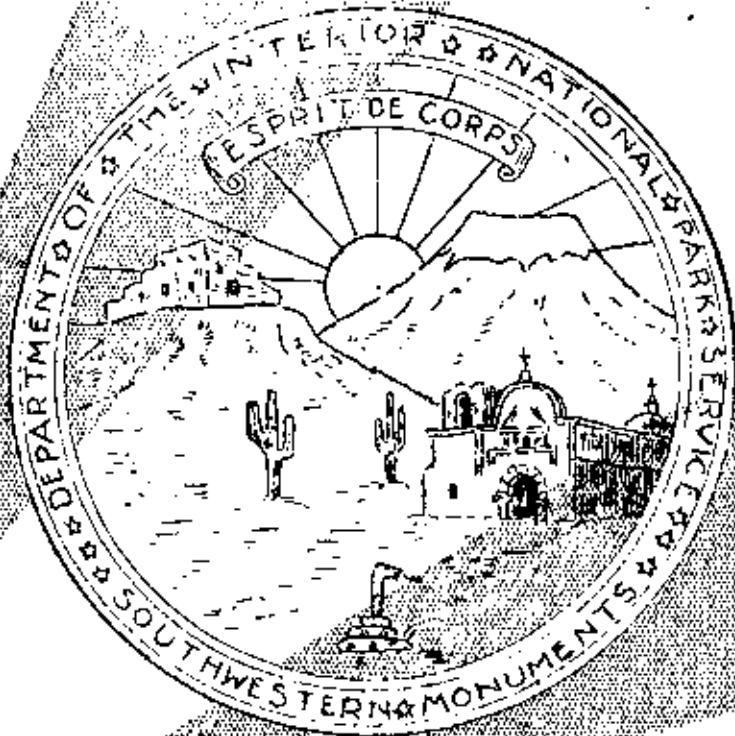


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JULY '36

DEPT. OF THE INTERIOR

N.P.S.

Washington, D.C.
Mexico City, Mexico

SOUTHWESTERN MONUMENTS

JULY 1936, REPORT

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SOUTHWESTERN MONUMENTS PERSONEL

HEADQUARTERS, Southwestern Monuments, Coolidge, Arizona: Frank Pinkley, Superintendent; Hugh M. Miller, Assistant Superintendent; J. H. Tovrea, Assistant Engineer; Robert H. Rose, Assistant Park Naturalist; Dale S. King and Charlie R. Steen, Junior Park Naturalists; Millard Singerman, Clerk-Stenographer; Luis Gastelum, EGW Clerk; Deric Nusbaum, Traveling Ranger; Clarence Cole, Student Technician.

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. Bandelier---Santa Fe, New Mexico. Earl Jackson, Custodian;
J. W. Hendron and Alfred Peterson, temporary Rangers.
 4. Canyon de Chelly---Chin Lee, Arizona. Robert R. Budlong, Custodian;
Doug. Harritt, temporary Ranger.
 5. Capulin Mountain---Capulin, New Mexico. Homer J. Farr, Custodian.
 6. Casa Grande---Coolidge, Arizona. J. W. Winter, Custodian; J. Donald
Erskine, Park Ranger; Frank Horne, acting ranger.
 7. Chaco Canyon---Crownpoint, New Mexico. Thomas C. Miller, Custodian;
Homer F. Hastings, temporary ranger.
 8. Chiricahua---Willcox, Arizona. Frank L. Fish, Custodian;
Orvel Ollinger and Bronson Harris, CCC guides.
 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. George L. Boundey, Custodian.
 12. Hovenweep---Cortez, Colorado. No custodian.
 13. Montezuma Castle---Camp Verde, Arizona. M. L. Jackson, Custodian;
Curtis Cox, acting ranger.
 14. Natural Bridges---Blanding, Utah. Zeke Johnson, Custodian.
 15. Navajo---Kayenta, Arizona. John Wetherill, Custodian;
Milton Wetherill, Ranger-Historian.
 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, Ranger.
 21. Tumacacori---Box 2225, Tucson, Arizona. Louis R. Caywood, Custodian.
 22. Walnut Canyon---Flagstaff, Arizona. Paul Beaubien, Ranger.
 23. White Sands---Alamogordo, New Mexico. Tom Charles, Custodian.
 24. Wupatki---Flagstaff, Arizona. J. W. Brewer, Ranger.
 25. Yucca House---Cortez, Colorado. No custodian
-

CONDENSED REPORT

Coolidge, Arizona
August 1, 1936

The Director
National Park Service
Washington, D. C.

Dear Mr. Director:

The Condensed Report on Southwestern Monuments activities for July:

<u>TRAVEL</u>	<u>July, 1936</u>	<u>July, 1935</u>	<u>July, 1934</u>
Aztec Ruins	2,089	1,675	1,691
Bandelier	2,162	2,092	1,793
Canyon de Chelly	159	163	---
Capulin Mountain	2,500	5,000	6,000
Casa Grande	1,142	1,198	1,163
Chaco Canyon	929	672	384
Chiricahua	1,017	1,760	1,368
El Morro	415	381	472
Gran Quivira	281	950	404
Montezuma Castle	1,482	1,347	1,896
Navajo	133	86	69
Pipe Spring	406	930	258
Sunset Crater	1,177	939	---
Tonto	269	324	---
Tumacacori	813	712	526
Walnut Canyon	2,384	1,982	1,822
White Sands	12,406	4,755	---
Wupatki	321	268	90
Actual Reported			
Registration	30,110	25,710	17,483

The eighteen monuments reporting for 1935 and 1936 show a substantial increase in number of visitors, 4400 or 17%.

The fourteen monuments reporting for both 1934 and 1936, however, show a decrease from 17,936 to 16,039, or 10%.

Custodians all claim that the weather seems to be keeping tourists on the paved highways but two reasons are given, in some districts the extremely high temperatures are the cause, in other sections heavy rain-falls which make the secondary roads almost impassable.

CONDENSED REPORT (CONT.)

000 GENERAL

021 WEATHER

Over the greater part of the Southwest high temperatures and little or no rains prevailed. This picture is broken in a few districts where showers and cloudbursts have occurred. Chaco Canyon, Canyon de Chelly, Gran Quivira, Bandelier, El Morro, and Tumacacori have had an appreciable amount of rainfall, with two cloudbursts at El Morro. Tonto and Casa Grande have had several showers but the rains have not been general enough to ameliorate the heat. The fire hazard at Walnut Canyon and Chiricahua is very great and the custodian at Wupatki claims that range conditions are exceedingly bad.

100 ADMINISTRATION

123 VISITS OF PARK SERVICE OFFICIALS

Aztec: Chief of the Field Division of Education Ansel Hall, Junior Naturalist Dale King; Regional Geologist Chas. M. Gould; District Geologist Vincent Vandiver.

Bandelier: District Architect Richey; Chief Landscape Architect Tom C. Vint; Merle Sager, associate landscape architect; Wildlife Technician A. E. Borrell; Wildlife Technician W. B. McDougall; Ansel Hall; Dale S. King; Regional Geologist Chas. M. Gould; District Geologist Vincent Vandiver.

Canyon de Chelly: Traveling Ranger Deric Nusbaum; Chas. M. Gould; Vincent Vandiver; Ranger Wood of Mesa Verde; Associate Engineer J. B. Hamilton; Ansel Hall; Dale King.

Chaco Canyon: Dr. McDougall; A. E. Borrell; Chas. M. Gould; Vincent Vandiver;

Chiricahua: J. H. Tovrea, chief engineering aide; Landscape Architect Clinton Rose; J. B. Hamilton; Chas. A. Richey, Assistant Park Naturalist Robert Rose.

El Morro: Chas. M. Gould; Vincent Vandiver.

Gran Quivira: J. B. Hamilton.

Montezuma Castle: Ansel Hall; Dale King; Vincent Vandiver; Acting Chief of Museum Division Ned J. Burns; Junior Naturalist Louis Schellbach.

Navajo: Chas. M. Gould; Vincent Vandiver.

Pipe Spring: Chas. M. Gould; Vincent Vandiver; Al Kuehl, landscape architect.

Tonto: Ansel Hall; Dale King; Custodian Frank Fish of Chiricahua.

Tumacacori: Ansel Hall; J. H. Tovrea; Robert K. Rose; Dale King; Ned Burns; Louis Schellbach; Charlie Stoen.

Walnut Canyon: W. B. McDougall; Ansel Hall; Dale King; Chas. M. Gould; Vincent Vandiver; Ned Burns.

Wupatki: Junior Naturalist Harry Getty and Ranger Roy King of the Grand Canyon National Park; Chas. M. Gould; Vincent Vandiver; Ned J. Burns; Dale S. King.

CONDENSED REPORT (CONT.)

125 OTHER GOVERNMENT OFFICERS

Aztec: Assistant Secretary of Agriculture Wilson

Pipe Spring: Gragerer, Mansfield and Hinds of the U. S. Geological Survey; L. W. Childs, Washington ECW office.

Tunacacori: Fred Winn, Supervisor Coronado National Forest; Reverend Victor Stoner, Chaplain CCC and editor of the Kiva.

200 MAINTENANCE, IMPROVEMENTS, NEW CONSTRUCTION

210 UNUSUAL

CHACO Canyon: Both north and south approach roads into the monument are being maintained and at present are in a fairly satisfactory condition. Bridge over Chaco Wash collapsed again and was temporarily repaired. Funds are badly needed for a substantial bridge. Gran Quivira: Approach roads in bad condition particularly north towards Mountainair.

El Morro: Approach roads becoming very muddy due to heavy rains. Driwall preservative applied to inscriptions before summer rains began; cement steps again painted with copperas. Two men with a team are enlarging drainage ditches and repairing trails.

Canyon de Chelly: Roof of custodian's residence had to be re-flashed; this is under way and about 75% complete. Custodian's residence was built in a hollow and a system of trenches has had to be dug to prevent the walls from washing during and after rains.

230 NEW CONSTRUCTION

Aztec: Parking area being surfaced.

Canyon de Chelly: New stone pump house 80% complete; sewer system practically finished; small rest room for public use constructed in corner of garage.

Casa Grande: Construction of badly needed sewage disposal plant will probably be delayed several months. The present temporary and inadequate method of distributing sewage over the ground by pumping continues to be a health menace.

Chiricahua, ECW:

2275 feet of trail completed between Echo Canyon and Massai Point
700 feet on Massai Point-Balanced Rock trail

Headquarters-Portal telephone line will be completed before Aug. 1.

Utility area wall 100% complete

Grading for headquarters ranger station completed and foundations will be poured before August 1.

Maintenance of Bonita Canyon highway continued.

Bandelier, ECW:

Flagstone floor of museum building completed

Construction of Quarters No. 2 turned over to painters and carpenters.

CONDENSED REPORT (CONT.)

230 CONSTRUCTION, Bandelier (Cont.)

Refuse burner 100% complete
Spraying and insect control under Forester Fulton
Informational signs for Sunset Crater completed
All telegraph cable on hand installed.

320 COOPERATING GOVERNMENT AGENCIES

Chaco Canyon: Soil Conservation Service is building a revetment wall east of Pueblo del Arroyo and a diversion dike east of Wijiji.
Wupatki: The United States Weather Bureau has loaned an anemometer to this monument.

400 FLORA FAUNA NATURAL PHENOMENA

430 ARCHEOLOGY

Sunset Crater: "Dating the Eruption of Sunset Crater, Arizona" by J. C. MacGregor of the Museum of Northern Arizona published in American Antiquity dates the eruption by means of dendrochronology as between 860 A.D. and 910 A.D. with the most likely date as 885 A.D.

Wupatki: Room 7, as reported in April, is badly in need of troweling order to recover important sherds which are washing away.

460 BIRDS

Pipe Spring: Six birds banded.
Walnut Canyon: Seventeen birds banded.

470 ANIMALS

Chiricahua: Rattlesnake caught and shipped to University of Michigan for identification.

Walnut Canyon: Exceedingly dry weather together with the lack of springs on the monument have caused the deer to leave the Walnut Canyon area. A small herd of antelope are watering with cattle at a cistern northeast of the monument.

600 PROTECTION

630 ACCIDENTS

Chiricahua: Jesus B. Charles, CCC enrollee, wandered from camp and climbed a cliff where he was stranded for several hours. He was finally helped down without injury except to the tempers and vocabularies of the rescuers.

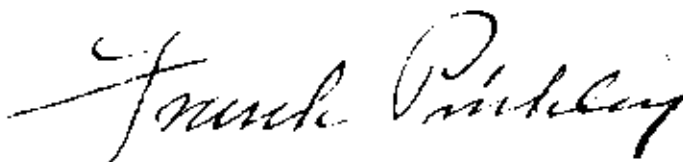
CONDENSED REPORT (CONT.)

900 MISCELLANEOUS

MAIL COUNT:

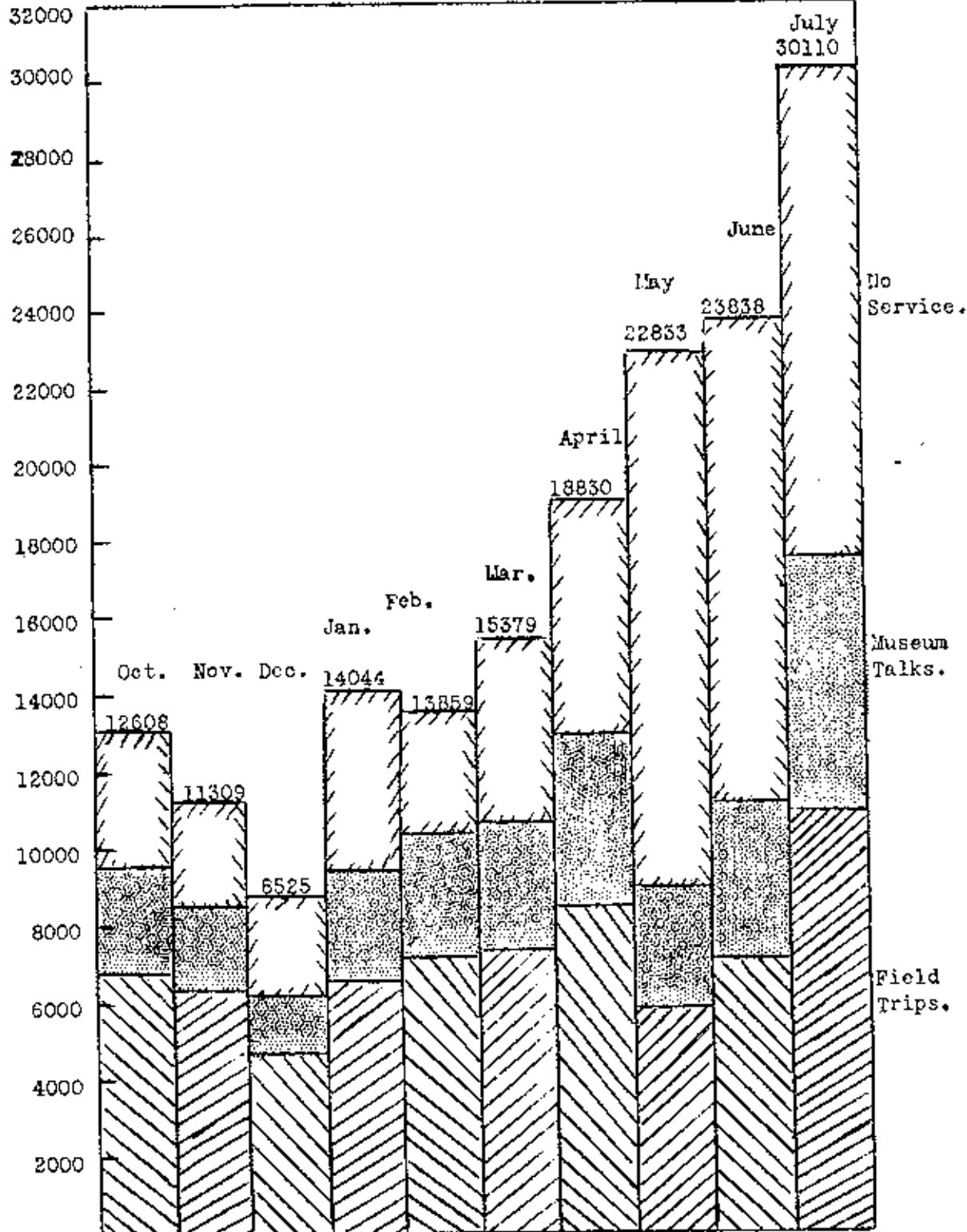
Incoming:		
Government	1,294	
Personal	<u>670</u>	
Total incoming		1,964
Outgoing:		
Government only	1,801	1,801
Telegrams:		
Incoming	43	
Outgoing	<u>48</u>	
Total telegrams		<u>91</u>
Grand Total		3,756

Cordially,



Frank Pinkley,
Superintendent.

