

# SOUTHWESTERN MONUMENTS MONTHLY REPORT

NOVEMBER, 1935.



DEPARTMENT OF THE INTERIOR  
NATIONAL PARK  
SERVICE.

SOUTHWEST REGIONAL OFFICE  
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# SOUTHWESTERN MONUMENTS NOVEMBER REPORT

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# SOUTHWESTERN MONUMENTS PERSONNEL

HEADQUARTERS Southwestern Monuments, Coolidge, Arizona: Frank Pinkley, Superintendent. Hugh M. Miller, Acting Assistant Superintendent. John H. Diehl, Associate Engineer. Robert H. Rose, Assistant Park Naturalist. Dale S. King and Louis R. Caywood, Junior Park Naturalists. Robert L. Cole, ECW Clerk. Luis Castellum, Temporary Clerk-Stenographer.

GENERAL FIELD MEN: Charles A. Richey and Harry Langley, Resident Landscape Architects. J. B. Hamilton, Associate Engineer. Andrew Clark, Topographer. J. H. Tovrea, Chief Engineering Aide. C. E. London, Carl Schmidt, and H. Lloyd Beed, Rodmen.

## FIELD STATIONS:

1. Arches---Moab, Utah. J. M. Turnbow, Custodian.
2. Aztec Ruins---Aztec, New Mexico. Johnwill Faris, Custodian.  
Robert W. Hart, Ranger-Archeologist.
3. Pandelier---Box 669, Santa Fe, New Mexico. Earl Jackson, Custodian.
4. Canyon de Chelly---Chin Lee, Arizona. Robert R. Budlong, Custodian.
5. Capulin Mountain---Capulin, New Mexico. Homer J. Farr, Custodian.
6. Casa Grande Ruins---Coolidge, Arizona. W. J. Winter, Custodian.  
Charlie R. Steen, Park Ranger.
7. Chaco Canyon---Crownpoint, New Mexico. Thomas C. Miller, Custodian.
8. Chiricahua---Willcox, Arizona.
9. El Morro---Ramah, New Mexico. E. Z. Vogt, Custodian.
10. Gila Cliff Dwellings---Cliff, New Mexico. No Custodian.
11. Gran Quivira---Gran Quivira, New Mexico. W. H. Smith, Custodian.
12. Hovenweep---Cortez, Colorado. No Custodian.
13. Montezuma Castle---Camp Verde, Arizona. Martin L. Jackson, Custodian.  
Frank Fish, Park Ranger.
14. Natural Bridges---Blanding, Utah. Zeke Johnson, Custodian.
15. Navajo---Kayenta, Arizona. John Wetherill, Custodian.  
Milton Wetherill, Trail Foreman.
16. Pipe Spring---Moccasin, Arizona. Leonard Heaton, Acting Custodian.
17. Rainbow Bridge---Rainbow Lodge, Arizona. No Custodian.
18. Saguaro---Tucson, Arizona. No Custodian.
19. Sunset Crater---Flagstaff, Arizona. J. W. Brewer, In Charge.
20. Tonto---Roosevelt, Arizona. Woodrow Spires, In Charge.
21. Tumacacori---Box 2225, Tucson, Arizona. George Boundey, Custodian.  
Martin Evenstad, Park Ranger.
22. Walnut Canyon---Flagstaff, Arizona. Paul Beaubien, In Charge.
23. White Sands---Alamogordo, New Mexico. Tom Charles, Custodian.  
Barry Mohun, Utility Man.
24. Wupatki---Flagstaff, Arizona. J. W. Brewer, in Charge.
25. Yucca House---Cortez, Colorado. No Custodian.

# CONDENSED REPORT

Coolidge, Arizona  
December 1, 1935

The Director,  
National Park Service,  
Washington, D.C.

Dear Mr. Director:

The Condensed Report for Southwestern Monuments for ~~November~~, 1935:

## TRAVEL

	<u>November, 1935</u>	<u>November, 1934</u>	<u>November, 1933</u>
Aztec Ruins	409	666	361
Bandelier	528	632	155
Capulin Mountain	900	1,800	600
Casa Grande	2,165	2,389	2,025
Chaco Canyon	528	492	421
Canyon de Chelly	30	62	---
Chiricahua	175	---	---
El Morro	45	250	---
Gran Quivira	340	299	370
Montezuma Castle	445	1,299	896
Natural Bridges	124	---	---
Navajo	---	---	---
Pipe Spring	619	361	602
Sunset Crater	96	---	---
Tonto	396	421	---
Tumacacori	1,141	876	924
Walnut Canyon	334	272	---
Wupatki	93	79	19
Yucca House	10	---	---

## Actual Reported

Registration	10,452	9,878	6,373
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The 14 Monuments which reported both in 1934 and 1935 showed a decrease from 9,878 to 7,973---1,905 visitors, or 19.2%.

The 10 Monuments which reported both in 1933 and 1935 showed an increase from 6,373 to 7,168---795 visitors, or 12.5%.

It would appear that November, 1935, as a travel month was 19.2% poorer than the same month in 1934; 12.5% better than the same month in 1933. In October, also, did the travel total fall below that of last year.

A large part of the decrease can be explained by the better method now used at Montezuma Castle for counting visitors. Last year's figures, compared with 1935, are unconscionably high.

### Weather

On the whole, weather has been good during November in the Southwest, but visitor traffic did not reflect this condition. One storm threat, and the wise travelers hole up this time of year. Southern Arizona points of interest are experiencing that quiescent lull which precedes the rush of visitors beginning in December and January.

Feed and range conditions are generally good. Moisture came late in the month to Tumacacori, Gran Quivira, El Morro, and Capulin.

### Engineering Activities

Associate Engineer Diehl spent almost the entire month in the field, inspecting work projects at several Monuments and Carlsbad and Platt National Parks.

Associate Engineer J. B. Hamilton spent 16 days of the month on Monument problems: facilitating construction of Aztec's parking area and cattle guard, inspecting El Morro's new steps, conferring at Gallup with Superintendent Pinkley and Chief Engineer Kittredge, inspecting work done recently at Canyon de Chelly.

The engineering crew under Andrew Clark worked at Bandelier and Chaco. Chief Engineering Aide Tovrea ran a road-surveying crew at Saguaro.

### E. C. W. Activities

#### BANDELIER:

1. Garage in utility area completed.
2. Mile of fire trail completed from Frijoles Canyon to Alamo Canyon.
3. 1200-foot Headquarters sewer extension completed.
4. Large crew spent month planting around Headquarters.
5. Maintenance work continued.
6. Former utility site almost obliterated.
7. Considerable rock quarry work carried on.

#### CHIRICAHUA:

1. Additional 1100' of Echo Canyon trail brings total to 4900'.
2. Additional 600' of Sara Deming Trail brings total to 2500'.
3. Walls of Ranger Station and Bathhouse up to 2 $\frac{1}{2}$ -foot level.
4. Maintenance of Bonita highway continues.
5. About 800 square yards of backsloping completed on Bonita highway.

#### PIPE SPRING

1. Advance group preparing camp for main arrivals.
2. Equipment shed being built out of sight on extreme southwest corner of the Monument

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## CONDENSED REPORT (CONT.)

3. About 25 men spent some time cleaning ditches, making fence, and filling in a wash.

### SAGUARO

1. Park Service engineering crew under Chief Engineering Aide Tovrea has surveyed 114,000 feet of the proposed scenic road.
2. Existing roads repaired.
3. Land boundaries surveyed.
4. Test wells dug.
5. Mine shaft and dry well shafts filled and obliterated.
6. General cleanup and obliteration.

### Field Trips

November 6 Superintendent Pinkley and Junior Park Naturalist King left Headquarters, meeting Architect Miller and Museum Technician Woodward of the Berkeley Office in Alamogordo that night. The party conferring on education problems and gathering information for future museum activity, then visited the following locations: White Sands National Monument, a group of petroglyphs near Three Rivers, Gran Quivira National Monument, Abo and Quarai Missions, and Bandelier National Monument.

Arriving in Gallup, Superintendent Pinkley and Acting Assistant Superintendent Miller (who had come from the Coolidge Office via train) attended the road conference November 12 and 13, which is described in a special report to the Director. King accompanied Miller and Woodward to El Morro National Monument, Zuni Pueblo, and the proposed Monument area south of Manuelito, New Mexico. Miller and Woodward then left the party and proceeded to Chaco Canyon, Aztec, and other Monuments.

Superintendent Pinkley, Miller, and King visited Canyon de Chelly with Chief Engineer Kittredge and Associate Engineer Hamilton, and then found time to stop only at Walnut Canyon for a brief visit on the way back to Headquarters, which was reached at 8:25 p.m. November 16.

### Personnel

Rodman H. Lloyd Beed reported for duty November 20 to Chief Engineering Aide Tovrea at Saguaro National Monument. Other than this addition, Southwestern Monument personnel remained unchanged during the month of November.

### Visiting Officials

During the month the following Park Service officials visited Headquarters on business matters: Scofield DeLong, architect, Branch of Plans and Design; Leffler Miller, architect, Field Division of Education; Arthur Woodward, museum technician, Field Division of Education; Regional E.C.W. historian Hogan, States Park Superintendent Vosper, and E.C.W. Photographer Wilkerson; Park Service Photographer

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CONDENSED REPORT (CONT.)

George Grant; Earl Trager, chief of the Naturalist Division; Vincent Vandiver, regional E.C.W. geologist; Resident Landscape Architect Harry Langley; Resident Landscape Architect A. C. Kuehl; Regional E.C.W. Inspector Richard Sias; Associate Forester W. H. Wirt.

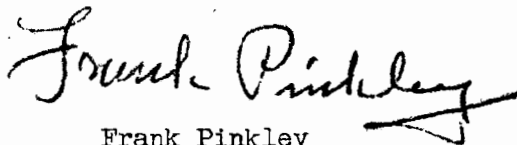
Senator Carl Hayden paid a welcome visit to Headquarters during the month.

Custodians John Wetherill and George Boundey and Trail Foreman Woodrow Spires dropped in for short visits.

Mail Count

Incoming, official	1,028 pieces
Incoming, personal	767 pieces
Outgoing, official only	1,390 pieces
Telegrams, incoming	38
Telegrams, outgoing	<u>44</u>
Total number of pieces handled	3,267

Cordially,



Frank Pinkley  
Superintendent

# REPORTS FROM MEN IN THE FIELD

## CANYON DE CHELLY

By Robert R. Budlong, Custodian

The month of November brought us very few visitors. We had two falls of snow, and some rain, and low temperatures. Apparently winter is going to strike us earlier this year than it did last year, and uncertain weather and threatening skies invariably frighten visitors away from the one hundred miles of dirt roads separating this Monument from the nearest town.

With the exception of eight persons, all our visitors this month were government officials. Total number of persons, thirty. All of the eight bona fide visitors just mentioned drove to the rim of Canyon de Chelly, two of them descending the trail. One of these crossed over the canyon floor to White House. This necessitated wading, for the stream was flowing, and to say that we got cold feet is to put it very mildly, for that water was nearly at the freezing point.

Water has been flowing down the canyons for some time, but has sunk into the sand before reaching the mouth. However, on November 18 it started flowing from the mouth of the canyon, and probably will continue to do so until late next Spring.

Temperatures for the month were rather low. Minimum temperature was 5 degrees, on the 5th; maximum was 68, on the 2nd. An inch of snow fell on the 10th, and we had mixed snow and rain on the 18th. On the 8th we had .31 inch of rain. Greatest daily range of temperature was 45 degrees, on the 6th.

Laying of adobes for the Custodian's Residence, Garage and Storage, commenced October 31. At this writing the door and window frames are in place, and the walls average 57 inches in height. It is hoped that the roofs may be on before really severe weather descends upon us.

On November 11 I left this Monument for Gallup, New Mexico, where I attended the road conference on the 12th and 13th. It took me a little over six hours to cover the one hundred miles. We had had our first snowfall the day before, and roads were not in the best of condition. The car slipped off the road into the ditch, delaying me for an hour; then on top of the mountain I met a truck driven by Navajo Indians, that blocked the road. Their car had a cracked distributor head, and it took us an hour to get it dried out, patched with piñon gum, and the engine running. Shortly after leaving them, the chains on the tires broke, the car described a figure 8 on the road plus one further revolution that headed me back towards Chin Lee for a few minutes. But these are common difficulties. Soon the roads will grow really bad.

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## CANYON DE CHELLY (CONT.)

Architect Lyle Barcume, Mrs. Barcume, and their daughter, visited this Monument on inspection trips October 30, November 8, and November 20. Chuck Richey accompanied Mr. Barcume on the inspection trip of November 8.

On November 1 and 2, we were paid a welcome visit by Dr. Murie of the San Francisco Office, Mr. and Mrs. Victor Cahalane of the Washington Office, and Mr. and Mrs. Borell of Grand Canyon. Like all other officials, they didn't stay long enough.

November 14 and 15, we were paid another visit by The Boss, Mr. Kittredge, Hugh Miller, Dale King, and Mr. J. B. Hamilton. It was Hugh's first trip to this Monument, and we were very glad that he managed to get here with the others of the party. On the 14th they drove to the rim of the canyon, and on the 15th drove within the canyon, leaving here that afternoon. Mr. Kittredge and Mr. Hamilton inspected the trail, which shows signs of washing in places, necessitating some repairs.

On November 17 we were paid an all-too-brief visit by Messrs. Woodward and Miller, of the Berkeley Office. We wish there were some way we could persuade these officials to stay longer on these trips.

This has been a most quiet month, and there is little to report. We continue our preparations for the winter, and after I get this in the mail I must climb on the roof, which is very steep, and attempt to repair some bad leaks that invariably send showers of cold water down on my bed during the nights when rain falls. We expect a good snowfall at any time.

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## TUMACACORI

By George L. Boundey, Custodian

Visitors for the month, 1141; 27 states, 3 foreign countries. The weather this month has been very much more agreeable than last month and we have exceeded the number of visitors for November of last year by 265.

We have had almost continuous rain during last night and today and this will go a long way toward filling up the water holes for the cattlemen. The feed is unusually good and I noticed in the paper yesterday that more than one hundred and fifty thousand head of cattle had been shipped to eastern markets in the past few months.

With the beginning of winter weather many of the eastern artists come west to paint. We have had several working at the Mission during the month and all make it a point to plead that the Mission proper be not restored. They are always enthusiastic over the present condition of the mission and all agree that further restoration of

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TUMACACORI (CONT.)

the Mission would ruin it.

Several representatives of the State Park Division spent nearly a day at the mission, taking measurements, tracing the wall foundations, etc. They are quite enthusiastic over the possibilities of landscaping, etc.

During the fall months our two youngsters gather the cocoons of moths and butterflies and hang them in the school room where the warmth will eventually cause them to come forth. In the collection this year were a number of the cocoons of the bag moth and they have selected this rainy day to come out so the school room is very much alive today.

Owing to the mild weather of the past week the Nogales school children paid a visit to the mission. The month of May we call the school children month as nearly every school in this portion of the state pays us a picnic visit as guests of their instructors. We generally prepare tables and benches for them back in the grove.

A certain condition has developed on this monument and I often wonder just how it is handled on other parks and monuments.

We are on a main highway to Nogales, nineteen miles from the Mexican border. Our neighbors with perhaps a dozen exceptions are all of Indian extraction. We fly the stars and stripes. We represent the Government.

There is seldom a severe accident on the highway, a murder, a suicide, a man beats his wife, a case of real want, a mad dog or any real emergency, but what we are called upon to handle it. And so far we have never failed, but there have been times when there was no ranger at Tumacacori that the wife and I have been put in rather peculiar situations. If one of the party is dead and some injured, the injured have to be rushed to Nogales and someone has to stay with the dead. The neighbors are helpless; they are superstitious of the dead or the delirious or the insane. It was always up to the wife to stay behind regardless of the drunken condition of the other members.

Our average running time into Nogales with the injured is 25 minutes. We happen to have a truck with a spring bed at the back. A few weeks ago we picked up two, the woman badly injured. Martin took care of the tourniquet and by holding the leg in the air we got her to Nogales without serious loss of blood. My trouble always has been that I could not drive and take care of the injured, too. Our neighbors are no good in an emergency.

About ten days ago a man lay beside the highway screened by a

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TUMACACORI (CONT.)

few bushes, from about three in the morning until nearly nine o'clock. He had been killed in a drunken brawl and none of the local people wished to be mixed up in it. Martin and I took charge and straightened out the tangle, tho we both had to appear in court following the hearing.

Am not complaining, we are willing to do all we can in an emergency, but I sometimes wonder just how far the Government would back me up if I get in bad.

One time I found a family with several small children without clothes or food and in a terrible condition. The man was working but seldom went home. I had him arrested; he got two months in jail and the day his time was up he sent word, "would I please come to Nogales and bring him home." I did and he has supported his family in good shape ever since.

Last Monday, the wife, our school teacher Miss Hughes and myself paid a visit to the Boss at Casa Grande. We enjoyed our visit very much.

When I learned a Custodian from the East had been appointed for Casa Grande, I was anxious to meet him and learn how he liked this desert country. When we alighted at Casa Grande we were met by a very pleasant appearing young man who introduced himself as Jack Winter. He acted as guide and after escorting the ladies thru the ruins proper, he very kindly accompanied us to the Clan House.

I never met a more pleasant and agreeable guide and on the way home I remarked to the wife, how much I liked our ranger guide. "Ranger Guide she says - didn't you see his badge? That was the Custodian."

All I can say is that Mr. Winter's success at Casa Grande is assured and I congratulate the Boss.

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Martin Jackson's report in a recent issue on how he (unofficially) broke all records for the standing broad jump reminds me of the story of the darky who had been delegated by his boss to take care of a particularly mean and ornery mule.

A visitor happened into the barn while the darky was doing the chores, and noticed the mule aiming several kicks in the general direction of the darky, but without success.

The visitor inquired: "How long have you been taking care of that mule?"

Darky: "About six years."

Visitor: "Have you ever been kicked by that mule?"

Darky: "No, sah."

Visitor: "Do you mean to tell me that you have taken care of that mule for six years, without having been kicked?"

Darky: "Yes, sah, that mule has never kicked me, but frequently he has kicked the place where I just recently been."

M. O. Evenstad.

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## WHITE SANDS

By Tom Charles, Custodian

We enjoyed a visit from Mr. Earl Trager of Washington, and Geologist W. Vandiver this week. These gentlemen are interested in the unexplored section of the White Sands Monument, the old lake bed, which is generally accredited with being the source of the Sands. They seem to think that about half of our show may prove to be over there at the old sink hole with the mammoth bones, the Giant's Tracks, and the old ox-cart trail which is said to have been a short cut of that road through the Jornada del Muerto, between The Gran Quivira and El Paso.

It was rather unfortunate that the wind was blowing when Mr. Trager visited the Sands. He asked me how the picnickers could eat out there when the wind was blowing and when I told him that the sand did not get up in the air but rather, it rolled, he had about the same expression that Earl Jackson had when he told me that he had never heard any of the boys say that they thought I meant to lie about the Sands. Will, it is only proof that love is blind, I guess. If I do not defend the shortcomings of this monument, what am I here for?

Last week a group of Oklahoma Indians visited the Sands and in conversation with them I learned that for many years they have gathered the leaves of the "White Sage" which grows profusely in the White Sands and have used them in their "Peyote" ceremonials. This group of Indians were from Anadarko, nearly 600 miles from here and they explained coming this great distance because the White sage, they said grew no place else except in Russia. As nearly as I could discover from these Indians the "Peyote" is a drink made from a shrub which does not intoxicate but makes the imbiber "feel good". The leaves of the White Sage are mixed with the smoking tobacco in these particular ceremonials and they are said to give an additional kick and also furnish a fragrance or sweet perfume to the festivities.

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## WHITE SANDS (CONT.)

Our Recreational Demonstration Project seems to be getting under way this week. The government has accepted Mr. Garton's option on the artesian well, and Mr. John Happer, Project Engineer, is gathering up the loose ends to be ready to start with the gun. The definite program has not been received here, but it is understood that the work will consist of tearing down the old fences and putting up new ones, building a service road from the Monument to the well, improving the present Garton house by making it modern, installing a mile and a half of 3-inch pipe which will furnish warm water from the well to the headquarters area when the same is finished, and possibly putting in dams and dikes under the instruction of the Wildlife Division so as to increase feed and nesting facilities for migratory birds.

This will introduce Barry Mohun, Jr., tall, retiring, competent, our new ranger. He arrived from Washington, D. C. about a week ago and is to be with us six months at least.

Barry's first job was to make a three day count of the cars at the Monument. The count shows an average of 9 cars per hour, (a drop from 14 cars last spring and 17 cars in August). By the generally accepted plan of multiplying the hourly count by 14 in order to get the 24 hour average, we have 126 cars per day through the Monument.

Sixty-five percent of these cars carry "foreign" licenses and 67% of them are travelling west. Ten percent drive in to the Heart of the Sands and 14% stop along Federal Highway No. 70, where the occupants climb onto the hills and play in the sand. This week-day count differs from the Sunday count in that 23.5% of the Sunday traffic go into the heart of the Sands.

On Sunday, November 3, there were 47 cars at the Turn-Around between 11 a.m. and 4 p.m. Twenty-one of these came in one party from Ysleta, Texas, and brought the officers of the Reclamation project and their families. Thirty cars loads of our guests, probably 130 people, gathered at the picnic grounds that day and ate their lunch from the four tables, made their coffee on the two fire places.

The next Sunday there were 49 cars in the Heart of the Sands in the same hours. These Sunday visitors are not local people but usually come from a distance of 75 to 200 miles. Despite the scarcity of conveniences, our picnic ground is a popular place about noon each Sunday. Ben keeps a few scraps of pine and dry wood at each fireplace as a friendly gesture to the visitor and we find that it is appreciated. It also keeps our visitors from gathering the shrubs and trees back along the road, for firewood.

