## THE SOUTHWESTERN MONUMENTS MONTHLY REPORT

### JANUARY, 1935.

Although the rational monuments constitute the largest numerically and most widely scattered group of the national park and monument system, their exact meaning and purpose is not always understood. order to insure the protection of places of national interest from a scientific or historic standpoint, Congress in 1906 passed a law known as the "Antiquities Act," which gave the President of the United States authority "to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of scientific interest that are situated upon lands owned or controlled by the Government of the United States to be national monuments." Now there are 67 of these national monuments. The exhibits in them run the gemut from ruined dwellings of the Indians the lived a thousand or so years ago to the historic areas of the middle nineteenth century; from trees and plants petrified -- aparantly turned to stone--millions of years ago, to magnificent groves of living trees.

By far the greater number of monuments are rich in human associations. Those in the Southwest in particular are a vest storehouse of treasures of antiquity. Research constantly brings to light new facts about the people who lived on that part of the Continent long before the footsteps of the first white man were recorded only temporarily in the shifting desert sands.

From Glimpses of our National Monuments, 1934 edition.

# DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE



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#### SOUTHWESTERN MONUMENTS

#### REPORT FOR JANUARY

#### $\underline{\mathtt{I}}\ \underline{\mathtt{N}}\ \underline{\mathtt{D}}\ \underline{\mathtt{E}}\ \underline{\mathtt{X}}$

#### SOUTHWESTERN MONUMENTS GENERAL

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Insect Control Work Procedure in Southwest What Constitutes a National Park and a Nat Statistical Aspects on Six Month Casa Gran Random Thoughts on Museum at Canyon de Che A Trip to the Tonto Cliff Dwellings Archeological Note from Bandelier "The Potsherd", A Verse	ional Monument

#### SOUTHWESTERN MONUMENT PERSONNEL.

- HEADQUARTERS Southwestern Monuments, Coolidge, Arizona. Frank Pinkley, Superintendent. Robert H. Rose, Acting Assistant Superintendent. Walter G. Attwell, Associate Engineer. Dale King, Junior Park Naturalist. Hugh M. Miller, Chief Clerk. Robert Cole, E.C.W. Clerk.
- GENERAL FIELD MEN: Harry Langley, Assistant Landscape Architect. Charles A. Richey, Junior Landscape Architect. J. B. Hamilton, Assistant Engineer. Eugene Gordon, Assistant Engineer. Andrew E. Clark, Topographer. J. H. Tovera, Assistant Engineer. J. H. Leslie, Transitman. Harry F. Brown, Ray Hitson. A. B. Pinkley, Rodmen.

#### FIELD STATIONS.

- 1. Arches ----Moab, Utah. J. J. Turnbow, Custodian.
- 2. Aztec Ruins---Aztec, New Mexico. Johnwill Faris, Custodian.
- 3. Bandelier --- Box 669, Santa Fe, New Mexico. Earl Jackson, Custodian.
- 4. Canyon de Chelly -- Chin Lee, Ariz. Robert R. Budlong, Custodian.
- 5. Capulin Mountain -- Capulin, New Mex. Homer J. Farr, Custodian.
- 6. Casa Grande--Coolidge, Arizone. Hilding F. Polmer, Custodian.
  Louis R. Caywood, Park Ranger.
- 7. Checo Canyon -- Crownpoint, New Mex. Thomas C. Miller, Custodian.
- 8. Chiricahua-No Custodian.
- 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 Mex. V. H. Smith, Custodian.
- 12. Hovenweep -- Cortez, Colorado. No Custodian.
- 13. Montezuma Castle -- Camp Verde, Arizona. Martin L. Jackson, Custodian. Frank Fish, Park Ranger.
- 14. Natural Bridges--Blanding, Utch. Zeke Johnson, Custodian.
- 15, Navajo -- Kayenta, Arizona. John Wetherill, Custodian.
- 16. Pipe Spring--Moccasin, Arizona. Leonard Heaton, Acting Custodian.
- 17. Rainbow Bridge -- No Custodian.
- 18. Saguaro -- Tucson, Arizona. No Custodian.
- 19. Sunset Crater -- Flagstaff, Arizona. J.W. Brewer in charge.
- 20. Tonto Cliff Dwellings--Roosevelt, Arizona. Charlie Steen in charge.
- 21. <u>Tumacrcori--Tucson</u>, Arizona. Box 2225. George L. Boundey, Custodian. Martin O. Evenstad, Park Ranger.
- 22. Welnut Canyon-Flagstaff, Arizona. J.W.Brewer in charge.
- 23. White Sands--Alemogordo, New Mex. Tom Charles, Custodian.
- 24. Wupatki--Flagstaff, Arizona. J. W. Brever in charge.
- 25. Yucca House--Cortez, Colorado. No Custodian.

# UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE SOUTHWESTERN MONUMENTS

Coolidge Arizona, February 1, 1935.

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

Dear Mr. Director:

The first several pages of this report will consist of a resume of activities over the whole Southwestern district.

#### SOUTHWESTERN MONUMENTS GENERAL

#### WEATHER AND TRAVEL

Old King Winter has been laying a heavy hand on the Southwestern region for the past several weeks. More rain and snow have fallen during January than for an equal length of time in the past two years. Subzero weather has prevailed in the Pipe Spring locality while conditions in northern New Mexico in the vicinity of Aztec and Chaco have not been as severe.

Stockmen have been highly pleased with the brighter outlook ahead now that really beneficial rains and snow have come. Cities and towns which have for many months depended upon imported water are now using their own water from their replenished reservoirs. The increase in waters impounded behind Roosevelt and Coolidge dams amounts to thousands of acre-feet.

Roads out to El Morro have been practically impassable for several weeks. For a day or wo at a time the roads into Bandelier have been impassable except during nights when frozen. The January 1935 travel has been some what greater than the figures for the same month of last year.

#### FIELD TRIPS

Several field trips were made to Tumacacori during the month in connection with the research and development project being pursued there. The work is progressing most satisfactorily. We are beginning to know a great deal more about where paths, and landscaping should be located. Maps of the various walls and structures revealed through excavations are being carefully prepared as the work progresses.

