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Pueblo Bonito Correspondence

National Geographic Society, Pueblo
Bonito Expeditions, Braced-up cliff --
National Geographic Society, San Juan
County, Utah, expedition, 1923

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1920 Reconnaissance

Chaco Region

November 17, 1920.

NATIONAL
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Dr. Frederick V. Coville,
Chairman, Research Committee,
National Geographic Society,
Washington, D. C.

Sir:

In compliance with the terms of an agreement dated April 28, 1920, between the National Geographic Society and myself, under which I engaged to make an archeologic reconnaissance of the Chaco Canyon, New Mexico, I beg leave to submit, herewith, my report as director of that expedition.

Very respectfully,

NEIL M. JUDD.

Curator, American Archeology.

NATIONAL
ANTHROPOLOGICAL ARCHIVES
SMITHSONIAN INSTITUTION

REPORT ON
AN ARCHEOLOGIC RECONNAISSANCE

of

CHACO CANYON, NEW MEXICO

by

Neil M. Judd, Director

United States National Museum
Washington, D. C.
1920

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OPERATIONS

The plan of operations submitted to your committee late in April, last, divided the proposed archeologic reconnaissance of Chaco Canyon, New Mexico, into three distinct yet closely related parts:

1-A preliminary visit to Chaco Canyon by myself while proceeding to Santa Fe, N. M., following explorations for the Bureau of American Ethnology in Utah and Arizona;

2-A photographic survey of the principal Pueblo Indian villages in Arizona and New Mexico, with visits to

such sites of intensive archeologic investigation as the Mesa Verde National Park, in Colorado; Aztec, Pecos and Hawikuh ruins, in New Mexico, and

3-A second, more detailed examination of the pre-historic habitations in Chaco Canyon.

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The pictorial survey, although undertaken chiefly in interest of Mr. S. G. Morley's forthcoming articles in the National Geographic Magazine, presented an opportunity both for necessary comparison between the Chaco Canyon ruins and those now being excavated at the localities above mentioned and for chance observations at modern Pueblo villages, some of which unquestionably contain clans that trace their descent from former occupants of the great communal dwellings in the Chaco district. At my invitation the pictorial party was joined in Farmington, N. M., by Mr. Earl H. Morris, in charge of excavations at Aztec, N. M., for the American Museum of Natural History, New York City, and at Pueblo Bonito by Dr. A. V. Kidder, director of the Pecos-Andover Expedition at Pecos, N. M. These two gentlemen are among the most widely experienced and best informed observers dealing with archeologic problems of the Southwest; their freely expressed professional opinions on the relative merits of the great Chaco Canyon ruins and the probable difficulties to be encountered in their further investigation are considered of inestimable value and of vast benefit to the expedition. Although differing with me on some questions of purely archeologic significance in the region visited, I am delighted to say that both Dr. Kidder and Mr. Morris concur in the recommendations conveyed by this report.

The third and most important part of the reconnaissance dealt solely with the prehistoric dwellings of the

Chaco Canyon region and problems to be anticipated by any institution contemplating their thorough examination. Approximately four weeks were devoted to this portion of the expedition; the observations made and the facts gathered are briefly reviewed in the following pages. Although much was necessarily left undone, it is felt that this survey accomplished all that was physically possible in the time available¹ and that the information obtained was quite sufficient to assure fulfillment of the mission with which I was charged, namely, to determine whether further, more comprehensive examination of the Chaco Canyon ruins would be advisable on the part of the National Geographic Society.

Being of relatively minor importance, the first portion of the reconnaissance may be passed over and such data as were gathered during its course embodied with those obtained during the final archeologic survey. The photographic expedition, in turn, having been undertaken primarily in interest of the Geographic Magazine, would seem to require but partial consideration at this time and only a mere outline, therefore, is offered for your information.

As previously arranged, Mr. Sylvanus G. Morley, representing your committee, and Mr. Charles Martin, photographer for the Society, joined me in Santa Fe, N. M., on July 28th. The nature and extent of our

activities during the next three weeks will be apparent from the following itinerary:

Itinerary of the Photographic Party.

- July 29 - Santa Fe, N.M.-- Capital of New Mexico; founded by Oñate in 1605 on ruins of an Indian pueblo. Obtained photos of historical interest.
- July 30 - El Rito de los Frijoles-- Famous canyon about 35 miles from Santa Fe. Obtained photos of cave and pueblo ruins; returned to Santa Fe.
- July 31 - Pecos, N.M.-- Site of largest historical pueblo in New Mexico; abandoned in 1838. Now being excavated by Dr. A. V. Kidder for Phillips Academy, Andover, Mass. Obtained photos; examined ruin and field methods of the expedition. Returned to Santa Fe.
- Aug. 1 - Rio Grande pueblos-- Visited Santa Clara and San Ildefonso, Tewa villages 40 miles north of Santa Fe. Obtained a few photos and returned to Santa Fe.
- Aug. 2 - Santa Fe, N.M.-- Secured additional photos of local and architectural interest.
- Aug. 3 - Chimayo, N.M.-- Martin visited this small village, famous for its blankets, and obtained photos. Occupied in Santa Fe with plans of the expedition and conferences at School of American Research.
- Aug. 4 - Santo Domingo-- Witnessed Green Corn Dance at this most conservative of New Mexican pueblos; secured a few photos and returned to Santa Fe. En route Gallup, N.M.