I have been surprised and pleased at the fine response to our new signs which ask that the cars do not go beyond the Turn-Around. Not more than one or two cars have been in this scenic area since

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## WHITE SANDS (CONT.)

the signs were put up. The visitors also follow the signs to the picnic ground to eat their lunch. Here, the four tables, rough as they are, keep the chicken bones down in the valley and the two fire places have practically eliminated the burned spots on top of the hills.

Our Park Service visitors this month were Earl A. Trager, Sup't. Frank Pinkley, Arthur Woodward, Leffler A. Miller, Mr. and Mrs. V. E. Cahalane, Dale S. King, and V. W. Vandiver. "As we go to press" Mr. Chas. W. Michaels and Mrs. Michaels, who has been a Ranger-Naturalist in Yosemite for a number of years, are guests at the Monument.

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## GRAN QUIVIRA

By W. H. Smith, Custodian

I will submit my report for November and the latter part of October. Travel has been pretty good for this period. I have registered 340 visitors entering the Monument in 103 vehicles from 13 states, including New Mexico. This registration shows an increase of about 100 visitors and 30 vehicles over the preceding month.

The last month has been one for Park officials to visit the Monument as I have registered more the last month than I have in a long time. I will begin by naming them as they came: On date of October 21, Superintendent Pinkley and his daughter Nancy Margaret, Park Ranger Charles Steen, and Miss Story were here for a short visit. This was Miss Story's first visit to this Monument and she seemed to find it very interesting. On date of October 28, we had Mr. V. W. Vandiver, Regional Geologist, National Park Service. Mr. Vandiver was here for only a few minutes, but he said he expected to be able to pay us a visit later when he could have more time to discuss the Monument more thoroughly and give us some information on the formations of this district.

Again on date of November 8, 1935, we had Superintendent Pinkley, Junior Park Naturalist Dale S. King, of Coolidge, Arizona, and Technician Woodward and Architect Leffler B. Miller, both of the Berkeley, California, office. While here the above-mentioned men gave the museum proposition for this Monument their attention.

On date of November 10, Associate Engineer John H. Diehl, of Coolidge, Arizona, came by here. While here Mr. Diehl went over the grounds and inspected the location where the pumping plant and water system are to be installed in the near future, and he informed us that the foreman who will do this work would be here soon to begin the job.

On date of November 10, we had a party of C.C.C. boys from the camp near Corona, New Mexico. There were 25 in this party. Then again

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## GRAN QUIVIRA (CONT.)

on November 17, we had two truckloads of G.C.C. boys, one from the Corona camp, and one from the Cedarvale camp. One truck had 22 boys and the other had 21. These boys are now building a road around the South end of the Gallina Mountains just east of the Monument. They are making a mighty fine road with a gravel surface through some beautiful scenery.

Weather conditions for the last month have been fine for travel, except that on November 18 we had a small snow of about three inches on a level. It melted away the following day, leaving the roads muddy for a few days, but they are dry now and the weather is nice for travel again.

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## EL MORRO

By Evon Z. Vogt, Jr.

All is quiet again at El Morro. Harry Brown finished his work on the steps on the 19th and pulled out for Canyon de Chelly. And now, except for an occasional water hauler, the only signs of life around the Monument are rabbits and porcupines who go their way unmolested.

### WEATHER AND ROADS

As I write a slow warm drizzle dampens the countryside. Our weather man is still a freak. We are usually ice skating on the Ramah reservoir by this time of year. However, we have had two good snowstorms during the month. One of the 10th when three inches of snow fell here and nearly a foot fell on the high divide between Ramah and Gallup. The other storm was on the 17th, but it was only a light snow. And today, Sunday 24, it is storming. Sunday has been a bad day this month. We have had storms on three successive Sundays.

The Indian Service road work on Coal Mine Flat is coming along in fine shape. But as yet, no gravel has made its appearance on the road. Here's hoping it will be graveled before the winter blizzards, because if it is not, the new road will become a bottomless bog-hole.

McKinley County has been given some \$50,000 of the WPA money for New Mexico to spend on roads. Of this amount the community of Ramah has about \$7,200 to spend on the road between the county line, two miles south of Ramah and the Zuni Indian Reservation line three miles west of Ramah. This five-mile stretch should be fixed up in pretty good shape with \$7,200. Teams and scrapers from Ramah are already at work on the road, grading it up and making fills and cuts.

There is, however, no money in sight for the improvement of the road between the county line and El Morro. This piece of road becomes more nearly impassable with each storm.

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## EL MORRO (CONT.)

### VISITORS

Visitors for the month total a mere 45. Of these seven were Park Service men. Dale S. King, Leffler B. Miller, and Arthur Woodward were here on the 12th. Mr. Miller and Mr. Woodward are technicians from Berkeley who came to investigate the archeological finds near El Morro. These finds were the old Indian camping ground mentioned in the October report and the find of a piece of an arrowhead which might be a Folsom point. Chuck Richey, Hugh Miller, Frank Kittredge, and Mr. J. B. Hamilton were all in on the 13th and inspected the new steps.

But you know, Boss, not one of the above Park Service men registered. I thought the Park Service officials had better manners.

### MONUMENTAL IMPROVEMENTS

The new concrete steps on the trail leading up El Morro's south face were completed in excellent shape. Although the steps are a bit too regular to appear very natural, the color is much better than would be expected, for only Copper as was used. I think Mr. Brown did an exceptionally good job of coloring them, and from the standpoint of construction they couldn't be better.

The whole job was a difficult one. The cement, gravel, and water had to be hauled with team and wagon around to the back side of the monument and then up the gradual southern slope to the top of the rock. Then the materials had to be carried by men down the trail to the places where the steps were being constructed. Every night during the time of construction the temperature dropped below freezing, and the steps had to be covered with bean husks to prevent the raw concrete from freezing and cracking. Foreman Brown handled all these things masterfully, and I think that everyone, visitors and Park Service Architects and Engineers, will be well pleased with our new steps.

### GENERAL

I had a big time in Gallup on the 12th, the first day of the Road Conference, making new acquaintances and renewing old acquaintances among the Park Service men after conference hours. I especially enjoyed a fine visit with Dale King and Mr. Woodward.

Next week I shall disconnect the pipe line which runs from the water cove to the ranger's cabin. By that time the homesteaders can melt snow from the looks of the weather now, and won't have to haul any more water.

The Custodian will be here on the 27th for a stay of a week or so.

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# CHIRICAHUA

By Wm. Stevenson

Following is the Monument travel report for the months of October and November:

During the month of October 325 visitors arrived in 80 cars and in November 175 visitors arrived in 44 cars.

Little moisture has fallen during the two months' period, but the weather has been too cold for overnight camping. All visitors in the month of November arrived on week-ends.

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## CHIRICAHUA E.C.W.

By Wm. Stevenson, Project Sup't.

I herewith submit the following report for the month of November:

Echo Canyon trail has progressed well this month. 1100' of trail, including three switch backs, have been completed. Total length of trail to date, 4900'. Six hundred feet of completed trail has been added on Sara Deming making a total of 2500'.

Work has been resumed on the Ranger Station and Bathhouse after a halt due to delay in receiving specifications. The forms are placed and walls are completed to a height of  $2\frac{1}{2}$ ' on both buildings.

Maintenance of the Bonita Highway has continued throughout the month; ditches and culvert basins have been cleaned and the road graded.

Backsloping on the Bonita Highway was continued through the first week of November. The  $\frac{3}{8}$  yard P & H power shovel received from Rocky Mountain Park will prove valuable in the continuance of this work. Approximately 800 sq. yds. of slope have been completed to date.

November 13-17 we were visited by Jack Diehl, park engineer, Harry Langley, resident landscape architect, A. P. Keuhl, landscape architect, Grand Canyon, and George Grant, National Park Service photographer.

November 17, Mr. Trager, chief naturalist of the National Park Service, and Mr. Vandiver, National Park Service, geologist, were here for a short visit.

November 25-27, Mr. Wirt, of the Branch of Forestry, National Park Service, made a thorough inspection of the camp and work projects.

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# SUNSET CRATER

By James W. Brewer, In Charge

Travel to this Monument during October totaled 165.

During November 96 people visited the Crater, giving a wide geographical representation: Arizona 13; California 10; Illinois 4; Kansas 3; Ohio, Oklahoma, Minnesota, New York 2; Indiana, New Hampshire, Maine, Iowa, Nebraska, Texas, Pennsylvania, Virginia, New Mexico, Kentucky, New Jersey, Nevada, Wyoming, Oregon 1; Holland and Germany 1.

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## WUPATKI

By James W. Brewer, In Charge

### Travel:

44 guests registered at Wupatki Pueblo; at the Citadel Group, 65; 14 names are duplicated, leaving a total of 93 visitors to the Monument in November, 1935. November, 1934, 79; 1933, 19; 1932, 12.

States were represented as follows: Arizona, 34; California, 20; Ohio, 7; New York, 3; Texas, Washington, Washington, D. C., Nevada, and Massachusetts, 2 each; Vermont, New Mexico, Connecticut, Utah, Iowa, Nebraska, Illinois, New Jersey, and Canada, 1 each.

### Weather:

October 25 to November 1: High temperature, 69 degrees, on the 28th, low 33 degrees, on the 31st; precipitation, 0.00. November 1 to 25: High, 64 degrees, on the 2nd, low, 24 degrees, on the 6th and 7th; precipitation, .047 inch (morning showers on the 23rd and 24th). There were 11 cloudy days and seven extremely windy days.

### Newsworthy Visitors:

Mr. Vincent Vandiver brought Mr. E. A. Trager, en route from the Washington to the Berkeley office, on the 15th.

Mr. L. L. Hargrave brought Mr. Arthur Woodward and Mr. L. Miller on the 19th.

Kelly, Page, and Farmer paid us a visit from the Soil Conservation Service camp at Red Lake on the 3rd.

November has been a very quiet month.

### Museum Discussion:

After looking over the proposed administration area, Mr. Woodward and Mr. Miller had a bit of lunch and proceeded to tear apart our Museum prospectus. Mr. Woodward does not approve of displaying anything in a prehistoric room because they are small, dark, low ceiling-ed, and hard to maintain (all of which is true).

## WUPATKI (CONT.)

Mr. Woodward suggests we arrange another prospectus providing for all displays in one properly constructed museum building; he also suggested that we emphasize the two periods (Pueblo II and III) represented at Wupatki, and the effect of the Sunset Crater eruption on prehistoric populations.

### Roads:

Three huge pine trees have been uprooted and blown across the road between Sun Crater and Wupatki which is dangerous and almost impassable at these points; I'll do what I can to remove them.

### General:

The new Entrance Road signs for Wupatki and Sunset Crater were installed on the sixth. Two outbuildings were remodeled and repainted and 70 feet of trail were constructed on the east talus slope connecting the two units of the pueblo; this work consisted mainly of widening and slightly rerouting the former trail; it has been a slow troweling job because wall stubs are constantly cropping out.

### Questionnaires:

A total of 59 questionnaires has been given; results:

10 of the ten questions answered correctly by 10 people

9	"	"	"	"	"	"	"	16	"
8	"	"	"	"	"	"	"	8	"
7	"	"	"	"	"	"	"	6	"
6	"	"	"	"	"	"	"	4	"
5	"	"	"	"	"	"	"	4	"
4	"	"	"	"	"	"	"	1	"

Too few questionnaires have been given to justify definite conclusions, but these trends are noticeable:

Visitors from the East generally answer fewer questions correctly; visitors who do not know the meaning of the word "pueblo" answer fewer questions correctly; the question answered incorrectly most often is "What is the difference between Pueblo II and III houses?"

Evidently the story of Wupatki means comparatively little to people without some background or "orientation" of Southwest prehistory--a factor which is of course much easier to put across to some one even slightly familiar with "pueblos" and "pueblo life." The difficulty of the most-missed question is probably due to some previously unseen defect in the house type chart or the guide--we will change the chart first and see if that betters the results.

### Christmas Party:

Shortly before Christmas we expect to hold a small party for the

WUPATKI (CONT.)

local Navajos--a get-together to celebrate Christmas. We hope to have a feed, a tree, and a little present for each Navajo. The gifts will be discarded or out grown clothing for the elders, toys and candy for the kids. If anyone who reads this has any such clothing they will give to keep an Indian warm this winter, we will fit a needy Navajo to the article.

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## WALNUT CANYON

By Paul Beaubien, In Charge

Three hundred and thirty-four visitors registered this month. That's not many but it compares favorably with the 272 of November, 1934.

Visiting Park Service officials were: Earl A. Trager and Vincent W. Vandiver on the 15th; Frank Pinkley, Hugh Miller, and Dale King, on the 16th; and Arthur Woodward and Leffler Miller, on the 26th. "Bob" Cole was here overnight on the 24th and I enjoyed his visit very much.

Trail work is progressing well, considering difficulties of a one-man job.

Two hundred and thirty-six birds were banded this month on my spare time: 188 Chestnut-backed Bluebirds, 20 Pygmy Nuthatches, 10 Cross-bills, 7 Townsend Solitaires, 3 Robins, 3 Mearns Woodpeckers, 2 Mountain Chickadees, 2 Red-backed Juncos, and 1 Shufeldt Junco.

In the past, I've used water to bait the trap and the birds really flocked to it. However, there has been some snow lately and the birds rarely come to drink now. A few Juncos are coming for grain so I should be able to band a few next month.

All supplies ordered arrived O.K., plus a small bird trap and a bulletin on cacti. I already had a copy of the cacti bulletin (personally owned) but decided to sign for another in case some one else would be stationed here in future. Have never used my copy for two reasons: first, have heard that good botanists thought it "NG"; and second, after running a cactus down through the key, I'm not sure I haven't made a mistake myself.

I placed the two-compartment trap out in the oak trees by the back door and baited it with tallow. Never set the trigger till today when I sat down to write my monthly report. Caught the same Mountain Chickadee twice in fifteen minutes, so wonder if you have any traps which will catch different birds instead of the same one over and over!!!!

I am enclosing a complete list of birds banded to date.

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# TONTO

By Woodrow Spires, In Charge

Here enters into history the dullest month which I have spent at Tonto. This, I believe, may be accounted for by the unusual weather which we have had.

## Weather:

A maximum of 82 degrees was reached on November 28, with a minimum average of 68 degrees. November 12 the minimum dropped to 36 degrees, with a minimum average of 43 degrees. This gives a mean average of 55 degrees, which is 12 degrees lower than the mean average for last month. There were nine cloudy and three part cloudy days, with a brisk wind almost every day. A total of 1.26 inches of rain fell during the month in the form of five storms.

## Visitors:

This month shows a total of 396 visitors stopping at the Monument. Of these, 243 climbed to the lower ruin while 5 continued to the Upper Ruin. These figures show (1) a gain of 19% over last month's total visitors; (2) a decrease of 11% in the total visitors for the same period last year; (3) a decrease of 7% in visitors to the Lower Ruin, as last month 68% of the total visitors climbed to the Lower Ruin while this month only 61% made the climb.

## General:

On November 13 I made a trip to Headquarters to get a stove and a museum case and had the misfortune of finding both you and Mr. Miller were in the field.

On the aforementioned trip old 1801 (Bob Rose's favorite station wagon) became disgusted with life and tried (almost did) to commit suicide by shorting a battery cable and started a nice little fire in the floor boards under the gas tank. After a little work, a lot of swearing and a burned hand it was extinguished and repaired well enough to make the trip back to Miami, where a new cable was installed and the trip finished with no further trouble.

The Southern Pacific Railway is getting ready to start its big advertising program in which the Apache Trail and Tonto National Monument are featured.

Three groups of visitors camped on the Monument this month and all had good cooks, or at least after a steady diet of my own cooking seemed good.

Did considerable cleaning up, gathering wood and getting ready for winter, in addition to the normal trail work. This, I believe, is the total of the happenings here for the last month.

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# NATURAL BRIDGES

By Zeke Johnson, Custodian

November has been a very busy month for me. As you will remember, when I reported last, Superintendent Tillotson had just arrived at Blanding for his trip to the Colorado River.

We left Blanding October 28 and drove to Edwin Bridge; next day we packed up and rode to Fry Cabin, a distance of 20 miles. Next day we rode to the Rover, a distance of 30 miles. Then back to Soldier Crossing (25 miles), then back to my camp (another 25).

It was a very interesting trip from start to finish. Next day we bade goodby and he drove to Blanding, and, as I had hired a horse at Blanding and sent it out to the Monument with a boy, I had to ride the horse back. It took me the biggest part of two days; arrived in Blanding November 3.

Then I went back to the Monument and began trail work on November 5, and as it was late in the season, I worked every day---Sundays and all---for 17 days. I had plenty of company, as there were six men surveying for a map of the country. On November 15, I had Mr. Wilson come out and work five days as I could see that I could not get all done that I wanted to do this fall. We worked most of the time on the trail from Edwin to Augusta---built the trail up from both sides so that water could not run down and wash the center out. We cut off many high places and filled in many low ones. I am very proud of what we did and it will save many a tired step in the future.

I also built a bridge over a sand wash under the Augusta that will make it more pleasant there; also built a railing along one narrow spot by a ledge so it will not look so scary to timid people. Did a lot of work on those two steep places in the road just as they approach the camp. In all I am very pleased. Now if I can continue the work next season things will be moving nicely.

We came home to Blanding on the 22nd, and on the 23rd Superintendent Toll of Yellowstone, and Paul Franke, and a Mr. Nelson from Mesa Verde arrived for an inspection trip of the Monument, so we left early on a Sunday morning. It was cold and wet---sleet all day and fog. We never got a glimpse of Bears Ears nor any of the Mountain---only of what was within 50 yards of the road. But when we drove down off the Mountain we could see a little better as the fog was not so thick.

We arrived at Edwin at 11 a.m. and left for our hike at 11:30. Went to all the bridges and were back at 3:30 p.m. Coming home we had to put chains on---very slippery in places. Arrived at Blanding at 6:30 p.m.; had had a very enjoyable trip and the visitors seemed to be well paid for their efforts.

I hardly know how to account for the fact that there have been

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## NATURAL BRIDGES (CONT.)

124 visitors this month. All have registered and have had fine trips as roads and trails were in fine shape and weather cool enough to enjoy hiking and most of them went to all the bridges.

The surveyors are through out there and everything is locked up until springtime in the Rockies comes again.

While working trail I found two fine rubbing stones, two stone axes, two fine arrowheads, and I scratched under a dry ledge and found two very fine old yucca sandals and a few pieces of turkey cloth and other cords of their make. I also took a little evening hike about  $1\frac{1}{2}$  miles up the north branch of Armstrong Canyon and found a cave that white man had never seen before and there were five very fine houses, well preserved, and an old kiva that had been built on top of another fallen room and it was so interesting that I will hardly rest until it can be cleared carefully and scientifically. I think it had about six or seven feet of trash in it---so interesting it should be added to the Monument.

And earlier in the season while I was sowing some more sweet clover seed in the canyon above the big ladder I found another cave and a lot of buildings that I didn't know were there before. I think I'll have to spend a few weeks looking over my country and try and find what I have out there. So many places I have never been, and so near my camp!---but seems like I never get the time or have a horse there to ride. This month I had six big bales of hay shipped out to my camp; took my little buckskin horse to ride to work and it saved me a lot of tired legs.

Frank, old boy, I am down a little in the dump over you. When I read in the October Report that you and Miss Story had been to Hovenweep and never came to see me, I just felt mighty bad. I have read so many times about Miss Story and her wonderful work that for a long while I have had a longing in my heart to see her. Then again I used to think that you kinda liked me, but now when I know that both of you were within four hours' drive of where I was, it makes me wonder what's the matter.

By now you will begin to think that I will never ring off, so I will say "by by" to all the bunch for this month, wishing you all a very fine Thanksgiving----

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## PIPE SPRING

By Leonard Heaton, Acting Custodian

If I don't get you a good report this month, it will be that I have not the ability to put it on paper as it should be, for we have had a very active month along several lines. Visitors, CCC's coming

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PIPE SPRING (CONT.)

in and planning of park projects.

October 29 the advanced ECW group came in with Captain Jackson in charge, and they set to work to get the camp in shape to receive the Ohio boys who followed on the first of November.

November 2, I was kept busy in and about the fort showing the place and giving the history of it and the west in general to the Ohio boys. I have not changed my first opinion of them, for I think we rated an exceptionally good set. With a little explanation to them of what we are trying to do with the historic spots of the nation, they will be a help to us. They have cleaned me out on some of the Western Park pamphlets and all of the monument pamphlets I have---so they are interested.

There has not been much work done by the boys other than fixing up the camp. One reason is that the Division of Grazing isn't completely organized yet---only a temporary superintendent and no projects outlined on the range. They are very anxious to get to work on the Monument projects, so they can get them done before the work starts on the range.

The Army Officers are Captain Jackson, who is being relieved by Captain Packer, Lt. Wolfe, Lt. Prokop, and Dr. Freeman---all very fine men and willing to cooperate in every way to help build up the Monument and make it more attractive. So I don't think we will have any trouble whatsoever in carrying out our program with them.

The ECW equipment shed is being built on the extreme southwest corner of the Monument, out of sight of the camp and road, which I think is better than where it was first planned to be---north of the road across from the camp.

There have been about 25 boys working on the Monument the past two weeks, cleaning out the drain ditch, making fence, and filling up the wash. I have not received a report from the ECW foreman as to just the number of men worked. I told them that I would want it every month.

There has not been enough work done to say much about what has been accomplished, but the boys are getting the hang of what is wanted and next month I hope to report some progress on our program.