#### ENGINEERING ACTIVITIES

Engineering craws have been working on topographic mapping at White Sands and at Saguaro. At Tumacacori they have kept progress maps of the research project. At Chiricahua a trail was surveyed to the top of Sugarloaf Mountain. At Gran Quivira the situation relative to resuming work

on water development was reviewed. At Bandelier a general progress inspection was made on ECW activities.

Excellent progress in preparation of maps has been made during the month. Maps on the proposed headquarters and road post-construction at Chiricahua; fence at Bandelier; ruins stabilization at Wupatki; entrance road and parking area at Sunset Crater; and parking area and trail at Walnut Canyon, are among those completed by the engineers during the month.

#### CONSTRUCTION

Contract time on the Aztec Ruins Administration Building and Museum ran out during the month with some 10 days work yet to be performed. Cust-odian Faris reports that shortly after the first of February the structure will be completed.

#### ECW ACTIVITIES

From the reports of project superintendents Chase of Bundelier and Hammond at Chiricahua the following itemized progress reports have been taken:

#### Bandelier:

- 1. Completion of the fifth horse bridge across El Rito de los Frijoles, just opposite hotel entrance.
- 2. Start on compground tables with some 15 now completed.
- 3. Pouring concrete and transportation of building materials to the concessionaire's utility area. Barn wall construction started.
- 4. Trail constructed and landscaping done about Ruins "H".
- 5. Completion of stone curbing of parking area; surfacing of driveways and walks with tuff gravel is in progress.
- 6. Walls of public compground comfort station completed to vega height. Ceiling started and building will be ready soon for plumbing installation.
- Concrete work on one septic tank and footing on another done.
- 8. Planting progressing at rate of 8 large trees and many small ones daily in vicinity of Park and Army headquarters.
- 9. A crew of 15 men has chopped down and burned many beetle infested trees within working distance of the camp.

#### Chiricahua:

- 1. A gain of 1,000 feet on Sugarloaf Trail construction has been made making 2,600 feet now completed.
- 2. Work is progressing on clearing out new public campground area in Bonita Canyon. Materials have arrived for the septic tank, water and sewer lines.
- 3. Roadside cleanup among Bonita Canyon continued and considerable brush and rubbish burned. Project is well toward completion.

- 4. A cement masonry magazine for explosive supplies was completed.
- 5. Shop buildings were completed with shower bath and plumbing facilities for the shop workers.

The topographic mapping project under Mr. Clark, employed by Field Headquarters, has been progressing most satisfactorily during the month.

#### VISITING PARK SERVICE OFFICIALS

Mr. T. B. Plair, Forestry Technician of Western Division Branch of Forestry, was a headquarters visitor during the month. He dropped in to discuss his work of making type forestry maps at Chiricahua. Work of similiar nature has been done at Bandelier under Mr. Plair's supervision.

Resident Landscape Architect Harry Langley was with us part of a day toward the first of the month to discuss landscaping problems connected with ECW projects at Chiricahua.

In the index of this report will be found references to ECW work at Bandelier and at Chiricahua. Inspections, full accounts of progress, and other details of interest will be found in the progress reports of project superintendents Chase and Hammond. Assistant Engineer Gordon's report is also on ECW progress and engineering crew activities; see index.

#### MUSEUM AND EDUCATION

The usual guided field trips and museum service have been maintained during the month. A tabulation of travel as far as records are available will be of interest especially in view of severe weather that has prevailed in the northern regions.

Aztec Ruins298
Bandelier233
CapulinApprox400
Casa Grande2,327
Chaco Canyon 361

Canyon de Chelly9
(Inaccessible much of time)
Pipe Spring148
Tumacacori888
White Sands 65
(65 registered; only very small
portion of entire travel registers)
Wupatki 60

Dr. H. C. Bumpus, President of the American Association of Museums, was a visitor at several of the monuments during the latter partof January and the first week in February. During his visit at Tumacacori and at head-quarters, we received his valuable comments on the proposed exhibits scheme for the museum contemplated at that monument. Since the visit of Dr. Bumpus' party which included also Mrs. Bumpus and Mrs. Gay, extends into February, we will refer to it again next month.

I think you will see from the individual reports that follow that the boys over the district have a great deal to think about and are very busy despite the fact that the weather man frequently hangs out his sign "Road Closed to such and such monument" for a few days at a time.

#### A SHORT LOOK INTO THE FUTURE

In connection with the future C.C.C. work, we want to urge upon you that you do all in your power to get the rules and regulations in regard to spur camps relaxed a little bit. We have many, many miles of trails to build in Bandelier National Monument and it will be all straight pack-work to keep the spur camps going. We do not expect to start this until the spring weather opens up, and we would like to be relieved from the necessity of packing in lumber for floors and side walls in tents, hot water equipment for shower baths, etc. A lot of people will come into Bandelier this summer and camp with tents on the ground and not have hot water for showers and yet they will keep healthy and have a good time and pay out good money to do it. It looks like the C.C.C. boys might stand some of this rough living without injury to their health if we could shift them from the barracks to the spur camps and back about once in two weeks.

We also need to fence the west side of the Bandelier National Monument and that is going to be a spur camp job. If these jobs are to be done, and they are very important ones, we will either have to be able to hold the costs within reason or will have to have considerable more money in order to operate the camp for the fifth and sixth periods.

Also; we could do a fine job of dork in Northern Arizonalif to could get a C.C.C. camp located near Wupatki National Monument and break spur camps off it for Walnut Canyon, Sunset Crater, and Monteguma Castle National Monuments. I doubt if any of these Monuments could handle a camp by itself in a satisfactory manner but the three of them, to say nothing of the fourth, could keep a camp busy for one and probably two periods. I cannot overstate the amount of good they could do in the matter of wall stabilization alone. By all means we ought to have this camp if there is a chance to get it.

