

Historical Notes on Navajo Agriculture
and Irrigation

FOREWORD:

In the material which follows, we have searched the ancient archives dealing with the Navajo country, the early American records and also the letter files and archives of the Navajo Service. Such documents as were important to the subject have been briefed and reference made by number and description of the source. We have attempted to present the documentary material in regard to the above, which is available and can be supplied at any time.

Traditional Navajo dínetxá, the ancient land of the Navajo lay west of the northern Pueblo country and generally in the San Juan River drainage including the lower reaches of the Los Pinos, Florida, Piedra, Las Animas, La Plata and Mancos River valleys on the south of the main San Juan River valley and found intermittent arroyo-like Largo-Blanco, Chaco, Gallegos (properly the Rio Amarillo) and numerous small washes.

The bulk of the traditional Navajo shrine and sacred sites are found in the dínetxá, the more notable being Cholec', Gobernador Knob; Zilth-nah-ho-dithie, Huerfino; De-benzah, the La Plata Mountains and Zoet-elith, San Mateo or Mt. Taylor.

In the intermixed tradition and historical traditions of

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the system of development of the Navajo, we find the following story: "Soon the diné, the Navajo moved northward from Pueblo (properly Pueblo Pintado) to the upper Chaco Valley and came northward to the waters of the San Juan River. Previously, the Navajos have lived upon small wild seeds, hunting and raiding; but while there on the river at (Tsin-betlos), which is near the mouth of the Largo and San Juan River, they began farming. Certain Pueblan peoples fleeing from the Spaniards on the Rio Grande as well as drouth in their own country came to join the Navajo. From the Pueblos came the Elogi from the Pueblo Zia; Ta-baha from the Pueblo north of Santa Fe; the Mais-dish-gish-ni from the old Pueblo Jemez.

"With these people came our first agriculture. It was from them that we learned how to plant corn and to irrigate by throwing brush diversions across favorable places on the San Juan River and its tributaries. Of course the Navajo Gods assisted in this."

"Crops were planted and stone storage houses were built in the cliffs, many of which remain today. The Navajo stayed and for many years have planted and grew good crops and many more people came into this favorable region. Soon they were so many that the tribe was forced to spread out and their fields reached far up the Blanco-Largo Canyon on the San Juan River on both sides from the mouth of the Navajo River westward down the river as far as to where the Carrizo mountains touch the water.

(Footnote No. 1)"

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Father Berard Haile, O.F.M., outstanding Navajo ethnologist and student, remarks upon a trip made into this country with a group of Navajo Medicine-men;

"At any rate near the southwestern Jicarilla Apache Reservation we came upon Gobernador Knob, as it is locally called. At the summit of this knoll we found specimens of pottery and complete sets of millstones and similar utensils. Slightly down grade there were remnants of decayed poles strewn in a circle with two stone slabs set in the doorway to the east. This, after generations of Navajo of those days had vacated the region, our friends were still able to recognize their hogans by the doorpost stones. Inquiries among Navajo residents southwest of there of what was probably the heart of the old Navajo land revealed the fact that there were numerous similar remnants of hogans around the surrounding hills."

(Footnote No. 2)

Dr. Hodge states in his "Early Navajo and Apache" that from his study of Navajo tradition and supported by historical research "that the Navajo came to the San Juan River Valley in the early 16th century." We will see later that archaeology substantiates Dr. Hodge's statements. (Footnote No. 3)

Navajo tradition is remarkably supported by concrete and scientifically executed archaeological evidence. We have surveyed and investigated known Navajo sites in the Upper San Juan drainage of the years of 1935, 1936 and 1937.

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The lack of appreciable amounts of domesticated sheep bone in the trash mounds of these sites is evidence that the stock industry did not have any appreciable amount of economic bearing on the Navajo Reservation economy of the period in which these sites were inhabited and that such industry did not develop into any consequence of appreciable proportions until the middle of the 18th century. The acquisition of sheep and other domestic animals had great bearing upon the southward and westward expansion of the Navajo Nation.

Beams of pinon and pine, removed from the archaic Navajo hogans located in the above mentioned territory of in which the Largo Canyon is located, have been dated by dendrochronological methods and have been found to date generally until 1575 A.D. (Footnote No. 4)

Trash heaps of these sites of the 16th century have yielded an abundance of mammalian and avian material, also domesticated seeds and rinds as well as cobs of the known Pueblan type of Indian maize. We note, that the few bones of domesticated sheep are of those filched by the Navajo in their predatory raids upon the New Mexican Pueblos of both the Spaniards and Indians.

The remnants of the habitations are found in defensive positions, high on mesa rims and scarps. Below are found broad rincos and valleys in which arroyos flow water during flood seasons. These areas bordering the arroyos and washes are favorable for farming and generally low enough, or were so, to

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allow flood water diversion. Excellent type areas are to be found in the Largo Canyon. In summation of this section, the materials were uncovered from these sites and allow us to reconstruct Hava's substance for the 16th century in the San Juan drainage as still hunting and predatory raids on the Pueblo and a proto-Puebloan form of agriculture.

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Navajo, the name, related to agriculture, but apparently the general interpretation of the word is a mooted question. Our informant, a Tewa Indian, analyzes this Tewa word as Nava, fields; ho, to take, or literally to take from the fields; or "Raiders of the Fields." (Footnote No. 5)

The word, the name, is first encountered in the works of Father Zarate-Salmeron in his "Relaciones" as published in 1626 when the term "Nabahu" is used in connection with the "Apaches de Nabahu" and are described as a nation living on the Chama River and west of such river.

The earliest translation of the name is found in the "Memorial" of Father Alonso de Benevides as published in Madrid Spain in the year of 1650. Father Benevides translates the Tewa Navajo into Spanish as "sementras grandes," this being translated by Dr. Hodge in his Ayer translation into English as meaning "great seed sowings." There seems to be some difference of both in this translation.