- Aug. 5 - En route Cortez, Colo.--
- Aug. 6 - En route Mesa Verde--Reached Mesa Verde National Park at noon; obtained photos of Sun Temple, Cliff Palace, etc., after lunch.
- Aug. 7 - Mesa Verde, Colo.-- Secured additional photos of scenic and archeologic interest--Balcony, Square Tower and New Fire Houses; Cliff Palace, etc. Proceeded to Mancos, Colo., in late P.M.
- Aug. 8 - En route Farmington, N.M.-- Arrived Farmington about noon and completed arrangements for Chaco Canyon trip. In P.M. Morley and Martin visited ruins of Aztec which are being excavated and repaired by Earl H. Morris for the American Museum of Natural History, New York City.
- Aug. 9 - Farmington, N.M.-- Busy with preparations for Chaco trip until noon; left by wagon after lunch.
- Aug. 10 - En route Chaco Canyon--
- Aug. 11 - Chaco Canyon, N.M.-- Noon near Peñasca Blanca ruin and reached Pueblo Bonito about 1 P.M. Chaco Canyon now a national monument. Photos of Bonito and Chetro Kettle taken in P.M.
- Aug. 12-14 - Chaco Canyon ruins-- Continued examination of major ruins near Pueblo Bonito, taking photos of each. Discussions by members of party. Left for Kimmenioli at 5 P.M., Aug. 14.
- Aug. 15 - En route Crown Point, N.M.-- Visited Black House and Kimmenioli ruins, obtaining photos. Continued toward Crown Point in afternoon.
- Aug. 16 - En route Gallup, N.M.-- Visited Pueblo Viejo in early morning and inspected Navaho Indian School at Crown Point. Dismissed team and proceeded by auto to Gallup, via Thoreau, N.M.

- Aug. 17 - En route Hawikuh, N.M.-- Left Gallup for Hawikuh, former Zuñi village visited by Coronado in 1540; one of Seven Cities of Cibola, described by Spaniards. Now being excavated by Mr. F. W. Hodge, Museum of the American Indian (Heye Foundation), New York City. Obtained photos while passing through Zuñi. Spent night as guests of Hodge.
- Aug. 18 - Inscription Rock, N.M.-- Obtained photos of Oñate (1606) and other early Spanish inscriptions on this famous landmark, now a national monument. Returned to Hawikuh.
- Aug. 19 - En route Gallup-- Secured interior photos at Zuñi. Reached Gallup and completed plans for remainder of trip.
- Aug. 20 - En route Chin Lee, Ariz.-- Left Gallup for Chin Lee, Ariz., via St. Michaels and Ft. Defiance. Reached destination at 4 P.M. and engaged transportation for Canyon de Chelly.
- Aug. 21 - Canyon de Chelly, Ariz.-- Obtained photos of spectacular canyon scenery and some of its ancient cliff houses. Visited lower portion of Canyon del Muerto and returned to Chin Lee.
- Aug. 22 - En route Hopi pueblos-- In A.M., photos of Monument Rock at head of Canyon de Chelly. Left later for Hopi pueblos, spending night at Keams Canyon upon invitation of Supt. R. E. L. Daniel.
- Aug. 23 - Hopi villages, Ariz.-- Stopped at Walpi on First Mesa and secured photos of Indians and their habitations. In P.M. witnessed Flute Ceremony at Mishongnovi on Second Mesa; arrived at Oraibi at foot of Third Mesa about 9 o'clock after crossing difficult roads.

- Aug. 24 - Hopi villages-- In A.M., photos at Oraibi pueblo and Hotevilla; witnessed Snake Dance at latter in late afternoon. Most dramatic ceremony presented by primitive Americans. Returned to Keams Canyon, arriving at 11 P.M.
- Aug. 25 - En route Gallup-- Arrived Gallup about 5:30 P.M.; left for Laguna, N.M., at 8 P.M.
- Aug. 26 - Acoma pueblo, N.M.-- Oldest inhabited site in United States, occupying a rocky butte 357 feet high. First mentioned by Spaniards in 1539. Obtained a few photos and returned to Laguna. Later left for Santa Fe.
- Aug. 27 - Santa Fe, N.M.-- Arrived Santa Fe at 5:30 A.M. Photographic party disbanded.

Upon the day the photographic party dispersed I returned to Gallup and thence to Zuñi where four Indians were engaged for the archeologic survey then in prospect. I had a two-fold purpose in selecting laborers from this pueblo: (1) previous experience having convinced me that the Navaho (who inhabit the Chaco region) are generally unwilling and unreliable workers, I wished to test the qualities of the Zuñi, they having been well recommended as a trustworthy, industrious people by Mr. F. W. Hodge, in charge of the excavations at Hawikuh, N. M., for the Museum of the American Indian, Heye Foundation; (2) while employing only enough of their number to prosecute the excavations in view our close association would, at the same time, afford them

an opportunity to become acquainted both with me and the, to them, unfamiliar region in which possible future work lay. Being a timid people, the Zuñi seldom venture far from their pueblo and rarely attach themselves to an employer in whom they lack absolute faith. The necessity for employing dependable and appreciative workmen, should additional research be undertaken in Chaco Canyon, suggested this venture with the Zuñi and I am pleased to report that the experience proved mutually satisfactory. The problem of transporting these Indians to and from the scene of major operations and of providing for them while there is not of paramount consideration.