Mr. Gordon and Mr. Rozell were here November 15, and we surveyed in the new camp road which I think will meet the approval of Park officials. Mr. Kuehl gave it his C.K.

Mr. Kuehl was here November 21 and 22 for several hours, going over the projects so that they could go ahead on them. I think we have enough outlined for them to keep them busy for some time. I

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## PIPE SPRING (CONT.)

expect Langley, Kuehl, Gordon and some other Park men in the first week in December to finish up the necessary landscaping and surveying to complete the ECW program for this sixth period.

There has not been much travel outside of the CCC's and those connected with it. I have the following to report.

CCC boys	210	ECW Officers	8
Army Officers	34	Truck Drivers	63

These came from the states of Arizona, Utah, Ohio, Montana, Iowa, Indiana, Virginia, New York, Nevada, Kentucky, and Japan.

Other visitors came from Utah 11; Arizona, 9; New York, 1; Washington, 2; Idaho, 2; Mississippi, 1; local travel, estimated, 270; total of 619.

We have now the largest town in Mohave County north of the Colorado River, and all on a 10-acre lot.

We now turn back to the days when this place was young and history was in the making by our early pioneers. This part of the report deals with one Major J. W. Powell and his party working for the U. S. Geological Survey, in and about this country in 1871. During his work, Major Powell came here December 22, 1871, and at a point about 3/4 mile northwest on the hill he set up a survey point, and the minutes of this setting were recorded and placed in an old style lye can, sealed, placed on the rocks and then covered with sand and rocks until there was a mound about four feet through, six feet high with a three-foot cedar pole stuck up in the top.

This monument had not been disturbed until four CCC boys from Ohio came upon it and tore it down and found the paper and the can, which has been turned over to me to make a record of it. Whether it will be made a permanent part of our museum I do not know, but I am doing all I can to get for our collection as it rightly belongs here.

The minutes read as follows: (Written in quite a fine hand)

Pipe Spring Ranch,  
Windsor P. O.  
December 22nd, 1871

This Monument was erected December 22nd by order of the U. S. Survey of the Colorado River. This point is thirty-nine degrees and forty minutes (39° 40') South of West of a red mound seven miles south of Kanab, Utah Territory, over which passes (passes) a meridian line from which this point was triangulated. From here, said point reads thirty-nine

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PIPE SPRING (CONT.)

degrees and forty minutes (39° 40') northeast, distant about fifteen (15) miles, Variation of the needle Fifteen degrees and twenty minutes (15° 20') east, Addeed.

Major W. J. Powell, Geologist  
Professor A. H. Thompson, Astronomer  
S. V. Jones, (Cbserver).

I am sending you this letter or minutes with the agreement I have made with the boys at present, asking you to do what you can to satisfy them so that we can keep it here.

We are now having our good fall rain which we need so much, and I hope we get several days of it---then give us a chance to get some work done this fall in planting trees and shrubs.

So I bring another chapter to a close about Pipe Springs and the history it has made for the month of November.

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## MONTEZUMA CASTLE

By Frank Fish, Ranger

The following are the major happenings and events for the month of November submitted during Mr. Jackson's absence:

The weather was good for the larger part of the month, with slight storms on the 7th, 24th, and 25th in the local region and stronger disturbances in the mountainous areas adjacent. Killing frost came on the 7th.

Roads have been in fair condition approaching the monument. However, some of the visitors have complained about them---most of these complaints come from people accustomed to pavement.

Travel for the month amounted to 445 visitors divided into the following classes: 396 registered, 49 were locals, late arrivals and people who refused to register or missed registering due to the Custodian and Ranger being busy at the time. Of the 445 visitors, 221 made the trip into the Castle.

Two campers stayed with us for two days during the month, using this as a base and visiting neighboring attractions.

Visiting officials include, Harry Langley, on the 2nd, making an inspection trip. We enjoyed seeing Harry.

Donald DeLeon, Entomological Technician of Berkeley made an inspection of the infestation of the Monument Sycamores. He reports ~~the trouble is due to scaled wings and aphids. Mr. DeLeon claims the~~  
SOUTHWESTERN MONUMENTS 333 MONTHLY REPORT FOR NOVEMBER, 1935

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## MONTEZUMA CASTLE CONTINUED.

trip fell down, only in one particular---we did not have any worm lions for his collection.

"Bob" Cole of the Coolidge office was a welcome visitor on the 24th.

During the month two dead Scycamores were felled and sawed into stove wood lengths---helping out the Government wood pile and also removing two dangerous hazards to visitors.

Submitted with this is a report by Norman Jackson, who has been classifying and banding birds on the Monument.

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## CAPULIN MOUNTAIN

By Homer J. Farr, Custodian

In reporting Capulin Mountain National Monument activities for November, 1935, I submit the following:

I estimate approximately nine hundred visitors to this Monument this month, although I have been away some and very busy most of the time and have had no time to get a very close count.

The road is passable but is getting well filled with fallen rock and lava; the trails are in fine condition and used by practically all the visitors.

Weather has been very dry all month until yesterday we started off for the winter with a very fine snow and is still snowing today (no wind). Some time this winter we are due for a good big snow and that may be the beginning of what is generally predicted.

Some time this winter I intend to write and submit a short article on the pictographs that have recently been discovered about three miles east of this Monument; I have been permitted to view part of them and they surely appear to be quite ancient.

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## CHACO CANYON

By T. C. Miller, Custodian

Following is the report for the Chaco Canyon National Monument for the month of November:

### General;

November has been a busy month in the Chaco. The roads have been about as bad as expected at this season of the year. Passable most of the time but very muddy and slick a good part of the time. The road from Seven Lakes to the Monument headquarters was graded

## CHACO CANYON (CONT.)

by the Indian Service for the first time in history, during the month. It was at least fairly flat and smooth until a four-inch snow fell on the 10th, then the trucks cut deep tracks, leaving high centers and rough places.

Two official trips were made from the Monument during the month by the Custodian---one to Gallup to the Federal Road Meeting and one to Yucca House and Hovenweep National Monuments.

### Travel:

528 people entered the Monument in 176 cars, coming from 18 states and the District of Columbia.

### Special Visitors:

Andy Clark and Party of Engineers arrived October 25 and departed November 3. Mr. Clark came back to Chaco to re-run some lines on the Monument boundary fence line, where the stakes had been removed by the Indians and their stock. The line was staked last June, and in staking the lines so that the contractor could line the fence in, white and red flags were used on lathes. In places the Indians got the red flags and the goats the white ones. However, it did not take Andy and his crew long to put in new stakes. (Come again, Andey, we certainly appreciate good engineers, and your service in this Monument has been exceptionally fine).

Associate Engineer Hamilton was here four times this month inspecting our fence project. Regional Geologist Vandiver arrived October 30 and departed on the 31st. The Wildlifers, Mr. and Mrs. V. H. Cahalane, Washington, D. C., and Mr. and Mrs. A. E. Borrell, Grand Canyon, arrived and departed on November 3. Leffler B. Miller and Arthur Woodward, from the Berkeley Office arrived on the 13th and departed on the 14th. Chas. A. Richey made two trips into the Monument this month on the 14th and again on the 20th. Chief Engineer Kittredge and Associate Engineer Hamilton arrived on the 16th, and departed on the 17th. Frank Hamiston and Ray Hitson, Mesa Verde National Park were here on the 20th. Roger Toll, Superintendent, Yellowstone National Park, visited the Monument on the 22nd.

### Weather:

Maximum for the month was 57 on the 1st. Minimum 17, on the 21st. Precipitation, .68 inch was recorded for the month.

### Monument Boundary Fence:

The Cook and Ransom Construction Company has proceeded in a satisfactory manner.  $29\frac{1}{2}$  miles of line post have been driven, 65 cubic yards of concrete poured, and  $12\frac{1}{2}$  miles of wire have been stretched. If the good weather holds out, the contractor will perhaps finish the job some time in December. Thirty-two men are employed on the fence project.

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## CHACO CANYON (CONT.)

### Soil Conservation Project:

Former Ranger Lewis T. McKinney of this Monument was appointed Project Manager of the Soil Conservation Service here November 1. The project got underway on the 12th. 46 Navajos are employed on the project. To date the Revetment work at Pueblo Del Arroyo is well under way, also sausage dams, spreaders, and dikes are being built in the side arroyos to try to prevent the soil from washing away.

To date the Indians have moved out of the Monument about 150 head of goats and sheep and have moved in about 90 head of saddle and work horses to use on the project. Boss, don't you think I am doing well in eliminating the grazing in this Monument?

### Threatening Rock:

A few weeks ago I asked Associate Engineer Hamilton to help me work out some method that would be of use in determining the movement of the Threatening Rock, if any. Mr. Hamilton suggested two steel bars set in concrete, one on the rock and the other on the cliff. These bars are set so they are free to move with the rock. The bars were set November 2, by Engineer Clark. They were marked with a hack saw, and the temperature was 59 F. I am not disturbed about the Threatening Rock or do I look for it to fall in the next hundred years unless we should have a tremor in the earth's crust, then the rock might come down and spoil the best ruin in the United States. I think it is very important to carry on this experiment.

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## YUCCA HOUSE; HOVENWEEP

By T. C. Miller, In Charge

Following are the reports for Yucca House and Hovenweep National Monuments:

### Yucca House:

#### Travel:

10 people registered in our book at Yucca House coming from the following states, Colorado, New Mexico, and Wyoming.

#### Visiting Park Service Officials:

Roger Toll, Superintendent, Yellowstone National Park, Paul Franke, Acting Superintendent, Mesa Verde National Park, Ranger and Mrs. Hart, Aztec Ruins National Monument.

#### General:

There has been no vandalism in this Monument since I have been making that trip every month. However, last year several scars were made by pot hunters. Much credit is due the Ismay family who live within a few feet of the Monument Boundary Fence. These fine people are not only courteous and helpful to visitors but are interested in

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YUCCA HOUSE, HOVENWEEP (CONT.)

the preservation of that Monument.

Hovenweep National Monument:

I inspected this Monument on the 24th. The roads were very slippery in McElma Canyon leading to the Monument. The Indian Service is fencing the Reservation, and in order to get into the Monument now you have to cross a new cattle guard near the South boundary of the Monument. The signs are still in place and there were no evidence of vandalism. I found some fresh car tracks that were made the 23rd. When I inquired about the tracks, I was informed that Mr. Toll and Mr. Franke were inspecting some good Ruins.

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## AZTEC RUINS

By Johnwill Faris, Custodian

For fear of being accused of partiality it behooves me to allow my ranger to submit the Monthly Report. There is no doubt but that I am treading on dangerous ground because both reports are superior in make-up and content than those submitted each month by myself, but, after all, it may be a means whereby I can improve my own.

The month has been taken up with considerable activity in that both E.C.W. and our Roads and Trails allotments were worked on. Several handicaps have been encountered in our E.C.W. work due primarily to extreme weather conditions, but fortunately our program is so diversified that we were not greatly inconvenienced, nor any work held up as yet. At the present time our Administration area might be compared to any kitchen sieve in that it is full of holes preparatory to a portion of our planting program. We are especially fortunate in having Mr. Leonard Zink of the Hermosa Nurseries, as a C.C.C. foreman, to do this work under the immediate supervision, of course, of our own Chuck Richey. There is still some doubt in my mind as to the final outcome but experience has taught us that, believe it or not, these Department Heads do strut their stuff on occasions. We are hoping this is another occasion where Chuck repeats himself and gives us as nice an effect as he has in our building.

The parking area and cattle guard are completed for the time being, and both are far superior to my fondest expectations. The cattle guard, while exceedingly strong, is not at all obnoxious from any viewpoint and anyone having served at Aztec can vouch for its need. Mr. Underhill gave us an exceptional job in the parking area sub-grade and that, in itself, is equal to many finished products. We sincerely hope he might be allowed to return in the spring to complete the good work he has started.

We were fortunate this month in having had many visitors connected with our Service and leaving us with a world of information from which we hope to profit materially. We especially wish to mention Superintendent

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AZTEC RUINS (CONT.)

Toll from Yellowstone as I have often said, and repeat, with all sincerity, the association of such individuals furnish by far the greatest job in our work and in such association we are certainly supplied with incentive and inspiration.

It was a pleasure to have Miller and Woodward explain the proposed museum setup. This office has labored under a false impression and many of my objections were based on absolute misunderstandings. It is gratifying to have these features explained and to visualize the final effect. Again, an example of one branch thinking one thing and the Monument having an entirely different picture.

I suppose I might repeat my appreciation for having taken part in the Gallup conference on roads. I did enjoy very much this privilege and feel that to have contacted those present was of really great value to my Monument.

This office was contacted by local groups relative to our cooperation in submitting projects for E.C.W. consideration in locating a permanent camp in our County. They were desirous of an early reply and I assured them of our willingness to cooperate in every way possible, using possibly twenty-five men over a long period of time. This, of course, was stated subject to the approval of your office and that in Washington. In talking with several department heads we tentatively laid out a program of some little duration that might be attempted should such camp become located in this vicinity. (It is very likely that our present supply will be withdrawn at the expiration of the 6th enrollment period.) I hope such offer was in keeping with your desires and it is my intention to work up the proposed projects and submit them for your consideration at my earliest opportunity.

Everything is working out splendidly at Aztec. We are using the furnace in preference to the fireplace and find that it takes comparatively little more fuel. The fireplace heats only one room and requires constant attention for effective service.

Enclosed is the report submitted by Ranger-Archeologist Hart.

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By Robert W. Hart, Jr., Ranger-Archeologist

You will probably tell Mr. Faris to write his own reports after reading this, but maybe you won't fire me for trying just once, anyway.

I regret to report only 409 visitors for the month of November as compared to 666 for November of last year. A great many of these have been local people and Sunday is still our big day. We can't blame the weather man this time either, for outside of several small snow flurries, the month has been ideal for travel.

## AZTEC RUINS (CONT.)

Aside from the visitors, there has been much activity at the Monument. On November 4, Engineer A. E. Underhill arrived to supervise the paving of our parking area. He was with us until this morning, and we hated to see him leave, but will look forward to seeing him in the spring when he returns to complete the project. While here he was busy getting the parking area in good shape for the final pouring of asphalt. A scarifier was used to tear up and mix the gravel with the dirt and then the area was rolled with a concrete roller drawn by a tractor. After several of these processes, a coating of oil was poured over the base material, and this was covered with sand and left until next spring. We are sorry that this paving project couldn't be completed this fall, but realize that the decision to wait until spring was wise.

On the 12th it was decided to discontinue making adobe brick because they were freezing before they could dry. The C.C.C. boys were put to cleaning up the area that is to be landscaped and you would hardly recognize the place, Boss, with all the brush and weeds cleaned off and burned. It is hoped that arrangements can be made to continue the work on the building project in the very near future.

Custodian Faris and Engineer Underhill left on the afternoon of the 11th to attend the official meeting in Gallup on the 12th and 13th. They reported an excellent meeting and well carried out.

Late in the afternoon of the 14th, Mr. Arthur Woodward and Leffler Miller of the Berkeley Office arrived and spent the following day going over the museum problems with us, and making measurements and notes on the specimens for future reference on our museum plans and arrangements. I enjoyed every minute with Mr. Woodward, and gained some valuable knowledge from him.

Welding on the new cattle guard was completed at noon of the 15th and all that remains to be done is a coating of paint. Under the expert supervision of Engineer Hamilton, I believe we have the best cattle guard in the Southwest, and now I won't have to chase cows and other pestiferous quadrupeds out of the Monument half of the time.

Chief Engineer Kittredge and Jim Hamilton were in on the morning of the 18th and it was a pleasure to see Mr. Kittredge again whom I had known of old. He spent the morning going over the paving area and other features with Engineer Underhill and Custodian Faris.

Associate Forester W. H. Wirt of the Berkeley Office made a short inspection trip through the Monument on the morning of the 19th. I didn't have a chance to talk with him as he was with the Custodian the entire time. Don DeLeon of the same office dropped by a few days earlier for a hurried trip through the Ruins.

## AZTEC RUINS (CONT.)

On the 21st Mrs. A. E. Underhill arrived from Sacramento to make the return trip with Mr. Underhill and to see some of the marvels of the Southwest. We enjoyed having her at the Monument very much.

We were greatly honored by a visit from Superintendent Roger W. Toll of Yellowstone National Park on the 22nd. I had the personal pleasure of showing Superintendent Toll through our Monument, and he seemed to enjoy his trip very much. It is an inspiration to know a man like Mr. Toll. We sent him on down to see Cal Miller and his little ruins.

Yesterday, the 24th, Cal Miller dropped by and took Mrs. Hart and myself on an inspection trip to Yucca House and Hovenweep National Monuments. It was the first time for both of us, and I especially got a kick out of Hovenweep because of its out of the way location. Say, Boss, I would suggest that you have signs put up every hundred yards so Cal can find his ruin when he makes his inspection trips. He rode us over half of the sage flats of Utah looking for his Monument, but we finally found it by the process of elimination. Don't tell of my suggestion, however.

Architects Richey and Bennett have been down to see us several times, and Jim Hamilton was here quite a few times during the construction of the cattle guard.

By order of the Custodian, the Ranger-Archeologist is keeping a diary of the daily happenings at the Monument. I think this is an excellent idea, and get a great kick doing it.

Well, Boss, I think I had better end this report, for I think I have covered about all that will be of interest to you. However, I want to add that during my two months at Aztec, I have enjoyed every minute of the time, and it is a pleasure to be under the leadership of two men like yourself and Custodian Faris. I really think that Aztec is the best Monument in the Southwest.

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## SAGUARO E.C.W.

By J. H. Tovrea, Chief Eng. Aide

When I arrived here Monday, November 18, Mr. W. A. Burnham, Acting Project Superintendent, and former Engineer Foreman took me over the route of the proposed road.

I found that Mr. Burnham had done invaluable work in flagging section corners and locating property lines.

The road will follow ridges practically throughout its six-mile course. It was located with three objectives in mind. First, to give the public a scenic route through the forest which will give close

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SAGUARO E.C.W. (CONT.)

views of the saguaro as well as views from elevated points. The section of the route along the foothills of the Rincon Mountains will afford glimpses of the forest spread out below the road with the Santa Catalina Range for a background.

The second and third objectives were to locate a road that could be constructed with a minimum of cuts and fills and one that would require little or no maintenance. The ridge route located will solve both of these problems.

We have surveyed 114,000 feet of the proposed road to date and have stopped at this point in order to work up a plan and profile to submit for approval so the camp can start work.

To date the camp has done the following work on the Monument:

1. Repaired existing roads which in many places were impassable due to damage from summer rains.
2. Surveyed boundaries of all privately owned lands, and located section corners.
3. Dug test well to a depth of 45 feet in N. E.  $\frac{1}{4}$  of Section 32 (See map). Approval has been received to let a contract to drill this well to water.
4. An old mine shaft some 600 feet deep located in Section 16 was filled and landscaped.
5. Twelve dry well shafts varying in depth from 40 to 60 feet were filled.
6. Three old abandoned shacks on University property were torn down, the areas cleaned up and landscaped.

It is hoped that constructive work on the new loop road can be started about January 1, 1936.

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## CASA GRANDE

By W. J. Winter, Custodian

The visitor count for the month was 2,165, coming from the majority of states and several foreign countries, England, France, Poland, India, China, Canada, and Mexico.

A number of visitors worthy of special notice were received. November 1 and 2 we met Drs. Howard K. Gloyd and Frank M. Blanchard, herpetologists of the Department of Zoology, University of Michigan, who were on a collecting and study tour of the Southwest. November 5

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CASA GRANDE (CONT.)

the ruins were viewed by Carveth Wells, noted explorer and author. The same day came T. S. Sih, Highway Engineer of the City of Shanghai, accompanied by M. S. Okecki, representative in China for the Communications and Transit Organization of the League of Nations. Mr. Okecki is also Counsellor to the Ministry of Communications in Poland. Nov. 23 we received the Vicomte de Montozon-Brachet of Paris, France, who was gathering lecture material. M. le Vicomte spoke no English but had a lady with him to translate. This was fortunate, as my French is even more limited than my Spanish, which consists mainly of such useful words as cerveza and habanero. November 23 we were also visited by Dr. Frederick J. Pack of the Department of Geology, University of Utah. Senator Carl Hayden came in again on the 24th and was welcome as always.

There were several NPS visitors this month, some of whom called only at Headquarters. Among the others, however, were Mrs. Enid Michaels, who had been connected with the seasonal naturalist force at Yosemite, Custodian Boundey at Tumacacori, and Chief Naturalist Trager from Washington, accompanied by Regional Geologist Vandiver.

November 10 we met George Rudy of Phoenix, former ranger. His very small daughter accompanied him and after observing one of our numerous cottontails she came dashing up and shouted, "Daddy, I just saw a cocktail rabbit!" Apparently repeal is having its effect.

Weather this month has been noticeably colder and more damp. We recorded precipitation of 1.03 and temperatures ranging from 23 on the 5th and 6th to 94 on the 14th. Much windy weather and a few cloudy days.

November 14 the Coolidge Women's Club held a meeting at the Monument and heard a lecture by Ranger Steen, entitled "Every Day Life Among the Primitive Peoples of the Southwest." I did not have a chance to listen to Charlie's talk but understand it was followed by tremendous applause. In fact, it is unreliably reported that he was voted an honorary member of the Club.

We have been very glad to have Junior Naturalist Caywood here this month. He subbed for Charlie during the latter's four days' absence and also spent a good deal of time working on our museum catalogue. This last assistance is especially appreciated as museum cataloguing is one of those pieces of business that it is hard to mix in with guiding. Without fail, if Charlie and I would make a motion toward working in the museum, carloads of visitors would descend upon us. At that rate it would have taken us all winter to get the job done.