The first known location and mapping designation of the boundaries is shown on the accompanying map made by Father Dominguez and Escalante in the year of 1776. It will be noticed that the western boundaries of the Navajo Reservation in that period is the Chinle Valley, or as shown on the map "Chogui" or properly Segi, which today has been modified into de Chelly. It will be noted that the boundaries swing north-

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eastward up the San Juan River leaving said river at the conflux of the Navajo River to the vicinity of the head of the Chama Valley, thence, southward passing slightly westward of the Los Tres Mesas, Las Tres and Lagunas de la Trinidad, which today are identified as Boulder, Horse and Stinking Lakes, thence, southwesterly to a point approximately near the westward flanks of Mt. Taylor; thence, westward passing southward of present Ft. Wingate or as shown on the map Ojo del Hasso, (Ojo del Oso) and westward to a point in the vicinity of the present Klagetoh Valley. The translation in the center of the map is partially translated as follows:

PROVINCE OF THE NAVAJO

All this province has very little water, therefore such products as maize and seasonal plants are grown, and a few cattle and goats are raised. (Footnote No. 6)

The Readers are referred to the Report of Lieutenant Simpson made in 1849 and available in most historical libraries regarding the Navajo practice of agriculture in the Canyon de Chelly and Chinle Valley.

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FOOTNOTES

No. 1

Informant- Kin-ah-ah-ni Nez.

No. 2

Hails, Berard Rev. Some cultural aspect of the Navajo hogan (mimeographed at Window Rock, Arizona, 1937.)

No. 3

Hodge, H.W. Dr. The Early Navajo and Apache, American Anthropologist (Old Series) 1895.

No. 4

This is a letter from John McGregor, dendro-chronologist of the museum of northern Arizona, to Richard Van Valkenburgh, May 1937. We have been advised by Dr. Provinse of the S.C.S., Window Rock, Arizona, that such testimony in regard to utilization methods would be accepted in legal action, should the data be presented by expert testimony.

No. 5

E. Cata, Window Rock, Arizona, formerly from San Juan Pueblo.

No. 6

The original of this map is in the National Archives of New Mexico, and is copied from a photostatic copy of said original and used by the courtesy of Dr. Fredrick Webb Hodge, Director of the Southwest Museum, Los Angeles, California.

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THE MOENCOPI WASH

The following documents regarding Navajo and Hopi tenure and use on the Moencopi Wash are available in the Navajo Service Archives. Briefs of each are as follows:

1. Title- The Statement of Navajo Jack. Made at Blue Canyon, Arizona Territory, on March 7, 1895, in which it is shown that he farmed and dammed this wash in the year of 1879.
2. A letter of Acting Navajo Agent, Major Constant Williams, to the Commissioner of Indian Affairs, Washington, D.C., from Ft. Defiance, Arizona, May 7, 1898. This is relative to Navajo and Hopi use of the Moencopi Wash.
3. An Affidavit made and sworn before Samuel Shoemaker, U. S. Indian Inspector, by Fred P. Slattery at Flagstaff, Arizona, 2nd day of August 1898. Regards prior use of the Moencopi Wash by the Navajo and Hopi Indians.
4. The Statement of Hos-Kin-Einnie, A Navajo, at Red Lake, Arizona Territory, March 6, 1895, in which statement is made that he personally knew of the use and damming of the Moencopi Wash prior to 1864.
5. The Evidence of Chip-A-Nole, an old woman at Allen's Old Ranch 12 miles north of Tuba City, Arizona Territory, March 12, 1895, in which she states that the Navajos and the Hopis of Craibi planted corn and cotton on the Moencopi Wash prior to 1864.
6. The Evidence of George P. Williams made at Tuba City, Arizona Territory, March 22, 1895, in which he testifies to the use of the Moencopi Wash for agricultural use by the Hopis prior to the coming of any White settlers.
7. A Writ of Injunction by a group of White settlers vs. Navajo Agent, certain Navajo Indians and dependants in Flagstaff, Arizona Territory, the 7th day of June 1898. This regards Indian use of the Moencopi Wash.
8. A Statement of Ben J. Williams, made at Red Lake, Arizona Territory, March 6, 1895, in which he states that the Navajo and Hopi Indians dammed the Moencopi Wash and irrigated their fields for agricultural use prior to White occupancy.

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9. The Statement of Fred Slattery made at Blue Canyon, Arizona Territory, March 7, 1895, in which Navajo and Hopi agricultural use of the Moencopi Wash was practiced prior to White settlement.

10. The Statement Kosteën Ba-lu-Clonny made at Allen's Ranch 12 miles from Tuba City, Arizona Territory, March 12, 1895, in which he makes the statement that he was born near Oraibi Mesa and he lived and farmed on the Moencopi Wash prior to 1864.

THE SAN JUAN RIVER

11. Letter of Walter Weston to Hon. E.M. Teller, Washington, D.C., written from Jewett, San Juan County, New Mexico Territory, December 6, 1886, in which Navajo needs regarding agriculture of the San Juan River are described.

12. Letter of Transmittal from Commissioner of Indian Affairs, T. J. Morgan, to Navajo Agent, C. E. Vandever U. S. Indian Agent, Navajo Agency, October 19, 1889, with an attached report and recommendations submitted by Lieutenant Stotsenburg as a result of surveys and examination of the Navajo Reservation and its water supplies.

