanish occupation remained essentially constant, the energies of the settlers being fully consumed by consolidation of their area of control. In 1744, however, a settlement near present-day Abiquiu, on the west bank of the Chama about 15 miles northwest of its junction with the Rio Grande, was recorded as "... occupied by 20 Spanish families living at Santa Rosa de Abiquiu, 10 leagues west of Santa Fe" (Menchero, Juan M., *Declaracion del P. Procurador, 1744*, as quoted in Adams and Chavez, 1956).

The location of the original Spanish settlement of Abiquiu was apparently about a mile and a quarter east of the site of the modern town, at a place where the ruins of the chapel of Santa Rosa de Abiquiu may still be seen adjacent to U. S. Highway 94 (fig. 2). Dominguez' description of his visit to Abiquiu in 1776 distinguishes on the one hand between the pueblo, at a site recognizable from the description as being at the site of the modern town, and on the other a mission that has charge of some settlers of whom "... part live to the east ... in a small plaza. In this direction there is a shrine of St. Rose of Lima belonging to the settlers, where they buried their dead when there was no church in the pueblo" (Adams and Chavez, 1956, p. 120, 121). According to Adams and Chavez, Abiquiu was founded in 1754 as a settlement for "Christian genizaro Indians and the church there was begun by Fray Juan Jose Toledo who came to Abiquiu in 1755, but the church was not finished until the 1770's." As stated by

<sup>1</sup>Publication authorized by Director, U. S. Geological Survey.



**Figure 1**



Dominguez (Adams and Chavez, p. 126), the dwellers at Abiquiu in 1776 and their progeny "... speak Spanish in the manner described with respect to the Santa Fe genizaros for they all come from the same source and these were taken for this pueblo." The term genizaro (comparable to the English "Janizary") came to be applied in New Mexico to non-Pueblo Indians living in more or less Spanish fashion. Some of them were captives ransomed from the nomadic tribes and their mixed New Mexico-born descendants inherited the designation (Adams and Chavez, 1956, p. 42). Modern Abiquiu is probably located on the site of an abandoned Indian pueblo, but about three miles east of the site of the present town on the point of a gravel-capped terrace 100 to 150 feet above the level of the Chama River on the south side lie the extensive ruins of the pueblo of Po-shu-ouinge, which was abandoned prior to the Spanish occupation. The pottery found in the excavation of this ruin included a wide variety of pre-Spanish types—and the association is believed to be explained by a tradition of the Pueblo Indians of Santa Clara and San Juan that Po-shu-ouinge was a place where fairs were held and where many people came to trade and to have a fiesta (Jeancon, 1923, p. 34, 75-76). According to Mrs. Marjorie Ferguson Lambert (oral communication, 1957) of the School of American Research at Santa Fe, a similar mixture of pottery types but including also European majolica was also formerly evident in the vicinity of the ruins of the chapel of Santa Rosa de Abiquiu. The custom of an annual fair at Abiquiu, to be first reported in 1776 by Fr. Dominguez, (Adams and Chavez, 1956, p. 252, 253) was thus probably one that had carried over from pre-Spanish times.

The pueblo of Po-shu-ouinge was first described and excavated during the Wheeler Geographical Surveys of 1874 (Yarrow, 1879, p. 362-365). One of the collectors was the noted vertebrate paleontologist, Professor E. D. Cope. The occiput of one exhumed skull was flattened, which suggests the possibility that the skeleton was not that of a Pueblo Indian as was then supposed but of a visitor or captive (Yarrow, 1879, p. 396).

The frontier settlement of 1744 near Abiquiu was exposed to harassment from the nomadic Indian tribes. In October 1747, however, Governor Joaquin Codallos y Rabal overtook the Comanches and Yutas north of Abiquiu and killed 107 and captured 206 with nearly 1,000 horses (Bancroft, 1889, p. 219). This military action may have been the decisive one in a temporary stabilization of the frontier, for the permanent settlement at modern Abiquiu was made seven years later in 1754.

During the two decades following establishment of Abiquiu on its present site, much of the region to the north of Spanish New Mexico lying east of the Colorado River and south of the Gunnison River seems to have become known in a general way to Spanish explorers and traders. Unlettered hunters, trappers, and traders doubtless traveled widely through the country, leaving only ephemeral word-or-mouth reports of their journeys and they were followed by equally unlettered settlers in areas closest to the established settlements. Records of these earliest travelers and settlers are meager but it is known that at a date variously recorded as 1761 and 1765 Juan Maria de Rivera made an expedition northward from Santa Fe to the San Juan River, past the La Plata Mountains and northwest down the Dolores River. In 1775 Pedro Mora, Gregorio Sandoval,



Figure 2. Ruins of chapel of Santa Rosa de Abiquiu (in 1957), a mile and a quarter east of present day Abiquiu on U. S. Highway 94 and on the south bank of Rio Chama. This chapel was built prior to 1754 and was visited by Frs. Dominguez and Escalante in 1776.





Figure 3a. Panoramic view looking southwest to northeast from center of sec. 29, T. 28 N., R. 1 E., across Stinking Lake. Westward-dipping rocks of Mesaverde group ahead at right near western end of La Puerta Grande. White massively bedded sandstone at right center above lake is Point Lookout sandstone succeeded by Menefee formation and by La Ventana tongue of Cliff House sandstone at left center. Low hills of Animas formation and skyline ridge of Wasatch formation of authors at left.



Figure 3b. Panoramic view of Horse Lake looking northward from northern part of sec. 27, T. 30 N., R. 1 E. The Point Lookout sandstone dips steeply northward along the ridge at right, Lewis shale is in the valley in left background, and skyline background ridges are capped by sandstone of the Mesaverde group south of Monero.



and Andres Muniz, who had been with Rivera's expedition, are also recorded as traveling northward to the mouth of the Uncompahgre River, where they examined the young cottonwood carved, with a cross and the initials of his name, by Rivera ten years earlier (Bolton, 1950, p. 7).

#### THE JOURNEY OF FATHERS DOMINGUEZ AND ESCALANTE

The scant record of these early explorations and of many subsequent ones makes more strikingly evident the great value of the detailed record that was made by the historic expedition of Fathers Dominguez and Escalante in the fall of 1776.

In the summer of 1775 Fray Francisco Atanasio Dominguez had been sent from Mexico to New Mexico to make a report on the status of the New Mexico missions and to search for new routes to connect New Mexico and California. Monterey in California had been established in 1770, but at that time had no overland connection with New Mexico. Fray Silvestre Velez de Escalante, the mission father at the pueblo of Zuni, was also interested in such an expedition and the two friars planned to undertake the journey in the summer of 1776, originally intending to leave Santa Fe on July 4, 1776, the historic date on which the Declaration of Independence was issued at Philadelphia. As it happened, their departure was delayed, and meanwhile a land route to Monterey was opened by Father Garces, traveling northwestward from Yuma, Arizona. Although word of the successful completion of this journey was received in Santa Fe prior to their departure, Dominguez and Escalante, fortunately for history, decided that their expedition would still be of value and went ahead with their plans. Although the immediate results of their heroic journey were negligible, their geographic discoveries were notable, as they reached Great Salt Lake and traveled southward across the plateau and canyon country of central and southern Utah, crossing the Colorado at the isolated and difficult passage now known as the Crossing of the Fathers, from which ford they reached the Hopi villages in Arizona and thence arrived at Zuni, New Mexico, on November 24, returning to Santa Fe on January 2, 1777. The meticulous diary kept by Father Escalante and the remarkable map of the country traversed by the expedition that was prepared by one of the members of the expedition, Don Bernardo Miera y Pacheco, were the principal sources of geographic information on much of the region for more than 50 years, and many of the places that were visited and seen by the friars were so clearly described and so well located that they can be readily identified.