II. LOCATION, PHYSIOGRAPHIC FEATURES AND HISTORY OF CHACO CANYON

The Chaco River is, in reality, a river in name only since its course remains absolutely dry throughout the greater portion of the year. Such flood waters, however, as drain into its sandy bed are guided in a westerly and northerly direction until they reach the San Juan River in the extreme northwestern corner of New Mexico. Chaco Canyon is merely a segment of the Chaco River, perhaps 20 miles long and averaging one-half mile in width; walls of sandstone from 100 to 300 feet high rise from its floor to the semi-desert wastes that slope away for miles in every direction. That portion of Chaco Canyon which commands our special attention is approximately ten miles in length and tends to parallel the eastern quarter of the boundary between San Juan and McKinley counties. Within or bordering upon this relatively small area are twelve of the seventeen prehistoric ruins embraced by the Chaco Canyon National Monument, created by presidential proclamation March 11, 1907.

The traveler in northwestern New Mexico encounters many handicaps. Drinkable water is at a premium and a supply for both men and horses should always be carried. Foodstuffs and other supplies are procurable only at isolated trading posts where the choice is frequently limited and uncertain. Forage for animals is not to be ex-

pected unless spring and summer rains have been sufficient to coax the sparse grasses to early maturity. Firewood is available only in widely separated localities and must be hauled a considerable distance to any permanent camp. Such roads as now exist in this inhospitable country are reminders of an earlier day when freight wagons were a necessity or they are the chance trails of shifting Navaho families, who usually travel without regard either for natural obstacles or the over-worked beasts that aid their progress. In either case, roads throughout the entire district are long, difficult and utterly neglected by state and county engineers.

A brief review of previous references to the marvelous ruins in Chaco Canyon may not be inappropriate before proceeding to consideration of their present condition and the advisability of inaugurating an intensive research among them. It is reported that they were first brought to public notice in 1776 when Don Bernardo de Mier y Pacheco visited and mapped them but Josiah Gregg, whose "Commerce of the Prairies" appeared in 1844, seems to have been the first writer to mention them in print. Our earliest reliable information of these ancient dwellings, however, is gained from the report of Lt. J. H. Simpson who passed through Chaco Canyon in 1849 on a military reconnaissance into the Navaho country. W. H. Jackson, of the Hayden Sur-

vey, supplemented Simpson's notes by closer observation and more complete ground plans of the ruins, during his visit in 1877. The reports of these two government officers may be said correctly to have first directed the attention of American archeologists and historians to Chaco Canyon.

Although the region was constantly in mind as a field well worthy of investigation, it was not until 1896 that a scientific expedition actually proceeded to Chaco Canyon for the purpose of examining its ancient habitations. This expedition was directed by Professor F. W. Putnam, who was represented in the field by Mr. George H. Pepper, acting for the American Museum of Natural History, New York City. Pecuniary aid for these researches was granted by the Hyde Exploring Expedition whose activities were widespread in northwestern New Mexico during the closing decade of the nineteenth century and whose largest field agency was maintained at Pueblo Bonito. Employees of this company, perhaps working independently, had been and continued to be active in the collection of antiquities from prehistoric ruins and burial mounds throughout the Chaco drainage. Reports of their success largely encouraged the illicit gathering of aboriginal artifacts throughout the Southwest by local residents and chance visitors; unfortunately this irregular collecting still continues despite national laws forbidding unauthorized excavation on

government lands.

Mr. Pepper pursued his investigations at Pueblo Bonito three or four seasons and later published several short papers descriptive of certain ceremonial material recovered. His report on the work as a whole has been delayed until the present year (1920) and is now in press as this summary of the National Geographic Society's reconnaissance is submitted.

The expectation that Pepper's researches might eventually be completed even after the lapse of many years has served to delay comprehensive investigation of the Chaco Canyon ruins by other institutions. Mr. Warren K. Moorehead of the Peabody Museum at Andover, Mass., was sent to Chaco Canyon in the spring of 1897, the year following inauguration of Pepper's work, not to attempt a thorough exploration, as he confesses in his report, but "simply to make a typical collection in three weeks." He obtained about 2000 specimens in that short time. Dr. E. L. Hewett, now director of the School of American Research, Santa Fe, N. M., escorted a number of normal school students to Chaco Canyon about 1902 and subsequently (1908) published ground plans and brief descriptions of three of the ruins. Other students of southwestern archeology have also made similar limited observations in this same region, chiefly for comparative purposes, but no printed record of their respective visits has been found. In all fairness it may be said that since the time of Simpson and Jackson nothing of

general importance has been published regarding the archeologic remains of Chaco Canyon excepting an expanded review of their individual accounts by Professor Lewis H. Morgan and three short papers by Mr. Pepper.