We have seen the budgettreport and consider that we have been treated pretty fairly for such times as these, but are considerably exercised to find that we are still going to have several cases of dynamite lying around loosely among the Southwestern Monuments during the coming year in the way of some priceless ruins which will be open to vandalism. Again we are going to have to stretch our men and funds to the breaking point, work men overtime, cut out vacations, and so on in order to get the greatest protection possible.

With all this we will be unable to deliver adequate protection or adequate information service at several Monuments and are going to be in danger of one of those periodical explosions which occur when visitors reach our unmanned or our undermanned Monuments and commit some vandalism.

I don't want this to sound like a complaint; we don't whine in this Service. I intend it to be a case of looking the future squarely in the eye, telling our men exactly what we have to handle and then going into the future with the fixed idea of giving everything we have, and hoping our desert Gods will be kind to us and send us a minimum amount of fool vandals for the next fiscal year.

#### REPORTS FROM THE MEN IN THE FIELD WHITE SANDS NATIONAL MONUMENT

Tom Charles, Custodian

Our new registration box at the end of the eight-mile road into the Sands is proving quite successful. On Saturday and Sunday, last, there were 65 registrations. Most of them were registered on Sunday. There were two each from Pennsylvanian, Missouri, Michigan, one from Mississippi, and three from Indiana. There were 20 from Texas and 35 from New Mexico. Twenty one of those from New Mexico were from Las Cruces and five from Alamogordo. This indicates that the home people do not register----my observation that day led me to believe that there were more Alamogordo cars passed the registration box than all others combined.

We were honored this month by a visit from Miss Horlean James, Executive' Secretary of the American Civic Association, which organization is under the presidency of Mr. F.A. Delano, uncle of President Roosevelt. The morning was pleasant. Miss James in company with Dr. H.L. Kent, president of the A and M College and chairman of the land department of the State Planning Board, and Ralph Charles, State Land Consultant, made the trip from Las Cruces in the interest of the submarginal purchase of the artesian well and lake which are near the White Sands. They visited the points of interest along the White Sands road and drove up to the turnaround at about 1 p.m., really ready for a picnic lunch which had been prepared by local White Sands enthusiasts.

A thin cloud came creeping over the sands from the southwest and in a few moments it was sprinkling. In ten minutes it was raining, in 20 minutes it was pouring down. Water came down in sheets and in a deluge. It rained for four continuous hours. We finally ate our lunch in La Luz and after the storm cleared away, Miss James and party decided to return to Las Cruces by way of El Paso. When about 20 miles from El Paso they ran into a dust strown which made driving almost impossible and the flying gravel pounded the paint off of the car. This weather of ours is like a spoiled child----it acts up when we have our distinguished company.

You may remember that a footnote in the December Report cast an aspersion on the White Sands climate. That should have come up last summer when I was carrying a thermometer back and forth to the Sands and was ready to prove that the summer evenings at the Sands were 26 degrees cobler, on an average, than they were in Alamogordo. Now that winter is here I believe that I will begin carrying that thermometer again to show that the winter days are warmer at the Sands than they are in town. There will be no "flies in the cintment" so far as weather is concerned if you will permit us to figure it our way.

We make an occasional slip, however, on other things besides the weather. Recently I had a group of children in the Sands, where the local Chamber of Commerce advertises there is "no animal or vegetable life." Suddenly, one of the children began to scream, and investigation revealed that a big goat was approaching her. The poor animal had only kindly intentions——it was nearly famished for food and water. How long it had been in the heart of these Sands, I do not know. Visitors told me they had seen it there some days before. That goat is in a six-foot corral at the Charles homestead. Now, Boss, please tell me, if you will, what is the Park Service going to do with that goat?

WHITE SANDS (CONT.)

#### REPORTS FROM THE MEN IN THE FIELD

The work program here is largely routine. We have two new trucks. The engineering crew is back on the job after being called away for a couple of weeks. The Chamber of Commerce continues to urge that the artesian well be added to the Monument. The Rotary Club presses the idea that the Three Rivers petroglyphs should be made a part of the National Perk Service. The White Sand drifted across our road this month for the first time although it has been built for nearly a year. It took only a few hours to remove it. Scarcely a day passes but we get applications from men who went work at the White Sands if end when we get an appropriation.

So we are sailing along smoothly, hoping that legislative lightning may hat in this vicinity.

And so Tom has a goat! We here at headquarters rather suspect it is Charlie Powell's goat that Tom has taken from Chiricahua as we knew he was trying to get it last summer. We suggest that Tom keep close watch on his goat——possibly it might turn red at certain seasons of the year like those lakes do when Tom waxes enthusiastic about their beauties.

#### CANYON DE CHELLY NATIONAL MONUMENT

Robert R. Budlong, Custodian

There were nine visitors to this Monument during the month. Four of these were from Keams Canyon, and merely drove to the rim of the canyon. The other five were local residents, all in one party, and were taken down the White House trail by the wife of the Custodian, he being confined to bed with an attack of "flu" at the time.

Roads leading to the Monument have been almost impassable much of the time. Continued rain during the first part of the month resulted in very muddy roads, full of deep ruts. During the latter part of the month snow and ice made roads even worse. We had a strong gale, accompanied by blinding snow flurries on the 19th, and much of the snow still remains on the ground. The temperature dropped below zero.

The canyons have been impassable for a long time, and discharge quantities of water and ice. No Soil Erosion has been dome in them for some time. A meeting of Soil Erosion officials and Indians was held at the Thunderbird Ranch on the 11th, and work is to be resumed as soon as the condition of the canyons permits it.

Mr. J.B. Hamilton attended the meeting on January 11.

We have moved again. The teacher of Home Economics arrived on the 4th of the month, and, since we were occupying the Home Economics cottage at the time, we moved. We now occupy a room in the boys' dormitory at the school. Again we are indebted to the principal of the Indian school here for living quarters. In addition to a roof over our heads in this cold weather, we have spasmodic steam heat, which is most welcome.