Refer to the 30th day of July 1890, Commissioner of Indian Affairs recommendations, pertaining to the Navajo Reservation, to the Department of War the suggestion that the President issue instructions to the effect that officers of proper rank make topographical surveys, study and recommendations of a system of irrigation and developing of a stock water supply for the Navajo Indians. On December 20, 1892, The War Department informed the Interior Department that the survey had been made as recommended and transmitted the original reports of the army officers. Based on this, Congress was asked to appropriate \$64,000 for the purpose of developing said recommendations. The Office Report together with a report of the Army Officers' accompanying documents and maps are to be found in Senate Ex. Document No. 53, 52nd Congress, Second Session. Note: This is commonly known as the Lieutenant W. C. Brown Report.

13. Letter from D. M. Browning, Commissioner of Indian Affairs, to E. H. Plummer, Acting U.S. Indian Agent, Navajo

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Agency, Arizona, regarding Navajo crops on the north side of the San Juan River and surveys pertinent to the Navajo occupation and usage of the San Juan River.

14. Letter from D. M. Browning, Commissioner of Indian Affairs, to E. H. Plummer, Acting U.S. Indian Agent, Navajo Agency, Arizona. This regards claims of Mathias Ebert to Navajo lands opposite Jewett, New Mexico, on the San Juan River.

15. A Letter from Mary E. Whyte, Missionary at Jewett, New Mexico, to Agent E. H. Plummer, Navajo Agency, February 7, 1894, regarding construction of Navajo Indian ditch on the north side of the San Juan River.

16. A Letter from Assistant Adjutant General, Wm. J. Volkmar, to the Commanding Officer, Fort Wingate, New Mexico, June 18, 1896, regards to white encroachment on the Navajo in the vicinity of the San Juan River.

17. A Printed Special Order from Fort Wingate regarding distribution of troops on the San Juan River preventing the intrusion of unauthorized persons on the Navajo Reservation. Dated April 24, 1896.

18. A Letter of Report and Recommendations by W. A. Jones, Commissioner of Indian Affairs, to the Honorable Secretary of the Interior, Washington, April 12, 1900, in which the report is made of the Carriso Ditch, (2nd) the Wheatfield Ditch, (3rd) Cottonwood Ditch, (4th) The Red Lake System consisting of Black Lake and Red Lake Ditch, (5th) the Agency or Bonito Creek Ditch, also this section regards the San Juan River and states that if the use of water from the San Juan River has not already been secured to the Navajos as a tribe by riparian rights suggests that it immediately be done. He also states that there is ample water in the river for all, including Indian lands, and goes into some detail on the water rights.

19. A Letter from Acting Commissioner, A. C. Tomner, to the Navajo Agency, New Mexico, dated- Washington, August 30, 1902, in which 6,000 is the number of Indians residing on the San Juan River.

20. A Letter from Samuel E. Shoemaker to Major G. W. Hazlett, U. S. Indian Agent, Fort Defiance, Arizona Territory, February 21, 1903, regarding the request of the Olio and Fruitland Canal Company to construct an irrigation system South of

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Included
in this report.

the San Juan River upon the Navajo Reservation. There is also some reference to the irrigation system of the Pennsylvania Co.

21. The report of the Superintendent of Irrigation of the Shoshone Agency, Wyoming, March 14, 1900, to the Commissioner of Indian Affairs, dealing with the history of Navajo Irrigation from 1890 to 1900. This is apparently a report made by an Irrigation Engineer. A copy of this report is herewith attached.

Refer to Senate Ex. Document No. 68, 52nd Congress, 2nd Session, also the Report of P.E. Harroun, C.E., of September 25, 1890, to the Commissioner of Irrigation and Water Rights in New Mexico, in which there is a section relating to District No. 1 of the San Juan River.

Letters from Official and Miscellaneous
Correspondence Book No. 1, Aug. 18, 1903

Page 55. Letter from Superintendent and Special Disbursing Agent to Commissioner of Indian Affairs, dated Nov. 10, 1903. Estimates submitted by Supervisor Shoemaker for the construction of an irrigation ditch to be built near the present Shiprock Agency.

Page 79. Letter from Supt. W.T. Shelton to Commissioner of Indian Affairs, dated December 12, 1903, which describes Indian farming and irrigation and needs in regard to implements.

Page 101. Letter from Supt. W.T. Shelton to Commissioner of Indian Affairs, dated December 17, 1903, relative to two ditches being constructed upon the San Juan River and also to the "Indian Land Barons" taxing other Indians for the use of lands under irrigation ditches. Also relative to farming on the east of the Carrizo Mts.

Page 122. Letter to the Commissioner of Indian Affairs from Supt. W. T. Shelton, dated December 28, 1903, requesting a temporary appointment of a competent civil engineer to collect data and estimate the subdivision of lands under the new ditches, the running of laterals, etc. Also to survey possibilities of large springs in the Carrizo Mts. for irrigation purposes and investigation of the native irrigation system near the mouth of the Mancos River.

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Page 153. Letter to Commissioner of Indian Affairs from Supt. W. T. Shelton, dated February 8, 1904, in which 2 ditches will be completed on the San Juan River and the request for authority to purchase alfalfa, wheat, oats, barley, corn and Mexican beans in the desire to encourage the Mountain Indians to locate permanently on the San Juan River.

Page 170. Letter from Supt. W. T. Shelton to the Commissioner of Indian Affairs, dated February 27, 1904, relative to the plans for the building of a school ditch at the San Juan School.

Page 178. Letter from Supt. W. T. Shelton to the Commissioner of Indian Affairs, dated March 5, 1904, in which he requests that the 2 new ditches be opened so as to prepare land for planting.

Page 198. Letter to Commissioner of Indian Affairs from Supt. W. T. Shelton, dated March 31, 1904, reporting agricultural possibilities from the Northern Navajo Reservation.

Page 235. Letter to Commissioner of Indian Affairs from Supt. W. T. Shelton, dated April 30, 1904. Report of the Agent regarding a trip in the vicinity of Aneth, Utah, and the agricultural and irrigation possibilities.