Visitors.



SERVICE CHART

Showing service rendered at the Southwestern Monuments from October, 1935, to July, 1936.

REPORTS FROM MEN IN THE FIELD

WALNUT CANYON

By Paul Beaubien, Ranger

2384 visitors arrived this month, and 1884 were "contacted" by ranger. Park Service visitors were W. E. McDougall, Dale King, Ansel Hall, Charles Gould, Vincent Vandiver, and Ned Burns.

There were 20 overnight camping parties, but three was the largest number for any one night.

This has been another dry month with very few flowers on the entire monument. There have been a few light showers but no rain. Have been fortunate in having no forest fires to date.

Usually, deer tracks can be found by walking a short distance in any direction, but with no water supply, there seems to be no deer in the vicinity now. A small herd of antelope, ranging near an old "burn" just west of the monument are watering with a rancher's cows just a few miles northeast. The water is supplied from a cistern.

Have banded 17 birds during the month - seven Crossbills, six Western Chipping Sparrows, two Western or Louisiana Tanagers, one Green-backed Goldfinch, and a Red-shafted Flicker.

CASA GRANDE

By J. Donald Erskine, Ranger

While the past week has seen very heavy travel to the Monument, the total visitors for the month gives us a low for the year of 1142 people. Of these 1133 were contacted on either the ruins or museum trips. Even though this is our off season here in the desert, our registration book shows us that 39 states, the District of Columbia, Canal Zone, Belgium, Newfoundland, Scotland, and Czechoslovakia were represented among our visitors. Arizona led naturally with about 54% of the total. California was second with 12%, Texas third with 5%, and Oklahoma fourth with 4%. (I could have sworn that Oklahoma would show the largest group.) We had no very large groups during the month. We had no Park Service visitors which we may claim, although many came to Headquarters, and we had the pleasure of meeting Custodian Budlong, of Canyon de Chelly National Monument, on July 23, and of renewing acquaintances with Frank Fish early in the month.

The weather for the month has been typical summer weather with the maximum temperature varying from 101 on July 10 to 115 on July 17. And the minimum temperatures ranging from 60 on July 12 to 82 on July 7, 15,

CASA GRANDE NATIONAL MONUMENT (CONT.)

and 16. Rain fell on July 3, 8, 9, 17 and 19, bringing the total rainfall for the month to one inch even. Generally the month has been rather blustery with much rain all around us and wind blowing off and on rather strenuously resulting in the tabulations showing only 13 clear days for the month.

On June 28 Ranger Erskine and Marie Erskine left for California where they spent two weeks annual leave with Ranger Erskine returning to duty on July 12 and Mrs. Erskine remaining in California for the rest of the summer. During his absence guiding was carried on by Cliff London and Clarence Cole. On July 11 London left for San Francisco to take a job in his own line. His place was then filled by a newcomer, Frank Horne, who is to be a teacher in the Coolidge Public Schools this coming year. Frank has stepped into the breach like a veteran and things have gone along smoothly with his assistance.

Our hopes were very high when the last report has written that maybe we would have a new sewer system by the end of August, but as it looks now it may be several months before much is done about it. Government red tape is surely inconvenient at times. At the present time the motor which runs the sewer pump is out of commission and we have been letting the system take care of itself in the hope that with the absence of several families from the Monument it will require no further pumping. It will surely be a big relief when this problem is solved permanently.

The boss and I have decided that it would be interesting to keep a record from month to month of the average time of each guide for both the ruins and museum trips. This month's guiding gives the following results:

Guide	Average time in Ruins	Average time in Museum
Erskine	31 minutes	22.8 minutes
Horne	30.6 minutes	27.2 minutes
London	28.6 minutes	22.2 minutes
Cole	27.3 minutes	24.1 minutes
Average of all four	29.4 minutes	24.1 minutes

Little of interest has occurred in the Nature line during the month. The owl family is still putting on a show for our ruins visitors, and apparently have the stage to themselves as the Pheebes have all left. Other than the normal quota of scorpions, centipedes, gnats, mosquitoes, flies, and other pests, we have seen only one blacksnake and no poisonous snakes during the month.

WHITE SANDS

By Tom Charles, Custodian

We have had a hot but pleasant month at the Great White Sands. You remember the old saying, "Shadows fall behind you when you face toward the light"? Well, Ben and I have been so busily engaged in pleasant employment that we have failed to see any shadows.

Ben has had lots of contacts with the hoard of tourists and, what is really more important to him, he has had extremely favorable results in removing the sand from the road in places where it drifts across. The highway into the sands is in much better shape than it has ever been before.

The more visitors the fewer shadows, for me, and the better I like each visitor. Along about the 3rd, 4th and 5th of July, I was about as happy as could be. There were visitors from Alaska, England, Germany, South America and Panama, and from almost every state in the union. There was a small army of Boy Scouts, holding a 4th of July celebration; there was the State President of the Rebekah Assembly, trying to hold a Grand Lodge meeting in one of the Crystal Bowls. There were 22 professors and graduate students from the University of Illinois with doctors and masters degrees galore; the Summer Picnic of the Student Body from State College; the Firemen's Annual chicken-fry with over 60 guests; there were church parties girl scouts, lodge picnics and beer drinks; there were artists, editors, biologists, botanists and scores of others.

I left the Sands on the night of the 4th, long after the moon came up and there were 35 cars, about 175 people, at the picnic ground, most of them preparing to camp for the night, practically all of them had foreign licenses.

The next morning I started back to the Monument at 7 a.m. and met 18 cars coming out between the main road and the Turn-Around. This is but a sample of the continual, three day show. On the evening of the 5th, 24 cars drove up to the registration box at one time and lined up for the little circular and a word or two about the Sands.

You know we have two good, Federal highways between El Paso and Alamogordo. The one runs directly and the other goes by way of Las Cruces and the Great White Sands. The direct route is now completed, paved all the way, and carries most of the El Paso traffic, but previous counts show that for every 5 cars on the direct route there are two cars on the White Sands road.

The Port of Entry on the direct route counted 3568 cars on the three days, July 3, 4 and 5. On the basis of that count and according to previous averages the White Sands had 2570 visitors on the three days. But from an actual, part time count on the three days our

WHITE SANDS (CONT.)

percentages show that we had 3475 people. Take your choice, I have no way of knowing which is the most accurate. I suggest that we split the difference and make it 3022.

There were so many people there that every hill from the garage to the Turn-Around was cut to pieces with active feet, every valley had a fuzzy coat of red-brown paper, the shredded wrapper of the fire cracker. It all makes a fellow wonder just how to turn in the count. The official state highway figures show that there were $1\frac{1}{2}$ cars per minute, night and day for three days, between El Paso and Alanogordo. The Lincoln National Forest reports that they had 25,000 visitors on the 4th of July. I sat beside the road in the Monument several hours each of the three days and there was an average of 46 cars an hour passing through. During that count 50% of them drove into the Sands .

All other activities are overshadowed by the attendance. Here is a sample of the week day registrations: on the 6th there were 45, on the 7th, 75; on the 8th, 80; and on the 9th, 81. On the basis of some early day counts we estimated that 20% of the total visitors registered but as I begin to work up Barry's count I find that approximately 14% register.

Here is another fact which supports the notion that we have lots of visitors at the Sands. The State Tourist Bureau counted the cars at the entrance to the Sands on Thursday, June 25; they reported 186 cars through the monument in 8 hours; that gives us something like 1200 to 1500 people a day through the monument. Thirty six percent of these stop some place in the Sands. There is nothing like being on a main highway, if you are interested in visitors.

Any way you figure it, Boss, there are big crowds at the Great White Sands. Seventy-five percent of the cars have foreign licenses and the one big kick from practically all of them is that there is no shade. Of course, there is no way of knowing which came first - the hen or the egg - and we are always facing that bugaboo of doing something to draw a crowd but it seems to me that we already have the crowd at the White Sands and they are only demanding the "physical enjoyment of their park scenery." Two weeks ago the thermometer registered 153 degrees in the sun on the White Sand and there were something over 30 cars out there that afternoon. All of them were foreign cars - it goes without saying - no local man goes to the Sands on a day like that. We need shade.

Our Sunday count this month was as follows:

June 28 -----	756
July 5 -----	1,511
July 12 -----	840
July 19 -----	770

WHITE SANDS (CONT.)

This figures give us a total Sunday count of 3,877. According to our six months' count we have 2-1/5 week day visitors for every Sunday one, giving us 7,754 week day visitors and a total of 12,406 for the month. Our registration for the month was 1,778; if 14% register it gives us 12,700 visitors, so I presume the first figure is not far off. Thirty-nine states, four foreign countries, and Alaska were represented among the visitors registered this month.

GRAN QUIVIRA

By George L. Boundey, Custodian

Visitors for the month, 281. This is the rainy season up here and the roads have been bad much of the time. One party made three attempts to reach this monument, but turned back on account of road conditions. I spent some time myself in a mud hole with six other cars between here and Mountainair. The first twelve miles of the road to Mountainair has been gravelled but the last fourteen miles is adobe soil and has not been finished yet.

We can not complain of the heat up here. Before showers it is sultry but soon cools as the rain falls. The wild flowers are beautiful. There are many more kinds on the Monument than in other portions of the surrounding country, due to the fact that cattle are not pastured on the reservation. We keep up our bird baths and though they do not come in immense flocks as they did before the rains, there is never a time when the baths are deserted.

Mr. Hamilton, engineer, and an assistant to Mr. Richy visited us on July 1. I did not know the young man with Mr. Hamilton was one of the Park Service family until they started to leave and I failed to catch the name. Two different parties, photographers, visited us during the month in the interests of the Quatro Centennial - 1940.

We also had two parties of inspectors from the FWA. The District Superintendent of the WPA visited the Monument. The old school house we purchased for a community building will be used by the WPA as an adult school with two teachers, one music and the other domestic arts.

We have been cleaning up trails and roads during our spare time. The last rains have washed the approach road considerably.

The closing of the east gate may have inconvenienced one or two of the local people but it has lightened the work on the monument a whole lot and does not work any hardship on visitors as they enter thru the main entrance where guide service is always available.

CANYON DE CHELLY

By Robert R. Budlong, Custodian

The month of July brought the rainy season upon us, and with it, the usual drop in visitor travel.

Total visitors for the month of July, 159. They made trips as follows: Rim only, 37 trips; rim and White House Trail, 5 trips; by car within the canyons, 11 trips; horseback within the canyons, 3 trips.

Average time of trips: Rim, 133 minutes each; trail, 216 minutes each; trips within canyons by car, 221 minutes each; horseback trips within canyons, 370 minutes each. Two groups spent considerable time in the office, viewing photographs, these office visits averaging 225 minutes each. There were several overlaps -- people taking more than one kind of trip.

Maximum temperature, 99 degrees, on the 20th; minimum, 40 degrees, on the 13th; greatest daily range, 51 degrees, on the 13th. Total rainfall, .15 inch. Water started flowing from the canyon mouth July 10. No cars equipped with standard tires were able to enter the canyons during the month.

The new stone pumphouse is approximately 80% complete; otherwise the water system is finished. Sewer system is practically finished, two sections of redwood filter trench having been put in place at this writing. A small rest room for public use was constructed in one corner of the garage, and an entrance constructed through the adobe wall. Plumbing fixtures have not yet been installed, though the necessary tile and water pipe have been placed, and most of the ditches backfilled.

Under the direction of Mr. Gipe, foreman on the water and sewer jobs, reflashng of the roof of the custodian's residence was commenced during the month. This work is now approximately 75% complete.

The ranger and the custodian spent considerable time exercising with pick and shovel during the month. The custodian's residence is built in an excavation, and it has been necessary to construct dams and ditches completely around the residence to keep it from washing away in the run-off from the adjacent hills during rains. Ditches dug for this purpose two months ago rapidly filled with silt, and had to be deepened. Considerable surplus earth around the house also was removed during the month. A steam shovel would come in handy.

We also constructed about forty minor check dams of rock in gullies in the hillsides by the residence. Ten pounds of Western Blue-stem grass was planted where water from the overflow pipe on the water reservoir spreads out over the hilltop, and on slopes back of the house. This is necessary to attempt minimizing of run-off from the bare earth hills in time of rain. Much of this planting remains to be done. It is done

by the ranger and the custodian in what we have heard referred to as our "spare time."

We had numerous noteworthy visitors during the month. Deric Nusbaum, the travelling ranger and his uncle Mr. O'Bryen dropped in during the month. We showed them a little of the finest Monument in existence. Mr. Vincent Vandiver paid us two visits, being accompanied on his last visit by Dr. Charles Gould, Regional Geologist. Ranger Wood and family, of Mesa Verde, paid us a short visit. Mr. and Mrs. Jim Hamilton stopped in for a few hours. Mr. Ansel Hall passed through on his way to Fort Defiance, paying us a brief visit. Mr. Phillip Johnston and party paid us a two-day visit, and we managed to get them within the canyons in the government pickup as far as Spider Rock. Numerous Navajo Service officials and members of a congressional committee spent part of a day and one night here.

During the month an electrolux (gas) refrigerator was received. This was installed by the custodian, in spite of which it works perfectly. A flame gas stove also was installed, with the same results. Minor repairs to plumbing in the new residence were made, the results also being encouraging.

In time of rain - even heavy dew - the ranger and this custodian indulge in a well-known political sport - throwing mud. The house is plastered with mud on the outside, and whenever there is a slight amount of humidity in the air this begins to soften and run down the building. We mix buckets of mud, stand at a safe distance, and throw the mud back on the walls, to replaster them. Light dews don't bother us very much, but one one-hundredth of an inch of rain drives us frantic. This, we admit, is bad enough. But we have an even greater worry - English Sparrows are destroying the walls. Straw was mixed with the adobes to hold them together, and chaff was mixed with the mud plaster for the same purpose. Imagine our embarrassment upon beholding huge flocks of sparrows clinging to the walls and digging out the chaff and straw! Damage by now is extensive, and the walls are rapidly being pecked away. There oughta be a law.

CHIRICAHUA

By Frank L. Fish, Custodian

The weather has been dry for the month, a few showers but not enough at any one time to do much good.

Roads and trails have been kept in wonderful condition for traveling and hiking considering the dry period. The only actual handicap is the dust, but with the usual rainy season past due this condition should be eliminated before long.

Visitors for the period June 22 to July 22 numbered 1,017 registered

CHIRICAHUA (CONT.)

or checked. Of these 230 or 22,5% were from 24 states other than Arizona. There were other visitors, number unknown, that either stopped below the checking station and walked up the Rhyolite Trail or came in by the telephone line road, better known as White Tail Canyon.

We had some scientific guests capable and willing to aid in disturbing reliable information in Mr. and Mrs. S. F. Wood, U.C.L.A., Los Angeles, California, looking for the Cone Nose Bug, *Triatama Protracta* or *Triatama Uhleri*, carrier of the disease American Human Trypanosomiasis. They state this bug lives around pack rat nests and they suspect the germ is in Mexico although the nearest case has been reported from Panama. While they were not allowed to tear up any rat nests in the monument due to Park Service regulations, they used the camp ground as a base and hunted with success for the bug in Pinery Canyon to the south and east. Mr. and Mrs. Wood promise us a copy of the report when completed.

Darwin Tiemann accompanied Mr. and Mrs. Wood adding to a collection of beetles.

Cooperative visitors were:

Mr. and Mrs. H. Dakensten. Mr. Dakensten is the resident engineer for the maintenance of the new State Highway 181 from Pearce to the Monument.

D. B. Treat, member of the State Safety Council.

C. E. Waterhouse, photographer, El Paso, Texas; he believes more people from El Paso should see the Wonderland of Rocks and intends doing something about it.

Official Visitors:

J. H. Tovrea, Coolidge, Arizona, Clinton Rose, J. B. Hamilton, and Bob Rose with Marie and Helen.

One of the outstanding visitors happened to be a local lady from Douglas that insisted (without too great an effort) we should have some cake. I might add Mrs. Thos. Stafford of Pearce fries mighty good chicken. Thus I agree with Bob Rose that at Chiricahua you really have a chance to get acquainted with your visitors.