REPORTS FROM THE MEN IN THE FIELD TONTO NATIONAL MONUMENT

Charlie Steen, Custodian

Winter time has come, and, we hope, gone. This is not news to you, of course, but for the record's sake let me state that on the morning of January 5 I was awakened by the patter of rain on my roof. That became a very common sound during the next three weeks. The skies finally cleared last Saturday afternoon, then three days of freezing weather set in, but now everything is balmy again on the Apache Trail. During our storm period Roosevelt Lake rose considerably and I am now able to see the lake from my cabin. Jupiter Pluvius evidently felt rather proud of his efforts at making the desert blossom as the rode for he put on a special act on Saturday morning. For 15 minutes tremendous claps of thunder reverberated through the canyons, and immediately after snow began to fall.

In spite of the bad weather, which kept people off the Trail for several days, 425 visitors appeared; of these, 206 visited the lower ruins but not a single sould expressed more than slight wish to see the upper dwelling.

If, by chance, Vogt of El Morro reads this, here is some information for him. The Indians of KANKA San Domingo get their turquoise from the mines in Los Cerillos hills, south of Santa Fe. These mines are on the San Domingo reservation and produce perhaps the finest grade of turquoise in the United States.

Boss, several months ago that man Jackson up on Beaver Creek made a crack at me in the report which I let pass. When he made a second last month I decided to do something about it, so I have written a short article telling the world, and Jackson, all about the Tonto Cliff Dwellings. It looks to me as though Jack were trying to start another feud such as that which raged last summer. I hope Budlong tears into him also. (See Supplement)

About once a month I receive a letter saying that one of you expects to visit me soon, but so far no one has shown up. I have nearly forgotten what you fellows look like, which will explain any bashfullness on my part which you may notice when you do show up.

#### WUPATKI NATIONAL MONUMENT

Jimmie Brewer, in charge

Our monthly report is limited to Wupatki because the heavy snowfall has blocked the road to Sunset Crater, and, while the loop road to Walnut has been plowed, we were unable to get through to the cabin or out to the point. Our valiant attempt resulted in backing out  $1\frac{1}{2}$  miles to a suitable place to turn around.

On the way to town we passed a large band of ewes near Citadel. The sheep men waxw are grateful for range conditions. We have had three good rains, with snow on the higher levels, and the promise of spring feed is very good.

While the rain is doing well by the stock it is certainly not helping the pueblo ruin. A two-day rainfell has washed and gullied the ruin badly.

On Sunday, January 19, I had to re-adobe the roof on Room 36 and build up the walls to prevent further leaking. When the roof of Room 36 leaks, our parlor-bedroom-kitchen gets wet, you know.

The drainage from un-roofed Rooms 50 and 51 runs into the corner of Room 49 (kiva), where it had collected and seeped through until the northeast corner was undermined. To prevent further washing away of this important section of rooms built upon older walls and midden, I found it advisable to install a tile drain in the northeast corner of the kiva. The floor level of the kiva is five feet above the present ground level on the north, so continued rains would eventually wash out the entire sector.

By digging through the kiva floor to the ground level outside and installing two lengths of tile pipe and one elbow, set in cement, in the northeast corner I was able to confine the drainage and divert the flow beyond the endangered area.

After so much trouble caused by rains you can understand how gladly I took to the good information you passed along via the last Monthly Report. I refer to the adobe preservative, and am making a plea for funds to purchase and apply this material.

There was a time early in my acquaintance with Southwestern National Monuments when I mistook the Monthly Report for so much interpMonument chatter; but believe me, I can see the wisdom in it now and find inspiration and help in every edition; I regard it as a de luxe "House Organ."

In last month's report you narrate the latest episode of your local dumb-buddy. We have one here, too. About a week ago the weather was cold and clear, so he raised the east half of the hood of the pickup and expected the early morning sun to help warm the engine block and make the motor start more easily, thus taxing the battery less. The moon was bright and not a cloud in the sky, but before sunup the wind blwe in a nice little blizzard and filled the hood with snow and chilled the motor oil to frigid immobility. For the following day or two trail-building had to be carried on without the valuable assistance of the pickup. Perhaps the case should be referred to the Committee on the Safety of Custodians—or is it the Acting Committee on Acting Custodians?

Boss, did you notice the coincidence in last month's report? You were mildly riding someone's opinion about the proposed road with the overpass to Walnut Canyon and I was reporting an accident such an overpass would have avoided.

We can see increased travel from the Grand Canyon next summer because work on new Highway 89 has commenced northward from Citadel turnoff to Cameron. The new location is  $\frac{1}{4}$  mile east of the old and brings the traffic that much closer to Wupetki!

We have not had a visitor to the Monument since January 3; however our record shows 38 visitors to Wupatki since December 24. Mr. and Mrs. E.H.

Oldham of the Forest Service, Mr. Ten Broeck Williamson (CWA Project 10 archaeologist) and his bride, Dr. and Mrs. Colton, and son Farrell were our notables.

The register at Citadel contains 31 names, of which nine are duplicated at Wupatki, totaling 60 visitors to the Monument for January. I think a curve on the proportion of Citadel visitors who now come to Wupatki will be interesting; the ratio is changing greatly.

P.S. My Navajo informant tells me that with the coming of the next full moon the eagle lays "his" eggs. So what?

#### CHACO CANYON NATIONAL MONUMENT

T.C. Miller, Cust.

Following is the report of the Chaco Canyon National Monument for the months of December and January. From December 11 to January 2 the Custodian was absent from the Monument on annual leave. I had planned to return to Chaco December 26, but due to the sudden death of my father December 23 at Carlsbad, I was delayed a few days.

Mr. A.P. Springstead, who runs Chaco Trading Post, looked after the Monument in general, during my absence. I found Mr. Springstead had things running nicely when I returned.

Travel for December 361 persons entered the Monument in 119 cars. Seven states were represented.

January Report. General: The approach roads remained in good shape the first part of the month despite plenty of rain and snow. Fram January 11 to the time this report is made the approach road to the south that joins U.S. 66 at Thoreau has been almost impassable. I have spent considerable time pulling cars off of the mud, and have been pulled out once myself by the Highway Department.

The Chaco River has been strutting her stuff since January 7. A two-foot rise was recorded on that date, and it has been going strong ever since. The revetment work at Pueblo del Arroyo suffered a slight loss by washing away some more of our wall. This revetment work was put in by the CWA Project here last year.