The first few days of the journey were across Rio Arriba County to the San Juan River in southern Colorado. Because of its intrinsic interest and because their route may be traced with considerable accuracy by reference to the diary, the first few days of the diary are reproduced, with minor deletions, from the most recent translation (Bolton, 1950, p. 133-139). The footnotes to the translation are numbered and are reproduced as given by Bolton. (Distances in the diary are given in leagues. The league used was presumably the old Spanish land league (legua) used in the southwest from Texas to California and equivalent to 2.63 miles according to Webster's International dictionary).

#### DIARY AND ITINERARY

On the 29th day of July of the year 1776, under the patronage of the Virgin Mary, Our Lady of the Immaculate Conception, and of the most holy patriarch Joseph her most happy spouse, we, Fray Francisco Atanasio Dominguez,

present commissary visitor of this Custodia of the Conversion of San Pablo of New Mexico, and Fray Francisco Silvestre Velez de Escalante, minister and teacher of the Christian doctrine at the Mission of Nuestra Senora de Guadalupe de Zuni, accompanied voluntarily by Don Juan Pedro Cisneros, alcalde mayor of the said pueblo of Zuni; Don Bernardo Miera y Pacheco, retired militia captain and citizen of the town of Santa Fe; Don Joaquin Lain, citizen of the same town; Lorenzo Olivares, citizen of the town of El Paso; Lucrecio Muniz; Andres Muniz; Juan de Aguilar; and Simon Lucero; having implored the protection of our most holy patrons and received the Holy Eucharist, we the persons named set out from the town of Santa Fe capital of this Kingdom of New Mexico; and having traveled nine leagues we arrived at the pueblo of Santa Clara, where we spent the night.<sup>1</sup> Today nine leagues.

July 30. We traveled nine leagues, more or less, and arrived at the pueblo of Santa Rosa de Abiquiu,<sup>2</sup> where because of various circumstances we remained on the 31st without traveling, and where by means of a Solemn Mass we again implored the aid of our most holy patrons.

August 1. After having celebrated the holy sacrifice of the Mass, we set forth from the pueblo of Santa Rosa de Abiquiu toward the west along the bed of the Chama River and traveled in it a little less than two leagues. We then turned northwest, and having gone about three and a half leagues over a bad road, for in it there are some small and very stony mesas, we halted for siesta on the north side of the valley of La Piedra Alumbre, near Arroyo Seco. They say that on some mesas to the east and northeast of this valley, alum rock and transparent gypsum are found. In the afternoon we set out from Arroyo Seco toward the north. After going a short distance we turned northeast along a wooded canyon and having traveled two leagues over a very bad road we camped on the banks of the same arroyo.<sup>3</sup> Today a good shower fell upon us, and we traveled seven leagues.

August 2. We set forth up the same canyon toward the northeast. After going a little more than four leagues we turned north, and entered a wooded canyon . . . , the same stream which lower down they call Arroyo del Canjilon, or Arroyo Seco. Having passed through the grove, we came to a small plain of abundant pasturage which is very pleasing to the sight, because it produces some flowers whose color is between purple and white . . . Where these flowers begin the canyon is divided into two by a high mesa which enters it. In each branch there is a road, one of which runs north and the other west. At the beginning of the latter and under the southern point of the mesa there is a little spring of good permanent water . . . We continued our march by the western canyon and road and traveled a league and a quarter to the north. Then, after going less than half a league to the west, we turned northwest,<sup>4</sup> and having traveled a little more than three leagues over good terrain we arrived at a small stream called Rio de la Cebolla . . . From here we went forward in the afternoon, turning north about a quarter of a league to get back to the road which we had left. We swung northwest, and having traveled a little more than three leagues over good terrain we halted in a small plain on the bank of another arroyo,<sup>4</sup> which is called Rio de las Nutrias. Today eight leagues.

<sup>1</sup> Santa Clara Pueblo, north of Santa Fe.

<sup>2</sup> Abiquiu still occupies the same site on the Chama River.

<sup>3</sup> South of Canjilon.

<sup>4</sup> Near Cebolla on Nutrias Creek.

August 3. We went northwest from Arroyo de las Nutrias, entered a small grove of pines, and having traveled a little less than three leagues we descended to the Rio de Chama. Then, along its pretty meadow we went up to the north about a mile, crossed it . . . The meadow of the river is about a league long from north to south, and is of good land for crops with opportunities for irrigation. It produces much flax and good and abundant pasturage, and there are also the other advantages necessary for the founding and maintenance of a settlement. Here also there is a good grove of white cottonwoods.

In the afternoon we went forward, and after climbing the western bank of the river we entered a small valley which we called Santo Domingo. Three large mesas covered with pines, beginning with three small hills almost north of here, curve around it from north to south to form a semi-circle reaching to the river. They<sup>†</sup> told us that to the west of these mesas there are two lakes. The first and more southerly one is west of the pass which from this bank can be seen between the first and second mesas, and the second is to the west of the next opening, which likewise can be seen between the second and the third mesas. These lakes, as well as the valley, are very suitable for raising large and small stock. We continued through the valley toward the northwest and entered a small grove of pines . . . We had to camp on rough ground near the three small hills already mentioned and which we named the Santisima Trinidad,<sup>‡</sup> having traveled from the river only two leagues to the northwest. In this place there was no permanent water, although we found a little in an arroyo near the broken ground to the east-southeast . . . Today five leagues.

August 4. Setting out toward the north from the camp of Santisima Trinidad, we traveled two leagues through the same forest . . . Two large mesas surround it, each forming a semi-circle, the north end of one almost meeting the south end of the other, the two being separated by a narrow gateway or pass. We traveled about a quarter of a league to the northwest and went through the pass where begins another lake which we called Laguna de Olivares. It must be about a quarter of a league long and two hundred varas<sup>\*</sup> wide, more or less. Although its water has not a very pleasant taste it is fit to drink. From the lake and little pass we continued north half a league, then turned northeast, leaving the road which goes to the Piedra Parada<sup>\*\*</sup> (a place known to those of us who have traveled through here). The guides directed us through a chamise thicket without any trail or path whatsoever, saying that on the road we were now leaving there were three very bad hills, and that it was less direct than the route they were taking. We traveled a little more than a league and in the same chamise thicket again turned west-northwest, entered the forest (which continues), and after half a league swung northwest. We then traveled three and a half leagues through a valley with very luxuriant pasturage and came to a large meadow of the arroyo which on the Piedra Parado road they call Arroyo del Belduque.<sup>\*\*\*</sup> In

the meadow we swung west and having traveled down the arroyo two leagues we camped in a canyon<sup>‡</sup> which, on account of a certain incident, we called Canon del Engano.<sup>\*</sup> Today nine and a quarter leagues. Here there is plentiful pasturage and water in pools.

August 5. We set out from camp in the Canon del Engano toward the southwest and having traveled half a league arrived at Rio de Navajo, which rises in the Sierra de la Grulla and runs from northeast to southwest to this point, where it turns back toward the north for a little more than three leagues, and then joins another river which they call the San Juan. Here this Navajo River has less water than the Chama. Having crossed the river we continued with difficulty toward the south in the same canyon, and after going about a league we turned to the southwest for a quarter of a league, then three quarters of a league to the west through canyons, over hills, and through very difficult brush. The guides lost the trail and even seemed to have forgotten the very slight knowledge which they had appeared to have to this country. And so, in order not to go any farther south we turned northwest, traveled about three leagues without a trail, climbing a hill (monte)<sup>\*\*</sup> high but with no very difficult grade, and saw the bed of the same river nearby. We descended to it down slopes which were somewhat rugged but nevertheless passable, and having traveled a little more than three leagues west-northwest, we crossed it at a good ford and camped on the north bank. Here it has already united with the San Juan River. The guides told us that a little higher up these two rivers joined, so we decided to observe the latitude of this campsite and for this observation was made by the meridian of the sun, and we found the campsite, which we named Nuestra Senora de las Nieves,<sup>‡</sup> to be in latitude 37°51'. Fray Silvestre went to examine the place where the two rivers, the Navajo and the San Juan, join and found it was three leagues as the crow flies almost due east of Las Nieves, and that on the banks of both rivers, right at the junction, there were good advantages for a fair-sized settlement. The San Juan River carries more water than the Navajo, and they say that farther north it has good and large meadows because it runs through more open country. Now joined, the two streams form a river as large as the Rio del Norte in the month of July . . . Today eight leagues.