Under the same conditions it was possible to get our equipment inventory completed only by taking a solid day and a half during which

we did nothing but chase equipment. The Naturalist Division obligingly looked after the visitors while Charlie and I hunted, counted, burrowed, and trailed. We did get the equipment pretty well located, some things missing and some surplus, the latter outnumbering the former.

How did you like our publicity in the Tombstone Epitaph of Nov. 14? I am afraid the Tombstoners don't think that we are very bright, when they accuse us of mistaking plain Greek letters for prehistoric inscriptions. Sometimes I wonder why I went to school, anyhow.

The wildlife here may by now be a trifle wilder. This is due to the fact that our untiring bird-banders, Steen, Caywood, and King, have gone in for night hunting. Upon hearing a commotion in my back yard one night recently I ached out, to encounter these industrious gentlemen armed with a sack and a butterfly net. They had evolved the ingenious (or was it fiendish?) idea of running the birds out of the ramada roofs around the houses. They reported great success in this enterprise, banding a number of house-finches and a few say phoebes. A few sparrows were also caught. The performance was repeated another night and bids fair to continue--if the banders don't get shot for burglars.

With this cheerful observation I will sign off.

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## BANDELIER

By Earl Jackson, Custodian

### Visitors:

Visitors numbered 528, arriving in 153 cars, from 31 states, Washington, D. C., and six foreign countries - Scotland, Guatemala, Yucatan, France, Puerto Rico, and New South Wales, Australia.

The six highest states by travel were: New Mexico, 311; Colorado, 38; California, 27; Texas, 22; Indiana, 19; Kansas and Pennsylvania the same with 14 each.

Travel is again lower than it was last year. But look at an interesting figure.

November 1934:	632 visitors.	Out-of-state:	212.
November 1935:	528	" " " "	215.

It is seen that our drop is in New Mexico people. We had actually more out-of-state visitors than last year. This indicates proof to me that bad roads have had something to do with drop in travel to Bandelier, for the state people know more of the roads than outsiders do, and hence shy away from them more.

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BANDELIER (CONT.)

Weather and Roads:

Precipitation for the month was .09 inch. No figures are available for the same month of last year, but memory tells me November of 1934 was a bit more vigorous. Paradoxically enough, however, November of 1935 has had an amazing number of cloudy or partly cloudy days - numbering 13.

Roads from Frijoles Canyon to the opposite boundary of the Detached Section are in good shape, but from there for ten miles to the highway they are still bad.

While storms have been negligible here in the canyon, snow has been creeping steadily down from the higher lands, and six miles west of here, at the Upper Crossing of Frijoles, there are three or four inches on the ground. It snowed a little here today, and skies are now heavily overcast.

Special Visitors:

October 23 - Late in the evening the Brownmoor School for Girls arrived with 28 persons for a supper at the lodge.

Jack Diehl arrived for a four-day inspection stay.

October 26 - Reserve Colonel and Mrs. John P. Fishback, of Dunes State Park, Chesterton, Indiana, were interested visitors. Mr. Fishback is Custodian of that area. He was one member of the National Guard Convention held in Santa Fe on October 24, 25, and 26.

October 27 - Karl Ruppert and Mrs. C. Ricketson, of the Carnegie Institution, were in for an afternoon. Karl is known to most of the Arizona men, for he attended school for a while there before starting his career as a Central American archeologist.

October 29 - Vincent W. Vandiver, regional geologist for the Park Service, was in for a day, leaving on October 30.

November 4 - Mr. and Mrs. Victor H. Cahalane, of the Wildlife Division, arrived in company with Regional Wildlife Technician Adrey E. Borell and wife. The Cahalanes were very interested in Bandelier, but were able to spend only three hours with us. The Borells were in for a six-day stay.

Cliff and Detty London and Carl and Beth Schmidt arrived. Cliff and Carl are working with Andy Clarke on the Southwestern Monuments engineering crew doing some road and survey work between here and San Ildefonso.

November 9 - Superintendent Pinkley, Junior Park Naturalist Dale S. King, Architect Leffler Miller, and Museum Technician Art Woodward,

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BANDELIER (CONT.)

arrived for a two-day stay. While here they arrived at several worth while conclusions regarding museum planning.

George G. Sargent, Field Manager of the Mutual Life Insurance Company, was a very interested visitor to the ruins.

November 10 - Jack Diehl arrived again for a day.

November 13 - John Frank Martin, mayor of Oklahoma City, was an enthusiastic visitor.

November 16 - Donald DeLeon, Regional Entomological Technician, arrived for a three-day inspection of insect problems.

November 19 - Mr. Kittredge paid a very rapid three-hour visit.

November 20 - W. H. Wirt, associate forester, arrived for a three-day inspection.

November 22 - Captain F. E. Trask, of the Matson Liner Mariposa, made a two-hour visit of the ruins.

November 23 - Chuck Richey arrived on landscape inspection.

Nature Notes:

Deer tracks are found in abundance over South Mesa. During the early part of the month turkey signs were almost entirely lacking, and there was some worry as to where they could have gone; sportsmen during turkey hunting season were able to find but very few. However, since the recent snows in the hills turkey signs are becoming more numerous, and many of them have come down onto Monument land. Yesterday one of the C.C.C. boys counted between 20 and 25 of the birds on the rim just behind the lodge.

On the 18th, while on patrol over South Mesa, I followed the very fresh tracks of a large black or brown bear for over a mile. He appeared to have been running an arm down into every old badger hole he could find, as if hopeful of dragging up something, for all these holes were partly cleaned.

Tracks of a smaller bear were seen on the floor of Alamo Canyon two days ago. In this same canyon, while hiking with Adrey Borell, I saw a lovely doe of the mule deer variety.

Dr. DeLeon has identified the tentatively named Great Basin Tent Caterpillar as the true Fall Webworm. All eyes are turned with interest toward the pest control project recently started by Norman Appleton under W. P. A. funds in Santa Fe. He is just getting his laboratory started, but will be learning things about webworms before January.

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BANDELIER (CONT.)

As a result of his inspection of insect conditions in our forest area, Dr. DeLeon states the insect problem on all save deciduous trees is not serious, and that only normal control measures are needed. The insects of coniferous trees he found are listed as follows:

<i>Scolytus ventralis</i>	
<i>Scolytus</i> sp.	
<i>Pityophthorus tuberculatus</i>	Family Scolytidae
<i>Pityophthorus ponderosae</i>	
<i>Ips confusus</i> var.	
<i>Ips oregoni</i> .	
<i>Ips ponderosae</i> .	
<i>Pityogenes carinulatus</i> .	
<i>Dendroctonus barberi</i> .	
<i>Dendroctonus approximatus</i> .	
<i>Grathotrichus retusus</i>	
<i>Dendroctonus pseudotsugae</i>	
<i>Phloeosinus utahensis</i> ?	
<i>Acanthocinus spectabilis</i>	Family Cerambycidae
<i>Melanophila pini-edulis</i>	Family Buprestidae
<i>Melanophila gentilis</i>	
<i>Temnochila virescens</i> var <i>chlorodia</i>	Family Cistomatidae
<i>Aulonium longum</i>	Family Clydiidae
<i>Lasconotus</i> sp	Family Colydiidae
<i>Corticus</i> sp	Family Tenebrionidae
Solfier flies	Family Stratiomyidae
Medetera	Family Dolichopodidae

Dr. DeLeon before he left gave me some good pointers on how to collect insects, and left some mounted specimens to start the collection with.

Regarding birds this month, Betty says:

"There is very little to say this month, as Adrey Borell was in, and his report will cover all the birds seen.

"He corrected me on one point, which is worthy of note. The bird I called a Plumbeous Vireo was proven to be a Townsend Solitaire.

Mr. Borell also instructed us in the skinning of birds, and I practiced on a Jay.

"Dale King's suggestions on bird-banding were very helpful, and I am about to set out two traps he sent us. I hope I can do better on banding next month than on this one. Three Jays were all that were banded."

General:

I should say educational possibilities at Bandelier are looking  
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## BANDELIER (CONT.)

decidedly upward. Museum planning for this place is approaching the point of action. Bird study with Adrey Borell has definitely added to our knowledge of avifauna, and our collection of specimens has made its beginning. Knowledge of insect activities has jumped ahead. Vincent Vandiver is soon going to be able to line us out on a good part of the geology of the region. Some pertinent questions on species identification in forestry have convinced us we are not as smart on that subject at Bandelier as we might be.

Visitor travel, while lower, is bringing a very interested class of people into the canyon. When tourists will drive 50 miles off their road in the face of a possible snow storm to see the Indian ruins, we know they are interested.

Let I become long-winded, will close for the month.

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## HEADQUARTERS STUFF

### WILDLIFE TECHNICIAN GRATER REPORT

Following are excerpts from the report of Russell Grater concerning Southwestern Monuments:

#### REPORT ON THE PROPOSED BOUNDARY CHANGE AND THE PROPOSED GAME

##### REFUGE AT WALNUT CANYON NATIONAL MONUMENT

October 7-11, inclusive, was spent making a survey of the proposed Game Refuge. All territory was thoroughly covered on foot. With the aid of Mr. Paul Beaubien, I was able to obtain much valuable data regarding the country in the immediate vicinity of the present Monument.

##### PROPOSED MONUMENT ADDITIONS

Two days were spent in making a study of the proposed boundary change for the Monument. Especial notice was taken of the abundance or scarcity of cover, food and water in this proposed addition. Briefly, I found the following to be true:

Territory east of present Monument.

The proposed addition takes in some very fine cover for the wildlife and is composed of a heavily wooded area. The vegetation is mostly Pinyon Pine, Utah Juniper, Cliff Rose and grass. Practically all of the Cliff Rose is in good condition, but the grass has been browsed extensively by domestic sheep and cattle in several places. Water is very scarce, although an abandoned reservoir, constructed by the Santa Fe Railroad Company a few years ago, undoubtedly holds some water during

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## WILDLIFE DIVISION (CONT.)

a portion of the year. The dam at the lower end of this reservoir is 231 feet in length. As far as I was able to determine, no other water sources are in this region. Deer sign is abundant in the side canyons, and along the rim of the main canyon.

### Territory North of present Monument.

This area is mostly Yellow Pine with clumps of Gambel's Oak scattered here and there. Grass is abundant, but is heavily browsed by sheep and cattle. No water is available in this region, all of the larger wildlife forms being obliged to go elsewhere for water. A few deer have been observed in this area during the past summer and fall.

### Territory West of present Monument.

This area is composed of a fine forest of Yellow Pine, Gambel's Oak and Cliff Rose. Grass is abundant but heavily browsed by sheep. Food conditions, however, are good. Deer are relatively common in this region, and antelope have also been observed in this locality in recent months. Water is not available, large wildlife forms being obliged to depend upon nearby tanks now utilized by domestic sheep and cattle.

### Territory South of present Monument.

This area contains an excellent stand of Yellow Pine and Gambel's Oak, with several fir trees being found along the rim of the Canyon. Grass is abundant, but heavily browsed in many sectors. No water is available, although an old water hole was discovered that undoubtedly holds water during a portion of the year. Deer sign is abundant, and Morriam's Turkey is reported to be found in this region. Abert Squirrels were observed to be especially numerous.

While most of the proposed additions to the Monument are found within the Canyon, the heads of several side canyons, extensively utilized by deer and other wildlife forms, are included. Water is a vital problem, none being available on the Monument during the major portion of the year. Sheep and cattle grazing is offering serious competition to the deer in the region, and no pronounced increase in the number of deer on the Monument can be expected as long as this condition exists.

### PROPOSED GAME REFUGE

Two days were spent making a detailed survey of the proposed Game Refuge. It has been proposed to set aside a strip of territory, one-half mile in width, around the entire Monument, this strip to serve as a refuge for wildlife. After going over this strip on foot, I am of the opinion that this plan should be altered to some extent if the refuge is to be at all successful.

## WILDLIFE DIVISION (CONT.)

To be successful, a refuge should be large enough to contain adequate food, cover and water for all wildlife forms during the major portion of the year. An examination of this proposed refuge shows food and cover, but no water. Lack of water plus the narrowness of the strip makes it almost certain that the larger wildlife forms will range as much outside of the refuge as within it's bounds. Thus the primary function of the refuge---protection---is nullified to a great extent. With this in mind, I conferred with Assistant Forest Supervisor Monroe of the Coconino National Forest regarding the advisability of adding more territory to the proposed refuge. After talking the matter over thoroughly, we both agreed that the following steps should be taken if the proposed refuge is to be successful:

1. Additional territory should be included. This territory should contain the best food and cover possible to obtain in the near region. Any available water sources should be included.

2. The region to the south of the present monument contains excellent food and cover for a great distance, and is the known range of deer and probably wild turkey. Any enlarging of the proposed refuge should take in this area.

3. Water not being available, a few small tanks should be constructed to insure an adequate water supply for the wildlife in the region at all times. There are an abundance of well developed drainage systems in the areas to the south of the proposed monument addition. The run-off from these systems could easily be impounded with the aid of small tanks.

It is believed that if the above steps are followed, an abundance of wildlife forms may reasonably be expected to inhabit the region throughout the year. Deer and wild turkey are in the region at the present time, and it is thought that antelope and bear may possibly utilize the area if conditions are favorable.

During my survey of the region, I learned of the existence of an important game trail crossed Walnut Canyon about one-half mile to the west of the present Monument. This trail is extensively utilized by deer, a fact known to hunters in the vicinity. During the hunting season, this trail constitutes a regular death trap for deer, hunters watching this trail and easily obtaining one of the animals. By all means, any proposed refuge should include this game trail and enough of the nearby territory to adequately protect both ends of the trail.

A few wildlife observations of more than usual interest were recorded during my visit to this region. On October 8 I found a Prairie Rattlesnake (*Crotalus c. nuntius*) on the south wall of Walnut Canyon approximately one-half mile west of the old Santa Fe Reservoir. The snake was about two and one-half feet in length and was easily recognized. On the

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WILDLIFE DIVISION (CONT.)

same day, Mr. Beaubien and I found the remains of a shrew. From the color of the fur, and the known range of shrews for this region, I feel reasonably sure in identifying it as the Arizona Mountain Shrew (*Sorex vagrans montecola*). Unfortunately the skull had been almost completely carried away by ants so positive identification was impossible.

In addition, the following birds were recorded:

*1.	Western Robin.	October 7.
*2.	Western Chipping Sparrow.	October 7.
*3.	Red-backed Junco.	" 7.
*4.	Red-shafted Flicker.	" 7.
5.	Townsend's Solitaire.	" 7.
*6.	Chestnut-backed Bluebird	" 7.
*7.	Long-crested Jay.	" 7.
8.	Clarke's Nutcracker	" 8.
*9.	Western Red-tailed Hawk	" 8.
10.	Western Gnatcatcher	" 8.
11.	Lead-colored Bush-Tit	" 8.
12.	Gray Titmouse	" 8.
*13.	Mountain Chickadee	" 8.
14.	Natalie's Sapsucker	" 8.
15.	Shufeldt's Junco	" 8.
16.	White-breasted Woodpecker	" 8.
17.	Audubon's Warbler	" 8.
*18.	Pine Siskin	" 8.
19.	Gambel's Sparrow	" 8.
*20.	Spurred Towhee	" 8.
21.	Green-tailed Towhee	" 8.
*22.	Green-backed Goldfinch	" 8.
*23.	Canyon Wren	" 8.
*24.	Woodhouse's Jay	" 8.
25.	Bendire's Crossbill	" 8.
26.	Nuttall's Poor-will	" 8.
*27.	Rocky Mountain Nuthatch	" 8.
*28.	Pygmy Nuthatch	" 8.
29.	Desert Sparrow Hawk	" 8.
30.	Sharp-shinned Hawk	" 8.
*31.	Lewis Woodpecker	" 9.
*32.	Cassin's Vireo	" 9.
33.	Western Ruby-crowned Kinglet	" 9.
34.	Cooper's Hawk	" 9.
35.	Gray-headed Junco	" 10.
*36.	Mearns's Woodpecker	" 10.
37.	Common House Finch	" 10.
38.	Red-naped Sapsucker	" 10.

\* Indicates that this bird has been recorded on a previous report.

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WILDLIFE DIVISION (CONT.)

Recommendations:

1. The scarcity of water is an important factor in controlling the movements of wildlife on the Monument, and on the proposed refuge. Small tanks, carefully constructed in isolated areas, would enable the wildlife to obtain water without leaving the vicinity. The presence of water is of extreme importance if deer and wild turkey are to be expected in this region.
2. Arrangements should be made with the Coconino National Forest officials to work out some method of adequate fire control for the region. If the proposed refuge remains under the jurisdiction of the Coconino National Forest, this will present no problem. However, if the proposed refuge is to be under the jurisdiction of any other Branch of the Government service, some fire control measures will be necessary.
3. Boundary indicators should be obtained and put up as soon as the new boundary lines are definitely placed. At the present time sheep and cattle wander onto the Monument regularly. Boundary indicators will also be necessary if the proposed Game Refuge is approved.
4. An adequate trans-canyon trail should be constructed on the Monument to facilitate administration of the area.
5. The road from the present Ranger Station to the Lookout Station should be improved to eliminate mud holes and huge rocks now found in the roadway.
6. A small campground should be established to enable visitors wishing to remain overnight at the Monument to do so. Strict orders should be given and enforced to allow no camping or building of fires on the Monument outside of this camp ground area. Several places were noted on the Monument where fires have been built by tourists.
7. Both the proposed Monument additions and the Proposed Game Refuge are worthy of approval, but care should be taken to insure adequate protection, food and water for the wildlife in the region.

SUPPLEMENTARY REPORT ON THE PROPOSED BOUNDARY CHANGE AT

WUPATKI NATIONAL MONUMENT

October 19-25 was spent at Wupatki National Monument making a study of the proposed boundary changes for the Monument. Through the fine assistance of J. W. Brewer, Jr., I was able to obtain extensive information pertaining to the proposed addition. Crack-in-Rock, Deadman's Canyon, Antelope Prairie and Wupatki Basin were visited in company with Mr. Brewer, the area in the western and a southwestern portion of the proposed addition being visited by myself.

## WILDLIFE DIVISION (CONT.)

From the standpoint of wildlife, the most important form found in this region is the American Pronghorn Antelope. In his report to Mr. Wright, dated March 3, 1935, Regional Wildlife Technician A. E. Borell covers the relationship of antelope to the proposed boundary extension, so this phase of the problem requires little comment. However, I wish to point out that practically all of the sections in Range 8 East found east of National Highway 89 and in the western half of Range 9 East are now known to be rather commonly utilized by antelope. Several have been seen in this area during the past summer. I had the pleasure of seeing a large buck in Section 17, Range 9 East, and found signs of others in the same locality. On October 22 I observed three antelope on Antelope Prairie a short distance to the north of The Citadel and outside of the proposed boundary extension.

A survey of the Antelope Prairie area reveals that this region is an excellent antelope range. Mr. Brewer reports seeing nine of these animals in this region. No water is to be found on the proposed Monument addition in this region, antelope being obliged to visit a few isolated stock tanks farther to the north. The nearest water within the proposed addition is found at Arrowhead Tank in Red House Basin to the south. If water could be developed in Antelope Prairie within the proposed addition, antelope would, without doubt, soon be a common sight in that region. As matters now stand, many of them are found outside of the proposed addition farther to the north where water is available.

Of especial interest to me was the finding of relatively fresh tracks of Mountain Lion at Arrowhead Tank. These tracks had been made in the soft mud near the waters edge and were easy to recognize and measure. Three coyotes and one porcupine were noted in the vicinity of the Citadel on October 22.

Although only an amateur archeologist, I was much impressed with the splendidly preserved ruins found at Wukoki, Crack-in-Rock and in Wupatki Basin---ruins not in the present Monument, but in the proposed addition. One has only to see these ruins to be definitely impressed with the advisability of having them included as a part of the Monument.

### Recommendations:

1. It is recommended that favorable action be taken to include as much of the Antelope Prairie and Deadman's Canyon areas as is feasible. These two regions are not only excellent antelope ranges, but contain some fine ruins of archeological value.
2. If the proposed addition is approved, steps should be taken to acquire full control of Arrowhead Tank in Red House Basin. This is a very important source of water, and is extensively utilized by antelope.

WILDLIFE DIVISION (CONT.)

3. If the proposed monument addition is approved, it is recommended that a small tank be constructed in the southern end of Antelope Prairie to furnish the antelope on the Monument an adequate water supply. At the present time, they are obliged to go to Arrowhead Tank, far to the south, or to other stock tanks, far to the north of the proposed monument addition, in order to obtain water.

4. Although not of any great importance from the standpoint of wildlife, Wupatki Basin should be included because of outstanding ruins found there.

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NATURALIST DIVISION:

By Robert H. Rose, Park Naturalist

Staff

Returning October 31 from the Reconnaissance Survey of Kino Missions in Sonora and southern Arizona, I spent several days attending to general correspondence that had accumulated in my absence from the office. Scofield DeLong of the Branch of Plans and Design and Leffler Miller and Arthur Woodward of the Field Division of Education remained at Headquarters a few days before resuming their trip. Some time was spent in discussing the results of the missions survey and the matter of museums in general.

On November 6, the Boss and Dale King left the office for about two weeks in the field. They were joined by Hugh Miller, who went to Gallup by train, leaving on the 10th. The absence of practically all of the Headquarters staff necessitated attention to general office detail during that time. On November 15, a Goliad, Texas, ECW party including Regional Historian Hogan, States Park Superintendent Vosper, and Photographer Wilkerson stopped for several hours' discussion on the subject of mission restoration work in their region. Two days later Earl Trager, Chief of the Naturalist Division, and ECW Regional Geologist Vincent Vandiver called for a few hours discussion on the proposed ECW geological program for Southwestern Monuments. Some general conclusions were arrived at regarding policies and objectives along which such program should be organized. Upon Mr. Trager's request I prepared a report (published in this Supplement) on the subject of proposed work.