The telephone line that is being put in by the Indian Service from Crown Point to Kimbetoh has lengthened. That line crossed the Monument about three quarters of a mile west of the headquarters area, or between the ruins of Yellov House and Casa Chiquita. The postsetters have crossed the Monument and are well on their way to Kimbetoh. If this good weather holds out we will have a telephone by February 15.

Many Indians attended a Sing here on the Monument at the hogen of Tomasito, January 9 and 10. This old Indian has lived in this vicinity for

the past 80 years. The Sing was to cure a sick daughter. Their wishes must have been granted as the daughter is now up and going strong.

Weather Maximum, 53 on the 10th. Minimum, 5 below on the 21st. Precipitation 1.24 inch of rain and melted snow was recorded for the month.

Travel 332 people entered the Monument, coming in 108 cars. Only six states were represented: Arizona, California, Colorado, New Mexico, Texas and Utah. State Road No. 55, to the north from Cube to Bernallilo, has been impassable the entire month, due to heavy snows and rain. Consequently, a big part of that travel came through the Monument and on to Thoreau where they would join U.S. 66 to Albuquerque and all points east. Since Jemuary 15 our roads have been in such poor condition the travel has turned by way of Ship-reaks rock on Highway 666 to Gallup.

Special Visitors Mr. Hugh Calking, Regional Director, and Mr. R.V. Boyle, both of the Soil Erosion Service, arrived on December 29 and departed on the 30th.

Wedding Bells in the Chaco: TEMPORARY RANGER CRIFFIN NOW PERMANENT: Miss Jean Griffen, daughter of Mr. and Mrs. Gus Griffen, and resident of the Monument for the past 14 years, was married to Mr. Chester R. Markley, Park Ranger, Mesa Verde National Park, on December 26 at the home of the bride. The couple departed on the same date for their honeymoon down to Florida, then to Baltimore, Mo., where they will visit an aunt of the bride, Mrs. Fred Stieff, and on to Philadelphia to visit the bridegroom's parents. The Markleys will reside at Mesa Verde Park after January 26.

Miss Griffin has been a very active and interested member in the Chaco Canyon National Monument family, and for several years she has acted as Ranger. Also her contributions to our museum, consisting of several charts of pictographs were greatly appreciated. We shall miss Jean very much. We are glad her position in the Service is permanent.

CHIRICAHUA NATIONAL MONUMENT E.C.W. ACTIVITIES

H.O. Hammond, Proj. Supt.

The month of January at Chiricahua has witnessed continued progress on ECW work projects, notwithstanding cold and some snow and rainy weather.

Foreman Ed Riggs and his trail workers steadily have pushed shead with the Sugar Loaf Mountain horse trail. We bow have 2,600 feet of completed trail, with an additional 300 feet cleared shead. The gain for the month was 1,100 feet of new trail. With another month's work we hope to have this job about completed.

Work has been started on the laying out and clearing of the new Public Campground area in Bonita Canyon, Landscape Foreman Cook and Engineer Harris have their crews busy at the site which embraces about 10 acres immediately adjacent to the Bonita Canyon highway. Some materials have arrived for the

CHIRICAHUA E.C.W. (CONTINUED)

construction of the septic tank, sewer, and water lines.

Rosaside cleanup along the Bonita Canyon continued, and during the wet periods considerable accumulated brush and leaves were burned. This project is now well along toward completation.

A small cement-mesonry magazine, for the storage of the electric blasting detonators, was completed during the month at a location near the mouth of Rhyolite Canyon. The dimensions inside are 4 x 6 x 5 feet high; the door is of steel boiler plate and the roof of native pole slabs covered with composition roofing paper and a thick layer of earth.

All shop buildings have now been completed and are constructed of corrugated iron. These structures replace the former tents and flys. A shower bath with heater and water boiler, and a latrine, were added for the shop workers. Warehouse space has been made available for such materials as cement, lime, lumber, pipe, and reinforcement steel.

The new enrollment brought us some 70 new workers who are now beginning to take hold. We were as sorry to lose our old men, who had completed their length of service, as they were to leave us. We now have about 180 men available for work projects and a total of 205 enrolled.

Lieutenant Fullenwider, our former camp commander, has been transferred to the Rucker Canyon Camp and Lieutenant Machen has been assigned to replace him here. Landscape Foreman Wilbur D. Cook arrived the first of the month to assume his duties with the technical division.

Tourist visitors to the Monument during January have been at a fairly low ebb because of cold weather and several stormy periods. Official visitors have been as follows: Jan. 3, Engineers W.G. Attwell and Gene H. Gordon of the National Park Service. Dec. 7, L.A. Brisbin and Tom Bentley of the Forest Service. Jan. 15, Fred Winn, Forest Supervisor. Jan. 21, R.L. Hughes, Forest Service Engineer. Jan. 24, Assistant Engineer Gene H. Gordon.

Mr. L.F. Cook, NPS inspector, was here early in the month going over the work projects. Mr. Plair, Berkeley headquarters forestry technician, also spent several days on the Monument making type maps.

#### BANDELIER NATIONAL MONUMENT

Earl Jackson, Custodiam

<u>Visitors</u> Visitors numbered 233, coming from 2 4 states and three foreign countries, arriving in 50 cars. England, Germany, and New Zealand were represented. The six highest staes by travel were: New Mexico, 130; Colorado, 11; Illinois, 6; Minnesota and Wyoming, 5; Ohio, 4. Travel as compared with 72 visitors for January, 1934, was more than trebled.

Weather Conditions and Roads The first half of the month was very cold

and wet. Several storms started out to snow but capitulated with drenching rain mixed with snow, leaving water and mud everywhere and the roads in a deplorable condition. For ten days the road out from Santa Fe was practically impassable during daylight hours. Travel was safe only at night when the road was frozen. A week ago the road dried out enough for grader work, and it is now in good condition. The weather is clear now, and practically no snow remains below an elevation of 7,000 feet.