August 6. In the afternoon we left the camp of Nuestra Senora de las Nieves, going downstream toward the west, and having traveled two and one-half leagues over bad terrain, we camped on the bank of the river.<sup>‡</sup> Today two leagues and a half.

August 7. We continued a little more than a league to the west along the bank of the river and on the slopes of the adjacent mesas, climbed a somewhat difficult hill, swung northwest, and after going one more league arrived at another river which they call Rio de la Piedra Parada, at a point very close to its junction with the Navajo . . . This river rises to the north of the San Juan in the same Sierra de la Grulla, runs from north to south, and is a little smaller than the Chama River where it passes through the pueblo of Abiquiu. Having crossed this river we traveled west two

<sup>†</sup> The companions who had been here previously

<sup>‡</sup> About five miles northwest of Park View.

<sup>\*</sup> A vara is 33 inches.

<sup>\*\*</sup> Standing Rock, still so-called.

<sup>\*\*\*</sup> This name obviously commemorates some event involving a large knife.

<sup>‡</sup> Near Dulce.

<sup>\*</sup> Canyon of Deceit. Evidently someone had been deceived or misled here.

<sup>\*\*</sup> Monte generally means forest or brush, but here it clearly means hill.

<sup>‡</sup> Camp was on the San Juan River near Carracas, just across the Colorado state line.

<sup>‡</sup> About four miles east of Arboles.





Figure 4a. La Puerta Grande, the gap cut through sandstone of the Mesaverde group east of Stinking Lake and west of El Vado, as sketched by J. S. Newberry in 1859. The Point Lookout sandstone cliffs cap steep slopes of the upper member of the Mancos shale.

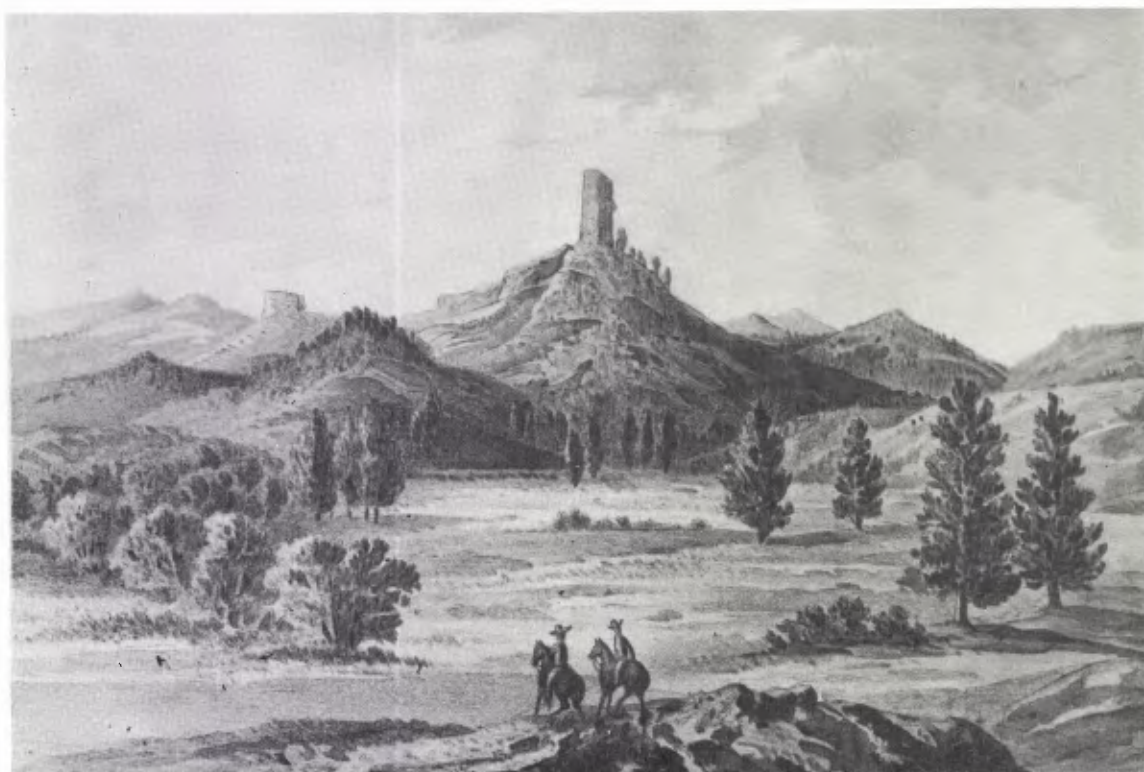


Figure 4b. Chimney Rock ("Piedra Parada") in sec. 17, T. 34 N., R. 4 W., west of Pagosa Springs, Colorado, the obelisk of Pictured Cliffs sandstone that has been known to Europeans as a landmark since before 1776, as sketched by J. S. Newberry in 1859.

leagues and somewhat over two more leagues to the west-northwest, and arrived at the east bank of the river which they call Rio de los Pinos . . . Today a little more than six leagues.

August 8. We set out from the Rio de los Pinos . . . toward the west-northwest, and having traveled four leagues we arrived at the Rio Florida, which is medium-sized and smaller than the Rio de los Pinos. It rises in the same sierra but farther west. It flows in the same direction, from north to south, and where we crossed it there is a large meadow of good land for crops with facilities for irrigation . . . Having crossed the Rio Florida we traveled west two leagues and west-northwest somewhat over two leagues more. We then descended a stony but not very long slope and arrived at Rio de las Animas near the western point of the Sierra de la Plata, in which it rises. Crossing it, we camped on the opposite bank.<sup>10</sup>

Earlier translations of the Escalante diary (Harris, 1909; Auerbach, 1943) afford supplemental information.

Comments on the correlation of the diary with geographic and geologic features of the region follow, arranged chronologically to facilitate reference:

July 29. The pueblo of Santa Clara where the friars stopped on the first night of their journey is still located on the west side of Rio Grande a few miles south of the modern town of Espanola.

July 30. As has been described briefly on foregoing pages, the pueblo of Abiquiu was then at the site of the present-day town.

August 1. The present road from Abiquiu to the upper valley of Rio Chama, U. S. Highway 84, goes northward up out of the Chama River Canyon a little more than 5 miles west-northwest of Abiquiu and it is almost certain from the topography of the region that the Dominguez expedition must have followed nearly the same route. The travelers crossed the Llano Piedra Lumbre north of Arroyo Seco two miles to the northwest. The reference (as translated) to "alum rock and transparent gypsum on some mesas to the east and northeast" must be to the extensive exposures of gypsum in the Todilto north and east of the road, but curiously there is no further reference to the gypsum in the Todilto although the travelers must have very nearly crossed its actual outcrop a few miles farther north. The siesta stop for this day must have been not far from the Ghost Ranch in sections 11 and 12, T. 24 N., R. 4 E., and the camp for the night was perhaps in the vicinity of Echo Campground along U. S. Highway 84, in section 33, T. 25 N., R. 4 E. The geographic features mentioned are shown on U. S. Geological Survey topographic maps (1:24,000 series) of the Abiquiu, Ghost Ranch, and Echo Amphitheater quadrangles.