The presidential proclamation of March 11, 1907, by which the most important prehistoric remains of Chaco Canyon were set aside as a national monument, was based upon surveys since proven to have been in error. Recommendations have recently been filed with the General Land Office in the interest of a new survey through which these inaccuracies may be corrected and the true location of the principal ruins definitely ascertained.

III. ARCHEOLOGIC REMAINS OF CHACO CANYON

Four distinct types of prehistoric dwellings are found in Chaco Canyon proper:

- 1-Large communal structures of such size and importance that they have been correctly regarded as the highest development of aboriginal architecture within the present confines of the United States;
- 2-Small houses of from three to twelve rooms each, found not only in close proximity to the major ruins but also widely distributed throughout the entire Chaco drainage;
- 3-Groups of talus pueblos, generally built under the north wall of the canyon in the immediate vicinity of the large buildings and
- 4-Small cliff-houses and storage cists of no great size but of significance in their probable relationship to the other three types of habitation.

In addition to the foregoing, circular constructions frequently more than 50 feet in diameter, may be seen closely associated with the large communal structures and more rarely and distantly associated with the "small house" ruins.

Besides the four kinds of prehistoric dwellings above mentioned, ruins of still greater antiquity will unquestionably be exposed by further research. Your expedition of the past summer discovered one such structure--a roughly circular, semi-subterranean house built of

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mud instead of stone--near the base of the canyon wall opposite Pueblo Bonito. The existence of such a construction had not been previously suspected in Chaco Canyon and the certain presence of others merely increases the complex archeologic problem of this region. To determine the principal characteristics of these several distinct types and to ascertain, if possible, their relationship one to the other should be the guiding motive of future investigations among the ancient remains of the Chaco Canyon region.

Of the talus pueblos, cliff-dwellings and storage cists little need be said at this time since their outstanding features are those of similar buildings found elsewhere. The important fact to be determined is their probable connection with the major ruins and this, of course, can come only after careful examination and a very cautious comparison of data. Being relatively unimpressive, these lesser structures appear to have escaped consideration in the papers thus far issued on Chaco Canyon antiquities.

The "small house" groups so widely distributed through the entire region may, perhaps, be expected to hold the secret of the origin of the Chaco culture. They are dwellings of a type found in many sections of the Southwest but the character of their masonry and certain decorative motives on the pottery found in them are peculiar to the Chaco district. Whether they were

occupied contemporaneously with or previous to the major ruins is a point which can be established only by extensive investigation. By far the larger proportion of antiquities found in our museums credited to the Chaco Canyon has come from the burial mounds or refuse heaps associated with these smaller ruins. Since they promised greater return for the time and effort expended, these refuse heaps--for such they really are--have received most attention both from pot-hunters and museum representatives on hurried visits to the region. During the course of the recent expedition not a single mound was observed, in association with these lesser dwellings, which remains undisturbed. Yet I feel certain these "small house" ruins still offer much for the investigator in spite of the promiscuous digging which has characterized this previous work in their refuse heaps. The dwellings themselves remain practically undisturbed; careful study of their principal features is certain to turn the light of better understanding upon the great communal dwellings which, thus far, have been the only archeologic remains of the region to receive attention.

Before proceeding to a consideration of the major Chaco Canyon ruins it is well to bear in mind that numerous difficulties confront the investigator at each one of them. The problem of obtaining water

for camp purposes and repair work; the lack of wood near most of the ancient dwellings; the scarcity of forage for horses, at least during the greater part of the working season; the distance from trading posts or other sources of supply and the unimproved condition of the roads all unite to hinder and delay operations and to greatly augment their cost. Certain of these problems become less marked at given ruins, more pronounced at others, but all of them must be considered in greater or less degree in inaugurating an intensive research at any of the great pueblos in Chaco Canyon.

IV. MAJOR CHACO CANYON RUINS

Seventeen major ruins are included within the Chaco Canyon National Monument; of these, sixteen were visited and examined during the Society's reconnaissance. Photographs and a ground plan of each ruin are submitted as part of this report but the drawings should be regarded merely as field sketches, not as accurate maps of exposed walls. Since they indicate the size and general shape of each ruin considered in the following pages these sketches, however, should prove of some assistance to your committee while considering the advisability of more comprehensive researches by the National Geographic Society. Excepting Pueblo Bonito and Pueblo del Arroyo, where it was deemed advisable to determine the floor level of rooms in the western tier, no excavations were attempted at the larger pueblos.

Pueblo Viejo (Navaho, Kin-yai-ani) is situated about two miles east of the Pueblo Bonito Indian School at Crown Point, N. M. The number of its ground-floor rooms probably does not exceed thirty; although the greater portion of the dwelling is in utter ruin sections of third story walls still stand. Little previous excavation having been attempted here, this pueblo is particularly inviting to the student. In its proximity to water, fuel and the source of necessary camp supplies this ruin possesses a distinct ad-

vantage over similar remains in the Chaco district but its size and relative unimportance are such that it does not merit serious consideration as a site for investigation by the Society. At least two dozen small house ruins lie within a quarter-mile radius of Pueblo Viejo and still others are to be found at slightly greater distances.