Special Visitors On January 4 Walt Attwell and assistant Gene Gordon arrived for a three day stay. They checked over construction progress, and Gordon checked with me on estimates for ruins stabilization, covering repair work which is needed in the event funds should be made available.

On January 20 Dr. Edgar L. Hewett, Director of the School of American Research and of the State Museum, with 20 archaeology students from the University of New Mexico, paid a visit to Bandelier. They spent a worthwhile half day in Frijoles Canyon. Dr. Hewett feels more or less of a paternal interest in Bandelier, for it was he who directed the extensive research program which took place here 25 years ago. Among development features upon which he commented favorably was the new trail system in Frijoles Canyon (a result of ECW labor).

On January 24 a very interested visitor was Mr. Henry A. Yates, Vice President of the National Union Fire Insurance Co. With his party he spent an afternoon with us, and left completely sold on Bandelier National Monument.

Improvements E.C.W. activity has progressed efficiently, despite cold weather. A considerable light epidemic of influenza laid as many as 30 workmen off at one time, but this condition lasted only a few days. The detailed construction report is submitted by Superintendent of Construction Chase, and so I shall not repeat it here.

Fires No fires this month, and little danger for some time.

Nature Notes Mr. George H. Ellis, Deputy Game Warden, delivered me 500 pounds of corn for turkey feed, gratis. Have not used and, and do not plan to unless considerable snow fells. I know the turkeys are hungry, but they will not sterve as long as the ground is exposed.

With the coming of the dull travel season here I started a card index system for the cataloguing of every known specie of bird and plant seen to occur in this reserve. Am listing common names, and technical names, with interesting facts or common uses. On plants, all uses by aborigines are being listed as they are learned. This is turning into a fascinating job, and I believe it will be a very worthy record. The worst handicap is lack of reference material, but in the sublime faith that virtue will be rewarded it is felt such material will be eventually forthcoming.

General The custodiam tookna portion of his annual leave over the Christmas holidays and betook himself on an archaeological reconnaissance to

to the coast to see and observe the life habits of the cliff dwellers of Oakland and San Francisco. As a result of this inspection, he returned considerably impressed with the culture of the Anglo-American peoples, their elevators, electric trains, ferries, etc., but was sorely troubled by the alarming speed which these people manifest in their desire to get to no particular place in a hurry. It was with relief that he returned to his own land of the peaceful cliff dwellers of long ago and to the restful tempo of a clime where the Americans still grind their corn in a metate, cook in an earthen pot, and wear shoes only when they have to. That's a great country on the west coast, no doubt of it, but an archaeologist belongs in the time-hallowed dust and lore of the countries, in a land where empire held when half of the white man's ancestors were eating their meat raw and dominating their wives.

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#### BANDELIER E.C.W. ACTIVITIES

H.B. CHASE, PROJECT SUP'T

Little work was accomplished from the time of the last report until about January 2, that being the date the second group of CCC enrollees returned from their Christmas vacation.

Today we completed the fifth Rito de Frijoles horse bridge, it wring being located directly opposite the entrance of the hotel.

Recent approval of the campground table project has offered a good project for a number of men during cold weather. We also had considerable "cutoffs", etc., from timber structures which allowed us to proceed at once with the actual table construction, and to date we have some 15 tables completed.

This month the footings have been poured and considerable building: material houled to the site of the concessionaire's utility area. Wall construction of the bern was started today.

A snowstorm on January 7 shut down all projects; the following day the entire camp was pit on group "H" ruins trail and same was completed that day with the exception of some landscape features, which were immediately carried on. All features of the group were completed january 10.

January 22 saw completion of the stone curbing of the parking area. Surfacing of driveways and walks with tuff gravel is in progress now and will be completed this month.

Walls of the public campground comfort station have been completed to viga height and a portion of the vigas in place with aspen ceiling construction started. We expect to have wall and roof completed to turn the building over to the plumbers for the "roughing-in" plumbing by the first of February.

The concrete work of one septic tank and the footing of the sceond has SOUTHWESTERN MONUMENTS 13 MONTHLY REPORT FOR JANUARY, 1935

#### BANDELIER ECW (CONTINUED)

been completed this month; removel of the forms and backfilling of the completed structure will be completed this month.

Planting has gone forward this month with an average of eight large trees per day together with a large number of small plants and shrubs. Planting development this month has been principally within the area lying between the present Park Service office and Army headquarters.

An average crew of 15 men have chopped down and burned a number of beetle infested trees located within a distance accessible of camp. This work is being carried on under the project "pest control."

This camp and work projects was visited and inspected by Engineer Welter G. Attwell in company with Assistant Engineer Gordon January 6 and 7

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#### TUMACACORI MISSION NATIONAL MONUMENT

George Boundey, Custodian

Visitors for January, 888.

We have had some rain during the month but very little real cold weather. The indications are there will be plenty of pasture for stock this spring and that the desert will be in full bloom.

The excavation going on here at Tumacacori under the supervision of Mr. Beaubien is proving to the public many things which some of them have had a tendency to doubt. Some of the old timers in Nogales have made the remark that I tell a good story if true. One of the main so-called authorities told me the other day that the excavations have proved to him beyond any doubt that we are correct in claiming Tumacacori to be an old Jesuit mission and not a recent Franciscan building. What pleases me most is that Mr. Beaubien is making these discoveries and not I.

Last week a man who claimed to be an authority on Jesuit missions and is making a study of the southwest Missions gave us for our future museum at Tumacacori an old photograph of San Xavier which he says shows the Jesuit insignia on the arches ay San Xavier and proves it to be a Jesuit and not a Franciscan mission. The lettering on the plaque is A-M-D-G, which he says means "Ad Majorium de Gloria".

(Editor(s Note: See Supplement for notes written by Mr. Beaubien on progress of excevation at Tumacacori).

#### AZTEC RUINS NATIONAL MONUMENT

Johnwill Faris, Custodian

If the balance of the year holds up like the first month of 1935, Aztec is due for a banner year. Visitors for the month total 298, which is the largest January since I have been in charge of the Monument.