August 2. About 5 miles northeast of Echo Campground the Canyon of Arroyo Seco (Canjilon Creek in the upper part of its course) is divided by a high southward-pointing escarpment capped by Dakota sandstone. Half a mile north of the fork Navajo Canyon enters the west fork from the west. Ojo del Navajo (Navajo Spring) is shown on maps of the region as old as the map of the Macomb expedition of 1859 (Newberry, 1876). Dominguez and Escalante's route continued north past Navajo Canyon (see U.S. Geological Survey Topographic map, (1:24,000 series) of the Canjilon quadrangle). The siesta stop for this day was on Rio Cebolla apparently about 3 miles southwest of

the present-day village of Cebolla. A few miles north of Navajo Canyon, the expedition apparently diverged to the west from U.S. Highway 84, traveling northwest over the "good terrain" of the open plains on the lower part of the Mancos shale. The camp for the night may have been on the lower course of Rio Nutrias only a mile or so east of Rio Chama.

August 3. Six or eight miles north-northwest of the camp on Rio Nutrias the travelers crossed Rio Chama at El Vado (the ford). The "three large mesas covered with pines" which they saw, are formed by sandstone of the Mesaverde group and rimmed by the cliff of the basal Point Lookout sandstone of that group. The first and more southerly lake (figure 3A) lying ". . . west of the pass which from this bank can be seen between the first and second mesas" is Stinking Lake (similarly Hedionda [fetid] Lake of the Wheeler Survey's map) west of La Puerta Grande (Figure 4A). The second lake is Boulder Lake about six miles farther north, also west of a breach through the cliff of the sandstone of the Mesaverde group. An idealized sketch of La Puerta Grande "near Vado del Chama" made more than 80 years after Escalante's description is reproduced in Figure 4A. The ". . . three small hills almost north of here" are quite likely Tecolote Mesa, a promontory of sandstone of the Mesaverde about 10 miles north of El Vado Lake, and the two anticlinal hills of Dakota sandstone northeast and southwest of it (Dane, 1948; and U. S. Geological Survey topographic maps, 15-minute series, of Chama and Lumberton quadrangles). The valley that they "called Santo Domingo" is the valley of Horse Lake Creek, up which they journeyed the following day. Dominguez and Escalante apparently never saw either Stinking or Boulder Lakes but these lakes were clearly well known to some of their associates from previous visits. Had the Dominguez party turned west through the inviting gap of La Puerta Grande, they could have followed an easy route leading to Carracas Canyon and to the San Juan River that later became part of the Old Spanish Trail, as shown on the map of this area made during the United States Geographical Surveys west of the 100th meridian (Topographic Atlas Sheet, No. 69).

August 4. The expedition passed through the narrow gap in the sandstone of the Mesaverde group between the north end of the third mesa of the previous day's description and the west end of Tecolote Mesa. They applied the name Laguna de Olivares (for a member of the party) to the lake that is now known as Horse Lake (Figure 3b). They were now on the broad plain underlain by the Lewis shale, the formation overlying the rocks of the Mesaverde group, and this plain offered an easy route directly northward to the present site of Dulce on Amargo Arroyo, a place which they reached later in the day. Nevertheless their guides directed them to leave "the road which goes to the Piedra Parada" (Chimney Rock in southwestern Colorado) saying ". . . that on the road we were now leaving there were three very bad hills and that it was less direct than the route they were taking." Conjecturally, the road that the guides knew was a route that leads directly westward from Horse Lake over a steep escarpment of the Animas formation south of the Wirt Fire Lookout Tower in sec. 15, T. 30 N., R. 1 W., and might thence be followed to the route of the Old Spanish Trail down Carracas Canyon as previously mentioned. In any event, the travelers took neither this route nor the easy route along the wide valley of Lewis shale directly to the vicinity of Dulce but turned northeastward, "through a valley with luxuriant pasturage,"

<sup>10</sup>Five miles south of Durango on Animas River and near Moving Mountain.



which was evidently the little northwestward-trending valley with verdant meadows that is just south of the coal mining town of Monero. They came again to the spacious plain underlain by the Lewis shale along the present-day Amargo Arroyo "which on the Piedra Parada road they call Arroyo del Belduque." Belduque, as indicated by Bolton's footnote, was a large knife. More specifically a partial clue to the origin of its application to this arroyo is suggested by two passages in the addendum of "various items" to Father Dominguez' description of the Missions of New Mexico (Adams and Chavez, 1956). These passages, under the headings Taos (p. 252) and Abiquiu (p. 252, 253), are respectively: "The Comanches usually sell to our people of Taos) at this rate: a buffalo hide for a belduque or broad knife made entirely of iron which they call a trading knife here" and "Every year between the end of October and the beginning of November many heathens of the Ute nation come to the vicinity of this pueblo (Abiquiu). They come very well laden with good deerskins, and they celebrate their fair with them . . . They usually sell deerskins for belduques only and they are given two of the latter for a good one of the former." It is unfortunate that a place name with such a remarkably picturesque etymology has been displaced. According to the dictionary of the Spanish Academy, belduque, a large knife with a sharp pointed blade, has the same origin as balduque, from the place of origin of the knives. And balduque is, from this dictionary, "from Bois-le-duc, a city of Holland which the Spanish call Bolduque and where they weave these ribbons, i.e. narrow ribbon, in general red, which is used in offices for typing dockets" (my translation). Bois-le-duc [now Hertogenbosch! (which means the same as Bois-le-duc, i.e. the Duke's woods) according to the Columbia Lippincott Gazetteer], in the Netherlands, is still noted for iron founding and manufacturing. Although the name was obviously suggested by the use of belduques for trading with the Yutas, who presumably used this route to the annual fair at Abiquiu, geologists would like to believe that the name Belduque was imaginatively applied to this particular arroyo because of the meridional dark narrow dike ridges that transect the plain of Lewis shale along the arroyo.

The travelers followed Amargo Arroyo downstream and camped where the arroyo leaves the Lewis shale plain and enters a canyon formed in the overlying more resistant Late Cretaceous and Tertiary formations.

August 5. The difficulties that were encountered on this day leave one in as much doubt as to the route followed as was shown by Escalante, who commented that the guides "seemed to have forgotten the very slight knowledge which they had appeared to have of this country." It seems likely however, that the guides turned south hoping to rejoin the route they had left at Horse Lake. The party had followed Amargo Arroyo down to its junction with the Rio Navajo. The guides were aware that the Navajo here makes a marked swing to a northerly course toward its junction with the San Juan—and the statement that they crossed the river here is inconsistent with all the directions and distances recorded in the following twelve lines of the diary. Evidently they crossed Amargo Arroyo and went south, perhaps up Wirt or Tee Quee Canyons (Dane, 1948), into the wooded, brushy, and hilly area in the vicinity of Wells Lookout Tower in the southwestern part of T. 3 N., R. 2 W., and thence traveled northwestward to the valley of the San Juan River below its junction with the Navajo. (They

called the joined streams the Navajo or, as in the diary, the Rio Grande de Navajo and so would regard the present San Juan as the "same river" that they had left. Camp was near Caracas on the San Juan River just north of the Colorado State line). The reference to good and large meadows farther north suggests pretty clearly that previous travelers were already aware of the open country in the vicinity of the modern town of Pagosa Springs, and it is somewhat surprising that there is no reference to the spectacular hot spring known as "the Pagosa" from which the present town is named.

August 6. The travel west from Carracas was at least partly on dissected steep slopes of the Wasatch formation, high hills of that formation coming close to the San Juan river, especially on the north side.

August 7. The Rio de Piedra Parada, now called simply Piedra River, had been named previously to this expedition, perhaps by Rivera, from the obelisk-like spire of Chimney Rock, then called Piedra Parada, in T. 34 N., R. 4 W., about 15 miles northeast of the junction of the Piedra and San Juan. This notable landmark (Figure 4B) a standing column of the Pictured Cliffs sandstone, was never seen by Dominguez or Escalante but was, then as now, readily visible from a regularly traveled east-west route along the general line of the present highway between Pagosa Springs and Durango, Colorado. As Bolton has noted, the expedition's camp for this night was along the Pine River just south of Ignacio.