Jesus B. Charles, CCC enrollee from the local camp, climbing off the trails, found himself in one of those common events of not being able to descend alone. His repeated cries for help finally brought aid. Fortunately he was not injured outside of being a bit scared and dry; it is hoped "Old Man Experience" taught a good lesson. I know from a few caustic remarks made by the boys helping in the rescue that the "Old Man" had a few verbal assistants.

CHIRICAHUA (CONT.)

A diamond rattlesnake was captured on the 23rd and will be sent to Dr. Frank M. Blanchard, Department of Zoology, University of Michigan, for classification. The above capture leads me to believe Charlie Steen is Psychic Unmasked he sends a snake box with Tovrea one day and the snake comes by the next.

The death of Frank Hand, Pinery Canyon, reported last month by Louis Caywood, forces one to the obvious conclusion that Chiricahua needs a museum building badly; also Ed Riggs of the Faraway Ranch informs me there is a great quantity of material dealing with this region available from local residents if they had the assurance it would be in a safe place.

I have found a fine fellowship and a spirit of cooperation shown by the permanent people working at the monument; also, the neighboring people I have met.

Orvel Ollinger and Bronson Harris, CCC enrollees helping with the visitors, deserve high praise for working long hours without any complaint.

CHIRICAHUA ECW

By Wm. Stevenson, Project Superintendent

During the month, 2,275 feet of trail have been completed between Echo Point and Massai Canyon. Massai Point-Balanced Rock trail has advanced 700 feet, which leaves only one half mile to construct to complete the Echo Canyon-Massai Point loop.

The Headquarters-Portal telephone line will be complete by August 1.

The Utility Area Wall is 100% complete.

The grading for the Headquarters Ranger Station is completed and foundations will be poured by August 1.

Maintenance of Bonita highway has continued throughout the month.

Finishing of Service Road and Utility Area grading was postponed this month to expedite the grading for the Headquarters Ranger Station.

Visitors for the month of July:

July 9-10 Assistant Engineer Tovrea
July 16-17 Assistant Engineer Tovrea, and Landscape Architect
Clinton Rose.
July 21-22 Jim Hamilton, District Engineer
July 23-24 Chuck Richey, District Landscape Architect

WUPATKI

By James W. Brewer, Ranger

500 USE OF MONUMENT FACILITIES BY THE PUBLIC

169 guests registered at Wupatki Pueblo; 209 at the Citadel Group; 57 names are duplicated, leaving a total of 321 registered visitors to this Monument in July, 1936; 1935, 268; 1934, 90.

31 states were represented as follows: California 68; Arizona, 62; Texas, 17; Iowa, 12; Ohio, 11; Michigan and Missouri, 10; Illinois, 9; New York and Pennsylvania, 7; Nebraska and Oklahoma, 6; Massachusetts, Nevada, Virginia, and Utah, 5; Washington, Oregon, Maryland, and Louisiana, 4; New Jersey, Kansas, Indiana, Alabama, and New Mexico, 3; Minnesota, North Dakota, and Colorado, 2; South Carolina, Maine, Vermont, 1. From Washington, D. C., 1; from Panama, 2.

One party of overnight campers found the Exhibition ramadas an excellent campsite.

530 NEWSWORTHY VISITORS

Mr. and Mrs. Phillip Johnston and Mr. and Mrs. Ross Montgomery on the third.

Junior Park Naturalist and Mrs. Harry Getty with ranger and Mrs. Ray King, all of Grand Canyon, on the 9th.

Mr. and Mrs. H. T. Anderson, U.S.N.P.S., visited the Citadel only.

100 ADMINISTRATION

123 Visits by NPS Officials

Mr. V. W. Vandiver and Dr. Chas. A. Gould on the 17th.

Junior Park Naturalist D. S. King and Mr. Ned Burns on the 20th.

020 WEATHER

June 23 to July 1: high, 89 degrees on the 29th; low 45 degrees on the 27th and 28th; precipitation, trace on the 26th.

July 1 to July 23: high, 98 on the 18th and 19th; low, 54 on the 14th; precipitation, very light rain on the 8th and 10th.

Total precipitation, .02 inches.

3752.3 miles of wind registered on the anemometer from July 4 to 23.
364.3 was the largest wind mileage in 24 hours, carrying a dust

WUPATKI (CONT.)

storm, on the 15th.

300 ACTIVITIES OF OTHER AGENCIES IN MONUMENTS

320 Cooperating Government Agencies

Through the effort of Dr. H. S. Colton an anemometer has been loaned to Wupatki by the U. S. Weather Bureau. The instrument is without the m.p.h. electrical recording device, but the number of miles of wind passing the Monument are registered on the dial and are recorded daily.

Non-government agencies

A tourist from Kansas bogged down in the cinders 5 miles above the Pueblo on the Sunset Crater road. I was unable to move the car with the pickup and recruited help from the County Highway Commissioner who sent out two men and a FWD dump truck; after towing the tourist car out, we surfaced that short section of the road with 6 hard's of red sand.

430 ARCHEOLOGY

Room 7 is badly in need of a trowelist. Please send us a ranger qualified to remove the many restorable sherds. (Reprinted from Monthly Report of April)

GENERAL

The expected July rains have not yet arrived and the range is in miserable shape. The brush, normally green at this time, is burned brown. The only vegetation I have seen bloom and seed is the Apache Plume.

The cowhide binders on the ladders are being eaten by rodents. This is the first attack on them since their installation in April, 1934, and I believe it is because of the scarcity of the natural food supply.

900 MISCELLANEOUS

At the head of the Citadel register sheet a visitor commented "Very interesting ruins"; following registrants took up the idea and there appear some interesting hints as to what most impresses the unguided Citadel visitors. Quotes give the general range: "I wrecked a tire"; "Swoll, with a better road"; "Worth the effort"; "We need a ranger"; "Wish I knew more of their history"; "Where was the water"; "Thanks to the U. S. Government for their preservation of things of such historic value". One asked, "Did you think it was safer to wire the pencil?" Another answered him "Yes!"

SUNSET CRATER

By James W. Brewer, In Charge

500 USE OF MONUMENT FACILITIES BY PUBLIC

1,177 visitors registered at this Monument in the month of July, 1936; 1933, 909; 1934, no record.

Campers; By the number of Tomato and orange juice cans strewn about the Monument, I estimate that approximately 35 parties must have stayed overnight and had breakfast on the Monument. The empty sardine cans indicate that at least 60 parties picnicked in the neighborhood of the Ice Caves.

States were represented as follows (43 different states): Arizona, 492; California, 200; Texas, 91; Ohio, 47; Oklahoma, 46; New York, 38; Illinois, 33; Missouri, 18; Michigan, 17; Kansas, 15; New Mexico, 15; Pennsylvania, 15; Georgia, 11; Massachusetts and Wyoming, 10 each; Wisconsin, 8; Indiana, Colorado, South Dakota, 7; New Jersey, Iowa, Florida, 6 each; North Carolina, Washington, Nevada, 5 each; Nebraska, Oregon, Maryland, Arkansas, Minnesota, West Virginia, Kentucky, Tennessee, South Carolina, 4 each; Idaho, Mississippi, Utah, 2 each; Maine, Montana, Virginia, Louisiana, Connecticut, 1 each. Washington, D. C., sent 5 visitors; France, 2; Austria, Canada, and Mexico, 1.

430 ARCHAEOLOGY PREHISTORY HISTORY

An excellent paper entitled "Dating the Eruption of Sunset Crater, Arizona" appears in American Antiquity, July, 1936. In conclusion the author, Mr. J. C. McGregor, Curator of Dendrochronology, Museum of Northern Arizona, writes "---This would imply that the eruption took place some time very near 885 A.D., but might conceivably have been as early as 860 A.D. or as late as 910 A.D."

CORRECTION OF JUNE REPORT TRAVEL FIGURES

In collecting the June sheets and installing new sheets at the Sunset registration stand last month I must have pulled a boner and replaced some of the June sheets, because this month I find sheets which show that 137 visitors in June were not included in the report. So that the correct total for June, 1936, is 596 visitors.

CHACO CANYON

By Thomas C. Miller, Custodian

GENERAL

July has been a busy month here in the Chaco. Our approach roads have

CHACO CANYON (CONT.)

been getting some much needed maintenance. The road to the North was bladed by the State Highway Department, and the road to the South has been maintained by the Indian Service. We have had enough rain to keep the blow sand from getting too dry on the North approach road, so consequently we have had very few calls to help visitors through the sand during the month.

TRAVEL

929 people entered the Monument in 255 automobiles, coming from 28 states, the District of Columbia, Territory of Hawaii and Germany. Museum and guide service was rendered to 572 people in 136 parties.

WEATHER

Maximum temperature for the month was 98 on the 18th and 19th. Minimum was 46 on the 13th. 1.16 inches of precipitation were recorded for the month. The greatest in 24 hours was .47 inch on the 19th.

MAINTENANCE

The North approach to the Chaco Canyon Bridge made its annual Collapse on the 17th. However, at no time was it impassable. It collapsed early in the morning and old timbers were used to cross the cars on until it could be timbered underneath. Two dump trucks were used in hauling rock to rebuild the approach. At this time the bridge looks safe enough to the average layman, but it is a very temporary fill and we are looking for it to fall the next rain we get. Boss, we are anxiously waiting for some engineering so that we can build a bridge across that wash.

DAYS OFF

At 7:30 a.m. July 2 one of my Navajo neighbors, by the name of Willie George, called on me and informed me that his 12-year old son had died just at daybreak that morning. The Navajo was badly broken up over the death of his son, and he asked me to go to his Hogan and take the body to Crownpoint for burial. I telephoned to the Eastern Navajo Agency and was told, by the officer in charge, that he could not help me in any way because he had no appropriation for that purpose. Realizing that if one Government department could not bury the dead of a good Navajo family, it was a sure thing that the National Park Service could not. I decided immediately that I must take a day off, so I took my personal car, drove to the University building in this Monument and asked Mr. Stanley J. Milford to come along and help me bury the child. Mr. Milford very gladly consented to go. We headed north-east over a very rough road, in all we drove 128 miles, paid a man \$5.00 to make the box and dig the grave. The boy was buried at the Crownpoint cemetery and we got back that night in time for supper.

Boss, when we drove up to that Hogan we found the little boy wrapped in

CHACO CANYON (CONT.)

a wollen blanket, head east and his face turned to the north. Outside and to the west a beautiful black horse was tied to the hogan. Of course, I knew why the horse was tied there, and I thought that I could talk them out of killing that fine animal, but all that I got was a shake of the head. Before we were out of sight a gun was fired, the beautiful horse toppled over; in less than ten minutes the hogan was in flames.

The next day after the funeral Mr. Milford brought me \$2.00 that the students made up to help reimburse me for the money I paid to bury the boy. Mr. Lewis T. McKinney, Project Manager, SCS, also gave me a dollar. I want to publicly thank each and every one that helped me bury this little Navajo.

NATIONAL PARK SERVICE OFFICERS

A. E. Borell and Dr. McDougall, of the Wildlife Division, arrived and departed June 28. Dr. Chas. M. Gould, Regional Geologist, Oklahoma City, and Vincent W. Vandiver, Associate Geologist, Santa Fe, arrived and departed July 8.

SPECIAL VISITORS

Dr. Theodore Schreiber, Alma College, Alma, Michigan, was here June 30. Mr. and Mrs. Harold C. Newton and party of 15 students, from the Navajo Mission School, Farmington, New Mexico, were here on the 4th. Mr. and Mrs. W. L. Marr, Western representatives American Automobile Association, Salt Lake City, Utah, were interested visitors July 5. Mr. A. H. Marquess, Gun City, Kansas, and Dean Babcock of the Denver Museum arrived on the 11th and departed on the 13th. Dr. and Mrs. Feenster, Harvard University, visited the ruins and took motion pictures on the 16th. Dr. Getrud Hermes, Hamburg, Germany, Dr. Hans Rupp, and Dr. Anton Chown, of Harvard University, were Monument visitors on the 18th. Dr. George F. Sternberg, of the Kansas State College, Dr. C. L. Gazin, Washington, D. C., and Harold Sheperd, Hays, Kansas, were here on the 18th. Mrs. Mace deLaguna, Ph D of Bryn Mawr College, arrived on the 18th to spend several days studying the ruins of the Chaco.

SOIL CONSERVATION SERVICE

This Service has proceeded in a satisfactory manner. The most part of the month was spent on the much needed revetment work east of Del Arroyo. A diversion dyke was constructed east of the ruins of Wijiji. This dam should serve to keep the water out of the Plaza in that Pueblo.

TUMACACORI

By Louis R. Caywood, Custodian

During the month 755 guests were conducted through the Mission and grounds while an additional 63 used only the facilities offered making a

TUMACACORI (CONT.)

grand total of 818.

The Reverend Victor Stoner, Tucson, again paid us a visit on July 7 and left us with considerable information concerning both Tumacacori and San Xavier Missions. Fred Winn, Supervisor for the Coronado National Forest, spent a short time looking over our improvements the following day.

On July 11 we were very pleased to welcome Ansel Hall, Chief of the Field Division of Education, Berkley, accompanied by J. K. Tovrea, Bob Rose and Dale King of headquarters, to our Monument. This visit concerned the possible construction of a museum and administration unit here. Must say that I am very much pleased with the plans they brought along with them. We enjoyed their visit and hope they will honor us again in the near future.

On July 17 I received a surprise party in the shape of Ned J. Burns, Acting Chief of the Museum Division, National Park Service, Washington, D. C., Louis Schellbach, Jr. Park Naturalist at the Grand Canyon, and Bob Rose and Charlie Steen of the headquarters staff.

This was the first visit paid Tumacacori by Hall, Burns, and Schellbach and they all expressed the opinion that we had an ideal set-up here and wished us luck in obtaining the proposed museum and administration unit.

On July 22 Mr. and Mrs. Charles Bordt and party of Balboa, Canal Zone, were interested visitors at the Mission. Mr. Bordt is connected with the Government service in the Canal Zone.

The tide has turned and the water table is beginning to rise from the number of good rains that have fallen in the last two weeks. The well seems to be in normal condition at this writing. I took advantage of the time that the water was very low and cleaned it out so besides having lots of water we also have a clean well.

Mr. and Mrs. M. O. Evenstad and daughter have gone to greener pastures. Martin transferred to Muir Woods National Monument, California, where the big trees grow. We were very sorry to see him go, but wish he and his family the best of luck in their new home.

In the meantime Mr. Greg Brett has been filling in with the work and visitors at the Monument. Weeds grow faster here than at any other monument in the Southwest including Aztec Ruins and it takes considerable of Greg's and my time to keep them down. Now I suppose Cal Miller will write in to say that he has a bigger weed crop at Chaco than I have. Can't he be satisfied with always saying he has the biggest ruins.

The growing need of a well organized museum at Tumacacori is becoming more evident as each day passes. With a patio arranged building and a picture window showing the mission in its delightful setting, the popularity

TUMACACORI (CONT.)

and educational value of the Mission itself will certainly be enhanced. Here's to the time, in the near future we hope, when these plans will become a reality.

Mail time is upon me so adios until next time.

EL MORRO

By E. Z. Vogt, Jr., Acting Ranger

July has been an eventful and very interesting month for this ranger in many ways.

WEATHER AND ROADS

The drought was broken on the 10th of the month by two cloudbursts and again on the 21st by a nice shower. From now on this is likely to be a wet muddy country.

The roads are still passable, but visitors complain terribly about the Grants road. The natural tendency seems to be to jump on the ranger about the condition of such an awful road. But I just smile pleasantly, refer them to the state highway commission, begin the talk fast and furiously, and finally manage to get them in a good humor so they can enjoy the monument.

TRAVEL

I am proud to report that 415 persons visited El Morro during July. This is not so bad for an almost inaccessible national monument. They came from New Mexico, Arizona, Colorado, California, Illinois, Kansas, Texas, Missouri, Pennsylvania, Iowa, Nebraska, New York, Massachusetts, Minnesota, Michigan, Ohio, Connecticut, Oklahoma, Utah, Indiana, New Jersey, West Virginia, South Dakota, Kentucky, Scotland, and South Wales.