Any large increase can be traced to the construction. I doubt very much if the percentage of out-of-state visitors is any greater than in an ordinary year, but when one considers the fact that about the only Federal work of any consequence in the county is right here in the Ruins, that the papers have been playing up our work a lot, and then on top of the whole thing we get some \$3,000 for museum equipment, etc., the local people begin to wonder what it is all about.

It is gratifying to witness the menner in which the public is taking all the improvements that are occurring. On the whole, they feel that it is most fitting that the government, when times are as they have been, should take the opportunity to improve and develop their natural resources. We are proud of the way we are being accepted by the public and wish to pass on this feeling to all of you that are making possible all the work and the improvements that it represents.

The number of visitors were hendled in probably less time than any like number in an long time. This is due to the fact that zero and subzero tempe eratures make our museum most disagreeable for any long stay. I believe that the average party is not spending more than about teb minutes in the museum. You know, of course, that it is almost impossible to give them a comprehensive idea of the artifacts in this time, but I do think that I have been reasonably successful in inculcating a desire for a return trip.

Other than the low temperatures (only a minus 5 up to date and only one night of that) the weather has been better than we can ordinarily expect for this time of year. Up to the middle of January all the passes with the exception of Wolf Creek were open. This year, I do think, we will find exceptional in the amount of rainfall for winter months. This is snow in the mountains, of course, but the passes were kept open. It is only natural, however, that the volume of travel is not coming this far north this season of year.

Our regular Monument routine was broken into somewhat this month by the necessity of digging a long drain ditch for the new building. It is going to be quite a blow to our meager allotment, but is just one of those things that come up and demand a solution.

The big thing at Aztec is the Museum and Administrative Building. It is beginning to take shape to the extent that we can hardly wait the time when the contractor will turn the place over to us. We had hoped that he would be able to finish within the time allowed, but it will be another two weeks before we can take over the entire work.

Mr. Gebhardt is doing a fine job of seeing the government gets all the contract states we should, and I only wish the entire staff of officials could see the product when it is completed.

Iam getting anxious to see the portion of the museum in place, and no one realizes more than yourself that it has to be good for me to want to see a part of our museum moved in.

Some of the old timers that saw the Monument as it existed for so long can hardly believe the change that is occurring. For a time I was afraid that the change was coming too fast and that the local people especially could not adapt themselves to so rapid a change. I was fearful that the improvements might cause an antagonistic attitude, but feel new that the public is adjusting themselved even faster than some of the folks within the Service, myself included:

The building will certainly be finished within the next two or three weeks, and with the Berkeley Office working with us as they are, I have definite hopes of presenting to our regular seasonal visitor a partial glimpse of the finished product. If Mrs. Rogers and myself do not do a better job of guide service this year than has heretofore been possible, It is certainly not because the Park Service has not cooperated and aided us in every way. Even though we have not the completed museum as outlined, I feel that we will be able to present for this summer as complete and modern museum and administration unit as can be found in the entire Southwest.

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#### PIPE SPRING NATIONAL MONUMENT

Leonard Heaton, Acting Cust.

Here is the report for the first month of the new year from Pipe Springs, and what a month it has been since my last report! The weather surely has played tricks on us here, giving us rain and summer warmth, making the grasses and early weeds grow----buds on the trees swelling almost to the bursting point----pussy willows comingbout in full bloom.

Then suddenly a cold west wind came on the 18th, bringing snow and sleet, continueng until the evening of the 19th. I believe we would have had 2" of snow here if no wind had come and drifted it. As it was, there was no snow in places and drifts up to three feet in placexx others.

The night of the 19th all clouds disappeared and a cold north wind knocked the Mercury down to 18 degrees below zero. As I have no accurate thermometer, the foregoing is a theoretical statement———I have adopted several things Nature has provided me with here on the Monument. The best I have is the west pond in front of the fort. If the ice forms around the edges out 12" or so, the temperature is 15 to 20 flegrees above. If it gets out three or four feet, the temperature is getting down to around zero. But when ice forms  $1\frac{1}{2}$  to two inches thick all over the pond except a place six feet by twelve feet where the water runs in and out, then we have cold registering around 20 below. That is what we had the morning of the 20th, and not until the 23rd did the ice show any marked degree of melting. Today a north chinook came and most all the ice and snow has vanished.

Our travel has not amounted to very much this month, other than local. I have had only three Utah visitors, and two from California. Total travel I estimate at 148.

I regret to have to report that some of the people that have loaned us

some of their pioneer relics are calling on me for their return, which I very much dislike to do, because there has been so much of this old pioneer furniture destroyed and lost the last few years.

We can only hope that these people will come to realize that the Monument is a permanent thing and that more people will be able to see and enjoy the workmanship of the early pioneers if the relics are placed here at Pipe Springs.

The following is a report of the construction work carried on this month. Mr. Rizell from Zion Park's engineering force with two helpers came out December 28 and staked out the east cattleguard. Since it was cold and stormy, they did not do anything for the west guard.

January 2 I started excavation for the guard with five men and one team. Making a pit 12' x 14' x 42", a total of  $43\frac{1}{2}$  yards of dirt had to be moved. The last  $1\frac{1}{2}$  feet was very dry and hard and had to be picked, but by the 5th the forms were all set and ready for cement. Because of stormy weather I waited until January 11 before pouring concrete.

Mr. Cowell and Rozell came out the afternoon of the 11th and gave me the lines for the west cattleguard, and on Jenuery 18 I started four men excavating. At 4 p.m. January 18 the work was 80% finished when the storm came which suspended operations.

If the warm weather keeps up as it is now I hope to have the cement poured by the last of the month and then have the welders come in during February so that I can get this part of our building program out of the way.

As an afterthought about the weather, if one can go by the signs, spring is not far off, as I saw today four mountain bluebirds, one killdeer, one catbird, and one robin.

January 7 and January 21st I spent away from the Monument in connection with the Boy Scouts of the Kanab district, trying to get some of them interested in qualifying for the Jamboree at Washington, D.C., in August.

In closing will say that we have wintered well so far, not much loss of livestock as yet, and looks as if we will continue receiving good weather.

#### NATURAL BRIDGES NATIONAL MONUMENT

Zeke Johnson, Custodian

Once more I will tell you that all is well with me and mine.