Don Bernardo Miera y Pacheco, who accompanied the Dominguez-Escalante expedition, prepared a map dated January 3, 1777 (the final date of the "diario" made by Escalante) that probably accompanied the report that was made by the friars to their superiors. (This map is reproduced in Bolton, 1950, and the section included within the area discussed in these notes is reproduced as Map II in Brand, 1937). This map shows "Lago de Olibares" and also the two other lakes mentioned in the "diario" (marked on the map the three mesas and the lakes of the Trinity).

Subsequent maps as late as Disturnell's map of 1847, which was used as the authoritative source of geographic information in treaty discussions at the close of the war between Mexico and the United States, also drew their information for this region primarily from the results of the expedition of Dominguez and Escalante. Disturnell's map shows S. Maria de las Nieves rather north of the San Juan and some distance east of its junction with the "Nabajoa," thus corresponding more closely in position with what is now Pagosa Springs. This map also shows Nutrias (in the general vicinity of the modern Tierra Amarilla); El Bado, clearly the modern El Vado; and Lake Trinidad, obviously derived from the original "Las Tres Mesas y Lagunas de la Trinidad." Velasquez is presumably an erroneous transliteration of El Belduque which appears on the map of Miera y Pacheco.

Some of these features are also shown on still earlier maps; for example, "A map of New Spain from 16° to 38° north latitude reduced from the large map drawn from astronomical observations at Mexico in the year 1804, by Alexander de Humboldt" (Humboldt, 1811). The latter map has Trinity Lake, Velasquez, and S. Maria de las Nieves.

For more than 50 years after the Dominguez-Escalante expedition there are few records of exploration and travel of northwestern Rio Arriba County. As early as 1778 orders were issued by the Spanish officials prohibiting un-

licensed travel to the Ute country for trade and barter, and records of the Spanish archives show proceedings against citizens of New Mexico for trading with the Utes in 1783, 1785, and 1797. In 1813 a party of seven traders led by Mauricio Arze and Lagos Garcia left Abiquiu in March and followed the general route of the Dominguez-Escalante expedition to northern Utah but there is apparently no record of the course followed during the first part of their journey (Twitchell, 1914, II, 478 [doc. 1881]).

#### THE JOURNEY OF LIEUTENANT Z. M. PIKE

Thirty years after the completion of the epic journey of Dominguez and Escalante, the spreading wave of exploration from the new English-speaking republic on the Atlantic Coast sent its first ripples to the borders of New Spain and the margins of what is now Rio Arriba County. Following the Louisiana Purchase in 1803, the new Province of Louisiana was divided by Congress in March 1804, and the northern part, as the District of Louisiana, was established north of the line of the 33rd parallel west of the Mississippi. In 1805 the Louisiana District became a Territory, with its seat of government at St. Louis, and on July 15, 1806, Lieutenant Z. M. Pike left St. Louis under orders from that government to proceed to the headwaters of the Arkansas and Red Rivers (Paxson, 1924, p. 141-143). On the 30th of January 1807, Pike's party arrived on the banks of the Rio del Norte in the San Luis Valley in what is now southern Colorado (supposing it to be the Red River) and started the construction of a fort in what was in reality Spanish territory. In the latter part of February Pike's party was visited by Spanish officers in command of a considerable armed force and they were conducted to Santa Fe and ultimately to Chihuahua, Mexico, before being returned to the United States (Pike, 1810, p. 192 et. seq.). Pike was conducted south along the general route that is now followed by U. S. Highway 285 along the west side of the Rio Grande Valley and along the eastern boundary of Rio Arriba County to Ojo Caliente, which is just within the Rio Arriba County boundary. Pike described Ojo Caliente somewhat unflatteringly as a village of 500 souls which at a distance "... presents to the eye a square enclosure of mud walls, the houses forming the wall." He also reported that:

"The greatest natural curiosity is the warm springs, which are two in number, about 10 yards apart and each afford sufficient water for a mill seat. They appeared to be impregnated with copper and were more than 33° above blood heat" (Pike, 1810, p. 207-208).

He was from there taken down Ojo Caliente Creek "about 12 miles" to its junction with the Chama (which he called the Conejos), thus reaching a point passed by Dominguez and Escalante on their way northward 30 years previously. Pike noted that the "Conejos" "was settled above its junction with the Agua Caliente, 12 miles" and thus recorded that it was then settled upstream as far as the vicinity of Abiquiu, which, however, he located incorrectly on his sketch map of the journey as being south of the junction on the west side of the Rio Grande at about the site of Santa Clara pueblo. Pike and his party were then conducted to San Juan on the east side of the Rio Grande, also in Rio Arriba County, and thence southward.

#### THE OLD SPANISH TRAIL

For just less than two decades of its long and varied

history, Rio Arriba was traversed by the Old Spanish Trail, a remarkable main artery of commercial traffic. From 1829 to 1848 this twelve-hundred-mile-long trail from Santa Fe to California was followed by numerous pack mule caravans connecting these northern outposts of Spanish-Mexican civilization. By the beginning of this period there were apparently three fairly well established routes from Santa Fe northwest to the San Juan River by way of Abiquiu. The first and most southerly of these routes was the one taken by the first commercial caravan to move over the trail. On November 9, 1829, a party of New Mexico traders led by Antonio Armijo departed from Abiquiu with a train of pack animals and reached the San Gabriel Mission in California on January 31, 1830. The party left California on the return trip March 1, and arrived at Jemez on April 25. A very brief diary, hardly more than an itinerary, of Armijo's trip, was published in 1830. As translated by Hafen (1950, p. 124, 125) it shows that the party traveled from Abiquiu up the Chama about 15 miles to the mouth of the Rio Puerco on November 8, thence turning southwest up Rio Puerco about 12 miles to the village of Arroyo del Agua (2 miles west of Coyote) in section 5, T. 22 N., R. 3 E., on November 9. (U. S. Geological Survey topographic map of Arroyo del Agua quadrangle, 7½-minute series). The next day they followed the general course of what is now U. S. Highway 96 to Capulin in section 14, T. 23 N., R. 1 E. (U. S. Geological Survey topographic map of Cuba quadrangle, 15-minute series). On the 11th the party continued west across the Continental Divide to the headwaters of Canyon Largo, down which they traveled for 4 days to the San Juan River and thence down the river. The itinerary mentions Arroyo del Agua, Capulin, and the lake in Canyon Largo as places that were established or known prior to the trip, but references to Indians suggest that part of this route was considered hazardous.

In any event the route by way of Canyon Largo was abandoned as the principal route of the trail in favor of a more northerly one. The most northerly route from Santa Fe to the San Juan then in somewhat general use was probably by way of El Vado, Horse Lake, Monero and northward across the Navajo River east of Archuleta Mesa and to Pagosa Springs and thence westward.

The principal route of the Old Spanish Trail, however, was quite probably the one shown as such on the Wheeler Topographic Atlas Sheet No. 69. This route, now little traveled and in part completely unused turned west from El Vado through La Puerta Grande, skirted the north shore of Stinking Lake, and led westward and northward to the vicinity of La Jara farms on the Jicarilla Apache reservation and down Carracas Canyon to the San Juan and thence west. Fortunately an accurate, though meager record of this part of the trail was made by the trader Mr. B. Choteau, who gave a log and brief description of the trail in Santa Fe in late August 1848 to Orville C. Pratt, an emissary of the U. S. Secretary of War. Choteau had just returned to Santa Fe after one of the last commercial trips over the trail and his log and description were copied into Pratt's diary of the latter's own immediately ensuing trip over the trail to California. The pertinent part of Choteau's description reads as follows (Hafen and Hafen, 1954, p. 342, p. 344-346, and Appendix p. 365-369), with my interpolated comments in brackets.