Kimmenioli, on the other hand, is a large ruin worthy of attention from any scientific institution contemplating serious archeologic research in the Chaco drainage. It stands about 40 miles northwest of Crown Point, in a broad valley of the same name which heads near Pueblo Viejo and empties into Chaco River some fifteen miles below Pueblo Bonito. The size of Kimmenioli ruin, its studied regularity of construction and the well-preserved condition of its walls, nearly half of which reach to the second or third story, make this great communal dwelling one of the most noteworthy in the entire region. Little evidence of previous excavation is to be seen within the great ruin itself yet burial mounds associated with small house remains a quarter-mile to the west have yielded a vast amount of material. Although this prehistoric structure merits attention and invites study as a triumph of ancient Pueblo architectural skill, it is not especially commended to your committee as a site for early investigation because of its isolation, the

barrenness of its surroundings and the uncertainty of a local water supply, and, finally, because it stands approximately eighteen miles from the main group of ruins in Chaco Canyon, around which the interest of travelers in the future, as in the past, will continue to center.

Black House (Navaho, Kin-kla-tzin) is a small and relatively unimportant structure about midway between Kimmenioli ruin and Pueblo Bonito. It occupies a conspicuous position in a broad valley draining into the Chaco; its standing walls are very insecure and unhappily doomed to early and complete destruction. Absence of sizable refuse heaps indicates that this village was occupied during a relatively short period, a fact which leaves the ruin of interest only in comparison with larger buildings of similar type.

Pueblo Pintado was the first of the Chaco Canyon ruins seen both by Lt. Simpson and Mr. Jackson. Standing on a high elevation near the continental divide, it forms a prominent landmark on the old trail which led westward from the Rio Grande into the Navaho country. Although but little evidence of wanton excavation is apparent, this building has suffered much from inconsiderate visitors. Early travelers remark upon the size of timbers seen in the ruin but every fragment of visible wood has since been torn from the walls and

utilized, no doubt, as fuel. The remains of a trading post, built of stones from the ruin, may be observed on the northeast side of the building; several neighboring rooms in the pueblo itself were repaired and evidently utilized in connection with this store. Firewood can be obtained within four miles and water might be developed by drilling in the arroyo one-fourth mile to the east but, like Kimmenioli, the location of Pueblo Pintado is such that the ruin does not commend itself as a site for comprehensive investigation at this time by the National Geographic Society. As previously stated, the attention of those interested in the great ruins centers about Chaco Canyon proper from which Pueblo Pintado is twenty miles distant to the east.

Coming next to the area of more intensive occupation, we first encounter Weje-gi, a small ruin of pleasing proportions and unusual regularity of construction, which nestles under the cliff about six miles east of Pueblo Bonito. Excavation and repair of this ancient village would prove a comparatively simple task providing water could be developed in the immediate vicinity. Its walls are in an excellent state of preservation despite the fact that they have been stripped of every vestige of wood; the masonry is of the same general type but rather coarser than in the largest of the major ruins. Absence of a pronounced refuse heap suggests that the ruin was not occupied through any

considerable period; this and other facts indicate that cultural material, if found at all, would be limited in quantity. There is much in favor of Weje-gi as a site for investigation, especially in connection with its architecture; it is not, however, recommended for detailed study to your committee inasmuch as its size leaves it of less importance than other ruins of the neighborhood.

A ditch cut by Mr. Richard Wetherill along the north side of the canyon from Weje-gi to Pueblo Bonito was intended to divert rain water into a large reservoir near the latter site, as a provision against the dry summer months; this ditch is still traceable throughout the greater portion of its length. Although its original purpose is quite obvious and the method of its construction at once apparent, it has been held by some students to be evidence of an extensive irrigation system developed and utilized by the prehistoric inhabitants of the canyon.

Pueblo Una Vida is now in utter ruin; its walls may be traced only with difficulty and uncertainty. The village site occupies a sloping hillside directly north of the Fachada, a sandstone butte identified with Navaho mythology, and approximately two miles west of Weje-gi. Only a small proportion of the original walls are standing and these exhibit a poor quality of masonry as compared with those of other Chaco Canyon ruins. There are reasons for believing that

this village resulted from a single communal effort and not the gradual growth by accretion which characterizes the development of most primitive communities; other evidence indicates that the settlement experienced a relatively short period of occupancy. Sheep corrals probably constructed by Navaho from wall stones are to be noted in various parts of the ruin.

Hungo Pavie, a ruin possessing much to delight the eye of the student, will be found about midway between Una Vida and Pueblo Bonito. It exhibits a well developed plan of construction; its rooms are uniform both in size and arrangement and its walls remain in a satisfactory state of preservation although robbed of their wooden members. From the architectural point of view this ruin is of more than passing significance since it resembles in many ways certain large communal dwellings of the San Juan drainage, from which region its inhabitants may well have come. Problems of excavation and repair could be easily met at Hungo Pavie, a fact which should commend itself to other scientific institutions contemplating research in this field. Were it not that still larger ruins more commensurate with the research capacities of the National Geographic Society seem to warrant first consideration, Hungo Pavie might be strongly commended as a site meriting the consideration of your committee.

Ruins Nos. 8 and 9 (Simpson's nomenclature) are small, compact structures located about one-half mile and one mile, respectively, west of Pueblo Bonito. Although interesting in themselves, as are all the prehistoric villages of Chaco Canyon, their insignificance and relative unimportance in comparison with neighboring communal dwellings is such that both ruins may be disregarded as possible sites for immediate investigation.