Page 263. Letter to Commissioner of Indian Affairs from Supt. W. T. Shelton, dated May 17, 1904. Request for Authority to expend a sum of money for construction and improvements of an irrigation ditch constructed in 1890 by the Navajo Indians on the San Juan River across from Fruitland, New Mexico.

Page 267. Letter to Commissioner of Indian Affairs from Supt. W. T. Shelton, dated May 19, 1904, relative to irrigation ditches in the farming area in the vicinity of Two Grey Hills.

Page 349. Letter from Supt. Shelton to Commissioner, dated July 21, 1904, in which the Agent requests authority to expend a sum of money (\$60) to pay for the filing of water rights for 12 irrigation ditches on the Navajo Reservation along the San Juan River. Justification was the fact that the San Juan River was nearly dry and that the

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low state of the river was partially caused by the river being dammed up and water taken out by irrigation ditches up the river. Water Rights were \$5.00 per ditch.

Page 352. Letter from W. T. Shelton, Supt., to the Commissioner, dated July 21, 1904. A request to expand a sum of money for work on an old Indian ditch built in 1890.

Page 355. Letter from Supt. W.T. Shelton to the Commissioner, dated July 22, 1904. Request for authority to pay for Water Rights and statement of information from the Probate Clerk of San Juan County that to insure absolute protection, it would be necessary to have the ditches surveyed, plats made of them, and also the land covered by them and said plats filed in the County Court House. Statement that action should have been at once so that the Water Rights up stream would soon be adjudicated.

Page 391. Letter from Supt. W. T. Shelton to the Commissioner, dated August 1, 1904. Reports the condition of the irrigation ditch.

Page 395. Letter from Supt. W. T. Shelton to the Commissioner, dated July 30, 1904, referring to a letter of Howard R. Antes, a Missionary from the Navajo Faith Mission in Aneth, Utah, referring to public lands on the San Juan River in the hope that such would be reserved by executive order for the Navajo Indians. He further states that several hundred Navajos are located in the vicinity and also refers to the general land conditions of the region.

Letters from Commissioner
Correspondence Book No. 2

The San Juan Agency was established the year of 1904, under Acting Agent, Samuel Shoemaker, who was replaced the same year by William T. Shelton.

Page 21. Letter from Supt. W. T. Shelton to the Commissioner, dated August 20, 1904, which describes the Navajo Indian crops raised on the San Juan River and vicinity of the Hogback Ditch. This letter also relates to 12 or more irrigation ditches along the San Juan River and describes a ditch known as Ditch No. 2 and its use.

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Page 61. Letter from Supt. W. T. Shelton to the Commissioner, dated September 1, 1904, referring to recommendations with regards to protection of Indian Water Rights on the San Juan River and request for funds with which to pay Water Rights, also request of authority to expend certain funds for the employment of a surveying crew to make plats of the 12 irrigation ditches and tillable land affected by such ditches.

Page 64. Letter from W. T. Shelton, Supt., to the Commissioner, dated September 7, 1904, requesting authority of appointment of an additional farmer whose qualifications should be a knowledge of the nature of the San Juan River, the irregularity of the water and the adjoining agricultural lands.

Page 114. Letter from Supt. W. T. Shelton to the Commissioner, dated October 27, 1904, referring to a communication from Mrs. Sophie Hubert at Aneth, Utah, relating, in part, to Navajo Indian irrigation in that vicinity.

Page 127. Letter from Supt. W. T. Shelton to the Commissioner, dated Nov. 8, 1904, requesting authority to expend funds for development of roads over which to transport Indian agricultural products.

Page 138. Letter from Supt. W. T. Shelton to the Commissioner, dated November 14, 1904, relating to Indian agriculture and irrigation on the San Juan River and recommendations for possibilities of future irrigation development.

Page 175. Letter from Supt. W. T. Shelton to the Commissioner, dated January 14, 1905, requesting agricultural implements and seed to be exchanged for work on irrigation ditches.

Page 180. Letter from Supt. W. T. Shelton to the Commissioner, dated January 24, 1907. A request from the Indian Office for field notes of surveys from townships north of the Navajo Base Line and West of the Navajo Meridian-copies of ditch surveys on ditches No. 2 and 3 and blue-prints of same. Also statement that an engineer has been employed to survey and plat the ditches of the northern half of the Navajo Reservation for the purpose of filing on Navajo Indian Water Rights. (Note: These water maps have not as yet been located at Shiprock.)

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Page 182. Letter from Supt. W. T. Shelton to the Commissioner, dated January 24, 1905. Request for authority to be granted for the purpose of purchasing wheat, corn and alfalfa to induce Indians from the mountains to come down on the San Juan River to farm as well as encourage those Navajos already farming there.

Page 183. Letter from Supt. W. T. Shelton to the Commissioner of Indian Affairs, dated January 31, 1905. A request for authority to purchase nursery stock, apples, peaches, apricots, plum, pear, cherry, raspberries, blackberries, grape, forest and shade trees and peach seeds. The agents hope to encourage the Navajos on the San Juan River to inter into the fruit industry.

Page 187. Letter from Supt. W. T. Shelton to the Commissioner, dated February 1, 1905. Request for authority to expend a certain sum of money for the improvement of springs and small reservoirs in the vicinity of Bennett's Peak, for the development of irrigation.

Page 193. Letter from Supt. W. T. Shelton to the Commissioner, dated February 4, 1905, in which the Agent states that Charles P. Holly, surveyor, is engaged in plating irrigation ditches for 50 miles up and down the San Juan River.