Newsworthy visitors include Blanche Pfefferkorn, Radio City, New York City; John Murray, Annar, Scotland, and N. G. Nicholson, Tvelavvi, South Wales, exchange students from Yale; Clyde Kluckhohn, author of the two books, "To the Foot of the Rainbow" and "Beyond the Rainbow," on the Rainbow Bridge county, and now with the Department of Anthropology at Harvard; the Prairie Trek Expedition made up of 19 boys and leaders from Indianapolis; and Vincent W. Vandiver and Dr. Chas. H. Gould, Park Service geologists, who were here on the 20th. Mr. Vandiver and Dr. Gould were the only Park Service men in all month, and I certainly enjoyed their visit and learned much from them about the geology of El Morro and surrounding country.

FLORA AND FAUNA

The pinon crop is coming along fine but the squirrels and jays are

EL MORRO (CONT.)

surely after it.

The countryside is taking on a beautiful green tint after the first rains, and the gramma grass is in some places over two inches high.

The eagle story did not by any means end last month. It continued with the following experience: Not two days after Oscar learned to fly and reached a safe position on a high ledge, a wild-looking old Zuni Indian rode in and demanded both the little eagles. He spoke rapidly in bad Spanish and was certainly excited over the prospects of capturing two eagles and taking them back to Zuni to keep in a wicker cage and pull out their feathers each year for ceremonial dance costumes! It took me more than an hour to convince him that the eagles belonged to Uncle Sam, that I was here to see that nobody bothered them, and that he could not have either one of them. I finally made the following agreement with him: I would give him his dinner if he would go back to Zuni and forget the eagles. He grumbled a while, but accepted my offer. An hour later he left in a good humor without the eagles and has not been back since. And now every day I see the eagles soaring overhead free and unmolested.

The bird list for July is as follows:

Cliff Swallow	Pigmy Nuthatch
Northern Violet-green Swallow	Western Meadowlark
Red-shafted Flicker	Western Mockingbird
House Finch	Desert Sparrow Hawk
Western Mourning Dove	Mountain Bluebird
Western Robin	Chestnut-backed Bluebird
Western Nighthawk	Lewis Woodpecker
Golden Eagle	Canyon Wren
Arkansas Kingbird	Turkey Vulture
Cassin Kingbird	Black-chinned Hummingbird
Woodhouse Jay	Western House Wren

MONUMENT IMPROVEMENTS

Please, Boss, may I make another plea for moving our entrance gate. As travel increases, our system for handling visitors becomes worse and worse. It is my opinion that the entrance should be about 100 yards west of the northeastern corner of the monument fence. The road could then be made to come straight up to the ranger's cabin. Every visitor could be contacted and the rickety old bridge eliminated. If the money to be used in rebuilding the bridge, which is about to fall in, could be applied to the expense of moving the gate, I think we would save money, time, and energy and improve our system of handling visitors a hundred per cent.

I put a heavy coat of Driswall, the colorless preservative, over all important inscriptions before the first rain.

SOUTHWESTERN MONUMENTS (CONT.)

Another coat of copperas improved the appearance of the concrete steps, but they still do not look as well as they ought to. I intend to try another coat next week.

Say, Boss, can you give me the dope on this new preservative which can be sprayed on the rock to prevent pictographs from washing away? There are a few colored pictographs on the cliff south of the cabin that should be preserved. Mr. Vandiver told me about this preservative the other day.

I am working with two men and a team on the north trail which washed so badly in the last rain. We are increasing the capacity of the drainage ditches, putting crushed rock in holes, and regravelling parts of the trail. The trail will now be better able to carry the run-off from heavy rains, but I doubt if the present trail can ever be made to stand up for any length of time.

With a few shelves, pieces of pottery, axe heads, curious rocks, manos and metates, a piece of old hammered iron which might be part of a Spanish bit, the corner of the office in the ranger's cabin is being converted into a small museum. It isn't much, but almost everything has an humble beginning, and now is the time to start.

You will be interested to know that the fellow from St. Johns, Arizona, who carved his name in a cave on the south side of the monument, returned on the 13th and did a first-rate job of removing his name from the Rock. There were no hard feelings, he learned a lesson, and best of all he had the pleasure of seeing the monument twice.

MONTEZUMA CASTLE

By Martin L. Jackson, Custodian

On consulting our register for the month of July this is what I find that we have had: Visitors for the month numbered 1,482 and came from 32 states and the District of Columbia, three foreign countries: Belgium, Canada, and South Africa, and Territory of Hawaii. From the above figures you will find that we are averaging about fifty people per day. This is by no means a big run of visitors for this place, but with a nasty detour on State Highway 79 which is the main artery into the valley and the monument, and with the hottest weather I have ever experienced in the valley since coming into this state in 1912, I feel that we are not doing so badly.

Among the Park Service visitors for the month, Ansel Hall and Dale King were in for a short visit. This is Mr. Hall's first visit to this monument and we are very glad to have had him. I feel sure he will have a better understanding of our local problems. Dale, having been in a number of times, no doubt has heard plenty concerning the local needs of

MONTEZUMA CASTLE (CONT.)

this monument. Geologist Vandiver was in for a couple of hours, seemed to enjoy our monument, and promised to come back in the not too distant future to give us the low-down on the geology of the Verde Valley. We expect him to hold his promise. Louie Shellbach and Mr. Burns of the educational department paid us too short a visit last Sunday. Several of the boys from the Grand Canyon were in during the month.

Ranger Frank Fish was transferred to the Chiricahua National Monument the first of the month. Needless to say that we will miss Frank and Corabeth and the two little fish(es). However we do think he will like it better there and we will gamble anything at our command that he makes good in his new position. More power to you, Frank.

I would like to give you an insight on some of the joys of living on a National Monument way out in the hills of Arizona. On this monument we have to pump water out of a drilled well with a gasoline motor. We have a thousand gallon supply tank and at this season a full tank of water will usually take care of the demands of the monument for twenty-four hours. Ordinarily we start the motor in the early morning and will have enough water to do for the day. During the past month I got ambitious for once in my life and decided that I would start the pump in the evening and would not have to bother with it the next morning. And this is how it worked out:

Friend wife got out of bed at the usual hour, walked into the bathroom and cheerfully informed me that the water was out. I proceeded to don a bathrobe and a pair of house shoes and a ttempt to find what had happened to the full tank of water that we had the night before. The valves in the lavatories in the rest room have a habit of not closing and sometimes drain the water all out of the tank supply. I went hurrying into the rest room to find out if any of the valves had stuck. On entering the room I heard that old familiar hissing sound which was good and sufficient reason for my backing out of the room entirely. Mr. Cox, the temporary ranger, was out in the yard in front of the ranger's quarters. I called on him and he armed himself with a good stiff stick and boldly entered the place coming back with a nice specimen of a rattlesnake. He said that he had dispatched the gentleman (supposing it was a gentleman snake being in the gentlemen's rest room). I then decided to go back to the house and have a cup of coffee, to settle the nerves. The wife says that there is not enough water in the house to make coffee. So it was up to me to start the motor before any coffee could be had. I immediately went down to start the motor, on turning it over I found that the motor had blown a cylinderhead gasket. That would have to be replaced before the motor would run, which was a three-hour job. I replaced the gasket and some where around 9:30 we had coffee. (Just another one of those things) But whoever heard of a rattlesnake requiring a rest room!

About this man Cox that is rangers here temporarily. I hear so many good things about him that I believe I am getting downright jealous. It is claimed that he not only makes an interesting talk but an intelligent talk!

which is very likely the only one's that have been made on this monument. It seems that he has the visitors confidence. On the 4th he asked a lady why she was climbing the ladders so slowly, as the ladders were very hot at that time of the day. Her reply was, "You do not know my secret, if I fall I kill two."

Will bring this report to a close as I have just had quite a round with a lady from Los Angeles, who evidently drove over here to tell me how hot it is in Arizona. And how cool it is in Los Angeles; I told her about spending a part of one night in the angel city, but left before morning because of the heat.

PIPE SPRING

By Leonard Heaton, Acting Custodian

There has not been a great deal doing up here during the past month to report on except the travel, which has been slow at times. There have been some changes made in the figures as follows:

June guided trips	28	Present	84	Local	362	estimated
July " " "	18	"	96	"	310	"
Decrease trips of	10	Increase	12	"	52	"

Total travel including visitors and local travel, 406. The local number was brought up on the 4th when the people of Pipe Valley, 71 in number, came in to spend the day. My increase in the guided trips attendance is that I had one party of 22 and one of 13, 12, and 14 each. I also have had the following Park Service officials:

July 15 Mr. Chas. N. Gould of Oklahoma City and Mr. V. W. Vandiver, of Santa Fe. These two gentlemen came in early in the morning, stayed for 30 minutes or so and then went on into Zion over the old desert road, as they wanted to study the red mountains between Pipe Spring and Zion.

Mr. Al Kuehl came in about noon and we spent about two hours going over the work that had been done by the eight CCC boys, and found that there were some of the work jobs that needed changing. This we are doing this week.

On the 16th Messrs. Gragerer, Mansfield and Hinds of the Geological Survey were here for two or three hours looking over the rocks and the fault that supplies us with water.

July 21 Mr. and Mrs. L. W. Childs of the Washington office called in for a few minutes. Mr. Childs is connected with the ECW part of the Park Service and he is out seeing the ECW superintendents on some of the parks and monuments.

I surely enjoy having the officials come in and see me once in a

PIPE SPRING (CONT.)

while as it gives me now life and makes me take stock of myself. Upon their departure I usually find something that can be improved, even though they do not say anything about how the monument looks or how it should be run; but just the presence of the officials and knowing that you are under inspection to some degree makes one look for his weak spots and he is determined to strengthen them before another visit is had by that official.

My week in camp with the scouts was a wet one as we were rained out two days before the camp was to close; nevertheless, we enjoyed it very much. Mr. Brown who took care of the monument while I was away did a good job and everything was in good shape when I returned.

The Nature notes for July are: I have banded 5 Arizona Crested Flycatchers, 4 young and the mother of the 4. They were from the nest in the register room of the Fort. I also banded one House Finch. I am finding bird nests almost every day. Some have eggs and some young birds in them; some are empty. The following birds I know have nested on the monument: Arizona Crested Flycatcher, House Finch, Robin, Mourning Dove, Bullock Oriole, Meadow Lark, Cassin Kingbird; there were also some sparrows that I have not identified.

Lizards are plentiful but I have not been able to devise a trap that will catch any yet. I am still working on the scheme however.

A few rattlers are being found on the monument by the CCC boys, which they kill on sight.

Most of the plant life has flowered and gone to seed because of the long dry spell. The only life that shows green is the trees and brush and a few of the deep rooted plants. Even the thistles that are not near the irrigation ditches are burnt up.

July 19 gave us the first rain that amounted to any good. It rained for about 30 minutes, causing the water to flow in most of the clay washes. We were again greeted by a rain on the 20th. I guess the Rain Gods are taking pity on the desert again. I have heard reports to the effect that in the country north and west of here roads and bridges have been washed out and a lot of damage has been done to the fields. If these rains continue we ought to have some fine fall flowers and pleasant weather.

NAVAJO

By Milton Weatherill, Ranger-Historian

Visitors for July, 1933, total 133; 1935, 86; 1934, 69.

The weather has been hot for this part of the canyon, with very little rain. Thick Singer has moved his sheep out on the mesa, as there is better food up there, with some chance for water since the rains have started.

NAVAJO (CONT.)

Mr. George Harriman, Mr. J. Roach, and daughters, were in; they had lunch and spent a very pleasant time in the ruins. The oldest girl said that the ruins did not seem real as the buildings looked so small.

June 27, 14 of the boys from the Rainbow Bridge-Monument Valley Expedition, Tsegie camp, spent part of the day looking around the ruins, and at one or two others ruins. Charles Amsden was head of the party.

July 1, Mr. Charles Bernheimer paid a short visit to Be-ta-ta-kin.

July 3, took Messrs. Charles Bernheimer, Charles Amsden, Dr. Bubington, Phil Johnson and party to Keet Seel.

July 4, Mr. and Mrs. Rickotson of Guatemala, C.A., made a trip up from Kayenta.

July 10, the Torbert Expedition, 16 boys and their leader. They are from preparatory schools in New York.

July 11, ten of the Flagstaff State Teachers summer school archeological class paid us a visit.

July 13, Dr. Chas. N. Gould, geologist, National Park Service, Oklahoma City, and Vincent W. Vandiver, associate geologist, National Park service, Santa Fe, New Mexico.

July 15, went down to Tsegie camp where I met Dr. Frederic P. Loomis of Amherst, Mass., Dr. E. B. Howard, Dr. Ernest Antvs. I took Dr. F. P. Loomis and geological party, as well as Dr. E. B. Howard, down to Wildcat Canyon to a bone bed which comes in the top of the Chin Lee formation. One very nice skull was located and another which was not so good. As Dr. F. P. Loomis was going on out to Marsh Pass, I returned with Dr. E. B. Howard to Tsegie Camp where we joined Dr. E. Antvs. From there we made the trip to Be-ta-ta-kin.

Birds for July:

Mountain Bluebird	Lead-colored Bush-tit
Mountain Chickadee	Western Mourning Dove
Red-shafted Flicker	Ash-throated Flycatcher
Western Gnatcatcher	Sharp-shinned Hawk
Western Red-tail Hawk	Desert Sparrow Hawk
Coopers Hawk	Broad-tailed Hummingbird
Long-crested Jay	Woodhouse Jay
Pinyon Jay	Nighthawk
Rocky Mountain Nuthatch	American Long-eared Owl
Flammulated Screech Owl (one has taken up his evening hunting in the ruins)	Western Hored Owl
	Say Phoebe
	White-crowned Sparrow

NAVAJO (CONT.)

Bird for July (Continued)

Poor-will	American Raven
Western Robin	Northern Violet-Green Swallow
White-throated Swift	Western Chipping Sparrow
Spurred Towhee	Gray Titmouse
Western House Wren	Canyon Wren
Rock Wren	White-breasted Woodpecker
Turkey Vulture	Western Mockingbird

BANDELER

By. J. W. Hendron, Acting Custodian

Visitors:

Visitors numbered 2,162,, arriving in 431 cars from 34 states, and the District of Columbia.

The six highest states in order by visitor count were: New Mexico, 548; Texas, 200; Oklahoma, 164; New York, 91; Kansas, 88; and Colorado, 84.

Attendance increased 352 over last month, or 19%, and increased 70 over the July, 1935, total, or 7.7%.

Although not represented by cars, a total of 9 people from foreign countries visited the canyon this month; they were from England, Holland, and France.

Return visitors fall short of last month, numbering 123, and I am inclined to believe that we missed some of them.

Weather and Roads:

Days partly cloudy:	25	
Days cloudy:	0	
Maximum temperature:	90	July 6.
Minimum temperature:	51	July 12.
Mean Maximum-----	78	
Mean Minimum-----	58	
Precipitation-----	3.44	against .81 for July, 1935.
Rain and sleet-----		June 27, 29 and 30, July 1, 2, 6, 7, 8, 9, 10, 11, 15, 16, 21.
Dust storms-----		None.

The weather has been good and the rains have been most welcome, the heaviest precipitation being on July 10, with a total of 1.50 inches, beginning about 4:45 p.m. and ending some time during the night.

BANDELIER (CONT.)

The roads have been slightly rough since the rains started, but I think the canyon folks would like the roads a little rougher and a little more rain. The dust has settled considerably since these showers and we are looking forward to more of them.

Visitor Trip Chart:

Two-hundred and twenty-one parties took guided trips through the ruins, or were given short individual lectures, numbering 1,258 people. The average time per party was 69 minutes. One hundred and eighty-nine parties took complete ruins trips; twenty-six were given short talks or special lectures.

A short time ago one of the Couriers with a Harvey party suggested a bench for visitors to sit on in one of the shady spots under the cliffs. I found that this increases the interest of visitors since a log was dragged up to the spot for them to sit on and rest after quite a pull from the canyon floor up to the caves. Of course when people sit down and collect their thoughts they ask many more questions and this gives us a chance to really unfold, thereby increasing the time of each party but in the long run I can't see why this arrangement isn't more satisfactory since the personnel at Bandelier is large enough to handle most of the people we come in contact with.