Details on the cases of one exhibit room in the Bandelier Museum must be worked out before this report is complete. This will be completed within a few days and be submitted to the Berkeley Office.

The following groups have been contacted by the Park Naturalist through illustrated lectures:

1. National Federation of Federal Employees: November 15, 1935;  
7:45 PM

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NATURALIST DIVISION (CONT.)

Place:--Veterans Administration Facility, Tucson.

Attendance:-----175

Subject:-----"Yellowstone National Park" (by special request)

Remarks:----- Many of the employees had visited Yellowstone Park during the Convention last Autumn and they were interested in having this program. Lecture was illustrated with slides.

2. Masonia Lodge, Coolidge, Arizona; November 14, 1935: 8:30 PM

Place:-----Masonic Hall

Attendance:--"Yellowstone National Park" (by request)

Subject:-----Request to give this program came shortly before the meeting and was filled because of need for returning borrowed slides without too much delay.

3. Coolidge Grammar School, 4th to 8th grades, inclusive; Nov. 22, 1935 at 2:45 p.m.

Place:-----Visual Instruction Room

Attendance:---150 handled as two groups of about 75 each.

Subject:-----"Yellowstone National Park" (by request)

Remarks:-----The Principal was especially interested in the pupils seeing the slides before they were returned.

4. M. E. Church, Coolidge; Young peoples' group; Nove. 24, 1935; at 6:45 p.m.

Place:-----M. E. Church, Coolidge

Attendance:---75 (Largely Coolidge High School Football Teams)

Subject:-----"Arizona's National Monuments" (S.W. slides exclusively by request).

Remarks:-----Program was given as the principal feature of the regular Sunday Evening meeting.

5. Community Church, Coolidge; November 24, 1935; 8:00 P.M.

Place:-----Community Church

Attendance---45 (regular congregation)

Subject:-----"Nature's Handiwork as Revealed in the National Parks"

Remarks:-----Yellowstone slides were used as central theme with several slides from each of four or five other national parks. The pastor fashioned his evening sermon about the parks pictures.

6. Rotary Club, Wednesday Nov. 27, 1935; 12:00 Noon

Place:-----Basement of Christian Church, Florence, Arizona

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NATURALIST DIVISION (CONT.)

Attendance:-----25 Rotarians

Subject:-----"National Monuments of Arizona and New Mexico  
(with slides)

Remarks:-----Included Montezuma Castle, Tumacacori, El Morro  
and Modern Indians.

Special thanks are due Assistant Park Naturalist George Crowe and the Yellowstone staff for the loan of more than 25 of their very finest slides. These slides were at work constantly while in my session. A total of 385 people were contacted through special request programs in which the Yellowstone slides were used.

Report of Junior Naturalist Dale S. King:

The first five days in the month were spent completing the tree planting project between Compound A and Headquarters and Casa Grande offices and residences.

A total of 100 seedling trees were planted---79 mesquites, 4 screwbean mesquites, 5 catclaw bushes, 2 desert willow, and 10 iron-wood. An attempt was made to eliminate every appearance of artificiality---the seedlings apparently are scattered in hit-or-miss fashion, but upon attaining a height of eight or nine feet will effectively screen the buildings so that visitors to the ruin will not be aware of modern improvements. For visitors interested in botany, the trees will also give us exhibits in place.

According to botanists of the Boyce Thompson Arboretum, the trees, with watering, should give us a good screen in about eight or nine years. I wish to thank with deep appreciation Mr. Fred Gibson and Mr. Jack Whitehead of the Arboretum. They spent considerable time and labor growing the seedlings for us, and have been consistently helpful.

The little trees have been protected from rabbits by chick wire, yet the foliage of three has been stripped by some small rodent. If these plants do not leaf out in the spring, they will have to be replaced. I am commencing to understand one reason why plants have a difficult time growing on the desert---the rodent damage is enormous.

November 6 to 17 were spent on a field trip in company with Supt. Pinkley, and for a portion of the time, Architect Miller, and Museum Technician Woodward. The following locations were visited: White Sands, Three Rivers Petroglyphs, Abo, Quarai, and Gran Quivira Missions, Bandelier, El Morro, the proposed Monument area south of Manuelito, New Mexico, and Walnut Canyon. Museum and education problems were discussed at each Monument. The proposed Manuelito area will be the subject of a special report from the Southwestern Monuments Office to the Director.

The remainder of the month was spent in shipping office and education supplies to various Monuments, keeping up correspondence items,

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## NATURALIST DIVISION (CONT.)

constructing a house trap, copyreading and lettering the Monthly Report.

### Report of Junior Naturalist Louis R. Caywood:

Junior Naturalist Caywood spent the entire month at Headquarters. For almost two days he helped Junior Naturalist King plant young mesquite trees.

Bird records and bird banding schedules were posted. A new bird observation was made---a pair of Western Vesper Sparrows was noted playing in the top of a mesquite tree. The male had a very pleasant song and several days later the same song was heard, but the birds were not seen again.

Considerable time during the month was spent on public contacts duty.

The remainder of the time was spent cataloguing museum specimens in the Casa Grande National Monument Museum. 267 specimens were catalogued on standard National Park Service catalogue cards. 38 pieces of pottery were photographed, and the photographs were pasted on the cards of the respective specimens.

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## BANDELIER ECW

By H. B. Chase, Project Supt.

The garage in the utility area group of buildings is now available for housing equipment; there still remain the doors on the two enclosed stalls to hang, some minor grading and masonry pointing to complete the project.

A small crew constructed approximately a mile of the fire trail from Frijoles Canyon to Alamo Canyon completing all work that can be accomplished from this camp. It is planned this project will continue when the proposed side camp is established next spring.

A 1200-foot sewer extension from the existing headquarters disposal plant was completed this month.

A large crew has been planting in and around the headquarters area all of this month---the former barren area west of the office building receiving most of the development.

Considerable maintenance work has been done on the roads in both the principle and detached sections of the monument.

Obliteration of the former utility area on the canyon rim has been in progress all of this month as and when we could vacate a building or an area. One building remains to be removed.

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RANDELIER E.C.W. (CONT.)

The rock quarry has again been one of the principle projects all month. Excess men were detailed to this project quarrying material for buildings to start immediate construction upon arrival of approved plans.

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## ENGINEER REPORT

By J. B. Hamilton, Assoc. Engineer

### Aztec Ruins National Monument:

November 1 I supervised the pouring of concrete for the cattle guard. The next day Mr. Underhill, expert on Bituminuous materials, arrived to relieve me of the Aztec job. A welcome relief; as many projects were under way in my district at this time.

He remained until the 25th. He installed drainage, finished the cattle guard, trued up the sub-grade and give it a pallative oil treatment. He expects to return in the spring to put down the top course. A much better job is promised if its construction can be put off until warm weather.

### Chaco Canyon National Monument:

I visited Chaco Canyon October 29 to look over the fencing project in general and again on November 4 to inspect the pouring of concrete for one of the cattle guards.

### El Morro National Monument:

I visited this Monument October 28 to inspect the pouring of the lower flight of steps. Foreman Harry E. Brown completed the concrete steps there about November 20.

### Inspection trip with Chief Engineer Kittredge:

In preparation for the Navajo Country road meeting at Gallup November 12 and 13 I left Mesa Verde November 20. I expected to look over some of the proposed road routes between Thoreau and Aztec, which I had not seen on my regular trips between these points.

However, a snow storm blocked that plan. Custodian Miller and I left Pueblo Bonito about 11 a.m. November 11 and did not get to Gallup until 6 p.m. We went by way of Crownpoint and Thoreau, but we did not see any new road routes. The usual route was so well covered with slush and mud that we hardly saw even that road. We were well pleased that our wheels reached it even though we did not see much of it.

The 12th and a good portion of the 13th were spent at the road meeting.

The afternoon of the 13th Superintendent Pinkley, Chief Engineer

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## ENGINEERING REPORT (CONT.)

Kittredge, Assistant Superintendent Hugh M. Miller, Custodians Faris, T. C. Miller, Robert Budlong, and Engineers Underhill, Diehl and Hamilton, and Architect Richey conferred on the problems of the northern Southwestern Monuments. It was there decided to put off paving Aztec parking area until spring, and to try bitumuls stabilized earth paths through the ruins.

T. C. Miller was given a third temporary type cattle guard at Chaco Canyon. Canyon de Chelly's rim road and the completion of the well and sewer system were discussed.

That afternoon Mr. Richey and Hugh Miller, Mr. Kittredge, and myself visited El Morro National Monument. We found Mr. Brown had the concrete steps completed except for removing some forms, cleaning up debris and staining the steps with copperas.

The next day, November 14, Mr. Pinkley and Hugh Miller, with Dale King in one car, and Mr. Kittredge and I in another went to Canyon de Chelly. On the way Mr. Kittredge and I stopped at the Navajo Capital, Nee Alneeg, and discussed the drilling of the well with Mr. Burns of the Indian Irrigation Service. Mr. Burns stands ready to do the job for us very soon after money is made available.

That afternoon an inspection of the work done and being done about Thunderbird Ranch was made.

The next day we all drove to the Monument in Canyon de Chelly. We were accompanied by Emmett Kellem, who is in charge of the work of the Soil Conservation Service there. Under his guidance we saw much of the work they are doing.

Mr. Kittredge, Mr. Budlong, and myself were dropped at the foot of the trail and walked back as far as the "First View" where Mrs. Budlong met us with a car. We inspected the trail and went over the survey of the proposed rim road, made by Mr. Clark recently.

Mr. Kittredge and I arrived at Gallup at 12:30 the next morning. We stopped off three hours or so near Canado to see a Yaibechai a dance which Mr. Kittredge had never seen. We were guided by Mr. Lee of the General Trading Post.

The morning of November 16 Mr. Kittredge and I conferred with Soil Conservation officials at Gallup on problems at Chaco Canyon. As a result the Director was asked by telegram to furnish money for materials, they to do the work of placing erosion dams across the arroyo. We arrived at Pueblo Bonito that evening.

November 17 was spent inspecting the fence construction and erosion problems, both in the valley floor and in the ruins. We arrived at Aztec that evening.

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## ENGINEERING REPORT (CONT.)

November 18, after looking over the work at Aztec and inspecting ruin deterioration, Mr. Kittredge left for Gallup with Mr. Underhill, and I came to Mesa Verde.

### General:

Sixteen days of the month were devoted to Southwestern Monuments problems, the rest to Mesa Verde. The weather outside of the one storm the 10th was generally good.

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## THE MONTH OF THE BOSS

The high spot in my month was of course the road meeting at Gallup on the 12th and 13th, and the next highest spot was the Border meeting at El Paso on the 24th.

The road meeting at Gallup was an important one, the most important, I think that has been held concerning the roads of the Navajo Country for many years. As you know, under instructions from the Secretary you asked me to call the interested parties together and see if some ground could not be found common to the needs of all the interests upon which we could base a logical program of development for that country, which is somewhat larger than some eastern states.

Representatives of the Indian Service, the Park Service, the Bureau of Public Roads for Arizona, the Bureau of Public Roads for New Mexico, the State Highway Department for each State, and the State Highway Commission for each State were present and took part and the Soil Conservation Service sat in as a party in interest.

The startling thing was that in a day and a half of sessions, every motion was passed unanimously and a complete program was blocked out for the whole Navajo Country showing which roads were to be developed and giving an order of precedence in the developing, and this program was passed unanimously. All delegates signified their approval by signing it individually, except the Bureau of Public Roads where the superior officer, Mr. Bright, of San Francisco, signed for the group. As road meetings go, it certainly formed a precedent. The report of the meeting has been submitted to your office, and I trust you will see that it does not get lost but is pushed through to final action.

The meeting at El Paso was with the representatives of the Government of Mexico and was for the purpose of determining if a common basis could be arrived at upon which we could reserve certain adjacent portions on each side of the international border which might be used in common by the peoples of both countries as areas of inspiration, education and recreation. The meeting was successful. Eight basic principles were agreed upon, written up and signed by all the delegates. It was determined that a Commission would be established, of which the

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MONTH OF THE BCSS (CONT.)

Mexican members were there appointed, which would meet not later than January 15 next and which would examine and report upon certain proposed areas not later than March 15 next. The report of this meeting has been made to you by Mr. Herbert Maier, who was the head of our delegation, and I concur in his recommendations. I might mention incidentally that I obtained the consent of all those present to proceed with the reservation of the proposed Organ Pipe Cactus National Monument if and when we should be ready regardless of the meetings of this proposed Commission as they were all in accord with our plans and agreed that no delay for any report of that Commission was necessary.

The rest of the month was taken up with routine matters. I visited White Sands, Gran Quivira, Bandelier, Canyon de Chelly and Walnut Canyon National Monuments during the month and found things on the whole going well.

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## CLOSING

I think November can be marked down in our calendar as a month of very successful operations and point you to the reports of the individual monuments to prove it. The morale is good, except at a couple of points, and we are working those out. Number of visitors is easing off at some of the higher monuments, and those men are getting time to catch up on their other work. At the lower monuments the visitors are increasing and will continue to increase until about February or March when we expect the peak to be reached. The headquarters work remains about the same. We hope to begin overhauling our six year programs soon after the first of the year and as soon as the budget is published we will begin work on the preliminary estimates for the fiscal year 1938.

Our construction jobs at various points have proceeded satisfactorily during the month, the weather being good. Hub. Chase and the E.C.W. camp at Bandelier are having a little trouble getting enough approved plans to keep lined out. Bill Stevenson and the E.C.W. camp at Chiricahua have a year of approved work ahead of them and are going strong.

Without any intent whatever on our part, this report is the longest one we have ever put out, and yet many items have been omitted and other important items have been given only passing mention. We are sometimes surprised ourselves when we check up the ramifications of our work and look over the multitude of details that are being handled by our comparatively small organization.

We start into December with plenty of pep and a lot of work in sight and hope we get as much fun out of it as we did out of November.

Cordially,

*Frank Pinkley*  
Superintendent.



THE  
SUPPLEMENT  
TO THE  
MONTHLY REPORT  
FOR  
THE  
SOUTHWESTERN  
MONUMENTS

WHERE WE ARE SERIOUS,  
-BUT NOT TOO SERIOUS.



# THE KIVA AND ITS FUNCTION

By Earl Jackson

When we write or talk of kivas we give, of necessity, great freedom to our imaginations. Reliable data on actual kiva ceremonials is very difficult to obtain, so that the smatterings of information we get come from widespread and sporadic sources. While we are quite familiar with actual construction in kivas, the symbolism and use of the structures is problematic.

Religious ceremonial began just as soon as the first man saw something he didn't understand; life was surrounded with harsh, destructive agencies, and when man saw the inexplicable he feared it and then attributed supernatural powers to it. His first actions in relation to it were propitiatory.

At first only wicked or destructive powers were recognized, and placatory rituals were largely used. Later, with the development of more elaborate theism, came acknowledgement of benevolent spirits as well, and thus the balance of deities.

Superstition indicated that certain places were more suitable for performance of deeds of worship than others, and through habit these particular locations became acknowledged as holy spots. Such a spot could be an open space, a protected glade, a mountain top, an edifice above ground, or an underground chamber.

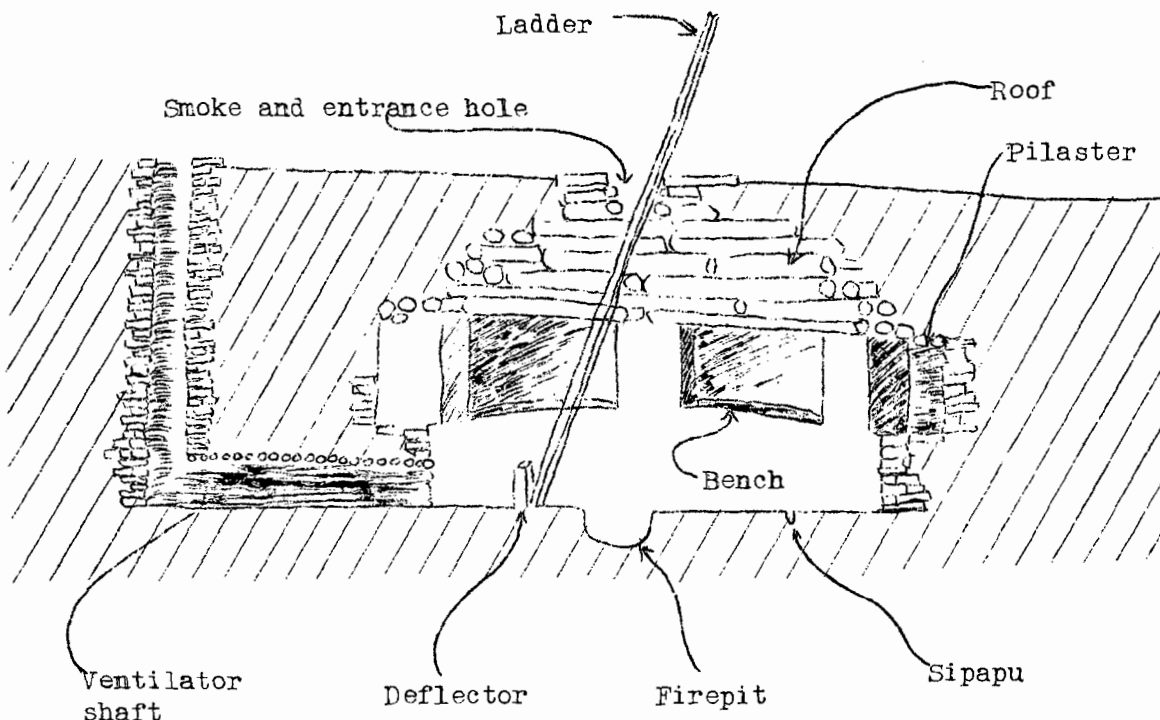
Undoubtedly all of the American Indians from the dawn of their civilization used particular places for ceremonial. With elaboration of southwestern civilization certain types of ceremonial sites became standardized, and so easily recognized wherever found. The most enduring of these were the kivas. Kivas have been continuously used from very early prehistoric times, for 1500 years at least.

The kiva is characteristically a circular chamber, either partially or completely subterranean. A few exceptions in form are seen, particularly among the Hopi Indians of Northern Arizona, where the rectangular kiva is used. The commonest roof style has a flat or slightly conical shaped timbered ceiling, covered with twigs, sticks, or grass, or all three, with mud on top. A square hatchway in the center serves for a door, with a ladder going on an angle down to the floor. In the center of the floor, directly beneath the door and ladder, is the fire pit or fire box. The entrance serves as a smoke hole.

A small door-shaped tunnel is constructed through the wall of the chamber, usually on the east side. It is sometimes large enough for a man to crawl into. It extends on the average of three feet back, on floor level, then contacts a vertical shaft which comes out on ground surface. This tunnel arrangement is usually called the "Ventilator shaft," because it is thought by some that it is intended

## THE KIVA AND ITS FUNCTIONS (CONT.)

to bring a continual downdraft of fresh air to the kiva floor and to the fireplace. More likely it seems the shaft should be called a spirit passage, as will be explained later.



SECTION THROUGH SMALL KIVA

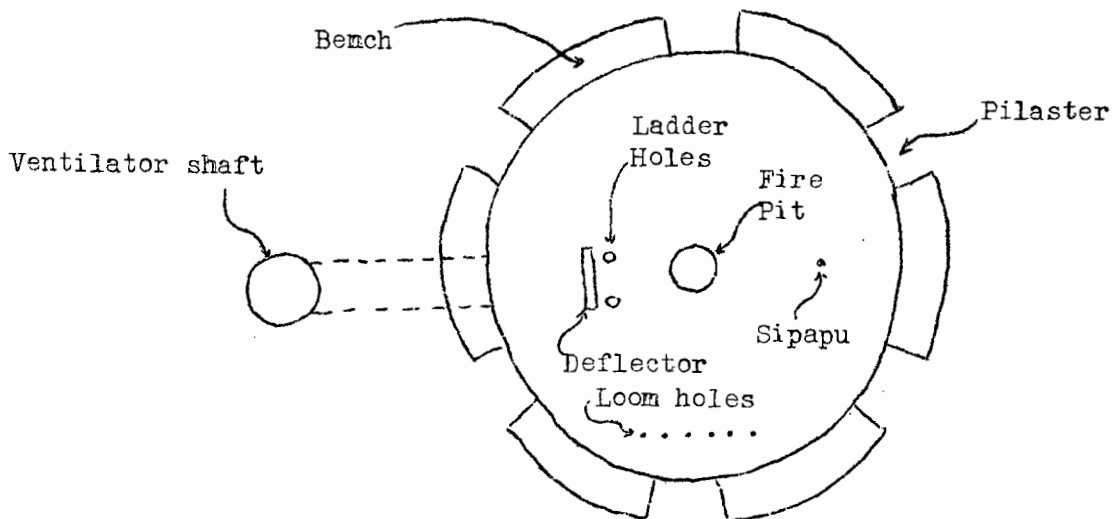
Between the inside tunnel entrance and the fireplace is usually found a "deflector stone" or "altar." Sometimes this is a single slab of rock set up on edge, suggesting an apparent function as a windbreak for the fireplace. In other instances the stone is represented by a box shaped construction of mud and stone, and has space on top for placement of ceremonial articles.

So we have a spirit passage, an altar stone, and a fireplace, all on one axis in the kiva chamber, and usually running east and west. One other important detail belongs on this axis. It is the Sipapu, or "Shipapu", as known by the Queres Indians of the Rio Grande Valley. This is a small hole, about three inches in diameter by five inches in depth, located in the floor between the fireplace and the wall opposite the spirit passage. Sipapu is commonly designated as the spirit connection with the Underworld.