**[Going Westward From New Mexico] \***

From Upp. Sett. of Ab. [Abiquiu] go to the Savoya [Cebolla] riv. 12 m. Water on left of road in Kanion. 6 m. further a creek called Nourute [Nutria]. From there to the Chama riv. is 19 m. Camp on this side at the crossing. From there to the Laguna [Laguna, Stinking Lake] is 7 m. From that to los Ojitis [los Ojitos, presumably the springs shown on the Wheeler Atlas Sheet 69 as "Water Holes" 10 miles northwest of Hedionda (Stinking) Lake] is 8 m. Sp. Pass the 1st Sp & about 1 m. further is 2d Sp. From that to the wallow [reads "Hollow" in the log] of the Corac is about 15 m. It is the head of the Corac [Carracas] Wat. about 1 m. from the head at the left of the road. Suff. for men but not enough for an. From that to the St. John [San Juan] 25 m.

Eutes plenty but friendly. no grass. take an.  $\frac{1}{2}$  m. down the creek to the side of the hill. dry grass. Camp on this side. Go down this riv. 15 m. on opp. side. Can't camp there. After leav. this riv. it is about 3 m. to Rock Cr. [Piedra River].

Pratt's diary, as recorded by Hafen and Hafen (p. 345-346), shows that his party had considerable difficulty in following Choteau's instructions for this early part of the trail, and that they repeated with some variations the difficulties experienced many years before by Dominguez and Escalante in following the route from El Vado to the San Juan River that was already known to their guides. Pratt left Abiquiu the morning of August 31, apparently camping that night on Cebolla Creek. The following day they camped on the bottom near the Chama River, probably at El Vado, noting "Fine grass and water." It seems somewhat extraordinary, but as I interpret the Pratt diary, I believe they followed precisely the course of the Dominguez-Escalante expedition to the junction of Amargo Arroyo and Rio Navajo. The pertinent passages are quoted with my interpolated comments in brackets.

"Saturday, September 2, 1848 . . ." Started at about 11 o'clock & made 10 miles. Passed a small lake [Horse Lake], surrounded by fine grass, but the water was inaccessible to the animals [it had rained that morning and all the previous night] & we had to move farther on to encamp. Found a fine spot—the best of grass, wood and water [surely the "valley with very luxuriant pasturage" of the August 4 entry in Escalante's diary].

"Sunday, September 3, 1848, left camp about 9 o'clock and made a march of about 20 miles. Camped on the St. John [this was unquestionably the Rio Navajo, but by the direct route north the Navajo is only 10 miles from their previous night's camp rather than the 20 recorded in the diary, so presumably Pratt's party took the longer route to the Navajo down Amargo Arroyo as Dominguez and Escalante had done].

Monday, September 4, 1848. This morning found ourselves some 20 miles or more out of the way. After packing up we retraced our steps about 15 miles to a lake [it seems likely that they followed down the valley of the Lewis shale from Dulce south to Stinking Lake, where they were back on the trail as logged by Choteau. Surely Pratt would have specified if it was the same "small lake" that they had passed on Sept. 2] & then bore off in a westerly direction. We traveled on until dark without finding water or grass. At length we came to water [Los Ojitos of the Choteau description?] & camped without grass.

"Tuesday, September 5, 1848. At daylight this morn-

ing we commenced packing . . . stopped to encamp on the St. John & get breakfast. Staid about 4 hours and then moved down the river about 5 miles to encamp for the night.

"Wednesday, September 6, 1848. Left camp this morning at an early hour and traveled to Rock Cr. [Piedra River] and then encamped early in the day."

With the annexation of New Mexico and California by the United States in 1848 following the war with Mexico, and with the discovery of gold in California in 1848 and the ensuing development of east-west transcontinental routes of travel, the need for the Old Spanish Trail came to an end and only those parts of it that served local needs continued in use.

**THE TIERRA AMARILLA GRANT**

A few years after Pike's enforced journey to Chihuahua there ensued the disturbed decade of the Mexican Revolution, which was closed by the formation of the Mexican Republic in 1823. Shortly thereafter the gradual growth of population in the Rio Grande Valley and the lower part of the valley of Rio Chama led to another significant expansion of agricultural settlement northward. Abiquiu had a population of 3,557 in 1827, whereas in 1744 it had been described as merely a rancho of 20 families (Bancroft, 1889, p. 252 and 342). On April 23, 1832, a petition of Manuel Martinez of Abiquiu was made to the corporation of Abiquiu stating "that having registered a tract of land for cultivation and pasturage, situated on the banks of the Chama River, known as the Tierra Amarilla, bounded on the east by the range of mountains, on the west on a line with the mouth of the Laguna de los Caballos, on the north by the Navajo River, and on the south by the Nutrias River;" he asks that this tract be granted. (Laguna de Caballos, i.e. Horse Lake, is a name so naturally applicable to an excellent watering place that the fact that orally the last part of the Spanish name is not greatly different from a slurred "Laguna de Olivares" as the Lake was called by the Dominguez party may well be only coincidental). The tract that was so simply requested includes an area of more than one thousand square miles chiefly in New Mexico but extending several miles northward between the Navajo River and San Juan Mountains into what is now Colorado. Martinez' petition was acted on favorably by the corporation of Abiquiu, to whom the petition had been referred, and on July 20, 1832, the territorial deputation of New Mexico approved the grant.

In the treaty of Guadalupe Hidalgo in 1848 that concluded the war between the United States and Mexico, the United States acknowledged the prior rights of the private holders of the Spanish and Mexican land grants, and in 1854 the surveyor general of New Mexico was instructed to investigate the private and town claims and report them to Congress for confirmation. In 1856 the descendants of the original grantee applied for confirmation of the Tierra Amarilla grant by the United States, and it was found that they had been in possession of the land for 21 years. The claim was reported on favorably in 1856, and confirmed as a claim in 1860. The boundary was surveyed by Sawyer and McBroom in July 1876, and a patent to the grant issued in February 1881. (Docket No. 3 Private Land Claims, Files of the U. S. General Land Office).

Settlement in this new area to the north was, however,

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attended by difficulties of the same type that had accompanied the foundation of Abiquiu a century before, because we find written in July 1859 the statement "The Tierra Maria (sic), a charming spot at the forks of the Chama, where the Mexicans had formerly a settlement, now abandoned on account of the depredations of the Indians" (Newberry, 1876, p. 73). This original Tierra Amarilla was thus perhaps located at the site of the present village of Brazos at the junction of the Chama and the Brazos, which was formerly called the Chama Brazos or the East Branch. Macomb's report (Newberry, 1876, p. 5-7) says that in 1859 Abiquiu was the outpost of settlement of the valley of Rio Chama but that wagons had been over the road to the upper valley of the Chama. San Juan and the other villages near the junction of the Chama and Rio Grande had been the "outposts of settlement" for nearly a century and a half (1598-1744) and Abiquiu for almost a century more (1744-1835) but the pressure for expansion of agricultural settlement could now no longer be restrained by Indian depredations. Tierra Amarilla must have been reestablished soon after 1859, for the Ute Indian Agency was moved from Abiquiu to Tierra Amarilla in 1862. Shortly after the war between the States, an army post was established (November 6, 1866) as Camp Plummer on the Chama River near the present site of Tierra Amarilla. The name was changed to Fort Lowell on July 13, 1868, and the post was abandoned June 26, 1869 (written communication, May 1960, from Andrew Brown, U. S. Geological Survey, from information from Old Records Section, Adjutant General's office, National Archives and Records Service). The location of old Fort Lowell is shown on the Wheeler Survey's Topographical Atlas Sheet 69. Only 15 years after Newberry's report of the abandonment of "Tierra Maria," the United States Geographical Surveys of 1874 found settlements in this vicinity at Los Brazos, at Los Ojos, now Parkview, at Eensenada east of Los Brazos, and at Las Nutritas. The present Tierra Amarilla was made the county seat of Rio Arriba County in 1880, the name of the settlement at this place having previously been Las Nutritas (Bancroft, 1889, p. 785).