I wish to praise the fine work that is being done by the CCC enrollees acting as guides. In the short time I have been here I have never heard a one of them complain about anything they were asked to do. They always seem willing and are especially polite and well mannered when in the presence of visitors. I have had some very favorable reports on them from visitors who are appreciative and have been well pleased with their trips. I am inclined to think that these boys are three of the finest we have in the camp. They are all taking correspondence work through the Educational Advisor trying to finish their high school work, and since they are so interested in archeology we are going to have a class, meeting two nights out of each week. This will enable them to get further with their high school credits and will also broaden their knowledge of archeology and anthropology; thus, giving a much better lecture on the story of Bandelier National Monument to the visitors they come in contact with.

Special Visitors:

June 27 - Chuck Richey was in for a few hours on business with Thomas C. Vint, Chief Architect, Branch of Plans and Design in Washington, and also, Merle Sager, Associate Landscape Architect from the Regional Office in Oklahoma City. A. E. Borell and Dr. W. B. McDougal were in for a short visit, going over some of our wildlife. Dr. McDougal is with the Wildlife Division in Oklahoma City.

BANDELIER (CONT.)

July 4 - Dale King and Ansel were in going over the plans for the museum and giving things the once over. They left in a hurry but returned on July 6 with Chuck Richey so it looks like the museum will be under way in a short time.

July 7 - Dr. Chas. N. Gould, Geologist out of the Regional Office in Oklahoma City, was in with Vincent Vandiver, Associate Regional Geologist from the Santa Fe office. We took a trip through the ruins going over a little archeology and geology, and finally ended up down at the upper falls amidst all of Nature's wonderful workings in volcanic material.

July 8 - Dr. Frederica de Laguna, from the University of Pennsylvania Museum, was in with her mother for a visit. Dr. Laguna has been with the Soil Conservation Service for the past six months in southern Arizona, and at the present time is making a tour of Southwestern Monuments.

July 14 - Hugh M. Miller arrived for a few hours on business.

July 17 - Dr. C. P. Russell, Chief of the Museum Division out of Washington, was in for a short inspection with Floyd Yeager from the Santa Fe office.

July 19 - W. S. Stallings, Laboratory of Anthropology in Santa Fe, was in for a short visit to look over the Community House and other things of an archeological nature.

July 21 - Lyle Bennett and J. E. Bell from the Santa Fe office spent a few hours on an inspection tour.

General:

It looks like things are really being rounded out at Bandelier. The Museum Building is nearing completion and the new living quarters are going up fast, and I can truthfully say that they are not to be sneezed at. I'm anxious to move into one of the new houses for I have a lot of studying I would like to do this winter, that is if I am here long enough.

George Sholly came on duty July 1 as maintenance man for Bandelier and has recently been trying to put these roads in shape since the hard rains. George has been in this part of the world for the last three years and worked for Mr. Chase, Project Superintendent, until last spring. He knows the country around here and I think that he will be a great help to this office in many ways in addition to his maintenance work.

I heard from Earl Jackson the other day and he seems to be getting better all the time and gaining energy, so from all indications he should be ready to go back in the Service in a short time.

I could think of many things I would like to put in this report but I shall save the most of them until next month.

BANDELIER ECW

By H. B. Chase, Project Superintendent

The completion of the flagstone floor in the Museum Building completed this building ready for construction of museum cases under the furniture project. The rough interior walls in this building were left unplastered, awaiting detailed plans for the museum cases, as it is contemplated considerable firing and plastering will be necessary to complete the case installation.

Construction crews have finished Quarters No. 2, and the building is now turned over to the painting and carpenter crews. All doors have been constructed and are ready for hanging, and a portion of the windows are now in place. The painting crew has started clean-up, and will start wall and trim painting immediately. After painting and inside cabinet work is finished, this building will be ready for occupancy, probably August 15.

Construction of the residence area equipment shed and dormitory quarters was started under the direction of Foreman Eden about June 25. To date, all window and door openings are in place, and wall construction to lintel height. This building consists of a four stall garage for the four quarters shown on the Master Plan which do not have adjacent garages, and an additional two rooms with connecting bath.

The refuse burner, constructed on the North Mesa, near the rim of the Canyon, was completed this month and is ready for operation. The structure was built in accordance with approved plan BAN-9003, and will undoubtedly be of considerable aid in disposition of camp ground refuse and other wastes at the time the camp is removed from this area. At the present time all refuse goes to a much larger plant initiated by the Army.

Considerable spraying and insect control work has been carried on in the Canyon under the direction of Forestry Foreman Fulton, in an effort to control the Tent Caterpillar which has come in evidence along the Rito de los Frijoles.

The usual summer rains initiated considerable work under our project, Excavation Channels and Ditches, as justified in our application for this project. The location of a number of our newly constructed buildings created a distinct flood hazard, and recent rains proved this by flooding our new museum and quarters No. 2 buildings. Diversion channels and ditches have been constructed around these two buildings, together with other grading which will eliminate the flood hazard.

The rock quarry crew has been in progress these past two months, busily quarrying and shaping rocks for our various building projects under construction.

The informational signs for Sunset Crater National Monument are now complete for shipment, however, we are holding these signs awaiting an

HANDELIER ECW (CONT.)

inspection by Architect Richey before shipment is made. The completion of this large order of signs will enable us to start carving a number of small orders for various monuments in the Southwest. We hope to have these additional signs ready for shipment within the next month.

Receipt of approval of our power and telephone cable purchased for our underground systems here has enabled us to continue installation and to date all cable on hand is in place. Entire completion of this project will be made upon delivery here of additional cable necessary, to be ordered for compliance of engineering specifications.

A small amount of landscape work and planting small shrubs and plants, together with considerable water haul to promote the survival of last fall's program has been in progress the last two months by the landscape crew.

TONTO

By Woodrow Spires, Ranger

This closes a dull summer month, with the visitor count being somewhat lower than that of the same period last year. This I believe is due to the Texas Centennial and some unusually warm weather.

The thermometer has been hovering around 100° for the greater part of the month. Precipitation totaled little more than 1.5 inches which fell in the form of two rains and four light showers.

The following travel figures are derived from SWM Stencil No. 16:

Total visitors at the Monument-----	289
Total time guiding -----	4,500 minutes
Total visitors taking field or ruins trip-----	157
Total number of field or ruins trips -----	42
Total time field or ruins trips -----	3,190 minutes
Average time field or ruins trips -----	75 minutes
Average group field or ruins trip -----	3.7
Total visitors museum trips -----	232
Total museum trips -----	62
Total time museum trips -----	1,310 minutes
Average group museum trips -----	3.7
Average time museum trips -----	21 minutes

By comparing this with last month's report, I find that there are fewer visitors but the average stay in the field is increased from 63 minutes to 75 minutes this month. This bears out my theory that the summer visitors are more interested than the winter visitors.

A few newsworthy visitors this month:

July 2, Custodian Frank Fish of Chiricahua National Monument.

TONTO (CONT.)

accompanied by Mrs. Fish and the two minnows, stopped in for a few minutes.

July 11, Ansel F. Hall, of the Berkeley office, accompanied by Dale S. King, of the Coolidge office, stopped to inspect the proposed museum site and visit the lower ruin.

July 19, Robert L. Cole, former ECW clerk for Southwestern Monuments, and brother Clarence R. Cole, student technician at Headquarters, spent the day visiting the ruins and talking over old times.

July 21, Miss Wilma C. Homeyer, ECW clerk in the Personnel Division of the National Park Service, Washington, D. C., was an interested visitor.

The following are notes from the Nature files of the Monument:

Shortly after the first summer rain in early July the ocatillos which have been bare of leaves for two months put forth a new set.

A great portion of the larger mesquites in this section are putting forth a second crop of beans.

Young quail undoubtedly second hatchings are appearing now (July 20).

With this I bring to a close the first year of my employment at Tonto of which I have enjoyed every day.

AZTEC

By Johnwill Faris, Custodian

True, Boss, this is getting to be an old story, but nevertheless July joins with several other months this year in being better than any similar month since 1930. Visitors for the month total 2,089. Aside from the visitor angle this month has been most interesting. The parking area is receiving its topping and it is going to be mighty nice, but you are not going to catch me saying it is the best in the Southwest, after your prophecy of a short time ago. On second thought, however, I do believe that such is the case. Any one that knows A. E. Underhill knows that we are getting a fine job. His personal interest, as well as his professional knowledge, is most appreciated.

July, 1936, will long stand out as a very important month for the Monument; administrators from both Colorado and New Mexico stopped off, several Park Service and ECW men, and individuals from many units in our field. Ansel Hall and Dale King started the ball rolling with some mighty valuable discussions of our museum treatment; they had hardly left us when Dr. Gould and Vandiver dropped in with us. This was the first visit for either of these men and it is very much regretted that neither Mr. Hart nor myself

AZTEC RUINS (CONT.)

were here to go through with them. I had the pleasure of spending several minutes with them in Aztec and again a few minutes at Mesa Verde, and those few minutes were just enough to cause me to sincerely hope that it will be possible for them to make us a return visit. At this point in the game Bert and Mrs. Hart presented the Monument with a big baby boy, Paul, but, Boss, to go on and list all would be taking all the report for names and will just hurriedly mention the names. Mr. Wilson, Assistant Secretary of Agriculture and his party, were in with us for a time, and I want to say that we have never had a more interested party than that from our visitor Department; Baker from Denver; Osborn from Flagstaff; Mr. and Mrs. Ricketson; Mr. G. G. Simpson and daughter; Homer Bodford from Colorado capitol; and, Boss, of very much importance to the Monument is the visit of Assistant State Highway Engineer from Santa Fe. It is barely possible that the Governor will consider paving the road from the highway to the Ruins. He has been most gracious in his consideration and I feel that he will be the one that will see to it we have a road leading to our attraction. Governor Tingley never visits this section of the country that he does not drive out and he has consistently evidenced a very sincere interest in the Monument, and the entire county is hoping that his vision will allow him to give us a road out here. It is a matter of only a couple of weeks now until the entire road from the Colorado state line to Shiprock will be oiled, and it is not very attractive to the average visitor to leave an oiled road for our cow trail up to the Monument. Anyway, Boss, we have faith in the Governor and believe he will get us the road.

Well, Boss, I know that this is not much of a report and I have a lot to report, but I am going to send this on with apologies and get out on the job and see how things are shaping up on the outside. I read with a great deal of interest the letter on reports in the Broadcast, and I think there is a lot of food for thought. I might even break loose and write my views for an issue of the Broadcast or at least for my own peace of mind. Am also wanting to look over the list of available books again and get some up here for Bert and myself.

HEADQUARTERS STUFF BRANCH OF EDUCATION

By Charlie R. Steen, Jr. Park Naturalist

The Educational staff of the Southwestern Monuments for July, 1936, consisted of Robert H. Rose, assistant Park Naturalist, Junior Park Naturalists Dale S. King and Charlie R. Steen, and Student Technician Clarence Cole.

Activities of the staff

During the month Rose made the following field trips: (1) to
SOUTHWESTERN MONUMENTS

BRANCH OF EDUCATION (CONT.)

Chiricahua; (2) Tumacacori; (3) Tumacacori and San Ignacio, Sonora; (4) left on the 19th for Berkeley where he will be stationed for several months.

King made field trips through the northern monuments with Ansel Hall and Ned Burns and at present is at Bandelier National Monument preparing and installing exhibits for the new museum.

Steen was at headquarters for the entire month with the exception of one trip to Tumacacori and San Ignacio.

Report of Student Technician Clarence R. Cole, ECW:

As with last month, about half of my time was spent guiding, while the balance was spent doing mimeograph work in the Naturalists' office. I was guiding daily until Don Erskine returned from his vacation and let me get back to my job of mimeographing.

Two Sundays ago, Bob and I drove up to Coolidge Dam, stopping by Tonto on the way back to visit with Woodrow Spires, who feasted us royally while telling us what a nice ruin he has. I agree with him, Tonto is really beautiful, the flora of the region also being very outstanding.

My working time was spent as follows:

Guide Duty:

Total number Ruins trips ----- 59
Total number Museum trips ----- 52
Total days guiding ----- 14

Office Duty:

Mimeographed 360 copies Annual Report.
Mimeographed 2000 copies Tonto Informational Leaflets (Incomplete)
Helped Charlie Steen install the new bookcases.
Numerous other minor duties.

Gifts and Accessions:

The Carnegie Institution of Washington has donated a group of 23 publications to the Headquarters library. These papers and reports are listed by title in the Supplement to this report; the subject matter covered by them ranges through anthropology, history, botany and zoology.

Twenty-one steel and glass bookcases arrived and were installed during the third week of July. Our library is now adequately housed and protected against casual loss of books by virtue of being under lock and key.

BRANCH OF EDUCATION (CONT.)

Bird Banding:

Banding at headquarters has been at a standstill for some time, due to a lack of bands. A fresh supply has been received, however, and traps are being baited again. Only two monuments reported banding operations for July; these were Walnut Canyon and Pipe Spring.

Walnut Canyon

7 Crossbills
6 Western Chipping Sparrows
2 Western Tanagers
1 Greenbacked Goldfinch
1 Red-shafted Flicker

Pipe Spring

5 Arizona Crested Flycatcher
1 House Finch

As an incentive to those in the field who are banding, two letters received during July are copied here:

"I am in receipt of your report for the Southwestern Monuments for the fiscal year 1936, the detailed report of the Casa Grande National Monument (Louis R. Caywood, Operator), and the report of the Tumacacori National Monument, of which Mr. Louis R. Caywood is custodian.

"These reports have been examined with a great deal of interest, particularly since there are so few banding stations in the southwestern part of the country. Because of this the Biological Survey, naturally looks to the stations established at Southwestern Monuments to produce some information of more than ordinary interest. An example of this is already apparent in the work that has been done with the Gambel Sparrow and we must compliment you upon the very high percentage of return records you have obtained for this species. In connection with this bird it is worth while to comment that a closely related eastern species, the White-throated Sparrow, which has been banded literally by the thousands, yields very few return records, particularly at stations located along the migration route. At a few stations on its wintering grounds some return records have been obtained but one of our stations located a short distance north of Chicago has banded possibly 14,000 White-throated Sparrows and has never yet recaptured one of its own banded birds.

"Please extend to the various assistants who have aided in this work the appreciation of the Biological Survey for their efforts and our hopes that they will continue to enjoy the work and that the stations may be continued in operation and their activities extended."(F.C.Lincoln, USBBS)

BRANCH OF EDUCATION (CONT.)

"We have received copy of your mimeographed list of bird banding totals for the fiscal year 1936.

"We desire to thank you and express the belief that this record is most impressive. Aside from the direct results to be obtained from this study, the data will be valuable for a list of the birds of the national monuments which is on the agenda of the Wildlife Division for future compilation. If a copy has not been sent to the Wildlife Division, San Francisco, and an extra is available, it would be appreciated if the records of that office could be made more complete.

"During a recent talk with Ansel Hall it was remarked that he has on hand a number of banding traps that he would like to place in use. This is referred to you in the event that you could use more than are already on hand.

Sincerely yours,
VICTOR H. CAHALANE, Acting Chief,
Wildlife Division,"

Visitor Figures:

As nearly as we can check up, we had 30,110 visitors in July at the eighteen monuments reporting. If we could get a check on the others it would not change that total very much.

Eleven thousand and eleven of them went on guided field trips, taking two thousand one hundred field trips, making an average of 5.2 persons per trip. The average field trip lasted 41 minutes, as nearly as we can get the figures.

Six thousand and eight of the visitors attended eleven hundred and twenty-nine museum talks. These museum parties averaged 5.3 persons each and the talks averaged 21.3 minutes each.

Turn these figures over in your mind a moment and you will see that we gave a highly personal service and a lot of it. With less than six persons in your party you can reach the individual and if the party stays forty-one minutes in the field or twenty-one minutes in the museum, you will have time to give that individual some knowledge of your place.

The trouble is that we did not reach a higher number of our visitors. The total travel was 30,110 and we made 17,019 contacts, or 56.5%. The greater part of the answer is, of course, lack of personnel. The remainder of those visitors did not refuse the service, for one reason or another they just never had the chance to get it. And the condition is really worse than the above percentage would indicate, because in those 17,019 contacts there are a lot of double-contacts on the same visitor. He takes a field trip and he goes into a museum and you have a double-contact on the same visitor.