The points described are the most essential to a kiva, but other features were frequently added. In some we find a masonry bench or "banquette" circling the room, extending out perhaps two feet from the wall, and sometimes two feet above the floor. Frequently

## THE KIVA AND ITS FUNCTION (CONT.)

pilasters, usually about six in number, (probably symbolizing the six directions) were built out, at even spacings, from banquette to ceiling. These were ornamental as well as useful in supporting ends of ceiling timbers. Sometimes wall pockets or caches were made in these pilasters or in the kiva walls, often concealed. These caches were for ceremonial offerings.



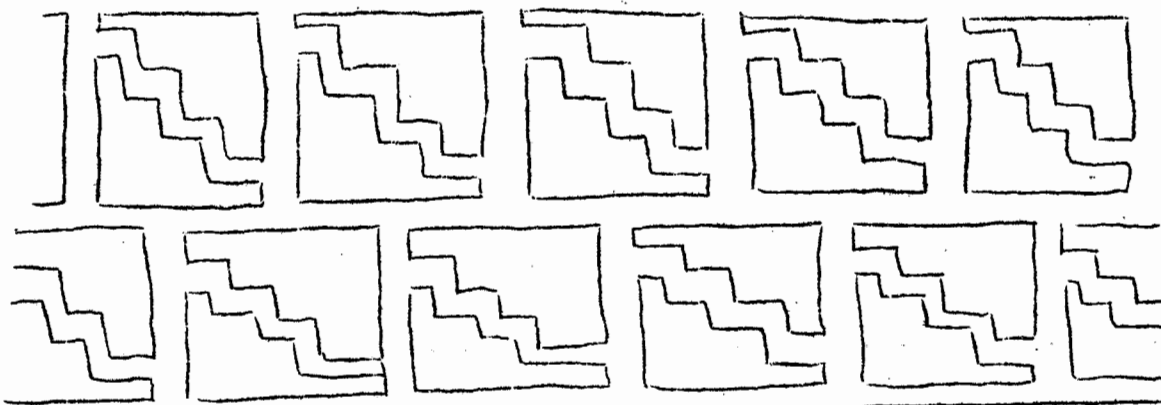
PLAN OF SMALL KIVA

It is known that among several of the tribes the weaving was done by the men in the kivas. In the Pajarito Plateau region of north central New Mexico the kivas have wall sockets which were intended to support the framework for looms. Beneath the crosspiece of the loom, on the floor, is usually a row of seven small holes, and in these holes were planted willow loops, to which things holding the lower crosspiece of the loom in position were attached.

Sometimes elaborate paintings were placed on kiva walls. Several kivas in Frijoles Canyon have remnant of fancy colored designs on the wall surfaces. The Snake Kiva here has an excellent emblem of the Plumed Serpent (the mythical Awanyu, or water god) in black on the wall. The design was probably originally in red.

Kivas are usually located quite near to the homes of the Indians. Most Pueblo villages have their houses grouped either about an enclosure or partial enclosure facing south or southeast, and in these courts or patios are the ceremonial chambers. In the case of cliff houses the kivas are sunken in the talus slope in front of the dwellings, as at Mesa Verde. Only in the Pajarito Plateau region do we

find the phenomenon of kivas built in the same locations as the cave houses.



Kiva dado found by Dr. Paul Martin in the Lowry Ruin, southwestern Colorado.  
Kivas serve two important functions:

1. That of religious centers. Here the men gathered (women were not allowed in kivas) for ceremonial purposes, to hold clan or tribal council, to meditate, to commune with the spirits of the earth or of their ancestors, or to initiate many of the sacred dances and other ceremonials which were completed above ground.

2. That of club rooms. Frequently the men would gather as in a lodge or secret fraternal gathering, to loaf or have talk fests, and, as a result, to formulate policies.

Weaving of cloth was also done in these chambers. Probably the origin of weaving in kivas could be traced to the beginning of loom work among the pueblo Indians. The first pieces of cloth made may have been considered so rare and unusual that they were used only for sacred purposes, as for a robe for a priest, or a wrap for the dead. And, of course, holy cloth must be made in a holy place, therefore that holy of holies - the kiva.

As one browses through Indian legends and archaeological opinions he comes to the conclusion that there are three principal lines of thought in regard to the symbolism of kivas:

1. The kiva is a passage from the Underworld.
2. It is a survival of the most ancient house types.
3. It is a means of getting near to the heart of the Earth Mother and her eternal secrets.

Number 1 could be divided thus:

- 1a. Illustrative of migration of civilization from one world to another.

- 1b. Illustrative of evolution of Indian life from a lower form of life.

## THE KIVA AND ITS FUNCTION (CONT)

The explanations of Indian belief which follow are not consistent to legends of any particular tribe or tribes; they are advanced only because they represent the boiled-down traditions of many Indians insofar as we can obtain them. Because these fragments of thought center about essential root beliefs, they have been woven together to present a logical but unproved pattern.

1a. Most Pueblo Indians believe their remote ancestors came from the Underworld, or land of darkness. In their effort to attain to more light they climbed upward through some sort of cave or crater opening in the sky and finally reached the sunlight of the upper world. Those Indians who were strong enough to make this arduous climb became the forebears of the Indian race of today.

In the effort to keep in spiritual contact with the ancestral dead, living Indians build their places of worship to symbolize the passageway through which they came into this world. The kiva, the sipapu, and the ventilator shaft represent the three stages of gradation from darkness into light through which the ancestors climbed.

From the darkness of the Underworld they climbed into Sipapu, or the stage of twilight; from twilight they forged upward into moonlight, symbolized in the kiva itself; from moonlight, after their eyes became accustomed to the increasing illumination, they went up through dawn light, shown by the ventilator shaft; from there they climbed into the sunlight outside.

So in the kiva, the half-way stage between the two worlds the medicine men and other wise men gather to talk to the spirits of their ancestors. The spirits respond to the elaborate rituals performed there, and come up through sipapu and confer with the men, giving them advice on how to regulate their earthly affairs. As a result of the kiva ceremonials the medicine men become very wise, for when one talks with the dead he plumbs the stored-up knowledge of all the ages. With this wisdom they go from the kivas to the people and tell them how best to regulate their lives.

1b. Some of the Rio Grande Indians hold to the belief that the kiva represents the stages in their evolution from a lower form of life. Originally Indian life existed in the Underworld in a very vague and nebulous state. It had not yet risen from the cosmic coze just this side of utter nothingness.

Without clearly defining the stages of development, they picture the sipapu, the kiva, and the shaft as representing the three intermediate stages between these elementary beings and the highly complex human organisms of today.

2. One of the theories common in archaeological thought today

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## THE KIVA AND ITS FUNCTION (CONT.)

holds that the kiva is nothing more than the survival into late times of the most ancient house type of the Indians.

It is known that some of the earliest artificial homes of the aborigines of the Southwest were circular pithouses. These were sunken chambers with clay or slab walls and timbered dirt-covered roofs. Entrance was through one of the walls, usually to the east. The firepit was in the center or front center of the floor, in front of the door. Storage chambers and baking pits were dug below floor level, with a small opening at the top. In some of these pits were stored food supplies, in others were placed hot stones on top of which vessels of food could be cooked or baked. The sipapu is a perfect miniature in form of these ancient pits.

As Indians developed house building and surface structures, we find the beginning of kiva construction as we know it in its modern style. Most of the early kivas had side openings instead of the later type of ceiling entrance. So the belief is held that the first house type was carried over only for ceremonial purposes, that the fireplace is the same as in the pithouse, that the side door opening was gradually moved to the center of the roof, so as to provide smoke exit as well as human entrance, that the ventilator shaft now symbolizes the original side opening, and that the sipapu is a survival of the old storage or cooking pits.

The idea of this survival being used for ceremonial purposes hinges on the fact that Indians hold so much reverence for that which is old or primitive. Age lends wisdom and mystery. The ancient house would provide a proper environment for communication with the spirits of their forefathers, and in such manner could the wisdom of the old come to the new.

3. Another opinion, less widely held, is that the kiva is used only for the purpose of getting nearer to the heart and secrets of Mother Earth. Its subterranean location gives greater possibility of being surrounded by the spiritual presence of the earth and understanding her wishes.

This recognition of the earth as a mother is based on the facts of life. Indians are children of nature, and as such they recognize everywhere the essential duality of things and the great association of existence. Everything is either male or female, and the motivating forces of the two create life. Their deities are all designated by sex.

Perhaps the two commonest deities which are recognized as of prime importance and power are the Sun Father and the Earth Mother. The sun and heavens represent that great masculine force which covers the female or fertility force of the earth.

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## THE KIVA AND ITS FUNCTION (CONT.)

The Indians all sprang from the womb of Mother Earth in some way or another. Since she is the mother of all things she must know all things, and therefore, when they must know something or have counsel, they go into the kiva and meditate or pray that they may hear her voice.

In general, it may be said that the kivas are the most important spots in any Indian village. Legislative matters are frequently settled in them, as well as spiritual matters. Usually each clan has at least one kiva, for clan meetings, and then there will be a large tribal kiva in which representatives of clans may gather for tribal assembly.

There seems to be little distinction as to what men or boys may enter a kiva; however, it is tacitly understood that only those men of sufficient attainment and knowledge may regulate ceremonial or religious policies. Boys are known to undergo certain rituals of initiation into manhood in the kivas of several tribes.

Among the Pueblo Indians, while the chief or governor by popular vote is acknowledged as the secular head of the tribe, the ecclesiastical head, or head medicine man or cacique is usually the most influential. For a governor will seldom dare attempt anything of grave import without spiritual sanction, and this causes the priest to be the power behind the throne.

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## NOTES ON THE PROPOSED E.C.W. PROGRAM IN S.W. MONUMENTS

By Robert H. Rose

### GENERAL

Recent correspondence indicates that work along geological lines will be performed among some of the monuments of this district. The principal features of the different monuments vary a great deal running the gamut from geology through history and archeology. Where geology is the principal feature present the objectives we should strive for are quite clear. Where archeology and history are the leading features geology becomes secondary. However, in nearly all cases the geology of the regions in which the historical and archeological monuments are located bears an important relationship to the principal story to be told.

Popular demand is a first consideration in determining monuments where a geological program should be pursued. Visitors to Canyon de Chelly, for example, usually find the archeological story covering

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## PROPOSED PROGRAM IN GEOLOGY (CONT.)

approximately 2,000 years of time, the most important story of interest at that monument. There are many visitors, however, who express interest in the sheer colorful cliff walls and their origin. This interest frequently dominates their interest in all other phases of the monument. Thus geology comes at once into the scene at an archeological monument.

In many cases the physiography of the region actually determines the presence of the archeological or historical features. In such instances the geology must be woven into the fabric of the archeological or historical story exemplified at such monuments. This suggests that we must determine those relationships between geology and the other features present. Physiography and topography made the region of Casa Grande favorable for human habitation by sedentary peoples during prehistoric times. These same factors are largely responsible for the prosperity of the region today. When we think of physiography and geology in terms of their contribution to human welfare, they become a vital part of the story of the ancient peoples themselves.

The ECW program must be given careful thought in order to insure tangible results. Worth while investigations will not be accomplished by visits of a few hours or even a few days at a monument like Chiricahua or Bandelier. Only the major outlines of the geological story can be worked out in such short times and frequently already there is more information available in U. S. Geological Survey bulletins and other sources than can be gleaned through cursory investigations. It is detailed work that is most needed. (1) The faults, folds, contacts between formations and other geological relationships in the immediate vicinity of the monuments must be mapped; and (2) specimens must be collected, identified, catalogued, and interpreted in non-technical language. There is also (3) the important problem of physiography as related to human welfare to be determined at historical and archeological monuments. If all of this work is carefully done, a clear record made, and the results in the form of maps and reports made available to the monuments personnel, we will then have collected data not already available in the geological literature.

Summarizing the above discussion, I believe that the Southwestern Monuments ECW geological program should be designed along the following lines:

- (1) In monuments where the primary features are not geological, the relationship of geology, physiography and topography to the major features should be worked out. In the case of archeological monuments, introduce geology and physiography to show the adaptability of these localities for human habitation. Climate, physiography and topography have actually determined the type of life led by ancient peoples in these areas.

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PROPOSED ECW PROGRAM IN GEOLOGY (CONT.)

- (2) Local geological relationships such as faults, contacts among formations, intrusions, folds, etc., not shown in detail in existing references, should be worked out thoroughly under this program and the results be made available. All of these relationships must be explained as to their significance in interpreting the geology of the region as a whole.
- (3) A thorough program of collection, identification and non-technical description of geological specimens should be completed.
- (4) A careful study of possibilities on exhibits in place should be made and reported upon.
- (5) Attention should be given to the application of all of these studies to the problem of geological exhibits in the museum.

MISCELLANEOUS NOTES ON INDIVIDUAL NATIONAL MONUMENTS

Arches:

No development is contemplated in the immediate future at this monument. Geological projects in many other monuments are needed just now. After work has been done at monuments having priority over Arches, it would be highly desirable to institute a program of geological work there. The following projects would greatly facilitate the present and future educational program at Arches:

- (1) Mapping of all geological relationships on a large scale vicinity map. This map should be supplemented with a good discussion of the significance of these local relationships to the geological story of the whole region.
- (2) A program of collection of rock and fossil specimens should be instituted. Identifications, non-technical descriptions, etc., should accompany all geological specimens. These specimens should be made of value long after the program is completed, therefore the recording, identification, etc., must be done carefully and systematically.
- (3) Possibilities for exhibits in place, trailsides, etc., should receive attention.

Aztec Ruins:

The Archeological story at Aztec takes precedence over other educational features. Geological work at several monuments should take priority over Aztec. When such program is attempted at Aztec, it should be formulated along the following lines:

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PROPOSED ECW PROGRAM IN GEOLOGY (CONT.)

- (1) The physiography of the region as related to human welfare in ancient times should be stressed.
- (2) The types of stone, shell, etc., used in tools and ornaments should be identified. These stone materials should be correlated with their locality of origin.
- (3) From various references supported by field observations the geological relationships present in the nearby hills and valleys should be mapped and discussed.

Bandelier:

Bandelier has a highly important geological story awaiting interpretation. Bandelier should take priority over all monuments with the possible exception of Chiricahua and Capulin Mountain as to the program of the immediate future. Bandelier's program should be designed along the following lines:

- (1) That interesting relationship between physiography and adaptation to human habitation should be stressed at Bandelier. Physiographic events of the past have made the Bandelier region what it is today.
- (2) There is a geological story at Bandelier which is constantly arousing visitor interest. The contacts, types of formations, work of erosion and the volcanic geology are phases that should be given attention at Bandelier. The significance of these details to the whole geological story of the region should be clearly set forth.
- (3) Collection, identification and non-technical description of specimens should receive much attention.
- (4) Bandelier seems to offer a number of possibilities for exhibits in place and trailsides. This most important study should receive careful thought in the program at Bandelier. Recommendations as to the best exhibits in place should be made.
- (5) The matter of interpretation of geology by means of museum exhibits should receive attention.

Canyon de Chelly:

The vividly colored mesas and canyons of the de Chelly region never fail to arouse interest. The need for work at de Chelly takes high priority over the need for geological studies in most of the monuments. De Chelly's geological program should be fashioned along

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PROPOSED ECW PROGRAM IN GEOLOGY (CONT.)

the following lines:

- (1) A bibliography of the geology of that region should be prepared. There should follow a report on the geological work done thus far. The various theories regarding the origin of the de Chelly Sandstone should be explained.
- (2) Specimens should be collected, identified and described in non-technical language.
- (3) The physiography of the region as related to human habitation should be given consideration.
- (4) The matter of interpretation in the museum and along the trails should receive study.
- (5) Possible locations for trailsides and exhibits in place should receive attention.

Capulin Mountain:

The main story to be told at Capulin Mountain is the story of volcanism. The following program should be completed at that monument:

- (1) A geological map of the immediate region should be prepared on a large scale.
- (2) Specimens should be collected, identified and described in non-technical style.
- (3) The lines along which museum exhibits should center out to receive attention.
- (4) The processes that are at work in volcanism generally ought to be discussed. A suggested outline of the important geological facts and inferences regarding Capulin, should be prepared.

Casa Grande:

Casa Grande receives heavy winter travel. The valleys and mountains nearby are typical of those found in a vast area in the Southwest, particularly southern Arizona, southeastern California, Nevada and parts of Utah. These facts would make it desirable ultimately to develop something of a regional center of information on geology at Casa Grande. The size of the region involved does not mean that exhibits along this line would be extensive. Following is an outline of suggested geological work that should be done at Casa Grande:

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PROPOSED ECW PROGRAM IN GEOLOGY (CONT.)

- (1) The relationship between physiography and human habitation should receive attention and be stressed.
- (2) Rock and shell materials used by the early inhabitants should be identified and discussed in terms of physical properties that made the use of these materials for certain purposes desirable.
- (3) Rock materials should be identified and discussed in terms of localities from which they came.
- (4) A general geological map of the region should be prepared and discussed in such manner as to be available for the information of visitors.
- (5) Geological work performed by the forces of nature in the desert should receive attention.

Chaco Canyon:

The program in geology at Chaco Canyon is not pressing at the present time. Collection, identification, and description of specimens; working out local relationships and interpretation of their significance; and physiography in terms of human adaptation, are phases of geology for the monument that should receive attention.

Chiricahua:

Chiricahua probably ranks first in priority of need for a geological program. The area is of high rank scenically and geology is the principal interest there. The program is outlined for Chiricahua as follows:

- (1) There is great need for a large scale map of the local geology showing contacts, faults, etc. The completion of the contour mapping makes possible the use of a good contour as a base map.
- (2) Specimens should be collected, identified and accompanied by a non-technical description. These should be made available for the museum of the future.
- (3) The physiographic story should be clearly outlined.
- (4) Emphasis on the regional geology would not only be desirable but it would lend interest to the local Chiricahua story.

Several weeks will be required on the ground at Chiricahua in order

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## PROPOSED ECW PROGRAM IN GEOLOGY (CONT.)

to do the detailed geological work needed. The general outlines of the story are known from existing references. Detailed work of the types mentioned above will contribute something that cannot be had in any other manner.

### El Morro:

There is no pressing geological problem at El Morro. There should in time, however, be a program of collecting, local mapping and physiographic study carried on. All work should be done with the idea of aiding the educational program of the present and contribute to the museum of the future.

### Gila Cliff Dwellings:

No development is planned at present at Gila Cliff Dwellings. The work at this monument ranks near the last in priority and should be done only after the completion of the program at other monuments. Collection and identification of specimens; local mapping of geological features; and the preparation of a report involving available references and original field work, will just about cover the work that ought to be done at Gila Cliff Dwellings.

### Gran Quivira:

It is desirable that geological work be done at Gran Quivira but the need is not urgent for the immediate future. Collection, identification and description of specimens collected in the region; mapping regional geological relationships; and the study of physiography of the region as related to human habitation, are among the problems to be worked out at Gran Quivira.

### Hovenweep:

No development is planned in the immediate future. However, a geologic project similar to that outlined above for Gila Cliff Dwellings, will apply for Hovenweep.

### Montezuma Castle:

Montezuma Castle is situated in a region of considerable geological interest to visitors. Questions arise about the limestone cliff in which the Castle is situated; the formations of Oak Creek Canyon; the presence of the salt mines and of Montezuma's Well in the locality; and the origin of the mountains in which the mining operations are centered. All in all, a geological program for Montezuma Castle National Monument would be very desirable and would fill a real need. The project at Montezuma would consist of the following phases of study:

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## PROPOSED ECW PROGRAM IN GEOLOGY (CONT.)

- (1) The mapping of the geology of the immediate locality relating it to the geology of the region as a whole.
- (2) The collection, identification and non-technical description of a great variety of rocks and fossils. This will be a real task for all types seem to be represented in the general region.
- (3) Physiography related to adaptation for human habitation is of great interest at Montezuma Castle.
- (4) The matter of just what should be presented in the museum along geological lines should be considered.

### Natural Bridges:

Geology is the major story to be told at Natural Bridges. General material is already available there and the story is not suffering there badly for the want of knowledge of its broader outlines. It would be desirable, however, to institute a detailed project of collecting, identification and description of specimens; mapping of a local area; and planning the story which a museum of the future should tell. A good clearly written report should be made available to the part-time custodian.

### Navajo:

The geological story to be told at Navajo ranks high in importance. By popular demand geology must enter into the educational program there. Gregory has done extensive work in the region and the broader phases of the story there are not suffering. Therefore it is the detailed collecting, identification and description of specimens that is most needed at Navajo. Physiography as related to adaptation for human habitation comes in for a place of high importance at Navajo. Navajo is fortunate in having had close contact with Gregory and having fine works covering the general region.

### Pipe Spring:

The basic geological data for this monument are to be found in various published works of the U. S. Geological Survey. There is a real need for a locality geological map and for a general resume of the literature. A good report applying to the locality would then be available to personnel at Pipe Spring. Some collection, identification and description of specimens should be attempted. The geology should be tied in with the region as a whole. There is a close relationship with North Rim of Grand Canyon and with Zion and Bryce. The need for work at Pipe Spring places its priority rather high.

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## PROPOSED ECW PROGRAM IN GEOLOGY (CONT.)

### Rainbow Bridge:

No development is contemplated in the near future at Rainbow Bridge. There is available in the literature enough material for a pretty good report of that monument. Study of the literature combined with a field trip there of short duration would enable one to produce an excellent report on Rainbow Bridge. Rainbow Bridge, North Rim, Zion and Bryce and that entire region can be correlated in an interesting way. The tie in which Rainbow Bridge has with that whole region would place priority pretty high on a project in geology.