Page 200. Letter from Supt. W. T. Shelton to the Commissioner, dated February 7, 1905. The recommendation of the Agent that an additional farmer be located somewhere between the Four Corners, Utah and Bluff City, Utah, on the San Juan River - a hope of developing further Indian irrigation of agricultural lines in that vicinity.

Page 214. Letter from Supt. W. T. Shelton to the Commissioner, dated February 15, 1905. A report concerning Indian lands situated in San Juan County, Utah, which is proposed that such lands be set aside by executive order for the use of the Navajo Indians. Also the statement is made that there are only 3 traders living in this territory and that the Navajo Indians in this section have been living in the vicinity for years.

Page 229. Letter from Supt. W. T. Shelton to the Commissioner, dated February 20, 1905. Proposal for the diversion of a channel of the San Juan River for 5,095 feet for the protection of 200 acres of good Indian farm and farm land which were under irrigation.

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Page 238. Letter from Supt. N. T. Shelton to the Commissioner, dated February 24, 1905. Request for authority to improve and extend Navajo Indian irrigation ditch, formerly Tse-he-ya-bo-ga and known thereafter as San Juan River Ditch No. 4. Also statement that such ditch will irrigate 540 acres and that such ditch was constructed in 1885 by Navajo Indians. Also data on another ditch to be constructed.

Page 240. Letter from Supt. W. T. Shelton to the Commissioner, dated February 24, 1905, relating to the surveys of the Ditch No. 4 and the proposed San Juan River Ditch.

Page 242. Letter from Supt. W. T. Shelton to the Commissioner, dated February 24, 1905, relating to surveys of ditches and relative to the old Indian ditches and the fear of the Agent that new White settlers will affect the Indians Rights; thence the survey. Copy of the survey was forwarded, in which mention is made of a plat of Ditch No. 4 and a statement that such was filed in the San Juan County Clerk's Office at Astec, New Mexico.

Page 250. Letter from Supt. W. T. Shelton to the Commissioner, dated March 3, 1905, relative to Ditch No. 3, description of such ditch, recommendations for improvement. (Note: this is the Cudai Ditch.)

Page 254. Letter from Chas. F. Holly to Agent Wm. T. Shelton, Shiprock, New Mexico, dated March 2, 1905, relative to the Cudai Ditch and followed by a technical report and recommendations for the improvement of such ditch.

Page 258. Letter from Supt. W. T. Shelton to the Commissioner, dated March 8, 1905, for the authority of putting in a new and permanent heading to the irrigation ditch located just below the Hogback on the San Juan River. Plats and proposed improvements were sent to Washington. Mention is also made that in 1894, Navajo Indians $8\frac{1}{2}$ miles north up the San Juan River, the present Shiprock, constructed a ditch 4 miles in length which irrigated nearly 1,200 acres of land and recommendations are made for improvements on said ditch. Mention is made of the large quantities of silt and sand carried by the river and regarding the shifting channels of such river. "Agent Shelton still worried over Water Rights." He writes, "I am having surveys and plats made of all the larger ditches along the river for the purpose of filing on Water Rights, thereunder, for the use and benefit of the Indians. It is desirable and important that we have a ditch

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heading permanently located in order to establish prior right and make a better showing when the water rights are adjudicated." Note: Recommendation, therefore, should be made in regard to these filings at San Juan County Court House at Asteo, New Mexico.

Page 279. Letter from Supt. W. T. Shelton to the Commissioner, dated April 13, 1905, referring to map of San Juan River Ditch No. 4, and requested blueprints be returned to the Agency.

Page 286. Letter from Supt. W. T. Shelton to the Commissioner, dated April 17, 1905, relative to the location and proposed construction of the line of railroad of the Arizona & Colorado Railroad Company through the Navajo Reservation and that said company was required to enter into an agreement concerning Indian allotments on the San Juan River, relative to the protection of irrigable lands and the recommendation of the Agent that such line should not interfere with any Indian lands near the proposed San Juan River Ditch No. 1.

Page 294. Letter from Supt. W. T. Shelton to the Commissioner, dated April 21, 1905. A letter with reference to a ditch claimed to have been built by the ladies of the Cambridge Indian League of Mass. This refers to a ditch which Supt. Shelton requested authority to improve on March 6, 1905 and that such ditch was first constructed by 2 Navajo Indians named Shah-don-ne and Hosteen Be-ken-ne and their friends. (Constructed about 1893, with tools furnished by Navajo Agent, Edwin F. Plummer, The Ladies Missionary Society and an Indian living near Toadlena. A complaint was made by the Agent that there were too many temporary high-water headings made in the river and that the only permanent low water heading at that time was near Fruitland, New Mexico, which was constructed in 1904. Some further reference is made to the Hogback Ditch.

Page 305. Letter from Supt. W. T. Shelton to the Commissioner, dated April 24, 1905. Request for funds for the purpose of changing the channel of the San Juan River for a distance of 1,630 feet and the protection of agricultural lands.

Page 325. Letter from Supt. W. T. Shelton to the Commissioner, dated May 17, 1905, in which the Agent states that out of more than one dozen Navajo irrigation ditches of various sizes on the San Juan River, none were in first-class condition. Also, statement where reference is made to possibilities of additional lands being developed with extensions

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of certain ditches. Reference is made to Ditch No. 2, two ditches at the eastern end of the reservation, the ditch across the San Juan River and opposite Fruitland, New Mexico, the Hogback Ditch and a ditch on the south side of the river opposite the Hogback Ditch.

Page 352. Letter from Supt. W. T. Shelton to the Commissioner, dated May 22, 1905. Request for authority for the construction of a new ditch 200 feet up the river from the San Juan Navajo Ditch No. 4.

Page 336. Letter from Supt. W. T. Shelton to the Commissioner, dated May 23, 1905, referring to repairs on the head gate of Ditch No. 3 and data on said ditch. Also reference to the condition of Ditch No. 2.