STATISTICAL SUMMARY OF EDUCATIONAL CONTRACTS FOR JULY, 1936

SOUTHWESTERN NATIONAL INSTITUTES -

INSTITUTES	EMPLOYEES	PERIOD	GUIDED TRIPS			MUSEUM LECTURES			OUTSIDE LECTURES			TOTAL CONTRACTS	TOTAL TRAVEL	
			NO.	MTS.	TIME	NO.	MTS.	TIME	NO.	MTS.	TIME			
Arches	2		551	2023	12015	6.156	2280	1956	4730	6.9	16.8	6	66	
Aztec			2538	220	1253	5.769.3								3979
Bandelier	1		16	50	5840	3.1840								1258
De Chelly	1													50
Capulin	1		232	1133	6911	4.889.7203	1058	5103	5.2	25.1	4	20		2500
Casa Grande	1		76	329	3372	4.377	64	255	1370	3.9	21			2191
Chaco	1		13	127	2520	7.0140								584
Chiricahua	1		77	373	4328	4.2	56							127
El Ferro	1													1017
El Tiro	1		68	291	2950	4.1	43							373
Gran Quivira	1													415
Hovenweep	1													281
Montezuma	2		226	1173	9904	5.2	44	109	1155	4204	5.1	22		281
Nat. Bridges	11													2333
Navajo	11		29	122	6190	4.2173								122
Pipe Spring	1		13	96	365	5.3	43							133
Rainbow														96
Saguaro														406
Sunset														
Tonto	1		42	157	3190	3.7	21	62	232	1310	3.7	21		1177
Thunderbolt	2		133	755	5093	2.4	36							389
Walnut	1		252	973	3212	4.1	22	234	1056	6663	4.5	28.4		289
White Sands	2		340	2028	1035	3.9	3	97	296	752	3.0	7.7		755
Wupatki	1		37	123	1930	3.4	33							918
Yucca House														2029
Headquarters														2324
TOTALS			2100	11011	66232	5.2	41	1129	6003	2135	5.3	215	10	128
														321
														17,019
														30,110

VISITOR FIGURES (CONT.)

Out of the 30,110 visitors we took 11,011 on guided trips, or 36.5% of the total, and we took 6,008 of them, or a little less than one in five, through museums. A little more than a third of them can have field trips and a little less than a fifth can have museum talks.

We would be foolish, in the face of these figures, to put on an advertising campaign and try to increase the total number of visitors at the monuments in our district. What we need is less visitors or more personnel in order to handle the problems that we now have, and not more visitors with the personnel we now have; that can only mean another flock of problems and a lot of poor service to the visitors.

Comments:

The table says that Paul Beaubien was the busiest man in the southwest last month when it comes to handling visitors. Single handed he met 2,029 of the 2,384 visitors who went to his monument.

Lest you get the idea that he handled these visitors in large groups, thus making it easy for him, I might point out that his average party on guided trips was 4.1 and his average party in the room in his quarters which we call the "museum" was 4.5. If you have been on a lone post yourself you can read between the lines of these figures and see the number of meals Paul missed and the other number where the food was cold because it was too late and would take too much time to cook something. Also you would know something of the number of times he rolled out early to catch the idiot who always starts in the gray dawn in the morning and is quite surprised that your lone man is not on duty at six, a.m. And you would know of the times he talked until eight or nine or ten o'clock with his last parties, many of whom thought they were doing him a favor by staying with him and preventing him from getting so dreadfully lonesome out there in the woods all by himself! His average time was good too; twenty-two minutes on the trail and twenty-eight minutes in the museum. Try to talk straight along about any subject for twenty-eight minutes and make it interesting enough that four or five people will stand and listen to you during that time!

You will understand that the trail and the museum at Walnut Canyon are more than a half mile apart. This means that only rarely can Paul show the ruins and the museum to the same party. When he is out at the point taking care of the trail, the people he shows around the trail cannot get into the museum and vice versa. This means that we could just about double our service at Walnut with a second man for then they could divide the job and the visitor could get full service.

The Montezuma Castle figures look funny. It is hard to believe that more parties and more people climbed those ladders and went into the Castle than walked into the museum.

As might be expected, the fellows in the back country can show the

VISITOR FIGURES (CONT.)

longest visitor stay. People go there on a special trip to see the monument and are willing to stay long enough to learn something about it. Also, the back country monuments have their exhibits pretty well scattered and it takes time to cover the ground to see them. On the other hand, the visitor drops in at Aztec or Tumacacori or Casa Grande on his way somewhere else. The monument isn't the end and aim of his day's trip and he doesn't want to spend too much time there; he wants to be on his way. Also the compactness of these monuments lends itself to a much quicker trip.

CLOSING

It has been another good month among the Southwestern Monuments and we feel like it is a pretty good world after all.

The weather has been favorable for travel over the district in general, as you have seen from the Condensed Report and the Reports from the Men in the Field and the visitors have responded by coming out in larger numbers as you have also observed in the tables.

Business, which has been on the up-swing for many months here in the Southwest, has improved during the month and seems better now than for the past five years. As I write this our rainy season seems pretty well started over the district and it looks like any danger of a bad drought is past. In fact the rainy season in Southern Arizona opened with such a ~~wash~~ that railroads and roads are going to absorb thousands of dollars in repairs due to floods.

The office work came past the end of June, out of the old fiscal year and into the new, with an over-worked office crew but without breaking down. We hope by another month to report office changes which will reduce the overload and give us something like normal working conditions.

Customs:

I think, Chief, that among us here in the Southwest we have some of the most interesting jobs in the United States.

Where else could you drop back half a dozen centuries in this year of our Lord, 1936, and match that episode Carroll Miller reports? The Navajo must destroy the house; must kill the horse; must not touch his dead if it is possible to get a white man to handle the burial, and so on. And you notice how the boys up there took it all in the day's work; you never know in the morning what will break before night. Reminds me of one time several years ago when an old Indian came over to our camp in the Chaco and asked us to take a youngster in to Crownpoint to the hospital. It was a snake bite and they held a sing over the kid two or three days, and then, their faith weakening, turned as a last resort to

CLOSING (CONT.)

the white man's ways of doctoring and we spent a little better than half the night taking the youngster over the worst forty-five miles of road in New Mexico to the Agency. Incidentally, the doctor pulled the youngster through, too. I am also reminded of the time one of the expeditions working up there made the mistake of hauling a corpse out in the light truck they hauled the workmen to work and then had a whale of a time getting the evil spirits out of the truck so the workmen felt safe about using it afterward.

It was just a few years ago that some of our Pima Indian friends put a forty-dollar saddle and bridle and a pair of silver mounted spurs in the grave with a boy who had been to school through the eighth grade and could read and write and speak your English language. The past and the present live pretty close together down in this country.

Visitors:

I would like to call your attention to the visitor tabulations this month; especially that item of 12,406 visitors at White Sands National Monument. And we gave a few minutes of service to twenty-three hundred of them. Possibly you may reply, "So what?" In other words, you may think they can't carry the White Sands off, the wind will level out their vandalism, and so what do we need any personnel at that Monument for? From the protection standpoint I am free to admit that we do not need men at White Sands very badly, and I am not asking you to let me put the next two or three protection men we can get on our rolls at that place; we need them worse elsewhere. But when it comes to meeting visitors and giving them much wanted and much needed information, we can meet more visitors with less men at White Sands than at any other place in our district, and just as soon as we get those open holes in our protection fight plugged, I want to put some information forces at White Sands. Twelve thousand people in a month would make quite a bulge in some of these park attendance records and might cause a flurry of road and trail construction along with some lookout houses and museums and trailside structures, and would certainly cause a few more 'educational contact' men to be put on the staff, so we think it is worth while to call your attention to these twelve thousand visitors at a monument and point out that two or three Park Service men could be used to good advantage there. The proportion of one ranger per twenty thousand visitors per year would not be considered over-staffing a park, would it?

Specialists:

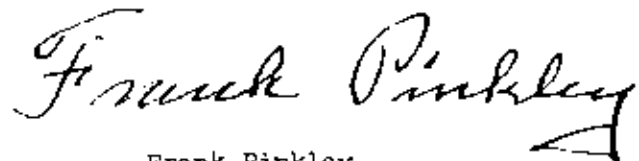
I came up with a short turn the other day when one of our field men sat down with me and seriously discussed the subject of how he was going to get time to handle his regular job with all these specialists coming in on him and expecting him to knock off and show them around. That sounds funny, but it isn't. Each of these specialists is a corking fine fellow almost without exception; each of them is right up on his toes and thinks his specialty is the most important work of the National Park Service. None of them ever stops to wonder how we ever handled visitors before their

CLOSING (CONT.)

particular department was born, because few of them ever look beyond their specialty and we have no specialists in visitors; the foundation upon which the Park Service is built.

Anyway, we think we found a solution, or at least a partial solution to the problem and that fellow is going to have more time for his real job and the specialists are going to be happy and all's well with the world. If it works out we are going to copyright it and sell district rights to the other superintendents and get rich. In other words, we are on the way to becoming a specialist in how to handle specialists.

Cordially,



Frank Pinkley,
Superintendent.

NATURAL BRIDGES

By Zeke Johnson, Custodian

(Just as we go to press comes some interesting news from Zeke)

I am very glad to report all is well with me and the monument I represent. We may have fallen down a little this month in quantity of visitors, but not in quality. First, came Deric Nusbaum and his mother; then the Forbes and the Hennings; Dr. and Mrs. Montgomery and their two daughters; Captain and Mrs. Graham of U. S. Army of San Francisco; two members of the State Road Commission; and many other very fine and interested people. I certainly enjoy talking to and hiking with people that can see beauty at every turn. It was my pleasure to hike with the Forbes and Hennings, a very interesting day for me. I never tire of hiking when people are interested and it has been my great pleasure to be able to interest most all the people.

The first part of July was very hot and dry, but during the last eight or ten days we have had several showers and several floods down both canyons, so it is cool and nice at the monument now. Grass and flowers are plentiful. I am trying to keep horses out of the canyons this season. There has been none in yet. I sowed a lot more sweet clover than last fall and it is growing nicely. I want to improve the amount of vegetation and by keeping horses out of the canyons I can do it. A few deer and mountain sheep are still grazing in the canyons, but they don't stay long.

NATURAL BRIDGES (CONT.)

Roads were never better. I have had Mr. Wilson working on trails for three weeks. He is surely a good trail builder and knows the needs of every turn. He will be there for a few days yet. We are taking out many crooks and turns and steep places.

I am hoping now that the cool weather will bring more visitors for I am always in my glory when I have some one to assist me in seeing and learning of the beauties of the Southwest.

I want to thank you for the "Broadcast" and the fine mention of me. I read every word of it.

CAPULIN MOUNTAIN

By Homer J. Farr, Custodian

(A second belated report is received just as we go to press)

We had an average of a little over one hundred visitors per day during this month. I would estimate three thousand five hundred at the Monument for July. They have come from almost every state and some foreign countries. No notables or of Royal blood that I have trace of have visited this Monument this month, altho many are in and out that I am unable to contact.

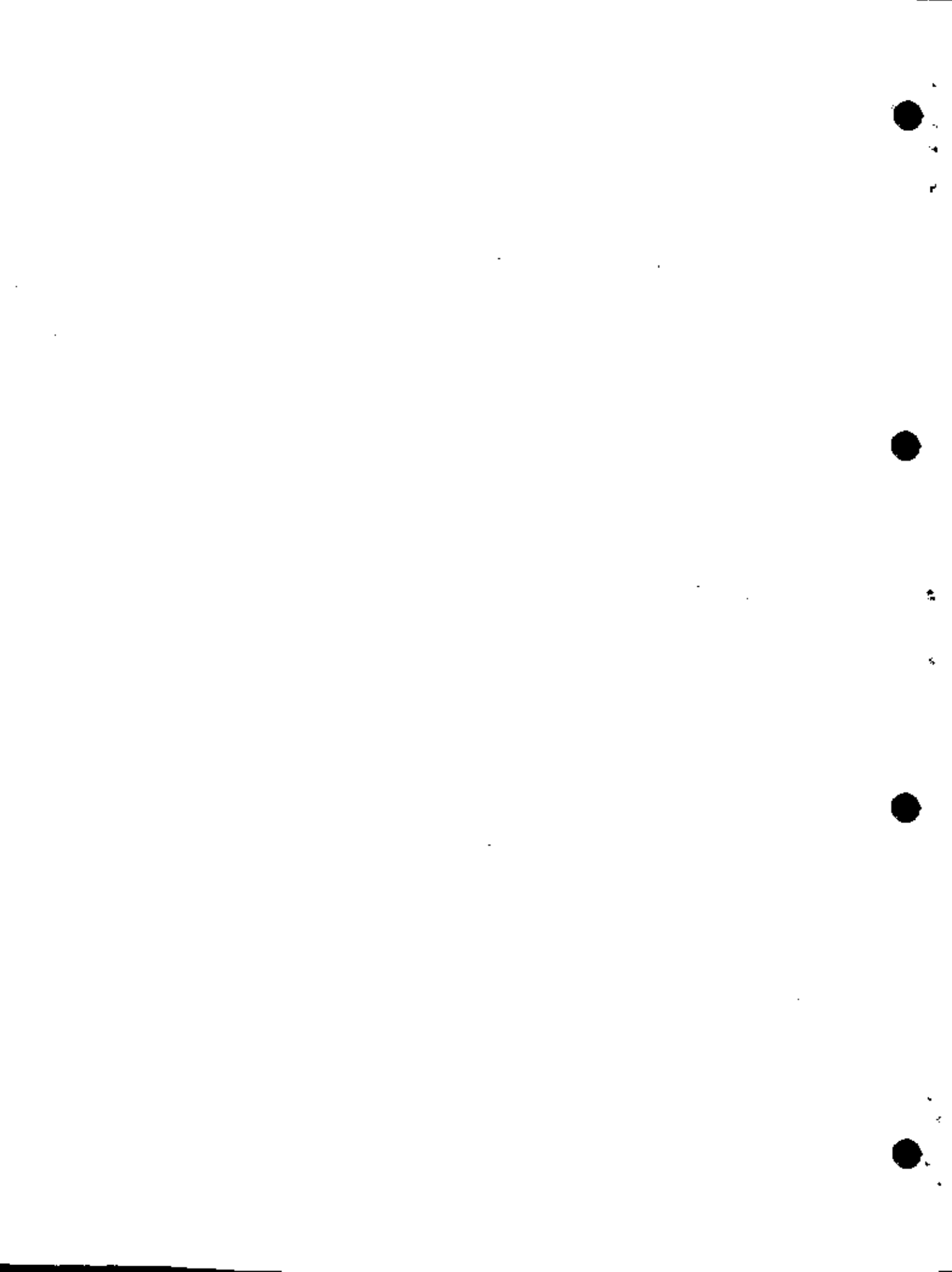
Some work has been done on the road this month, and we are working now on the road and trails and camp clean-up and repairs.

Weather has been rather warm for July, with a light shower each week during the month and grass and trees are looking fairly well. We do not have the profusion of wild flowers this spring and summer that we have some seasons.

The porcupines are doing considerable damage to the trees and if this is not soon abated I will apply for a permit to thin them out. Undoubtedly the trees are worth more to the Monument than the porkies and we can leave a few of these just in case some tourist desires to see one or make a scat out of one.

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ASMA MONTHLY REPORT



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GEOLOGY OF NAVAJO NATIONAL MONUMENT

By Vincent W. Vandiver, Reg. Geologist

INTRODUCTION

The purpose of my trip to the Navajo National Monument was to ascertain the geological features in the vicinity of the ruins in order to prepare a formal report on the area. The Monument was reserved on the basis of the archeological interest. It is considered important however that the Park Service staff be informed on the geological aspects since numerous visitors ask to be advised on these questions and since such features have had a direct bearing on the presence of the Pueblo cliff dwellers in the area.

LOCATION

Navajo National Monument is situated in the northwestern part of the Navajo Indian Reservation, in northeastern Arizona. It is composed of three units, - Betatakin Ruin, Koet Seel Ruin and Inscription House Ruin. These areas comprise a total of 360 acres and were reserved by the Government in 1909 and 1912 as a means of preservation of some of the most important remains of Pueblo cliff-dwellings thus far discovered. The maximum distance between the three units of the Monument is about 20 miles although this distance by trail or road due to the necessity of circuitous routes is much farther.

Betatakin Ruins and Koet Seel Ruins may be approached from the southwest from Shonto and from the east via Kayenta. The road leads to the top of the mesa above Betatakin and a trail for horse trips has been constructed into the canyon, distance of about a mile, to this point. A rough horse trail is available to Koet Seel from Betatakin which is approximately eight miles in length. The route to Inscription House Ruin turns north along the Rainbow Natural Bridge road about midway between Tuba City and Kayenta. Travel may then be made by car westward for a distance of about two miles from the Inscription House trading Post at which point the rim of Navajo Canyon is reached. A horse trail has been constructed into the canyon and the ruins are located about four miles distant from the rim.