#### MILITARY RECONNAISSANCES OF THE MEXICAN WAR PERIOD

The earliest settlements in the upper Chama valley were made under the Mexican flag—but possession soon passed to the United States as a result of the Mexican War, which began in 1846. General Kearney entered Santa Fe August 18, 1846, and in September a detachment from his force under Major Gilpin was dispatched to Abiquiu. Major Gilpin soon led an expedition into the Yuta Country, bringing back 60 leading men of the Yuta tribe to Santa Fe where a treaty was signed with them on October 13th (Bancroft, 1889, p. 421-422). Major Gilpin again left Abiquiu on the 22nd of October with his detachment, went up the Chama, crossed to the San Juan and descended that river into northern Arizona to a subsequent meeting with Colonel Doniphan (Hughes, 1850). The travels and campaigns of Doniphan and his subordinates, though involving the first American explorations of a broad region, have in general left in print but little of geographic or descriptive value (Bancroft, 1889, p. 466).

In 1849 a military reconnaissance from Santa Fe to the Navajo Country crossed northern New Mexico to the south and west of Rio Arriba County. A detailed and remarkable journal of this reconnaissance was kept by Lieutenant James H. Simpson. Simpson, however, did not see

the country north of Ojos Calientes (Jemez Springs) a few miles north of Jemez Pueblo and about 20 miles south of the Rio Arriba County line, and the map of the route of the expedition shows the military outposts then at "Albiquiu" (sic) as located on the Chama River at close to the northernmost point shown on that part of the map (Simpson, 1852).

#### MACOMB'S EXPEDITION

In 1859 an expedition from Santa Fe to the junction of the Grand and Green Rivers under the command of Capt. J. N. Macomb, and accompanied by the geologist, Professor J. S. Newberry, resulted in a planimetric and shaded relief map (the first reasonably accurate map of much of the region traversed) and an extensive geologic report.

The expedition set out from Santa Fe in July 1859, and in its first days virtually retraced the route of the Dominguez expedition 80 years previously, "crossing the Rio Grande Bravo del Norte at the old Indian pueblo of San Juan, and following up the valley of the Rio Chama, passing by the pueblo of Abiquiu." The first camp after leaving Abiquiu, Camp No. 5, was along Arroyo Seco not far from the siesta stop of the Dominguez party near the Ghost Ranch. It is interesting to compare Newberry's description of this part of his journey with the corresponding part of the Escalante journal.

"At Arroyo Seco the trail we were following leaves the river and enters a canon which cuts the plateau bordering the valley from base to summit. Most of the section exposed in its walls is composed of the Triassic marls which include beds of gypsum in some places 150 feet thick. Above the marls are the yellow sandstones—the base of the Cretaceous—which floor the plateau on either side. Pursuing a northerly course we gradually rose through the Trias, and at Navajo Springs reached the base of the Cretaceous sandstones. Continuing our ascent we . . . emerged upon the plateau of which I have before spoken. This plateau extends northward to the Vada del Chama." Camp No. 6 was at Navajo Springs, No. 7 was on the Rio Nutria perhaps not far from where the friars had camped on August 2, 1776. Camp No. 8 was El Vado where Newberry sketched the striking view of La Puerta Grande (Figure 4a) and described the setting, as follows, in a manner strikingly reminiscent of Escalante's description of August 3, 1776.

"At the Vada del Chama we again encamped on the banks of this stream in a very beautiful region . . . on the east side of the river are high and broken hills . . . covered with forests of splendid timber. These hills are mainly composed of the lower Cretaceous sandstones, having a thickness of nearly 300 feet. Here, as farther west, they contain beds of lignite, and the impressions of dicotyledonous leaves. They are considerably broken up, but have a general and rapid dip toward the southwest. On the opposite side of the valley is a mesa with bold, nearly perpendicular faces over 1,000 feet high, composed of the middle and Upper Cretaceous rocks lying nearly horizontal. Between these elevated banks lies the excavated valley of the river, with its narrow but fertile bottom-lands, its winding stream of pure cold water, its groves of cottonwood and its grassy meadows spangled with flowers" (Newberry, 1876, p. 70-72). Newberry's geologic section at this place is as follows:



"Transverse section of the valley of the Chama at the Vado

	Feet
1. Yellowish brown sandstone (Lower Cretaceous)	125
2. Brown and black shales, often dark olive, with beds of lignite .....	50
3. Sandstone similar to No. 1 .....	70
4. Black shales with bands of light dove-colored limestone. The upper of these shale beds is greenish brown with bands of foliated sandy limestone, containing immense numbers of fragmentary or entire fossils. These are principally <i>Inoceramus problematicus</i> , <i>I. fragilis</i> , <i>Ostrea congesta</i> , <i>Baculites anceps</i> , <i>Scaphites warreni</i> , <i>S. laviformis</i> , etc.	
5. Bluish-black shales, with concretions and bands of limestone containing a large undulated <i>Inoceramus</i> , the broken fragments of which are thickly set with <i>Ostrea congesta</i> .....	1,000
The lithological characters of this division are nearly the same throughout but the limestone bands and fossils are nearly restricted to the lower portion. The layers of limestone are from 6 to 12 inches in thickness, quite pure and compact, blue in color, but weathering reddish yellow, and breaking on exposure in vertical prisms, like starch.	
6. A light dove-colored sandy limestone or calcareous sandstone, weathering yellow, massive toward the top, foliated below, without fossils ..	200
7. This, the cap rock of the high mesa, is a higher member of the Cretaceous series than has before been met with in New Mexico. Our subsequent observations showed it to be the base of the third great division of this formation as developed on the Colorado Plateau.	
8. Gravel hills, valley drift."	

In a general way, unit 1 represents the upper part of the Morrison formation, units 2 and 3 represent the Dakota sandstone, unit 4 includes the Graneros shale, Greenhorn limestone, and Carlile shale members of the Mancos shale, unit 5 the Niobrara calcareous shale member and part of the overlying Mancos. Unit 6 is apparently the transitional zone between the Mancos and Mesaverde, which is rather strikingly exposed in this vicinity and Unit 7 includes the more massive Point Lookout sandstone at the base of the rocks of the Mesaverde group.

From El Vado the Macomb party made their way northward to their next camp south of Laguna de los Caballos (Lake of the Horses), close to the camp of Dominguez and Escalante on August 3, 1776. Newberry noted that the continental divide was nearby, the drainage toward the west beginning a mile west of the Laguna (Newberry, J. S., 1876, *idem.*, p. 72, 73).

The expedition followed the Dominguez route northward to Monero and Amargo Arroyo but from there continued northward across the arroyo rather than westward down its course, thus leaving the route of the Dominguez expedition for a much more readily traversible one. Their Camp No. 10 was on the Rio Navajo just west of the gorge cut by that river through the sandstone of the Mesaverde group. Archuleta Mesa, then called Cerro Navajo, is described by Newberry. The party continued northward into Colorado, crossing the Rio Blanco to their 12th camp at "The Pagosa, one of the most remarkable hot springs

on the continent, well known, even famous, among the Indian tribes." Newberry amplifies his enthusiastic statement that "there is scarcely a more beautiful place on the face of the earth" by an apt description of the deep-blue seething water of the pool, the verdant meadow, the bright and rapid river, and the framework of craggy crests and forests slopes of the great mountains beyond (Newberry, 1876, p. 74). From the camp of the 12th on the San Juan River at the site of modern Pagosa Springs the party moved westward, probably along a trail followed by the Indians long before the first Spanish travelers through this area, and after one intermediate camp, stopped on the Piedra River near Chimney Rock, the striking obelisk of Pictured Cliffs sandstone, which was sketched (Figure 4b) and described by Newberry, 1876, (p. 76-78). The expedition continued westward and northward to the region of the junction of the Green and Colorado rivers, returning to the vicinity of the "Four Corners" of Arizona, Utah, New Mexico and Colorado, from which it continued up the San Juan River to the mouth of Canon Largo and up that canyon, thus again entering Rio Arriba County, but in its northwestern part. Proceeding southeastward they crossed the Continental Divide, a day later camped at San Jose Spring in the northeastern corner of Sandoval County at the western foot of San Pedro Mountain, and thence proceeded southward in the latter part of September 1859, on their return to Santa Fe.