Page 384. Letter from Supt. W. T. Shelton to the Commissioner, dated June 13, 1905. Reference to a letter of Mr. C. W. Clay, Sr., Mancos, Colorado, relative to placer mining claims on the east side of the San Juan River, within the boundaries of the Reservation. Extension made by executive order of 1905. The statement is made that there were no white settlers living in the region, except traders.

Page 380. Letter from Supt. W. T. Shelton to the Commissioner, dated July 5, 1905, with reference to improvements of the San Juan Ditch No. 4.

Page 384. Letter from Supt. W. T. Shelton to the Commissioner, dated July 5, 1905. Request of authority for repair and improvement of the Hogback Irrigation ditch.

Page 390. Letter from Supt. W. T. Shelton to the Commissioner, dated July 5, 1905, in which the Agent refers to certain historical points in regards to the Cambridge, alias Hogback Ditch. (Note: Correspondence of 1893 all refers to this ditch. We believe this is the ditch constructed under the supervision of Mary Whyte and Mary Eldridge.

Page 405. Letter from Supt. W. T. Shelton to the Commissioner. Excerpts in answer to Indian Office Circular, Accounts, dated May 23, 1905.

TRIBE OR TRIBES & POPULATION OF EACH:

Navajo Tribe of Indians. Population estimated to be 7000. No complete census has ever been taken.

AREA: ACRES:

5,000 square miles. 3,200,000 acres. No portion of the reservation is allotted.

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DESCRIPTION OF THE RESERVATION:

More than half of the reservation is rough and hilly; about 800,000 acres level; less than 2 per cent is bottom land; about 10 per cent timbered; 90 per cent open; about 20 per cent is arable or could be farmed if there was sufficient water for irrigation; 60 per cent grazing; and 20 per cent barren.

The acreage is estimated as follows:

Hilly	2,360,000	acres
Level	800,000	"
Bottoms	20,000	"
Bottoms Timbered	320,000	"
Bottoms Open	2,860,000	"
Arable	640,000	"
Grazing	1,920,000	"
Barren	640,000	"

Bottom timbered land includes pine timber in the mountains; cedar on the foothills and cottonwood on the streams.

IS IRRIGATION NECESSARY: If so, how much of the reservation can be irrigated, and how, and at what probable expense?

Irrigation is necessary. The only reliable source of water supply for irrigation is the San Juan River which flows through the northern portion of the reservation; The Chusca or Chaco River is dry except during the rainy season. I estimate that a sufficient supply of water to irrigate 64,000 acres can be secured by constructing canals or ditches from the San Juan River, storage reservoirs in the Chusca and Luk-a-chu-ka mountains; and from artesian wells. There are a number of artesian springs on the reservation that might be developed and made to supply water for the irrigation of considerable additional land.

Anything like an accurate estimate as to the quantity of land that can be irrigated or the cost of irrigating it cannot be made without going over the matter in detail. It is probable that the amount of land on the reservation that can be irrigated exceeds 64,000 acres, - on the other hand it is possible that the amount stated is a little too high. The cost of placing water on the land varies according to location and source of supply. It is my opinion that the cost of placing the 64,000 acres of land under irrigation would not exceed \$10 per acre. Small areas of it could be irrigated at much less than \$10 per acre.

HOW MUCH LAND IS NOW UNDER DITCH, and how many Indian farms are benefitted thereby? Also how many miles of ditch are constructed and in operation?

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The quantity of land now under ditch; number of acres covered; number of Indian farms benefitted; and the number of miles of ditch on the reservation are estimated as follows:

San Juan Ditch No. 2; 4.25 miles long; 750 acres; 15 Indian farms. (All of the land under this ditch is not cultivated).

San Juan Ditch No. 3; 3.48 miles long; 832 acres; 15 Indian farms.

San Juan Ditch No. 4; 2.56 miles long; 546 acres; 8 Indian farms. (This ditch has just been constructed.)

Hosteen Tahn Ditch; 2.62 miles long; 320 acres; 15 Indian farms.

Barbe Wero Ditch; 3.20 miles long; 255 acres; 10 Indian farms.

Navajo Pete's Ditch; 2.30 miles long; 56 acres; 11 Indian farms.

Se-leen-tua-za Ditch; 1.50 miles long; 109 acres; 3 Indian farms.

De-Na-yae-ya Ditch; 1.35 miles long; 244 acres; 18 Indian farms.

Hogback Ditch; 3.76 miles long; 766 acres; 35 Indian farms.

Costiano Ditch; 2.82 miles long; 482 acres; 25 Indian farms.

The above named ditches have been surveyed and claims for water right filed. In addition to these there are about 12 or 15 smaller Indian ditches, which in the aggregate are estimated as follows: 9.25 miles; 1,455 acres; 50 Indian farms. The total of the ditches along the San Juan River: 37 miles; 5,819 acres; 273 Indian farms.

In addition to these there are numerous ditches nearer the mountains for which water is supplied by springs; and in sand arroyos, which are used for irrigating crops of corn during the rainy season or freshets. These are all small ditches and reliable data as to the number, amount of land cultivated, etc., is not obtainable at this time. The principal crop raised by the Indians in the sand arroyos is corn, together with melons, squash and other vegetables, and the amount of corn raised exceeds the amount produced by the Indians cultivating farms along the river.

INDIAN FARMS; Number, size, tillage and crops;

The number of Indian farms under the ditches along the San Juan River is estimated to be about 273. Practically all of the Indians do some farming, but on a very small scale and under very discouraging conditions, except along the river.