### Saguaro:

The working out of local geological relationships and the collection, identification and non-technical description of specimens, occur to me as projects that are needed in the immediate future at Saguaro. Saguaro cactus growth is very delicately related to temperature, topography, soil, etc. It might be possible to weave into the botanical story the facts on soil, climate and topography that make this world's finest stand of Saguaro possible in this area. There is genuine need for some geological work at Saguaro and hence the relatively small project there is given rather high priority.

### Sunset Crater:

Robinson's famed U. S. Geological Survey paper on the San Francisco Volcanic Field gives basic material for Sunset Crater. Attention has also been given this monument by the Museum of Northern Arizona. From these sources it will be possible to draw up a map on large scale for our use. There is need, however, for the collection, identification and non-technical description of geological specimens. This material should be available to the personnel at both Walnut Canyon and Wupatki, and later to the personnel which Sunset Crater might have. In view of considerable work already done on Sunset locality, geological work at other monuments is more badly needed.

### Tonto Cliff Dwellings:

Tonto is peculiar in that it is an example of a monument primarily archeological in interest but in which geology must be given an important place. Scenery of the region is spectacular and visitors seek information from the Tonto personnel about regional geology. The priority of need for a geological program at Tonto is placed high. At this national monument I would outline the geological projects of importance as follows:

- (1) Regional physiography as related to human adaptation should be worked out. Here is an example of a region having nomads and sedentary people living in close proximity to each other.

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PROPOSED ECW PROGRAM IN GEOLOGY (CONT.)

- (2) Regional physiography as related to the presence of mountain valleys at high elevation and to climate, topography, etc. The story of the origin of all of the great rivers of the plateau and desert provinces of the Southwest is exemplified in the story of the origin of the Salt River. The physiography of the Tonto region ties in with that of the Colorado River Plateau and the lower desert region.
- (3) Geologic relationships are varied and rather complicated in the Tonto region. Field work and mapping on large scale locality map should be done. This should be interpreted as to its significance in the story of the geology of the whole region.
- (4) The Tonto region offers a splendid field for the collection of geologic specimens. These rocks and fossils should be collected, recorded, carefully identified, and explained by non-technical description. In this way these specimens will serve as a guide in devising museum displays for the future.

Tumacacori:

It is desirable that a geologic program for Tumacacori be worked out. The immediate need for a geologic project however is greater at many other monuments where such studies would immediately amplify the lectures and field trips. A suggested outline for geologic work at Tumacacori would include the following points:

- (1) Samples of all ores mined by the padres ought to be collected, identified and described. As much on early mining methods should be described as is known. An attempt should be made to photograph any old smelters which might still be in operation in northern Sonora.
- (2) The immediate locality should be mapped geologically and the significance to regional geology explained.
- (3) The physiographic account of the Tumacacori region should include northern Sonora.

Walnut Canyon:

Regionally, Walnut Canyon is related to the Sunset Crater-Wupatki-Grand Canyon-Montezuma Castle geological story. Thus, a geological project at Walnut Canyon is highly desirable in that the results would benefit a large group of monuments closely allied in geology. For Walnut Canyon the following program is suggested:

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PROPOSED ECW PROGRAM IN GEOLOGY (CONT.)

- (1) A large scale geologic map should be prepared of the immediate locality. Sections should be made tying this into the region of San Francisco Peaks and Grand Canyon. Sections would also be interesting connecting the Walnut Canyon with Oak Creek region to the south. The Museum of Northern Arizona already has available much material which will be of assistance in this project.
- (2) Specimens should be collected, identified and described, and be made available for future museum exhibits.
- (3) A physiographic account of Walnut Canyon should be made available emphasizing the Canyon region in relation to its adaptability for human habitation.
- (4) A study of proposed trailsides and exhibits in place should be made. Impressive geology is exhibited in the Canyon walls making it possible to bring people in contact with the real thing.

White Sands:

The geology of the region as a whole has made the strange environment there today. This environment has strangely influenced coloration, of animal life while plants show unusual ability to adapt themselves to abnormal conditions. Projects at White Sands should include the following:

- (1) Sources of information now available should be consulted and significant material used in a White Sands report.
- (2) Specimens should be collected, identified and described. These should come from the locality as a whole.
- (3) Local geology should be mapped with special reference to the problem of indicating the origin of the sands.
- (4) Characteristics of the White Sands environment in relation to adaptation of plant and animal life should be stressed.

White Sands stands high on the priority list. The available information has not been coordinated and no field work has been done. A good project at White Sands will result in basic information that has been needed for some time and which will be indispensable when it comes to installing museum exhibits in the proposed museum building.

Wupatki:

The Museum of Northern Arizona has done much work in the Wupatki-

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## PROPOSED ECW PROGRAM IN GEOLOGY (CONT.)

Sunset Crater region and their publications and material should be consulted. There is also available at Grand Canyon the results of work involving Wupatki geology. From existing references there is available sufficient material to work out a good story of the Wupatki locality and to draw almost all needed locality geological maps and cross sections. Hence at Wupatki I would suggest the following projects:

- (1) Consult all existing references and complete the bibliography from various incomplete lists available.
- (2) From field work and references prepare the needed sections and locality geologic maps.
- (3) Initiate a comprehensive program of collection of specimens and see that they are identified, catalogued and carefully described. Make them available for the museum planned there for the future.
- (4) Emphasize the relationship between physiography and topography and adaptability for human habitation.
- (5) Canvass the area thoroughly for good exhibits in place, trail-sides, etc.

Wupatki is unique in that it lies along the margins of the plateau and the San Francisco Volcanic Field. This has had an interesting effect on vegetation, animal life and adaptation of the region for human occupation. Wupatki can be developed into a station serving as the connecting link between Grand Canyon and San Francisco Volcanic Field geology. All the more important is the fact that at Wupatki visitors will be able to see these relationships first hand. On account of this unique position of Wupatki, I would place rather high priority on a geologic project for that monument.

### Yucca House:

No development is contemplated in the near future at Yucca House. A geologic project performed under this proposed ECW program would, however, be of permanent value and would make results available when development is carried out at this monument. Following are suggested points to include in such a project:

- (1) Make a complete collection of specimens of the locality, catalogue and identify them, and accompany each with a good description. Always keep in mind the significance of single specimens as means of interpretation of regional geology.
- (2) Correlate all available references into a bibliography of

PROPOSED ECW PROGRAM IN GEOLOGY (CONT.)

Yucca House region.

- (3) Effect a close tie-up of Yucca House-Hovenweep-Mesa Verde in the work to be done. After all, geologic conditions of similar character persist from locality to locality without regard to boundaries of individual parks and monuments as long as the same formations and the same physiographic events apply.
- (4) Prepare a locality geological map making all geological relationships clear so future personnel will have an easily read source of information.
- (5) Consider the physiography and topography in the light of adaptation of the locality to human habitation.

MONUMENTS PRIORITY LIST ON GEOLOGIC PROJECTS

The Southwestern Monuments are listed below under three headings. These headings show (1) monuments where geologic projects are urgently needed in the educational program at the present time; (2) monuments in which geologic projects would be highly desirable but where the need is hardly as urgent as it is in monuments of the first list; and (3) monuments where the need is not urgent now but where such projects would be desirable making results available for future use.

Geologic Projects  
Urgently Needed

1. Chiricahua
2. Bandelier
3. White Sands
4. Capulin
5. Canyon de Chelly
6. Tonto Cliff Dwellings

Geologic Projects  
Highly Desirable

1. Montezuma Castle
2. Wupatki
3. Walnut Canyon
4. Pipe Spring
5. Sunset Crater
6. Chaco Canyon
7. Arches

Geologic Projects  
Desirable for Future  
Educational Development

1. Casa Grande
2. Tumacacori
3. Navajo
4. Rainbow Bridge
5. Natural Bridges
6. Saguaro
7. Gran Quivira
8. El Morro
9. Yucca House
10. Hovenweep
11. Gila Cliff Dwellings

It is difficult to assign priority numbers within each group. In Group (1) for example, Tonto and Canyon de Chelly in some respects need a project worse than Bandelier and Chiricahua because at the former two monuments the problems are more controversial or complex. Therefore the need for projects at monuments under the first list is almost equally urgent.

## PROPOSED ECW PROGRAM IN GEOLOGY (CONT.)

Priority numbers for list (2) are almost equally hard to assign. In some respects, Walnut Canyon, Wupatki, Sunset Crater and Montezuma Castle should be lumped together under the list of monuments urgently needing geological projects. The reason for this lies in the fact that all can be correlated and projects at any one will supplement or complement projects at all of the others thereby covering a vast region having similar or related geology.

From (1) to (9), inclusive, Group (3), the needs are about equal. The remaining three in this group belong definitely at the bottom of the list.

### SUMMARY

Preparation of geologic maps on large scale for each locality; collection, identification and description of specimens; and solving problems relating physiography and topography with adaptability to human habitation, carry through as desirable projects at practically all monuments. Pursuing these detailed projects, it is believed that tangible results will be achieved. The data and reports compiled will yield detailed information not already available in existing publications.

The compilation of a bibliography on the geology of Southwestern Monuments is going to be possible as studies are completed at several monuments. Each report will be appended by a bibliography of the particular monument with which it deals. These monument bibliographies will suggest reference material for monuments personnel.

It is clearly seen that these results can be achieved only by assigning geologists to each monument for sufficient time to really complete the projects. For monuments like Bandelier and Chiricahua several weeks - perhaps months - will be required while the time required at others will be perhaps somewhat less. At any rate, each project should be thoroughly done once it is started.

Through all of this work the fact should be remembered that the purpose behind it all is the improvement of service to monuments visitors. This is achieved through making the information available to monuments personnel and to the visitors themselves. The reports, maps and other data will become the basic source of information in geology for the present and future educational services.

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# GREEK LETTERS ON THE CASA GRANDE

The following correspondence will be of interest to those who have noted the Greek letter inscription on the west wall of the west room of the Casa Grande:

"Dear Sir:

"In 1878 I traveled with a party of prospectors from northern Arizona en route to the newly discovered Tombstone mines which were then putting Arizona on the map. At Florence we laid over three days awaiting a clear up from a rain that we had experienced for many hours. One of those days there was a partial clear up and taking advantage of it in company with my partner Bill Hartt visited the historic Casa Grande. The date was December 31, 1878 or New Years day following. I was barely twenty-one years old, fresh from an eastern college and full of enthusiasm for my college and fraternity.

"My son and daughter report stopping off at the ruins one day last week and listening with interest to your story of the structure. You were at a loss to account for certain characters on a wall, when my son remarked "My Dad must have put them there in 1878. They are the Greek letters Delta Psi. -- the name of his college fraternity." I presume I must plead guilty to vandalism for I have a faint recollection of using the point of a small prospectors pole pick which I carried to scratch  $\Delta \Psi$  on the wall. Among the objects found was a short piece of round pine pole charred at one end, the other showed the cuts made by some dull instrument probably a stone axe. This piece about twelve or fourteen inches long and perhaps five or six inches in diameter must have been the end of a vega or roof timber. We carried this away and later sent it to Mr. Lewis Morgan of New York the eminent collector of Indian relics.

"Last year the Acme Publishing Company of Tucson published a book by me entitled "Log of An Arizona Trail Blazer." On page 28 I refer to the wet journey southward and the side trip to the Casa Grande.

Very truly,

(Sgd) J. A. ROCKFELLOW"

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"Mr. J. A. Rockfellow  
Cochise Stronghold Ranch  
Cochise, Arizona


"Dear Mr. Rockfellow:

"Your letter of October 7 was received today and occasioned great interest in this office. I remember your son's visit here and his mention of the possibility of your having put the letters Delta Psi

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GREEK LETTERS AT CASA GRANDE (CONT.)

upon the wall of the Casa Grande. We are glad to get this definite information regarding the inscription.

"Your mention of your partner's name, Bill Hartt, raises the further question of the possibility of his having had something to do with the outline of a heart carved in the wall to the left of the Delta Psi. This heart looks as though it had been put in with the same tool and at the same time as the Delta Psi. In relation to each other they look something like this:  Can you throw some light on this also?

"We are also interested in your mention of securing a piece of pine roof timber and sending it to Mr. Lewis Morgan of New York. Do you know if there would be any chance of getting that timber back, either as a loan or as a gift for our monument museum? We would particularly like to get hold of it to ascertain its tree-ring date. As you probably know, Dr. Douglass of the University of Arizona has carried his tree-ring research to the point where he can accurately date nearly any piece of pine grown in this part of the country. Unfortunately the tree-ring method of dating was perfected after most of our Casa Grande timbers had disappeared. Consequently we have been unable to place an exact date on the building. If we had more timbers this might be possible. No original wood can now be seen in the ruins.

"Could you furnish us with Mr. Morgan's address so that we might get in touch with him?

"We were very glad to hear from you and your further cooperation would likewise be highly appreciated.

Sincerely yours,

(Sgd) W. J. WINTER  
Custodian"

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W. J. Winter  
Coolidge, Arizona

Dear Sir:

Your surmise is correct and has brought to mind many amusing recollections in regard to Bill Hartt (William A.). We were boys together in Rochester, New York, and came west together as partners. He used the customary figure of a heart in which were inserted eyes, nose, and mouth, his trade mark he termed it. It appeared on the fly-leaf of all his books and other belongings and was cut or scratched on many objects, and finally on the walls of the Casa de Montezuma as you see.

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By the way, this name was what the Mexicans applied to the Casa

GREEK LETTERS AT CASA GRANDE (CONT.)

Grande in that day. I was five feet five while Bill was six feet two, hence as we stood on the pieces of debris his long arm reached higher up on the wall than mine. Hartt became quite prominent in mining circles but died while in the early forties.

Regarding the piece of roof timber: We discussed its use and the disposition of it. Bill wanted it to go to the Morgan collection, and I had in mind the University of Rochester. So good naturedly we split it lengthwise each taking half. Unfortunately my piece was lost on the way back to Florence. I planned going back for it but our party was ready to move at an early hour next morning and we took the road to Tucson. The Morgan half of the timber was sent on and duly acknowledged with appreciation. I have no idea what has become of the Morgan collection, possibly Dr. Cummings of the University of Arizona might be able to learn of its disposition.

Very truly yours,

(Sgd) J. A. ROCKFELLOW

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Mr. J. A. Rockfellow  
Cochise Stronghold Ranch  
Cochise, Arizona

Dear Mr. Rockfellow:

We have your letter of October 17 and are interested to hear that Mr. Hartt did put the heart on the wall of the Casa Grande.

Upon closer inspection I notice that the name of W. A. Hartt appears further up on the same wall. Beneath it is the barely decipherable name of Rochester. The heart also appears on the wall of the South room.

Many thanks for your further information regarding the timber.

Sincerely yours,

(Sgd) W. J. WINTER  
Custodian

# NEW BOOKS IN THE LIBRARY

Following is a list of new books received in the Headquarters Library. Clip this list and add it to the list published on Page 205 of the September report.

- 165p. American Anthropologist, Vol. 37, No. 4 (Part 1) American Anth. Assoc. 450-4 Ahnaip St., Menasha, Wisc. Oct.-Dec., 1935.
- 189a. American Antiquity, Vol. I, No. I, July, 1935. Society for American Archaeology.
1. Certain Bluff Mounds of Western Jersey County, Illinois, By P. F. Titterington
  2. Archaeological Field Work in North America during 1934 (Part I). 450-454 Ahnaip Street, Menasha, Wisconsin.
190. Yuman Tribes of the Gila River  
By Leslie Spier. University of Chicago Press, Chicago, Ill., 1933. 433 pp.
- 191a. The Ethnobotanical Laboratory at the University of Michigan. Occasional Contributions from the Museum of Anthropology of the University of Michigan, No. 1.  
  
By Melvin R. Gilmore. U. of Michigan Press, Ann Arbor, Mich., June 7, 1932. 36 pp.
- 191c. Standards of Pottery Description. Occasional Contributions from the Museum of Anth. of the U. of Michigan, No. 3.  
  
By Benjamin March, with an Introductory Essay by Carl E. Guthe. U. of Michigan Press, Ann Arbor, Feb. 10, 1934. 55pp.
- 192a. Kinship Systems and the Forms of Marriage Memoirs of the Am. Anth. Association, No. 45.  
  
By Bernard Willard Aginsky. 1935. Am. Anth. Assoc., Menasha, Wisc. 102 pp.
223. The Reptile Book  
By Raymond Lee Ditmars. Doubleday Doran and Co., New York, 1935, 472 pp.
224. Insects of Western North America  
By E. O. Essig. New York, MacMillan Co., 1934. 1035 pp.
- 225a. How to Collect and Preserve Insects. Am. Mus. of Nat. Hist.  
b. Guide Leaflet No. 39. Seventh Edition. By Frank E. Lutz April, 1930. 27 pp.

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NEW LIBRARY BOOKS (CONT.)

- 226a. The Preparation of Rough Skeletons. Am. Mus. of Nat. Hist. Guide Leaflet No. 59.  
By Frederick A. Lucas. 15 pp.
- 227a. The Preparation of Birds for Study. Am. Mus. of Nat. Hist. Guide Leaflet No. 58. 2nd Issue, revised.  
By James P. Chapin. 1929. 48 pp.
- 228a. The Capture and Preservation of Small Mammals for Study. Am. Mus. of Nat. Hist. Guide Leaflet No. 61.  
By H. E. Anthony. 54 pp.
229. Field Book of North American Mammals  
By H. E. Anthony, G. E. Putnam's Sons, New York, 1928. 625 pp.
230. The Small Mammals of Colorado. Colorado Mountain Club Publication No. 7.  
By Edward Royal Warren. Colorado Mountain Club, Denver, Colorado, June, 1921. 31 pp.
231. A Handbook of Reptiles and Amphibians of the Pacific States  
By Joseph R. Slevin. San Francisco Academy of California Sciences, 1934. 73 pp.
- 232a. Bird-Banding. Vol VI, Bulletin of the Northeastern Bird-Banding Association. No. 4.  
October, 1934. River Crossroads, Peterboro, N. H.
- 233a. Biological Investigations in Alaska and Yukon Territory. U.S.  
b. Dept. of Agric., North American Fauna, No. 30.  
By Wilfred H. Osgood. Gov. Ptg. Office, 1909. 96 pp.
- 233d. A Systematic Synopsis of the Muskrats, U. S. Dept. of Agric., North American Fauna, No. 32.  
By N. Hollister. Gov. Ptg. Office, 1911. 47 pp.
- 233e. Revision of the American Marmots, Bureau of Biol. Survey, U.  
f. S. Dept. of Agriculture, North American Fauna, No. 37.  
By Arthur H. Howell. Gov. Ptg. Office, 1915. 80 pp.
- 233g. A Review of the American Moles, U. S. Dept. of Agric., Biol. Survey, North American Fauna, No. 38.  
By Hartley H. T. Jackson. Gov. Ptg. Office, 1915. 98 pp.
- 233i. A Systematic Account of the Prairie Dogs, U. S. Dept. of Agric., Biol. Survey., North American Fauna, No. 40.  
By N. Hollister. Gov. Ptg. Office, 1916. 37 pp.

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NEW LIBRARY LIST (CONT.)

- 233k. Life Zone Investigations in Wyoming, U. S. Dept. of Agric.,  
1. Biol. Survey, North American Fauna, No. 42

By Merritt Cary. Government Printing Office, 1917. 95 pp.

- 233m. Revision of the American Pikas, U. S. Dept. of Agric., Biol.  
n. Survey., North American Fauna, No. 47.

By Arthur H. Howell, Government Printing Office, 1924. 57 pp.

- 233o. Alaska-Yukon Caribou, U. S. Dept. of Agric., Biol. Survey, North  
p. American Fauna, No. 54.

By Olaus J. Murie. Government Printing Office, June, 1935.  
93 pp.

363. Conservation in the Department of the Interior

By Ray Lyman Wilbur and William Atherton Du Puy, Government  
Printing Office, 1931. 253 pp.

364. "Mormonism" and Masonry

By E. Cecil McGavin, The Desert New Press, Salt Lake City,  
Utah. 1935. 87 pp.

- 400a. Rocky Mountain Flowers  
b.

By Clements and Clements. H. W. Wilson Co., New York, 1928.  
390 pp.

- 401a. Forest Trees of the Pacific Slope. U. S. Dept. of Agriculture,  
b. Forest Service

By George B. Sudworth. Gov. Ptg. Office, 1908. 441 pp.

402. Manual of the Grasses of the United States, U. S. Department  
of Agriculture, Misc. Publ. No. 200.

By A. S. Hitchcock. Government Printing Office. 1935.  
1040 pp.

- 403a. Arizona Cacti. Biological Science Bulletin No. 1, Vol. IV,  
b. No. 3, University of Arizona Bulletin.  
c.

By William Palmer Stockwell and Lucretia Breazeale.  
University of Arizona, Tucson, Arizona. April 1, 1933.  
116 pp.

# SEVENTEEN YEARS AGO —

(Note: In view of the recent hullabaloo about ball courts at Snaketown and in the Flagstaff region, it is interesting to find that Mr. Pinkley, 17 years ago, stated he thought the oval mounds were for "ceremony, games, "or festivals." - DSK)

Blackwater, Arizona  
December 2, 1918.

Dear Mr. Mather:

I beg to make the following report of conditions at the Casa Grande Ruin National Monument during the month of November, 1918.

During the month 146 visitors and 101 automobiles entered the reservation. I feel sure that health conditions throughout southern Arizona has interfered with our usual number of visitors. On account of Spanish Influenza several towns have been under quarantine most of the month and people living in the few uninfected spots have hesitated to move around because of the restrictions.