#### THE GEOGRAPHIC AND GEOLOGIC SURVEYS WEST OF THE 100th MERIDIAN

Further exploration of the Rio Arriba region was deferred during the Civil War and for some time thereafter. Beginning in 1872, however, there began the Comprehensive series of explorations of the west conducted as the Geographical and Geological Surveys west of the 100th meridian in charge of George M. Wheeler. These extensive and intensive investigations of the geography, geology, zoology, botany, archeology, and ethnology of the west first touched Rio Arriba County in 1873 during John J. Stevenson's examination of the geology of southern Colorado which included the area west from Del Norte through the Pagosa Springs region to the Animas River. Stevenson examined briefly the area in the vicinity of Horse Lake, remarking that "... an excellent pass leads from the Rio Chama to the Laguna de los Caballos and is known as Horse Lake Pass. It is very low and the grade is almost imperceptible. It is crossed by the old wagon road leading from Animas Park to Abiquiu, which coincides mainly with the homeward (correctly it should be outward) trail of Capt. J. N. Macomb, Corps of Topographical Engineers in his expedition of 1859."

The following year Captain Wheeler's party, coming from Fort Garland in the San Luis Valley, Colorado, crossed the San Juan Mountains by way of the heads of Conejos Creek and San Juan River, and on September 3 reached "... a welcome trail, which proves to be the one leading from the upper Rio Grande, at the mouth of its South Fork, to Pagosa Springs on the main San Juan, where a rendezvous camp was established, and from which point exploring and surveying parties were despatched in all directions" (Wheeler, 1889, p. 79-81). One of these parties traveled from Pagosa to Tierra Amarilla and return, the outgoing trip ... by the westerly route crossing the mesa to the west of the Chama River at Horse Lake, returning by the route following toward the head of the Chama, then crossing the heads of Navajo and Blanca Creeks reaching the eastern

banks of the San Juan.

"Portions of this route had belonged to the old trail from Santa Fe to the northwest and was followed by the Escalante exploring party in 1776 . . . The Blanca, nearly dry, was the first stream crossed, then the Little and a little farther on the Main Navajo, reaching the Chama, opposite the Mexican settlement of Los Brazos . . . The name Tierra Amarilla (yellow earth) [the name as applied by the Wheeler Survey was to the general area of the group of several settlements in this vicinity] is descriptive of the alluvial soil washed from the persistent sandstone mesas found on either hand."

During the same field season of 1874, the famed vertebrate paleontologist, Professor Edward D. Cope, traveled northward up the valley of the Chama past Abiquiu to Tierra Amarilla, following closely the early part of the route traveled by the Dominguez-Escalante expedition and also the route of J. S. Newberry. From Tierra Amarilla, however, Cope crossed the Chama, traveled westward a few miles, and thence turned southward for 40 miles following the valley along the outcrop of the Mancos shale between the ridge of Dakota sandstone to the east and that of the sandstone of the Mesaverde group to the west. Crossing the divide that separates the drainage of Rio Galina from that at the head of the Puerco, the route continued south to Nacimiento (now Cuba) on the west side of Sierra Nacimiento (Cope, 1877, p. 1-19). Cope also ascended the Canoncito de las Yeguas in T. 25 N., R. 1 W. and traveled to the open plateau to the west that stretches away to Canyon Largo and the San Juan River. Cope also traveled westward some twenty miles from the badland escarpment at the head of Arroyo Almagre.

The Wheeler Surveys produced a remarkably good map of the region issued as Atlas Sheet 69 issued in 1882. Noteworthy is the representation of the three large natural lakes of the region for the first time since the Miera y Pacheco map of more than a century before. Hedionda (Stinking) Lake is relatively too large, but a suggestion of its correct outline is given. The course of the Old Spanish Trail across the region is shown and particularly striking is the representation of two of the conspicuous dike ridges through which the trail passed. The Old Spanish Trail was shown crossing the Chama south of Los Ojos (Parkview). Another road shown leading from Parkview follows a route, still used, by way of Horse Lake to Monero, but from there it trends directly northwestward, crossing the Navajo River at the east of Archuleta Mesa, called cerro Navajo on this map (as it was called also by Newberry), and continuing north to Pagosa Springs. Many of the smaller hills and canyons of the region are shown with fidelity from the surveys of 1874. With the publication of this map in 1882, the period of exploration may be considered closed, for in 1880 the expansion of population in the upper Chama Valley was such that Tierra Amarilla was designated as the county seat of Rio Arriba County, and in 1881 the narrow gauge railroad line of the Denver and Rio Grande Western Railroad was completed "60 miles west on the San Juan division" (Bancroft, 1889, p. 772) and extended northwestward into Colorado.

#### SETTLEMENT OF THE NOMADIC INDIAN TRIBES

The end of the war with Mexico, the assumption of authority by the military forces of the United States, and the formation of the territorial government of New Mexico in 1850, did not bring to an end the depredations of the

nomadic Indian tribes of the Rio Arriba region. The history of the control and restriction of these tribes to reservation areas is a long and confused one, which continued virtually until the end of the exploratory period (Bancroft, 1889, p. 421-422, 655-678). The first treaty with the Utes was signed at Abiquiu in 1849 and a treaty with the Jicarillas was made in 1851. The Jicarilla Apache country was properly east of the Rio Grande and the agency for these Apaches and also for one band of the Utes was opened at Taos in 1851. In 1861 it was moved to Cimarron on the east side of the Sangre de Cristo Mountains and some Indians remained there until 1883. Other bands of Utes lived mostly west of the Rio Grande and northwestward into Colorado and Utah. The agency for these bands and for some of the Jicarillas was at Abiquiu from 1853 to 1872, but some Utes were under a special agent on the Chama River in 1862, and at Tierra Amarilla in 1863. The agency was moved from Abiquiu to Tierra Amarilla in 1872. The Utes were removed to Colorado in 1878 but some of the Jicarillas remained in charge of agents at Tierra Amarilla until 1883, although in July 1878 the reservation on the Rio Navajo had been selected and some of the Jicarillas moved there. From 1883 to 1887 they were at Fort Stanton, from where they finally returned to the Rio Navajo reservation.

#### CADASTRAL AND BOUNDARY SURVEYS

The operation of the land laws of the United States was extended to the territory of New Mexico by Act of Congress in 1854, and a surveyor general was appointed. In the following year an initial point was established for base and meridian lines. From this beginning surveys were slowly advanced from year to year and a land office was opened at Santa Fe in 1858 (Bancroft, 1889, p. 646).

Large parts of the public land of the region were surveyed before 1890. These surveys are only approximately accurate. Recent accurate surveys and resurveys have been made of parts of the region, particularly along the Colorado State line and the boundary of the Tierra Amarilla Grant.

The territory of New Mexico, while administered as a military department after the close of the war with Mexico, included a substantial part of the San Luis Valley that is now in Colorado east of the Continental Divide. This area continued to form part of Taos County, New Mexico, until the organization of Colorado Territory in February 1861. The southern boundary of Colorado as described in the enabling act of 1864 was the 37th parallel of latitude.

The southern boundary of Colorado west of the 103d meridian was first surveyed in 1868 by E. N. Darling, presumably on the 37th parallel. Subsequent investigation showed that between the 6th and 8th astronomical monuments there were errors in alignment and measurement, there being an offset of nearly half a mile in the vicinity of the 212th mile mark. In 1902-3 a resurvey of the entire southern boundary of Colorado was made by H. B. Carpenter under authorization by Congress but the joint resolution passed by Congress for its acceptance as the legal boundary was vetoed by the President in 1908 (Douglas, 1930, p. 225), for the reason that Colorado would probably not accept the line as it would take from that State a strip of land for nearly its whole width. In 1925 the U. S. Supreme Court ruled that the boundary between New Mexico and Colorado was that marked by Darling in 1868. The line has since been resurveyed.



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