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Data cannot be obtained at this time as to the number; but outside of the farms along the river they cannot be said to be permanent as most of them are but patches planted to corn and vegetables in the dry sand arroyos and depending entirely upon the rainfall, which is very light. The farms along the river average in size about 10 acres; those in the sand arroyos probably not more than 2 acres. The farms on the river are fairly well cultivated; those under the Hogback ditch are cultivated about as well as the average farm in the white settlements.

The Indians farming under the ditches raise corn, wheat and alfalfa principally; also vegetables; some oats and a few have fruit trees.

Page 411. Letter from Supt. W. T. Shelton to the Commissioner, dated July 24, 1905. A report, of the Agent, relating to the Navajo Indians located on the north side of the San Juan River in the vicinity of Aneth, Utah.

Page 416. Letter From Superintendent & S.D.A. to the Commissioner, dated July 25, 1905, relating to the above mentioned settlement of Navajo Indians 'n Utah, about 10 miles below or west of Bluff, Utah. Reference is made to their irrigation, agriculture and allotments.

Page 449. Letter from Supt. W. T. Shelton to the Commissioner, dated August 5, 1905, referring to the condition of the irrigation ditches on the San Juan River; particular mention being made of Ditch No. 4, the Hogback Ditch, the Ditch at the eastern end of the reservation, the Ditch opposite Kirtland, New Mexico, the Costiano Ditch, the Hosteen Tahn Ditch, the De-na-yaz-ya Ditch, the Bighorse Ditch and also 15 other Navajo Ditches. Mention is made again the possibilities of irrigation from artesian springs near Bennett's Peak.

Page 458. Letter from Supt. W. T. Shelton to the Commissioner, dated August 12, 1905. Agent's report to the Commissioner of Indian Affairs for 1905, relating to population, animal industry, agriculture and irrigation with certain recommendations.

Page 465. Letter from Supt. W. T. Shelton to the Commissioner, dated August 12, 1905. Request for authority and funds for improvements relating to Navajo Ditch No. 4.

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Letters from Miscellaneous Letter
Book No. 1, starting at Aug. 18, 1904.

Page 11. Letter from W. T. Shelton, Agent, San Juan Training School to Ruben Perry, Superintendent, Ft. Defiance, Arizona, dated August 18, 1904, relative to agriculture in his jurisdiction.

Page 78. Report of Superintendent W. T. Shelton to the Governor of New Mexico, Hon. Miguel A. Otero, dated September 21, 1904. Section under present program relates to irrigation and farming. Also sections under Population and Area may be relevant to present situation.

Page 224. Letter from Supt. W. T. Shelton to Mr. Frank Mead, General Supervisor of Reservations, Phoenix, Arizona, dated January 18, 1904. Monthly Report of December, 1904, relative to agriculture, irrigation, etc.

Page 263. Letter from Supt. W. T. Shelton to Mr. Frank Mead, General Supervisor of Reservations, relating to irrigation and water supply of the San Juan River. Date 2-7-1905.

Page 277. Letter from Supt. W. T. Shelton to Charles H. Dickson, Supervisor Indian Service, Ignacio, Colorado, dated February 17, 1905, with reference to the possibilities of a flood on the San Juan River and plans for the protection of government property and Indian farms.

Page 320. Letter from Supt. W. T. Shelton to Frank Mead, dated March 13, 1905, relative to the claims of the Navajo, Sandeval, in regard to irrigated lands. Reference is made to the reports of Lieut. W. C. Brown, November 29, 1892.

Page 345. Letter from W. T. Shelton to Frank Mead, dated March 16, 1905, relative to the Indian tenure and management of lands under irrigation.

Page 366. Letter from W. T. Shelton to Frank Mead, dated March 25, 1905. Monthly Report of February 1905. Partially reports Indian needs and lack of field seeds, the preparation of crops, building of fences and repair of irrigation ditches.

Page 399. Letter from Supt. W. T. Shelton to Frank Mead, General Supervisor of Reservations, dated April 21,

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1905. Monthly Report March, 1905, relative to Indian preparation of fields, Executive Order placing 250 Indians on the reservation, changing of river channel for 1600' and reference to several Indian problems.

Page 424. Letter from Supt. W. T. Shelton to Miss Mary A. Tripp, Farmington, New Mexico, dated May 9, 1905. Reference is made to construction of a new ditch and relation of Indian ditches to her property.

Page 431. Letter from Supt. W. T. Shelton to Frank Mead, dated May 15, 1905. Report that the San Juan River has been high and that the Cudai or No. 3 Ditch has been damaged.

Page 489. Letter from W. T. Shelton to Frank Mead, dated June 15, 1905. Report that practically all irrigation ditches are out of repair, due to the high water of the San Juan River. Heading of Ditch No. 2 is destroyed. This ditch is located across the river from the school. Ditch No. 3 or the Cudai Ditch 10 miles below the school on the south side of the river, the 2 ditches at the eastern end of the reservation and near Farmington, the Tse-he-yah-bo-ga 2 miles up the river from the school and the Hogback Ditch. The older Indians stated that the San Juan River had never been as high as it had been in May 1905, 2 Navajos having lost their lives and also 6 or 8 White people.

Letters from Miscellaneous
Correspondence Book No. 2
June 23, 1905

Page 54. July 24, 1905. This a Register to the Land Office, Salt Lake City, Utah, relative to the Executive Order of 1905, and contained the statement that "Practically all of the bottom land along the San Juan River west of the Four Corners (Utah, Colo., New Mexico & Arizona) except at Bluff City, Utah, is occupied and used by the Navajo Indians."

Page 57. Letter from W. T. Shelton to Frank Mead, dated July 25, 1905, regarding the recedence of the river and the report that the wheat crops and irrigated fields, particularly at Hogback and Cudai, have been excellent.