Pueblo Alto stands on the mesa north of Pueblo Bonito, approximately one-half mile from the canyon rim. There are in reality three distinct communal dwellings at this point although Jackson mentions but two. The largest of these, commonly known as Old Alto, is in utter ruin; very few of its walls show above the great mass of fallen masonry and the outline of the original structure is traced with obvious uncertainty. New Alto, on the other hand, is a delightfully arranged, compact pueblo of 33 rooms, most of its first story walls being still intact. The third ruin, smaller even than New Alto, stands about 400 years north of the latter; it is now a mere mass of dissociated stones and no effort was made by members of the expedition to trace its outline. The Pueblo Alto group is of considerable importance and should not be wholly ignored in any future study of the Chaco ruins but the mere fact that it is situated on a cliff, three hundred feet above the canyon floor and back some distance from the

rim, tends to outweigh those features which might otherwise commend it to your consideration. The group is reached only by a narrow and difficult series of steps in the canyon wall near Pueblo Bonito; the cost of raising materials up the face of this cliff and transporting them to the ruins would prove too great in comparison with any results which might be gained at this time through excavation.

Peñasca Blanca occupies a prominent position opposite the mouth of Escavada Wash about three miles west of Pueblo Bonito, and may be seen not only from the latter ruin but from far down the Chaco as well as from the mesas to the north. It possesses so much of general interest and importance that it has come to be regarded as one of the most remarkable ruins in the whole Southwest. Oval in form, with rooms of exceptional size, with walls of both good and bad masonry, with evidence of secondary construction pointing to alterations in the original plan of the village--these and other outstanding features unite to make Peñasca Blanca one of the most desirable sites for comprehensive investigation in the entire Chaco Canyon region. Like Pueblo Alto, however, this composite structure is situated on a rocky elevation so difficult of access as to add almost prohibitively to the cost of its excavation and repair.

This village site has suffered much from the hands of vandals, including Navaho Indians who have pitted it

in their search for turquoise; museum collectors have also worked in the ruin but their results, so far as known, have never been published. A considerable proportion of the second and third story walls have long since collapsed, covering the lower rooms with an enormous mass of broken stone and earth. Were it not for the additional problems and excessive cost of excavation presented by its inaccessible location and the present ruinous condition of its walls, Peñasca Blanca would be strongly commended to your committee as a site of unquestioned merit and well worthy of investigation. But the very fact that such additional difficulties are encountered is sufficient to turn the scale in favor of other ruins still to be considered.

Sin-kle-sin is a small ruin standing one-half mile from the south rim of the canyon and directly opposite Pueblo Alto. Although this Navaho name appears on the map accompanying the presidential proclamation of March 11, 1907, creating the Chaco Canyon National Monument, several Navaho Indians questioned during the course of the recent reconnaissance insisted their people had no word by which this ruin was identified. One distinctive feature of Sin-kle-sin is the enclosure on the north and east sides, a feature not found at any of the other Chaco Canyon ruins. Handicaps such as have been noted in connection with Pueblo Alto and Peñasca Blanca obtain also at Sin-kle-sin which is less meritorious than they as a scene for intensive research.

Chettro Kettle, standing close to the canyon wall less than one-half mile east from Pueblo Bonito, probably covers a greater area than any other ruin of the Chaco group. Its walls are neither so high nor so well preserved as those of Pueblo Bonito but it compares favorably with the latter in interest and general importance. Like the other major ruins already considered, Chettro Kettle has been stripped of all large timbers which could be moved; the casual destruction which accompanied this robbery was largely responsible for the collapse of otherwise sturdy walls. The entire first floor has been covered by the blowing and silting in of sand and by the crumbling of the upper stories. In this great mass of debris it is not unreasonable to expect that rooms will be found whose walls and ceilings are still intact and as perfect as when abandoned centuries ago. The village would appear to have been inhabited throughout a considerable period of time, judging from the size of its refuse heaps and from the presence of secondary construction in several sections of the ruin.

Excepting a few rooms on the north side which were cleared many years ago by pot-hunters the ruin remains practically untouched. It was this lack of previous work that especially commended Chettro Kettle to the individual members of your expedition. Here all those relatively insignificant factors, those in-

numerable fragments of data, disclosed during the course of continued excavation could be weighed as found and the history of the ruin interpreted with greater certainty. Proximity of this ancient village to Pueblo Bonito, its accessibility and the greater ease with which materials required in its repair could be procured were additional factors in its favor. It had been my original intention to devote considerable time in close examination of Chetro Kettle but this plan was cheerfully abandoned when it became known that our reconnaissance had been anticipated by Dr. E. L. Hewett, Director of the School of American Research, Santa Fe, N. M. This fact, together with a sincere desire not to interfere with the investigations which I found under way, precludes my recommendation of this site for such future studies as may be decided upon by your committee.

This concludes the presentation of the major ruin groups of Chaco Canyon with the exception of Pueblo Bonito and Pueblo del Arroyo which, because of certain special qualifications, have been reserved for consideration in the next section.