Mr. John Wetherill of Kayenta, Arizona, is custodian for the Monument. Mr. Milton Wetherill is the acting ranger in charge and is stationed at the Betatakin Ruin.

CLIMATE

The climate of this section of the Navajo country is arid. The rainfall average for eleven years to 1927 at Kayenta, with an elevation of 5,800 feet, amounted to 8.80 inches per year. The minimum temperature

GEOLOGY OF NAVAJO NATIONAL MONUMENT (CONT.)

during this period was -18° F. with a maximum of 104° F. The average annual range at this point is between -8° F. and 101° F.

HISTORY

There are over three hundred cliff-dwelling ruins in the Tsegie Canyon drainage system north of Marsh Pass and while I have visited only a few of them, besides those included in the Monument, it is understood that they are all constructed in alcoves of the Navajo sandstone. There are times when a geologist may map outcrop of a formation from the surface vegetation and here from the association of the number of ruins with the Navajo formation it would seem almost possible to use this criterion.

Betatakin

This ruin is located in a magnificent arch of Navajo sandstone, on the west side of Tsegie Canyon, about one and one-half miles below the junction with Dogoszhe Beco Canyon. Betatakin was so named from the Navajos which means "Side Hill House." The enormous archway in which the cliff-dwellings were constructed is 425 feet in height to the crown, has a span of 370 feet, and reaches a maximum depth of 155 feet. It is difficult to realize the proportions of the arch or window until one has stood in its recesses and looked outward across the canyon. The great Rainbow Natural Bridge could be placed inside of the archway with room to spare. The dwellings consist of some 135 rooms and they rank fourth in size of those discovered thus far. From tree ring data it has been discovered that the ruins were inhabited from 1242 to 1277 A. D. One of the best springs in the country flows out of the sandstone cliff at the base of the arch with a flow of one and one-half gallons per minute. Betatakin was first known in 1907. In 1909 Mr. John Wetherill conducted Professor Byron Cummings to the site just prior to the First Rainbow Bridge expedition. In 1917 Mr. Neil Judd cleaned and repaired certain portions of the Betatakin ruins.

Keet Seel

This ruin derived its name from the Navajo term Keet Seel or "Broken Pottery" and it is located in the canyon of the same name, some eight miles by trail above the Betatakin ruins. It contains 152 rooms and is the second largest Pueblo cliff-dwelling known and ranks second to the largest ruins located at Mesa Verde National Park. Discovery was made by Richard Wetherill in 1894 who was accompanied by Mr. Charles Mason. They revisited the site in 1897. Some restoration and cleaning was carried on with CWA funds in 1934. The dwellings are indeed spectacular and one would not need to be an archeologist to enjoy spending considerable time at the site. They are also located in a huge archway in the Navajo sandstone. Slabs of Kayenta sandstone were carried from some distance below in Keet Seel Canyon for certain parts of their

GEOLOGY OF NAVAJO NATIONAL MONUMENT (CONT.)

construction. The site was inhabited by Pueblos from 1116 to 1284 A.D. and it is considered that these peoples together with those of Betatakin migrated to Canyon del Muerto (Canyon de Chelly) because of drought conditions.

Inscription House

These ruins, located in Navajo Canyon, were named from a dim carving on the wall which has been interpreted to read "Carlos Arnais 1661". A party headed by Professor Byron Cummings discovered the ruins and the inscription several years ago. The dwellings are located more than 150 feet up on the side of a cliff of Navajo sandstone and the inhabitants were well protected. A rather large cave is present on one side. Some protection must have been desirable as other sites might have been selected which would have been more accessible. Occupation was during the Pueblo III interval. Some water is in evidence in the stream bed of the canyon which is probably fed by springs. No doubt some water could be developed in the canyon from seeps.

Besides the above mentioned ruins which have been included in the Navajo National Monument there are many others of importance in this area some of which are Swallows Nest, Rope House, Platform House, Bubbling Spring, Turkey Cave, Turkey House, Ladder House, Bat Woman, Twin Caves, Horn Basket and Spruce Tree House. They contain from 20 to 30 rooms.

GEOLOGY

The three units of the Navajo National Monument are all located in the lower part of the Navajo sandstone formation. This massive wind blown deposit outcrops over wide areas to the northwest of Black Mesa and forms the uppermost member of the Glen Canyon group, generally recognized to be Jurassic in age. As yet no fossils have been found in the Navajo sandstone to definitely establish its age so that it should be kept in mind that this classification is tentative. The sedimentary rocks involved in the three units of the Monument and vicinity are composed of Pleistocene or Recent Lake Beds; Navajo sandstone, Kayenta formation, and Wingate sandstone of the Glen Canyon group, Jurassic (?) in age; and the Chinle formation of the Upper Triassic. A stratigraphic section indicating additional details of the above mentioned formations is included on page following.

PLEISTOCENE TO RECENT

In recent years, possibly not more than 25 years ago, Marsh Pass as well as Tsegie ("Lakes in the Canyon") Canyon contained swamps and lakes which have since been drained by a deep arroyo. Overgrazing is generally conceived as being responsible for this now erosion cycle. There is much evidence of an extensive series of lakes in both Tsegie

STRATIGRAPHIC SECTION, NAVAJO NATIONAL MONUMENT

AGE	FORMATION	THICKNESS (FEET)		CHARACTER OF ROCKS	
		REGIONAL	LOCAL		
RECENT TO PLEISTOCENE	LAKE BEDS		0 TO 60	Sands and gravels deposited in an old lake bed or series of lake beds which once occupied Tsegie Canyon. Several different periods may be recognized. Plant remains and several varieties of fresh water shells are present.	
JURASSIC (?)	GLEN CANYON GROUP	NAVAJO SANDSTONES	400 to 1100	900	Massive buff to grey sandstone, with spectacular cross-bedding and well developed jointing. contains local limestone lenses. Weathers various shades to brown and red. Prominent cliff maker. No determinable fossils have been discovered. Of a total of over 300 ruins in Tsegie Canyon drainage system all are in this formation. The Navajo Monument ruins occur near the base. Widespread tangential cross-bedding has made possible the huge development of arches, alcoves and caves.
		KAYENTA FORMATION	0 to 225	0 to 225	Uniformly bedded, red to buff sandstone, with interbedded shale. Weathers a grey vermilion. More slope forming than Navajo sandstone. No fossils have been found although dinosaur tracks have been located to the north of this area.
		WINGATE SANDSTONE	30 to 450	150 to 250	Buff cross-bedded sandstone which forms vertical cliffs. Cross-bedding not so highly developed perhaps as in the Navajo sandstone. Weathers deep red to black. Unfossiliferous although dinosaur tracks reported.
UPPER TRIASSIC	CHINLE FORMATION	0 to 1182	0 to 70	Variegated shale which contains silicified wood. Exposed in the lower parts of Tsegie Canyon. Supplies much of the paint in the Painted Desert area.	

GEOLOGY OF NAVAJO NATIONAL MONUMENT (CONT.)

and Keet Seel Canyons. Sands, gravels and clays have been deposited in regular beds up to 60 feet or more in thickness. The trail leading from Betatakin to Keet Seel shows a remarkable development of this formation. The remains of plants and pollen together with the presence of fresh water shells buried in these beds has led geologists to believe that lakes were depositing their sediments from the Pleistocene to Recent times. Several different stages of development or cycles may be observed in sections of the Lake Beds where the present drainage system has unfolded excellent exposures. These beds usually cover the Wingate sandstone in the lower portions of the canyon although in some instances it is the Chinle formation that is obscured.

JURASSIC (?) - GLEN CANYON GROUP

Navajo Sandstone

The uppermost member of the Glen Canyon Group in this area is the Navajo sandstone formation. This formation contains the three units of Navajo National Monument and it is stated that there are some 300 other cliff-dwellings in the Tsegi Canyon drainage system which are also found in the Navajo. A superb display of cross-bedding with tangential planes a conspicuous feature and the almost total lack of horizontal bedding characterizes the formation. It is composed of sub-angular to rounded grains of quartz of medium size, which are rather loosely cemented by calcium carbonate. On fresh surfaces the color is buff to grey and upon weathering various shades of red and brown stand out. The coloring has not been so spectacularly applied to the Navajo in this area as in the Virgin River Canyon at Zion National Park. Box canyons and huge dome have been carved in this sandstone until passage on foot is treacherous and in many instances impossible. Rainbow Bridge and several other natural bridges in the area have been carved from the Navajo formation.

The Navajo sandstone is generally recognized to be of eolian origin. The rareness of horizontal bedding and the presence of cross-bedding on an enormous scale, together with the absence of silt and almost total absence of fossils tend to support this theory. There are thin lenses of limestone in the Navajo Monument area, especially in Navajo Canyon, indicating that at least some of the sediments were deposited by water. Efforts were made to locate fossils in these limestone lenses but no success was had. Brady (5) describes a small theropod which was discovered about two and one-half miles east of the Inscription House Lodge in the Navajo sandstone. The possible remains of a small dinosaur in this formation were found above Turkey Cave. The bones were located about 750 feet above the base of the sandstone in a sandy shale lense and it is stated by C. Camp of the University of California that they "show evidence of belonging to a different group from any dinosaur yet discovered." A few bone fragments are in evidence just below Keet Seel ruin but these are considered to be too fragmentary to serve for identification purposes. No fossils have been discovered thus far to actually determine the age of the sandstone.

GEOLOGY OF NAVAJO NATIONAL MONUMENT (CONT.)

Baker (3) states that the Navajo sandstone thickens towards the west and is believed to include all of the massive Jurassic sandstone that crops out in northern Arizona and southern Utah west of a line through Less Ferry, Arizona. He also states that the source of the sediments is not definitely known but concludes from the westward thickening of the formation that the source presumably lay in this direction.

Gregory (1) describes the factors involved in the formation of the arches and alcoves in which the cliff-dweller constructed his home in excellent fashion and the following is quoted from his paper, - "The sandstone cliffs in this region are beautifully sculptured; buttresses and recesses are common, overhanging walls are characteristic, and the wide open mouths of niches and caves perched high on the canyon walls are conspicuous. These cavities, protected from the rain, from the glaring heat of the sun, and from suffocating sandstorms, were widely utilized by the ancient inhabitants as building sites - rock shelters or cavate dwellings, as the terms are used by the archeologists. The structure of these beds is favorable for the production of rock shelters. The rock composing them is porous, elaborately cross-bedded, and traversed by joint planes set far apart. The curved laminae of the cross-bedded strata, 1 inch to several feet thick, are held together by weak cement that is easily removed by percolating water. Slight undermining along zones of the more impervious rock permits the overlying laminae to fall in response to gravity. They drop to the floor as a unit or in separate slabs; the crushed fragments, with cement already removed from the spherical grains, rapidly disintegrate and make their way to the mouth of the cave. As the process continues shell after shell is removed and the arched roof cave is sunk farther and farther into the face of the cliff, until building sites 200 to 3,000 square feet in area are prepared for the cliff-dweller. All stages of the work are represented. In some caves shells of partly detached rock bridge the entrance; in others blocks on the point of falling extend downward from the roof, and the floor is piled high with fragments that crumble under the blow of the hammer; still others are free of debris, and the rock of the roof and sides is firm. The work of ground water in forming these rock shelters is evident. Some of the caves are dry or streaked with moist alkali 'bloom'; in others water oozes continuously from the wall over a wide area marked by moss and ferns; many caves contain perennial springs whose outlet is definitely localized. The conditions that permit the formation of rock shelters in massive beds of sandstone--namely, tangential cross-bedding and porosity in rock of uniform composition--also favor the production of windows and natural bridges."

Kayenta Formation

The Kayenta formation in the vicinity of Navajo National Monument varies from 0 to 125 feet thick whereas regionally it is almost twice this thickness. It is uniform to irregularly bedded and consists mainly of sandstone with some interbedded shale and in some instances limestone and conglomerate. The character of the bedding is the main criterion

for distinguishing it from the massive cross-bedded sandstones above and below. There are cross-bedded sandstones in the Kayenta however and for this reason it is difficult at times to draw the contact with certainty. Since no fossils of significance have been collected from the Kayenta it has been the general practice to include all of these sediments which show distinct bedding within the limits of this formation. At several localities dinosaur tracks have been found but the nearest identification that has been made is that they are not older than the Triassic. Colors range from purplish red to buff and upon weathering the beds are greyish purple to reddish brown. Generally the Kayenta is darker than the overlying Navajo sandstones. The name Kayenta has recently been adopted by the U. S. Geological Survey to replace the name Todilto formation. The type locality for the former is about one mile north of Kayenta, Arizona, and it is tentatively classified as Jurassic (?). Outcrops of the Kayenta may be seen just below the Botatakin ruins and along the trail to Keet Seel ruins. The formation lenses out in the vicinity of Keet Seel and apparently the slabs of sandstone used in the construction of part of the dwellings at this site were carried a mile or more from the canyon below. These beds were laid down in fresh water by shifting streams.

Wingate Sandstone

The Wingate is a buff colored highly cross-bedded sandstone with rare limestone lenses and local conglomerates near the base. It has many of the characteristics of the Navajo sandstone. On weathering the Wingate acquires darker shades of red to tones almost black. It is massive forming vertical cliffs and narrow gorges with vertical joints a prominent feature. It comprises the lower formation of the Glen Canyon group and again no fossils have been found which could be used to definitely establish the age and it is tentatively classified with the Jurassic (?) along with the Kayenta and Navajo. The uniform character of the sandstone and the highly developed cross-bedding together with almost total lack of fossils (a few dinosaur tracks have been reported) is most suggestive of eolian origin. The Wingate sandstone may be observed below Botatakin ruins and in the Tsegie and Navajo Canyons en route to Keet Seel ruin. At many points along the latter trail it is obscured by the Lake Bed deposit. Nothing below the Navajo sandstone is present in Navajo Canyon along the trail to Inscription House ruin.

Chinle Formation

The Chine is less than 100 feet thick in Tsegie Canyon along the trail to Keet Seel. In the general region it is as much as 1182 feet in thickness. It is in the main a variegated shale and can easily be distinguished from the above mentioned Wingate sandstone. Fragments of silicified which are almost always in evidence in the Chine have been collected in Tsegie Canyon and reptilian bones have been reported from these beds in Tsegie Canyon in the direction of Marsh Pass. Vertebrate fossils have been found at many places which place the age of the

highly cross-bedded sandstones above and below.

Note: Two such signs needed for Betatakin area and Keet Seel trail.

III: WINGATE SANDSTONE
JURASSIC (?) AGE

The uniform texture, large scale cross-bedding and lack of fossils strongly suggest that these sandstones were deposited by the wind in the form of dunes.

IV: CHINLE FORMATION
UPPER TRIASSIC IN AGE

These variegated shales contain shells, reptilian remains, and silicified wood which have established their age. They are fresh water forms and the formation is considered to be of continental origin. Ask the Ranger to show you Petrified Wood from these beds.

Note: One sign needed to be placed along the Keel Seel trail.

V: LAKE BEDS
PLEISTOCENE TO RECENT IN AGE

Sands, gravels and clays deposited in old lake beds which once occupied this valley. Plant remains and fresh water shells are found in abundance and the Ranger will point these out to you if you wish.

Note: One sign required to be posted along the Keet Seel trail.

CONCLUSIONS

Navajo National Monument is a most interesting area. While I am not familiar with the fundamental archeological factors the ruins were just as spectacular to me as some of those contained at Mesa Verde National Park. It is surprising that so few people living in northern Arizona know of the importance and inspirational character of this Monument. The Park Service is indeed fortunate in having Milton Wetherill on duty as Acting Ranger at Betatakin. He was most helpful to me during my recent trip and is greatly interested in all of the different angles of the Monument. He has made a study of the plants and is now working on the birds and animals.

GEOLOGY OF NAVAJO NATIONAL MONUMENT (CONT.)

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CHACO CANYON RODENT CONTROL

By A. E. Borell, District Wildlife Technician.

At the request of the Soil Conservation Service and under authorization from the Director of the National Park Service, I undertook the work of controlling rodents in certain portions of Chaco Canyon National Monument.