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Page 364. Letter from Supt. W. T. Shelton to Mr. C.C. Sroufe, Principal Asst. Engineer, A&C Ry., Gallup, New Mexico, referring to the proposed abandonment of San Juan Ditch No. 1 on the Navajo Reservation and the projects of the Agent, thereto.

Letters from Agent, W. T. Shelton,
to Commissioner of Indian Affairs.
August 10, 1908

Page 204. Letter from W. T. Shelton to the Commissioner, dated January 22, 1909, relative to the opening up of the new Hogback Ditch and to repairs on Indian ditches.

Page 216. Letter from W.T. Shelton to the Commissioner, dated February 2, 1909, relative to the San Juan School Ditch.

Page 228. Letter from W.T. Shelton to the Commissioner, dated February 2, 1909, relative to San Juan School Ditch.

Page 238. Letter from W.T. Shelton to the Commissioner, dated February 17, 1909, with reference to a request of W. H. Simmons for the Women's Home Missionary Society to construct a ditch on Indian land near Farmington, New Mexico.

Page 240. A general letter relative to agriculture and irrigation on the San Juan River. Date of letter, February 20, 1909.

Page 250. Letter from W. T. Shelton to the Commissioner, dated February 26, 1909, relative to repairs on school irrigation ditch.

Page 354. Telegram from Agent to Commissioner, in which danger of destruction of a section of the Hogback Ditch is reported.

Page 405. Letter from W.T. Shelton to the Commissioner, dated July 26, 1909. A general letter and Annual Report for 1909, with reference made to irrigation.

Page 412. Letter from W.T. Shelton to the Commissioner, dated July 28, 1909, in which general information is given in regards to the Indian and White tenure on the San Juan River. The Coolidge Ditch is mentioned as having been built

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approximately 1888. Reference is also made to White settlers who located on certain lands prior to May 1, 1886. In general, this letter is a good cross section of Navajo Indian and White use of lands and water between 1865 and 1909.

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Maps available for Reference in
the U. S. Irrigation Office at Window Rock,
Arizona.

These maps have been re-numbered according to the present
map file.

U.S.I.S. No. 15-1-1.
Hogback Ditch 1908

U.S.I.S. No. 15-1-2.
Hosteen Tah Ditch. Located on the south bank of the
San Juan River. Location by section corner and monument,
length, bottom and top width; carrying capacity. Survey
by- Chas. F. Holly, County Surveyor of San Juan County, New
Mexico, May 15, 1905.

U.S.I.S. No. 15-1-3.
Costiano Ditch. South of the San Juan River, located
by monument with carrying capacity given. Mapped by- Chas.
F. Holly, March 21, 1905.

U.S.I.S. No. 15-1-4.
Field Notes of proposed improvement in the head of the
Hogback Ditch. Transmitted April 11, 1905.

U.S.I.S. No. 15-1-5.
San Juan Navajo Ditch No. 4 (formerly the Tse-he-ya-be-ga
Ditch, extended and improved). The Legend states that in 1864
Tse-he-ya-be-ga, a Navajo Indian, took out a ditch and farmed
under same. That in 1894 the same Indian built a ditch the
same location and each and every year since; tilling and irri-
gating approximately 100 acres a year. Data with regards to
this ditch under this legend is filed by County Surveyor, Chas.
F. Holly and Wm. T. Shelton, Superintendent & Acting Ind an
Agent. (9 copies)

U.S.I.S. No. 15-1-6, 7, 8, 9, 10 & 11.
This all comes un a continued series. Title: Map Showing
Line Definite of Location of the Arizona & Colorado Railroad
Company of New Mexico, made 1905, in which Navajo Irrigation
ditches and farms near the railroad right-of-way on the Navajo
Reservation might be affected.

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U.S.I.S. No. 15-1-12.

Map of the proposed Upper San Juan Ditch on the Navajo Reservation in New Mexico, surveyed by- Geo. Butler, I.E., October 7, 1902, showing proposed Navajo Ditch as well as White Ditches near Farmington and Kirtland, New Mexico.

U.S.I.S. No. 15-1-13.

Map of the Barbo Wero Ditch on the south bank of the San Juan River. Located by monument under survey of Chas. F. Holly, County Surveyor, April 27, 1905.

U.S.I.S. No. 15-1-14.

Map of the proposed Sandavol Ditch on the San Juan River showing location of ditch and acres involved.

U.S.I.S. No. 15-1-15.

Field Notes of the Hogback Ditch made by Chas. F. Holly, County Surveyor, January 25, 1905.

U.S.I.S. No. 15-1-16.

Map of Navajo Pete's Ditch with proper location and data made by Chas. F. Holly, County Surveyor, April 25, 1905.

U.S.I.S. No. 15-1-17.

Map of the Hogback Ditch giving location by monument, length, depth, etc. Notes that the Hogback Ditch was built in 1892, and surveyed for this map January 23, 1905, by Chas. F. Holly, County Surveyor.

U.S.I.S. No. 15-1-18.

San Juan Ditch No. 3. On the south side of the San Juan River, located by monument with additional data as to length, width and carrying capacity.

U.S.I.S. No. 15-1-19.

San Juan Ditch No. 2. Located on south bank of San Juan River opposite the San Juan School giving location by monument. Made by Chas. F. Holly, County Surveyor of San Juan County, New Mexico, from map and notes of George Butler, General Superintendent, Irrigation Service, who made the survey for extending and improving the Sandavol Ditch which was known as San Juan Ditch No. 2 with grade, carrying capacity, acreage involved, etc.

U.S.I.S. No. 15-1-20.

The Be-leen-tsa-za Ditch located on the north side of the San Juan River by monument giving width, grade, length, carrying capacity and agricultural lands involved. Made May 18, 1905, by Chas. F. Holly, County Surveyor, San Juan County, New Mexico.

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