I had intended making a trip to the Tumacacori Mission early in the month and had my plans all laid when Tucson and towns near the border began taking strict measures on account of the Influenza and I have had to postpone the trip again. I trust you will not think me remiss in this duty for I am much more anxious to go that you are to have me, but until the epidemic abates, I think it would be unwise to make the trip.

## FINANCES

Income. There has been no income from any source during the month.

Disbursements. Total expenditures amounted to \$70, all for the pay roll for the cleaning and repair work we have underway. I mailed two pay roll sheets under date of November 10, amounting to \$30, and am mailing another under separate cover amounting to \$40. This brings the total expenditures so far from our allotment of \$500 (Service letter of September 9) up to \$276.04.

## CLEANING UP

Compounds A and B are now entirely free of brush with the exception of a few clumps which we have left in some of the plazas where they can do no harm and where they relieve somewhat the bareness of the walls. The improvement is quite marked.

We have also started clearing up the underbrush and trimming some

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## SEVENTEEN YEARS AGO (CONT.)

large mesquite trees between Compounds A and B to make some suitable camping and picnic grounds. While some of the mesquite trees on the reservation are quite large, they tend to grow close to the ground and we have never had good places for parties to camp and eat lunches. None of the desert growth can be made to give an ideal shade, but this clearing up will greatly improve matters and can be made to answer present needs until increased traffic demands further improvements in the way of developing a water supply sufficient for irrigation. We can then park some of the ground and start grass and trees which require more water than our normal rainfall supplies.

During the latter part of the month we have been constructing a bathroom and porch addition to the Custodian's quarters. We were greatly hampered in this work by bad weather, but have the roof on now and will finish the addition with a few more days work. This addition will be so satisfactory that instead of putting a new custodian's quarters somewhere near the head of our needs for this monument, it may now be dropped down toward the last things to be provided. With a few minor repairs now and then, the present house will do until Compound A is entirely cleaned up and protected, which may be several years.

### FENCE NEEDED

The early part of November was very dry and range stock drifted in on the reservation hunting feed and water. They have damaged some of the walls and have caused an infinite amount of bother and some extra work cleaning up after them. The rains in the latter part of the month provided relief by filling water holes out on the desert, but I was strongly reminded of the need of fencing the reservation with a good woven wire fence, while the condition existed.

### DISCOVERIES

I have recently discovered an error in Padre Font's diary which was written in October, 1775.

After his description of the Casa Grande he proceeds to describe a two story to the east. This description is so good that, though the building had all fallen in except a piece of one wall, when we excavated the base of it in 1906-07 we had no difficulty in recognizing it as the one Font described and it was named the "Font Room."

After describing it, he drew a ground plan and in that plan figured the door in the south side. When we opened the room we examined the south wall very carefully but were never able to locate the door. Recently the east wall of this room got saturated with rain water and sloughed about a hundred pounds of material. Upon examination I found a disintegrated mesquite lintel buried in the

wall and further investigation disclosed the doorway in the center of the east wall instead of the south wall as Padre Font figured it.

I suppose the Father took his measurements and made some rough notes while he was here at the Ruin but wrote up his diary that night at the Pima village which was several miles down the river. After writing his description from his notes, he probably decided to draw the plan and then made the error of putting the door in the wrong side of the plan.

#### ELLIPTICAL MOUNDS.

Centrally located in the Casa Grande group of mounds occurs an elliptical mound measuring about 125 feet by 80 feet and having a depressed center, the bottom of which is approximately on the level of the outside desert. This mound is quite distinct from all other classes of mounds and should be classed as a separate type. Others of this type occur in some of the other groups of mounds in the Gila and Salt River valleys.

The following are some of the characteristics of these elliptical mounds.

- I. SHAPE. Roughly elliptical, longer axis northerly and southerly.
- II. Location. Centrally located in the village.
- III. Elevation. Never sunk flush in the desert level but raised above it.
- IV. Size. Varies.
- V. Occurrence. Never more than one to the village, but some villages do not have one.

I have heard the following theories advanced about these elliptical mounds.

1. Reservoir
2. Well
3. Threshing floor
4. Cerral to hold stock
5. Dew Ponds
6. Ceremonial chambers

For some time I have thought the investigation of these mounds one of the most interesting problems we could undertake to solve. The investigation will not be very expensive, can be carried on as opportunity offers, and the results may develop a new idea of the

culture of the people who inhabited the Gila and Salt River Valleys.

On page 112, of the 28th Annual Report of the Bureau of American Ethnology, Dr. Fewkes, speaking of these mounds, says:

"Similar areas inclosed by artificial circular ridges of earth are found in several of the clusters of mounds in the Gila and Salt River Valleys, among which may be mentioned the one in the group near Adamsville, and the reservoir at Casa Blanca. The Escalante group situated near the Phoenix-Florence Railroad, also contains a similar reservoir."

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"On the southwest side of the large reservoir (Casa Grande) is a depression from which were obtained the sand and earth out of which walls were made, and a similar depression on the east side may have been due to a similar cause."

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"Here and there, especially near the large mounds, occur numerous depressions in the earth's surface, some of which are possibly reservoirs, or places where the water was stored for irrigation, drinking and other purposes. Most of these depressions are surrounded by a ridge of earth, by which their capacity was increased and the chances for overflow diminished. Their prevailing shape is oval. The indications are that they have been filled to a considerable extent with drifting sand since Casa Grande was deserted. The largest is situated about midway of a line extending from the northwest corner of Compound A to the southeast corner of Compound C. It was supposed that this reservoir was lined with a cement wall, but a section exposed through the rim on the south side, which was solid sand throughout, revealed no such condition. It is interesting to note that the floor of this reservoir is now thickly overgrown with trees and bushes, although without water."

It will be seen from the above quotations that Dr. Fewkes, at the time, 1906-07-08) thought these mounds were reservoirs. The same conclusion is reached by about 80% of my visitors but I find upon examination their logic is that in this desert country anything which could hold water must have been used for storage purposes. This mound would hold water, ergo, it must have been a reservoir.

I have long opposed the reservoir theory. Why should reservoirs be elliptical and their longer axis lie northerly and southerly? If they are reservoirs, why were they not sunk flush in the desert where the water could run into them instead of building them up above the desert level from four feet in some instances to about eight feet here

at the Casa Grande? Having the rim of the reservoir that high above the desert level, how is the water to be introduced into it? No signs of dyked ditches ever occur near these mounds.

While Dr. Fewkes speaks of these mounds in the text as reservoirs, note that in the map inserted opposite page 37 in the report above cited, the mound is labelled a "well."

The theory here is that instead of digging a small shaft and letting down a bucket with a rope, as we would do today, these people dug a funnel shaped hole deep enough to reach water and then walked down the sloping banks and dipped their ollas into the water at the bottom.

The following objections can be brought against this theory:

- a. Too much dirt in the bank. If it is a well, we must say it has been filled up to the present desert level by the slipping of the banks and small amounts of wind drift material. It is already filled inside to about the desert level outside and we still have enough earth left in the banks to fill another such hole.
- b. The dirt in the bank did not all come from the inside of the mound. Dr. Fewkes speaks of a depression on the southwest and east sides, on the outside of the mound and I am inclined to think the dirt was not removed from these pits so far as to be used in walls of buildings, but simply thrown up into the mound a few feet away, thus helping to raise the mound. If this surmise is true, why raise the bank of a well by bringing earth from the outside?
- c. The dirt in the bank is not of the right character to have come from the formation in which we find the water under the desert. The desert formation in this section of ground consists of from twelve to sixteen feet of sand, loam and caliche, and then straight sand and gravel with some boulders six inches in diameter down to the water level at about 43 feet. No gravel or boulders occur on or in this bank as is shown by the cross-cut made by Dr. Fewkes in 1907-08.
- d. This type of mound does not vary as the depth to ground water varies. Instead of doing so, cases can be shown where the variation is inverse instead of direct.

The next theory is that these mounds were the threshing floors.

Now the Pima Indians, with five miles of this proposed threshing floor, are still threshing small grain as the Hebrews did 2500 years ago, - tramping it out under the hoofs of animals. They use a circular space about 30 feet in diameter with no bank over a foot or two high around or near. They want a clear space so the wind will blow across from any direction and winnow the grain when it is thrown into the air. Why then, if this mound is a threshing floor, should the people go to the trouble to erect a seven or eight foot bank around it, thus making a dead air pocket where the grain would not winnow well?

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SEVENTEEN YEARS AGO (CONT.)

The next theory is that the mound was a corral to hold stock. Bartlett proposed this in 1852. Granting that the people had domestic stock of any kind, why should they not build a wall to corral their animals instead of throwing up a bank of earth seven or eight feet high and sloping inward and outward at such an angle that any animal could walk out over the top at any place?

The next theory is that these mounds were dew ponds. In the thousands of visitors I have talked with here at the Casa Grande, only one man ever proposed this. Yet is not beyond the bounds of possibility, is a very interesting theory, well worth reading up, and with certain chances of publicity if it were handled in connection with the dew ponds of the old world. Of course, the objection which rises at once, is that in this desert country we don't have enough dew to amount to anything.

The last theory is that these mounds were ceremonial chambers. This seems to have been Mrp Cushing's conclusion as reported by Dr. Fewkes on page 112 above cited.

For several years I have leaned toward a variation of this theory as being the most logical answer for the various characteristics above mentioned. My idea is that the mounds were gathering places for the people for ceremony, games or festivals.

Their shape, elliptical with long axis northerly and southerly, might have been a ceremonial matter and not a need of construction.

They are centrally located so that the whole village might get to and from them easily.

Their banks are elevated above the plain so the sloping inside might be used to seat a congregation in ranks one above the other.

Their size varies, not with depth to ground water, but with the size of the village, the large population needing more seating capacity than the small one.

They occur never more than one to the village because one satisfied the need of the whole village, and some villages have none, possible because they could join at such times with the neighboring village.

This theory is the only one of the six examined which seems to satisfy the five fundamental facts of the typical elliptical mound.

The above arguments cover the known facts up to the first of last month, but during November I have experimented a little on the elliptical mound between Compounds A and B. I have sunk some test

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SEVENTEEN YEARS AGO (CONT.)

pits and have determined as a fact that the bottom of the depression in the mound was covered with a caliche floor, well packed down, and that at least the west side and the north end have sloping caliche surfaces at least part way to the top.

I am making a contour map of this mound and intend to sink some further test pits and make this a matter for a special report during December. This type of mound has never been played up for what it is worth. Almost any article on southwestern archaeology goes into the details of the kiva and cultural areas are built upon it, while here is a type of gathering place which, I feel sure, may be akin to it, and which has been entirely overlooked.

Cordially yours,

FRANK PINNEY

Custodian, Casa Grande Ruin.

The Director,  
National Park Service,  
Washington, D. C.

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## THREATENING ROCK

Extract from letter of Mr. & Mrs. John Keur,  
Long Island University, Brooklyn, N. Y.

When I wrote you last your may recall that I stated in my letter the unsatisfactory way in which we have been trying to detect movement of Threatening Rock at Chaco Canyon. On my return from the Southwest, I visited several engineering concerns here in New York City to find out if they could suggest some sort of an instrument that would detect small movements. The firm of Keuffel and Esser proposed the installation of a vernier scale at the base of the rock near the back mesa wall near the east end. As you know there is a large horizontal split there, extending from the back of the rock toward the front. The width of this crack near the back wall is about 3/4 inches and an enlargement of that gap would show that the rock is slowly settling forward. No firm here could suggest a way, however, to measure any widening that might occur of the gap between the top of the rock and the mesa.

Now I just read Engineer Hamilton's suggestion in the October Monthly Report (yes, I read the report from soup to nuts), and am greatly interested to find out if his suggestion will receive your approval. My only criticism of his proposed installation is the question: Can the two rods be grouted firmly enough and will they indicate vertical movement. The rock is not just moving forward--if it moves at all--in a horizontal plane, but it tends to lean and tilt forward. Any arrangement of rods should be constructed in such a way as to catch this increasing forward lean.

Therefore, may I suggest that in addition to Mr. Hamilton's

installation the placing of a vertical vernier might be considered to show any widening of the horizontal crack near the base of the rock. You see that the rock is still very much on our mind. Dot and I propose to give a short talk at Andover in December when the American Association of Anthropologists meets and tell them something about the engineering methods of the prehistoric Indians - as well as some other interesting features about Southwestern Monuments. We hope to do justice and be a credit to your organization.

In retrospect every summer seems to give us more enjoyment, the more contacts we make with the monument personnel the nicer they treat us. We regret that we didn't see you the past summer - but maybe next year.

In closing may we extend our heartiest congratulations to you for completing thirty-five years with the Southwestern service. Maybe Bob Rose will tip us off and tell us the exact date. We hope that you may enjoy many more years of service.

With best wishes of the season and best regards to all our friends.

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## BIRD BANDING

By Dale S. King

On a following page is the first recorded compilation of birds banded at Southwestern Monument stations during our recently begun activities in this line. Since all stations, except Casa Grande, ~~have been established only recently, and have been handicapped for~~ lack of bands, we feel that a total approaching the 500 mark is a distinct accomplishment.

### Bandelier

Betty Jackson, a capable observer, has just started banding at this Monument. The constantly-flowing Rito de los Frijoles makes water traps relatively unattractive, so banding probably will progress at a rather slow rate, depending on experimentation in attractive baits. As yet, birds there have not become accustomed to the feeding places, but totals will increase cumulatively soon.

### Casa Grande

This station was established last March, but banding was retarded by meager band supply. We are learning rapidly the capabilities of our traps and baits, and have banded a satisfactory number of species, some rather unusual at banding stations.

Encouraging is the number of returns already obtained---15. These include a Say Phoebe, several Cactus Wrens, and mostly Gambel Sparrows which were banded last spring. After three or four years, these and other similar records will prove extremely valuable.

## BIRD BANDING (CONT.)

### Montezuma Castle

Norman Jackson, Research Associate in Ornithology, Museum of Northern Arizona, has been given permission to band at Montezuma, and started operations the middle of the month. He was forced to desist, due to inroads of dogs and house cats, as well as bait robbing by rock squirrels.

Placing of traps on platforms supported by posts equipped with catguards probably will help his situation. A poultry wire guard fence encircling the trapping station, as explained by the Biological Survey manual, will also aid.

Mr. Jackson has also run into the peculiar Junco situation which has been bothering Milt Wetherill at Navajo. Jackson confidently identified a specimen as Montanus, only to have L. L. Hargrave at the Museum of Northern Arizona express grave doubts. Hargrave believed the bird might be Oreganus.

Milt some months ago aided a visiting ornithologist collect specimens of the four types of Juncos that were supposed to inhabit Betatakin Canyon. All four proved to be hybrids!

The Monument stations better be careful when banding juncos!

### Navajo

Milt Wetherill, Trail Foreman, has been banding on his own time since last spring at this Monument, chiefly in the vicinity of Betatakin Ruin. No report has been received of his activities in this line since August, so the tabulation is only partially complete. Recently he has been equipped with more traps, so next season should bring excellent results.

### Walnut Canyon

This Monument, where Paul Beaubien is banding during his spare time on days off, is the prima donna of Monument banding stations. Lack of bands limited Paul's total to 55 birds during October. Then bands arrived, Paul banded four days, AND BANDED 237 MORE BIRDS!!! He has, with the help of Wildlife Technician Russell Grater, rigged up a trap which controls the only available water supply, and one pull of the trigger string may catch about 20 birds. December may not be such a profitable month, since snow will decrease effectiveness of the water trap, but next spring should see Walnut Canyon becoming our finest station, and one of the major amateur stations of the country.

# S.W. MONUMENT BIRD BANDING TOTALS

(Not including Repeats and Returns)

	Bandelier		CasaGrande		Montezuma		Navajo		W'n't Cany		Total
	Prior	Nov	Prior	Nov	Prior	Nov	Prior	Nov	Prior	Nov	
Bluebird, Ches-backed									27	188	215
Crossbill, Bendire									7	10	17
Chickadee, Mt.							6			3	9
Dove, Western Mourning			2								2
Finch, House.				25							25
Flycatcher, Ar. Crested			2								2
Goldfinch, Green-backed									2		2
Jay, Long-cr.	5	3									8
Jay, Woodhouse							4				4
Junco, R-backed									3	2	5
Junco, Shufeldt									1	1	2
Nuthatch, Pyg.										20	20
Owl, W. Horned			1								1
Phoebe, Say			12	2							14
Quail, Gambel						5					5
Road Runner			2	1							3
Robin, Western									4	3	7
Sapsucker, R-na									3		3
Sapsucker, Rocky Mt.									2		2
Siskin, Pine									1		1
Solitaire, Townsend										7	7
Sparrow, Gambel			30	5							35
Swallow, Rough- winged			3								3
Thrasher, Bendire			3								3
Thrasher, Crissal			4	2							6
Woodpecker, Gila			2								2
Woodpecker, Mearns									5	3	8
Wren, Cactus			23	2							25
Sub-total	5	3	84	37		5	10		55	237	
Total		8		121		5	10			292	

Grand total 436

# RUMINATIONS

Chief, as I looked over this report as the pages were gradually accumulating I was struck with two big little things which are recorded in it.

The first is Jimmie Brewer's report on the results of his questionnaire thus far. It is a little thing pretty well buried in these pages; not many people will notice it in reading this report, but it deals with one of the most vital problems which we have before us. Our basic problem is of course protection and then next after it comes the problem of the visitor.

The second big thing, which few if any of the readers will notice is the increased number of officials who are visiting the reservations under our care this fall. Looking back over the November Report of a year and two years and three years ago, I am struck with the increased number of men who are coming around to advise with us and to whom we must refer this detail and that detail for approval.

I am not bringing this to your attention in any attitude of criticism, for they are all good men and true and are working hard to earn their various salaries. We like to have them come around and enjoy getting their specialized angle on our work. It is true there are times when we think they take themselves a trifle too seriously--a little humor being a fine thing in these trying times--and it is also true we sometimes get exasperated at the long gauntlet of approvals we have to run before we can turn our waiting workers loose on the job, but these after all are minor matters and we can survive them as we have all our other growing pains.

Rather than do away with these specialists, I am wanting to add one more to their tribe, -- and here is where I tie back into Jimmie's study of visitors.

We have enough of these specialists now to -- dropping into the picturesque vernacular of the one and only 'Gene Baird -- "Patch Hell a Mile," but we have not a one working on the problem of the visitor so far as I know. This is, I submit, not as it should be.

If we consider it necessary to band the little birds as they come and go and study their habits and customs; if we conduct research problems into the private lives of the chipmunks and deer and bears and other things which impinge somewhat upon our basic duties; if we can wag our finger and bring a flock of specialists to our aid when we find a few strange bugs on our trees, and another wag will bring another set of specialists who will tell us how not to handle our trees; doesn't it seem reasonable to you that we ought to call on some one who can tell us how to handle and how not to handle the visitors who make up one of the two legs upon which we stand?

## RUMINATIONS (CONT.)

Here we are in the midst of a campaign of museum planning. We are talking about five or six new museums and the revamping of some old ones; we are planning to place this exhibit here and that exhibit there, to lead the visitor from this phase of the culture to that phase; we are planning in the long run the disbursement of a hundred or more thousands of dollars, and this expenditure is all being based on what the specialists who are planning the arrangement think the visitors think about museums. My contention is that if it takes a specialist to know what a bug thinks, or to know why a chipmunk wags his tail up and down instead of sidewise, and we wouldn't expect a specialist in that line to be a specialist in the reactions of visitors as well; perhaps we had better consider calling in a specialist in visitors to do some research work among the more than two hundred thousand visitors we are going to have this year.

I am perfectly aware that nothing is more uncertain than the actions of an individual visitor and no one can predict with certainty what he is going to do under a certain set of conditions in a museum or in a monument or part; but I believe thoroughly that one group of twenty thousand visitors will react almost precisely the same as the next group of twenty thousand, and, by detailed analysis and tabulation and study, we can predict certainly what that action will be and I do not think the specialist in birds or bears or taxidermy or museum arrangement is competent to judge it on what he thinks a visitor thinks.

We ought to have a specialist who is just as able to analyze that problem as the life insurance specialist is able to tabulate for you the mortality rates in a million visitors.

For several years I have been as a voice crying in the wilderness on this matter, the general replies that I get being: 1. We are doing that very thing now; 2. It is an impossibility, - it just can't be done; and 3. Why don't you go ahead and do it yourself if you know so much more than these museum arrangers and visitor wranglers?

As to the first reply: If they know all about visitor reactions now and need no specialists along that line, will they please tell me ahead of time what additional percentage of visitors they will stop or lose and how many seconds they will add or subtract from the average stop by changing the third case from the left of the entrance door for asking such a question, yet the United Cigar Stores specialist solves problems like that by the dozen as a matter of every day routine.

The second reply is answered in the above sentence; it is being done day after day in ordinary business procedure.

As to why we don't do this research work ourselves, I might point out that to run a real monument a man has to be an expert in about six lines and be able to keep four balls and two sticks of dynamite in the

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RUMINATIONS (CONT.)

air at the same time and he just hasn't time to become a specialist in this particular problem.

We hold that a visitor is at least as important as a bug because, if on no other grounds, he can do as much or more damage than the bug and it is against the regulations to exterminate him; you can only use preventive and protective measures. We think, therefore, our request for a visitors specialist is not out of order.

This specialist should come to us through the regular appropriation if that is possible, otherwise we will take him E.C.W.

My reason for this is that we all know well that the present group of E.C.W. specialists are going to fold up and disappear within a twelve month or at most a couple of years, and this job I am appealing for ought to run at least for a couple of lifetimes.

Johnwill Faris has done some study along these lines at Aztec, Jimmie is doing it at Wupatki, and We have made about a year and a half of time studies at Casa Grande. The next result so far is that we are convinced that the visitor is our second greatest problem and that no one knows very much about him.

Cordially,

*The Boss.*