V. PUEBLO BONITO AND PUEBLO DEL ARROYO

Pueblo Bonito has justly been described as the foremost prehistoric ruin in the United States. And this distinction has never been successfully challenged since its first description, now more than three-quarters of a century ago.

The ancient home of an unknown people, constructed on preconceived plans as a community enterprise, altered and realtered many times during the period of its occupancy, its broken walls still rising in places to a height of 40 feet, Pueblo Bonito ranks as the most impressive and inspiring sight in the entire Chaco Canyon region. It is quite impossible to picture in words the grandeur of this ancient habitation or to describe, in a few short sentences, the feelings that surge through one while gazing upon this huge pile of abandoned homes. There is nothing in the whole Southwest which can equal it; no other ruin of such complex design, possessing such exquisite masonry; no other ruin which tells so clearly the unwritten story of the forgotten people who once dwelt in the shadow of its now silent walls.

In outline Pueblo Bonito is roughly semicircular, its long axis being more than 500 feet east and west and its short axis over 300 feet north and south. In area this building covers approximately three acres but in addition to the great pueblo itself there are outlying refuse heaps and smaller constructions which

materially increase its size. In the heyday of its occupancy this prehistoric American community house probably contained as many as 800 rooms, sheltering from 1000 to 1200 souls. These tilled the broad level floor of the canyon, coaxing from the arid wastes a few simple crops of which corn, beans, squash and cotton were the most important. They hunted deer and antelope on the mesas overlooking the valley and surely waged defensive war against their tribal enemies, perhaps the Navaho, who with ever increasing pressure bore down upon them from the north.

Pueblo Bonito has changed much in the past thirty years. Archeologists have delved in its depths for prospective rewards--ceramic remains of rare artistic merit, exquisite ornaments of jet and turquoise mosaic, tools and utensils of bone, stone and wood, all the imperishable impedimenta of ancient Pueblo life. Many rooms have been cleared, tons of earth and stone have been moved in the search for material objects left by its former inhabitants. But in spite of all these arduous activities little or no attention has been directed toward the architecture of the pueblo; no attempt has been made, apparently, to solve the mystery of its ancient builders, to interpret their daily life and activities, to leave them better known and appreciated by subsequent generations. The results of investigations conducted twenty-five years ago are only now being made available and these, in view of the great

increase in archeologic knowledge during that period, must necessarily be regarded as far from complete. In spite of all the excellent work done by the American Museum of Natural History, the whole story of Pueblo Bonito has by no means yet been written; the great ruin still invites the spade of the archeologist and still guards rare secrets with which to crown his labors.

Chiefly because of these previous excavations this site has not been regarded by archeologists as so inviting or so promising as some of its neighbors but, I believe, upon wholly inadequate grounds. Examined with closer insight, Pueblo Bonito appears to merit the attention of your committee more than any other ruin of the Chaco Canyon archeologic province, for the following reasons:

- 1-Because its architectural features are such as to warrant the confident expectation that they will shed much light upon the various periods during which the canyon was occupied in ancient times;
- 2-Because the material already taken from this ruin excels in variety, technique and beauty that obtained from any other archeologic site in the whole Southwest and
- 3-Because its indubitable pre-eminence in general interest, scientific importance and facility of investigation makes it the most appropriate ruin in the entire Chaco Canyon district for intensive study by the National Geographic Society.

Pueblo del Arroyo occupies an insecure position on the bank of Chaco Wash, in the canyon and only 300 yards west of Pueblo Bonito. When Simpson visited and named this ruin in 1849 the wash, or arroyo, which passes it had probably assumed no marked proportions. To-day it is 20 feet deep and the flood waters that race down its length have gradually widened its channel until the great house itself is seriously threatened. A smaller pueblo on the opposite side of the arroyo and directly south from the larger building has been almost entirely destroyed through caving of the bank during the past fifteen years. A similar fate surely awaits Pueblo del Arroyo unless efforts are soon made to divert the stream.

So little evidence of previous excavation is to be noted at this large communal dwelling that it presents practically virgin soil for the investigator's shovel. The entire first story is covered by masonry fallen from above and by wind-driven sand which has lodged about the broken stones. Those walls seen by the chance visitor are mostly of the second and third floors; it is probable the building stood at least four stories high at the time of its abandonment. Not only are its remaining walls of such height and number as to leave this a ruin of more than usual interest but the stability of those walls is far above the average. Altogether, this ancient habitation is one of the most desirable for investigation in all of Chaco Canyon and it would seem

to offer no practical difficulty either in excavation or repair.

Pueblo del Arroyo has many superior qualities but, in addition to those which are most obvious, it possesses one other feature that makes it of paramount importance to the archeologist. Beneath the pueblo and exposed only by caving of the arroyo bank, are the remains of a dwelling belonging^{ing} to the "small house" type already mentioned. Two periods of occupancy at one site, each with its distinctive material and architectural remains, offers an unparalleled opportunity for the study of culture sequence, one not duplicated, so far as I am aware, at any other major ruin in Chaco Canyon. Of course the subjacent position of this one small house building does not establish the fact that all similar remains in this region belong to an earlier period than do the great communal dwellings; it merely increases the importance of Pueblo del Arroyo in solving that fundamental scientific problem. Indeed it is this highly significant evidence as to the possibility of cultural superposition which has prompted me to include Pueblo del Arroyo with Pueblo Bonito in my final recommendations for an archeologic project by the National Geographic Society in the Chaco Canyon region.