PURPOSES

Erosion is very serious at Chaco Canyon and several ruins are in danger of being undermined and washed away by floods. During the past year the Soil Conservation Service has constructed a number of dikes in an effort to spread flood waters and check erosion. Representatives of the Soil Conservation Service felt that rodents living in the vicinity would burrow into the dikes and carry away the seed which is to be planted in order to vegetate the levees. On March 12 and 13 I went over the area with Agronomist H. E. Coddington, Biologist L. V. Compton and Project Superintendent L. F. McKinney of the Soil Conservation Service and Custodian T. C. Miller. Conferences were also held with Associate District Manager W. G. McGinnies, Engineer Clifford and Regional Biologist E. D. Eaton of the Soil Conservation Service, and extent and methods of control were agreed upon. The Soil Conservation Service loaned men to assist with the work and cooperated in every way possible.

METHODS

The work was carried on with a "Karbo-Killer" pump. (Using carbon bisulphide) and traps. Although much of the soil was sandy and comparatively dry, the Karbo-Killer worked satisfactorily but it was evident that the gas would have been more efficient if the soil had been moist. We found that in dry sandy soil it took from 12 to 20 strokes of the pump for single burrows and from 20 to 60 strokes in mounds with several openings. Even 60 to 80 strokes were not always effective in the large mounds of banner-tailed kangaroo rats. For these No. 0 steel traps or rat traps proved to be the most effective. Experimentation showed that it took very little gas if the rodents were confined to a box or canvas bag. Under these conditions, kangaroo rats, pocket mice and white-footed mice died in less than one minute after a small amount of gas was pumped into the container.

Kangaroo rats did not take readily to rolled oats, peanut butter, bacon, or raisins which we used for bait. At this season they were feeding largely on green vegetation, the seeds of Russian thistle and other weed seeds. This being the case, we found that traps set directly across the entrances to burrows were the most effective. That is, we counted on the rodents running over the traps rather than going to them for bait. Fewer traps carefully set brought better results than large numbers of

RODENT CONTROL AT CHACO CANYON (CONT.)

traps set promiscuously.

AREA COVERED:

A total of 4,380 feet of dike was covered. Control extended 300 feet on either side of each levee and 300 feet beyond the ends of each. The 4380 feet of dike consisted of 11 separate dikes located in different parts of the monument. Three levees were located in one group and two in another. This reduced the area worked since they were less than 300 feet apart. This makes approximately 5,000,000 square feet worked. Stating it another way, the total area worked was equal to a strip 600 feet wide and almost two miles long.

LABOR AND TIME REQUIRED

Custodian Miller, Project Superintendent McKinney, Junior Biologist Dennard and myself spent a total of 29 man-days on this project. Navajo labor was used to the extent of 9 days. I worked on the project May 17 to 25, 1936, inclusive, and from June 5 to 11, 1936, inclusive, total 16 days.

EQUIPMENT AND COST

"Karbo-Killer" Pump-----	\$27.50
Carbon Bisulphide, 20 galls @ \$1.15 a gal.-----	23.00
Freight & Express on above, approximately-----	4.00
Bait for traps-----	1.00
Gasoline, approximately-----	7.50
Total-----	<u>\$63.00</u>

Approximately 350 traps were used but these were already on hand and were not purchased for this project.

SPECIES INVOLVED

1. Kangaroo Rat, Dipodomys longipes. This species was found in every area worked and usually was more numerous than any other species. Carbon bisulphide worked satisfactorily on them but many were also taken in traps.

2. Banner-tailed Kangaroo Rat, Dipodomys spectabilis bailyi. Although not so numerous as the smaller species, it was common and its larger burrows and mounds were very conspicuous. Most of these mounds were barren of vegetation and distinct trails led into various directions. Some of their mounds were 12 or more feet in diameter and had from 6 to 15 openings. In these mounds also were large chambers. We found that it took an enormous amount of gas to effectively treat these mounds. Small steel traps or rat traps were most practical.

RODENT CONTROL IN CHACO CANYON (CONT.)

3. Baird's Pocket Mouse, Perognathus l. flavus. These very small mice were common in sandy areas. Only eleven were caught in snap traps but thirty-three were taken in the Sherman Catch-em-Alive traps although we used three times as many snap traps. Most of these caught in "live-traps" were taken away from the levees and released.

4. Antelope Ground Squirrel, Ammospermophilus l. cinnamomeus. Common in the vicinity of rocks and along the banks of washes. Only a few occurred on the flats. Since most of their burrows were beneath rocks or in broken banks it was difficult to reach them with carbon bisulphide. They came to any kind of bait and were readily taken in rat traps.

5. Grasshopper mouse, Onychomys l. melanophrys. Fairly common in sandy areas. Since this species feeds largely on insects we made no effort to dispose of them. All that were taken in live traps were released some distance from the levees.

6. Harvest Mouse, Reithrodontomys M. aztecus. Rare, only a few taken and these were usually among the heaviest brush.

7. Canyon Mouse, Peromyscus c. auripectus. Few along the rocky ledges and about the ruins.

8. True White-footed Mouse, Peromyscus t. truei. Rare, only two were taken, these at the base of a cliff.

9. White-footed Mouse, Peromyscus n. rufinus. Common in all associations but nowhere abundant.

NOTE: The above identifications are based entirely on range and field identifications. Specimens of each were preserved.

DESTRUCTION OF OTHER SPECIES:

Two canyon towhees, one black-throated sparrow and one hermit thrush were caught in traps. No other vertebrates were affected except a few lizards and snakes which may have been in the burrows which we gassed.

EFFECTIVENESS OF TRAPS AND CARBON BISULPHIDE:

After we worked out a method of procedure we had good results. We found that the most efficient method was to first go over the area with the Karbo-Killer pump, then work the area a day or two later with traps. It was necessary to use traps in order to get the rodents living under rocks, along steep banks, and in heavy brush where we could not use gas. Tracks and fresh workings would tell us where rodents were still active if we waited a day or two after gassing before using traps. To make a thorough job we found it desirable to go over each area a third time with either traps or carbon bisulphide. I estimate that from 80 to 85 per cent

RODENT CONTROL AT CHACO CANYON (CONT.)

of all rodents were removed in areas which we worked twice and from 90 to 95 per cent in areas which we covered three times.

We found that the large banner-tailed kangaroo rats came to bait more readily and were more easily trapped than the smaller species. We also found that it took so much gas to be effective in the large dens of this species that traps were more practical.

GENERAL COMMENTS AND CONCLUSIONS

Project Superintendent McKinney and Custodian Miller agreed that our control was sufficiently thorough and that there weren't enough rodents left to affect re-vegetation or to damage the new levees. A little follow-up work may be necessary until the levees are settled and re-vegetated.

I am convinced that traps and carbon bisulphide provide a practical method of control on limited areas.

Although the expense is greater and more time is required, I believe that this method is more effective than poison grain, at least at certain times of the year. As stated above we found that kangaroo rats, at this season, were feeding on green vegetation, seeds of Russian thistle and other weed seeds and paid little attention to rolled oats. This being the case I believe that poisoned oats would not have brought the desired reduction among kangaroo rats which are the rodents which we were most concerned about.

I am also convinced that the abundance of rodents in Chaco Canyon is largely the result of overgrazing. Now the area is fenced and vegetation is coming back rapidly. I believe that there will be a noticeable decrease in rodents during the next few years as scattered weeds and brush are replaced by grass.

Thirty-six of the mammals and three of the birds taken in traps during the control work were prepared as study skins. All birds, reptiles, and other mammals observed were recorded.

AMERICAN INSCRIPTIONS

By Evon Z. Vogt, Jr.

On the north face of El Morro, one reads the following inscription: "Lt. J. H. Simpson USA and R. H. Kern, Artist, visited and copied these inscriptions September 17th, 18th, 1849." A translation card nearby states that Lt. Simpson and Kern were the first Americans to visit El Morro and bring it to the attention of the public. It is true that they were the first men to bring the inscriptions to light, but they were not

EARLY ANGLO-AMERICAN VISITORS AT EL MORRO (CONT.)

the first Americans to see El Morro.

The Navajo trader, Mr. Lewis, who guided Simpson and Kern to El Morro must have been there before September, 1849, and over 13 years before that time some unknown and forgotten American traveled the old trail by El Morro, for Simpson and Kern found the following characters carved on the south face of the Rock near the Oñate inscription:

O. R.
Mch 19th, 1836.

Who was this man O. R.? Was he a Navajo trader, a soldier, or an explorer? Was he traveling alone through the wilderness? What hardships and narrow escapes did he experience? Quicon sabe? One can imagine a great number of things. Too bad he did not leave his whole name and record of his journey.

Until just recently we have thought that those initials and date had been obliterated by a century of wind and rain. Then on July 19, 1936, just 100 years and 4 months after they were put on, the initials were rediscovered. They have been defaced by some modern vandal to such an extent that one can only make out traces of the O. R., traces of Mch 19th, but the 1836 is still quite plain.

Simpson and Kern also left an inscription on the south face of the cliff which reads as follows:

Lt. J. H. Simpson USA
&
R. H. Kern, Artist
September 17th & 18th, 1849.

Not far away is the name: W. Bird
1849.

Bird was Simpson's orderly.

There seems to be no 1850 date on the Rock but in 1851 the Sitgreaves Expedition visited El Morro. Kern was along and left his name on the cliff in two places as he did before. On the north side near his 1849 inscription he cared:

R.H. Kern
Aug. 29
1851

His name is also on the cliff south of the Ranger's cabin along with Lt. Sitgreaves and Dr. Woodhouse. They are all together and are in the following order:

L. Sitgreaves USA
Aug. 30, 1851

Dr. S. W. Woodhouse
Aug. 30th, 1851

R. H. Kern
1851

EARLY ANGLO-AMERICAN VISITORS AT EL MORRO (CONT.)

After 1851 there were many Americans traveling the first highway across New Mexico. In 1850 the first emigrant train passed en route to California. There is a name on the cliff for almost every year until about 1922 when the ongraving of names on the Monument had to be stopped.

THE DEATH OF R. H. KERN

R. H. Kern who visited El Morro first in 1849 and again in 1851 with military expeditions met a tragic death in the Gunnison Massacre in Utah in 1854. The following story of his death was given me by Charles Kelly of Salt Lake City.

In 1854 the Gunnison Expedition under command of Lt. Gunnison entered Utah and went down into the central part of the state. There they encamped one night in a small willow patch along the Gunnison River. Every member of the party slept in a group under the willows except two men who rolled out their beds in another patch of willows a hundred yards away. During the night their camp was surrounded by a party of hostile Pavant Indians. The first one to get up in the morning was the cook who was a bald-headed man. As soon as his bald head shone above the tops of the willows, he was filled full of arrows. He looked like a porcupine when the Indians finished with him! The terrified shouts of the cook awoke the other members of the party who jumped up and were all filled with arrows except the two who slept in the other willow patch. These men ran in opposite directions. Each thought that he was sole survivor of the massacre until they later met at a fort miles away.

R. H. Kern, artist for the party, was one of the men who jumped up to see what was going on when the cook shouted!

Lt. J.H. Simpson USA & R.H. Kern Artist,
visited and copied these inscriptions,
September 17th / 18th 1849.
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(Continued from November, 1935, Monthly Report (Supplement)).

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RUMINATIONS

The Southwestern Monuments have been evolving for some sixteen or eighteen years now and two or three matters have arisen in the last month to make me run back over that evolution.

The idea did not spring up overnight. No group sat down around a table and said: "Go to! We will now have a Southwestern Monuments District and it shall be thus and so big and it shall have a Superintendent and an Assistant Superintendent and three office clerks and two stenographers and four technicians, all in a special set of offices, far removed from a national monument, and they shall constitute the Southwestern Monuments Headquarters."

That would have been lovely, no doubt, and our evolution would have led us through a different set of mistakes than the ones we have committed. The trouble was that we had a group of monuments down here and we didn't have any men to speak of or any money to speak of or anything else to do anything with so we just started from zero, and, being at the bottom, the only way we could go was up. I had been running the Casa Grande for a good many years and when a case of vandalism a little more serious than usual occurred down at Tumacacori and a local cry for us to do something about it went in to Washington, having no men and no money, the Office wrote me to take over Tumacacori and do the best I could toward administering it. Next some vandalism at the Montezuma Castle caused another local cry to reach Washington and I had another monument on my string. Then came the Petrified Forest, and so, one by one, the string lengthened. I continued to live at Casa Grande National Monument and run it, handling these other monuments more or less as a side line with twelve-dollar a year men and practically no funds. The evolution was slow through those years but, looking back at it, I can see that we were making progress and were hatching out a new idea once in a while, and, our progress being slow, our percentage of mistakes was pretty reasonable, and the whole thing grew gradually and in response to the various needs.

Finally, when I got spread out pretty thin over a pretty large area, it was decided that we would put a helper here at Casa Grande and give me a little more time to get around to the other places. Having two men at Casa Grande National Monument naturally made that the headquarters of the Southwestern Monuments and after another two or three years it was so designated and I was called Superintendent. I am trying to show you how natural the evolution was; the work just grew and after you had been doing it a couple of years, the designation caught up with you, or the salary was raised another notch, or some notice was taken of the fact that the job had expanded.

This growth of the headquarters staff at one of the monuments instead of some place else was a most natural thing, because when two of us made up the headquarters staff we were also operating the Casa Grande National Monument; ~~it would have been nonsense to move off to some town leaving~~

RUMINATIONS (CONT.)

the Casa Grande unprotected.

So we continued to grow and finally came to the place where we could divorce the Casa Grande National Monument and Southwestern Monuments forces. In the process of evolution there was a period when monument men were used on staff work and staff men were used on monument work, depending upon peak loads, time of month, etc. That time is now past; both loads are heavy enough now to demand all the time of both crews, each on its own job. It was during that little period, however, that we got a good deal of yowling, from field and staff that we were sacrificing staff time, which ought to go to the field, to bolster up our favorite monument, Casa Grande. That phase is now past, but, looking back at it, I still think at that stage of our evolution we were doing the right thing.

Not many of you understand that Casa Grande has been for several years, and is right now, and will be for some time to come, one of the most important visitor contact station of the Southwestern Monuments. Knowing how to meet visitors is the second biggest job we have, or can have, in our work, - and we will never be perfect in the technique of it. We can handle our actual office work, the technique of records, etc., in a town in our district or at Casa Grande equally well, but I don't want any technicians or specialists we have or may have on our staff to get too far away from visitors. If anyone thinks all the reactions of visitors at our monuments are well known and can be predicted, I wish he would write his knowledge down in a book so we could promptly shoot it full of holes. We have been too busy thus far in the history of the Service building roads and structures and working out administrative problems to give enough time to the study of visitors, but that is not going to be a valid excuse for many years longer. Our mistakes, caused by our lack of information, are going to become so plain that we will have to do something about it, and I would like to have our men in the lead when it comes to making a serious study of visitors. The only way I know to handle the problem is to go where there are a lot of visitors and mix with them, study them and ask plenty of questions.

In the last nine months or so, of 10,558 field trips given to visitors by our custodians and rangers, 2,879, or 27.2%, were given at Casa Grande. Of the 60,806 visitors who took those field trips, Casa Grande had 21,290, or 35.01%.

Of the 4,478 museum lectures given by our men in that time, Casa Grande gave 1,683, or 37.5%.

Of the 27,592 visitors to whom those museum lectures were given, Casa Grande had 12,826, or 46.4%.

Of all the educational contacts made by our men during that time, amounting to 108,343, Casa Grande had 43,425, or 40%.

RUMINATIONS (CONT.)

Did you know that the men on duty at Casa Grande handle more visitors per man per month than any of our other men?

Now, since our natural evolution has developed our headquarters at one of the finest laboratories in our district for the study of visitors, why in the name of common sense should we take our headquarters away from this laboratory to a town in order to send our staff men back to this or some other monument so they can study visitors? Our work is entirely different from that of the Forest Service and while an analysis of their work puts their headquarters in towns, an analysis of our work would put our headquarters out where the visitors are. The visitor is our customer, not the man who wants to sell us cement. This latter man will find us wherever we are, and even he has no trouble when we are sitting on the end of a telegraph and telephone wire, have a daily mail delivered at the door and a transcontinental railroad three-quarters of a mile away.

These ruminations are caused in part by a recent offer or suggestion or what will you on the part of an Arizona city that we move our headquarters into its midst, and it doesn't seem to us it fits in with our line of evolution, which, while slow and halting and spotted with mistakes, seems to have fitted into our needs pretty well.

Cordially,

Frank P. ...