VI. RECOMMENDATIONS

The archeologic survey of the Chaco Canyon made during the past summer and subsequent consideration of all the factors involved, practical as well as scientific, leads me to the conclusion, first, that intensive study by the National Geographic Society of the ancient remains in this region will prove of widespread popular interest and of fundamental scientific importance, and, second, that the particular project best suited for consideration by your committee in this connection is a joint investigation of both Pueblo Bonito and Pueblo del Arroyo, which project, therefore, I respectfully commend.

Pueblo Bonito has been selected because it is literally the most important single archeologic site in the United States and, as such, is most worthy of scientific exploitation by the National Geographic Society. Pueblo del Arroyo, the other ruin recommended, possesses the unique feature of sequential occupation already noted and because of its close proximity to Pueblo Bonito may be worked jointly with the latter at a minimum of cost and scientific supervision. These two sites, the larger already partially cleared, may be excavated for approximately the same sum as any other single major ruin worthy of attention at this time; probably for not more than Chettro Kettle, selected by the School of American Research as the scene of its operations,

and certainly for much less than either Pueblo Alto or Peñasca Blanca, the third and fourth ruins, respectively, in point of size in Chaco Canyon.

In any estimate of the probable cost of such a project as that recommended, so many uncertain factors are involved--such as labor, transportation, supplies and the amount of repair work which may prove necessary--that close approximation only is practicable. The estimates which I have appended, therefore, have been drawn to cover the average contingency.

In the first place, I feel justified in recommending that, should any archeologic project be inaugurated in Chaco Canyon, its duration shall be for not less than five years. Any shorter period will prove inadequate to complete a unit of research work in the region under consideration which will give satisfaction to the National Geographic Society, and at the same time yield scientific results commensurate with the prime importance of this field. Next, comparison with known expenditures at other centers of intensive investigation in the Southwest--those of the Bureau of American Ethnology at Casa Grande, Arizona, and in the Mesa Verde National Park, Colorado; those of the American Museum of Natural History, at Aztec, N. M.; those of the Pecos-Andover Expedition, at Pecos, N. M., and those of the Museum of the American Indian, Heye Foundation, at Hawikuh, N. M.--indicates that the relatively greater problems encountered in Chaco Canyon

will require an annual appropriation of not less than \$15,000, running, as has been said, for a period of not less than five years. This estimate is based upon a field season of four months, June to September, inclusive.

In view of the magnitude of the project recommended and the widespread popular interest which it is certain to arouse, permit me to suggest the advisability of enlisting the active cooperation of two departments of the United States Government in this undertaking, namely, the Department of the Interior and the Smithsonian Institution. Cooperation with the Smithsonian Institution is suggested, first, because I believe the proper repository for all material that may be recovered during the course of the excavations (since the National Geographic Society has no museum facilities nor, indeed, is an institution for the display of specimens) should be the United States National Museum; and, second, because of the valuable supervisory assistance that would probably be extended the Society by the Smithsonian Institution in return for such a handsome enrichment of the national collections. A cooperation of this sort would not only lend great dignity to the project itself but would also result in mutual benefit to both of the institutions concerned.

Cooperation with the Department of the Interior is recommended because the research contemplated lies

wholly within the Chaco Canyon National Monument which is under the immediate jurisdiction of the National Park Service, Department of the Interior. Eventually, and as a normal consequence of the development of this research, a great influx of visitors--members of the Society, automobile parties on the overland trail to California, tourists by the hundreds--may be confidently expected to visit the scene of the Society's labors. In this connection I may point out that nearly 3000 tourists visited the Mesa Verde National Park last summer in automobiles alone, although its distance from the nearest trans-continental railroad is several times greater than that of the Chaco Canyon National Monument.

It appears to me that under these conditions and in view of the public character of Chaco Canyon, a national monument, that the Department of the Interior might be willing to consider not only the improvement of the present road from Thoreau, the nearest station on the Santa Fe railroad and sixty miles distant, but also active participation in the repair feature of the project. Cooperation in the latter phase of the undertaking would insure complete and permanent repair of the ruins and their protection after excavation.

As a final recommendation may I suggest the desirability of retaining throughout the course of this project, should it be authorized, the services of the present advisory committee, consisting of two officers

of the Smithsonian Institution and one member of your committee, with the possible addition of a fourth member representing the Department of the Interior? This research is quite the largest that has ever been contemplated in the Pueblo field and its director should be permitted to have the benefit of such expert counsel, thus somewhat mitigating the burden of his responsibilities.

In conclusion, permit me, Sir, to express my sincere thanks to the Research Committee of the National Geographic Society for having intrusted me with the responsibility of the reconnaissance just completed; for its cooperation and active assistance in furthering the objectives of that reconnaissance and, more especially, for the powerful stimulus to the whole field of southwestern archeology which can only result from the Society's interest in the Chaco Canyon.

Very respectfully yours,

/s/ Neil M. Judd.

Curator, American Archeology.

U. S. National Museum,
Smithsonian Institution,
November 17, 1920.