Our state legislature is in session here now and I am still working to get something put over to help boost the scenic wonders of San Juan. A memorial has been sent to our senator and congressmen to work for the hookup road between Mesa Verde and the southern Utah Parks. I have a fine letter

Reports from the Men in the Field

NATURAL BRIDGES (CONTINUED)

from Senator King telling me that they are all working for the hookup. I was told by the Chiarman of our state road commission, also by B.J. Finch the is Chief Engineer of federal roads for the state of Utah that the road from Blanding to the Natural Bridges had been made a National Forest project and that they were now endeavoring to finance it together with several other small projects in eastern Utah. So it looks to me that something will be done in the not very distant future.

There has been lots of precupitation and not much cold in and around the Monument---looks like San Juan would fare very well for water this coming season.

I expect to have lots of travel to the Bridges this year so I will be obliged to preare to take care of them with beds and cots. I must do that this spring if possible.

I begin to long to get back as I am tired of the city. With kind regards and best wished for all the bunch, I am as ever....

#### CAPULIN MOUNTAIN NATIONAL MONUMENT

Homer J. Farr, Custodian

January has pretty well left us and we are glad to take stock and note that we have considerable more moisture than twelve months ago. The fore part of the month gave us one inch of rain and four of snow. The ground was warm. The snow is now all gone and the everlasting southwestern wind again has begun to blow.

Some three or four hundred visitors have called to see our Monument this month and found some snow and many drifts high in the road on the Mountain, but it is all clear at present. A couple of days good work on the road have cleared all the snow fatchers and the fallen rocks.

One of the fellows from the Forest Service made us a very pleasant two day visit this month and went carefully over the dead and dying trees on our Monument. A Mr. De Leon, a very nice chap and knows his bugs. He has recommended a bestle control project for the Monument, which we hope to begin next month.

#### MONTEZUMA CASTLE NATIONAL MONUMENT

Martin Jackson, Custodian

Have the following to report for this Monument for Jenuary. Our register book shows that we have had 321 visitors which is only three more than we had in January, 1933, and 53 less than we had in January, 1934. January is tisually our worst month for weather and road conditions. This year and in 1933 it was stormy throughout the month, while January 1934 produced good weather and you noticed how the number of visitors jumped.

MODTEZUMA CASTLE (CONT.)

Cattlemen and farmers of this section are plenty tickled about so much rain and snow during the month, and it is quite natural that they would be as it is the first precipitation for two years in some parts. Some fairly high water in the streams.

The United Verde smelter at Clarkdale resumed operations on a small scale the first of the month after being closed down for almost four years. Reports have it that no new mon are being employed, so it will not mean a great deal to the unemployed of the district.

The local Dude Ranches report business as only fair for the month, but they all expect things to be much better during the next three months. So we are all set and ready for them when they arrive. Most all the guests at the nearby ranches pay us a visit during their stay, and we list some of our most enthusiastic boosters among them. The majority of these visitors are from the east and a great many of them have not paid a visit to a Southwesterh Monument before. We are conceited enough to think that we are getting the Monument over pretty well with them.

The new revetment wall along Beaver Creek had its first real test of high water during the month. Quite a lot of silt was deposited behind the wall as was to be expected, and a section of some 25 or 30 feet of the wall was undermined and settled some two or three feet. This settling was also expected and is not due in any way to faulty construction.

#### EL MORRO NATIONAL MONUMENT

E.Z Vogt, Custodian

Roads and Weather All travel to my Monument was stopped this month by the continuing downpour of moisture which has filled the ground with more water than the region has ever known.

For a few trips the maile from Remah to Atarque was proked through by horseback as the mail car was unable to buck through the firsts. No known visitors came to our Monument. Here and there the snow is broken by the track of a stealthy coyote and along the edge of the cliff wildcats have made nightly trips endeavoring to catch birds or rabbits off their guard.

The snow has melted now on south slopes, the road is drying, and one can reach Gallup from El Morro, Remah, or Zuni by starting early and making it through before the warming sun thaws out the ground,

Paul Wilkerson Mr. Wilkerson, expert knight of the cinema camera, who was to visit our Monument over a weekend in order to get movies to include in the film he was making for the Park Service, was evidently waylaid or lost in the sterms. He reached Gallup after leaving Coolidge crossing the mountains in a storm, but I have been unable to trace him from Gallup, The conclusion is that the formidable roads kept him, perhaps wisely, from undertaking a perilous journey. This was very disappointing to me as I had thought out a series of shots I was going to suggest to him which I thought

would show up the historical, archaeological and scenic values of El Morro and bring us in for some real publicity. I am hoping Mr. Wilkerson will try again this spring to penetrate the hinterland far enough to visit us and El Morro.

Governor's Inaugural Address In the first paragraph of Governor Clyde Tingley's Inrugural Address the Governor mentioned the "Paso por Aqui" (Passed By Here) phrase used by most of the old Spanish conquistadores in carving their immortal messages in the lasting stone surface of El Morro. The governor urged that the people of New Mexico during the next two years record, as did the Spanish conquerors over three centuries ago, every phase of human endeavor the indelible mark of achievement.

Coronado Anniversary Celebration The Governor is taking steps to plan the celebration of the 400th anniversary of Coronado's entry into New Mexico which will come in the year of 1940. I am pleased to note the Governor's interest in the wonderful history of New Mexico.

Runoff of Melting Snow in Reservoir The great fell of water and snow in the giant pockets above the reservoir in the Water Cove of El Morro has given us a great amount of water in our reservoir. Werm days this runoff is continuing like a waterfall.

This brings up the problem which we may have to face during the dry spell of May and June which always comes to worry the ranchmen living near our Monument. As you know they have been unable to develop their own water wells owing to poverty and the depth of water, some 300 feet. When all the surface tanks have dried up they are likely to look on our storage reservoir with insistent yearning. Last year we were able through loan of Indian Service pipe to syphon this water out to a point so they could come in their water wagons and trucks and get thewater without driving over our newly planted sod, thus starting erosion.

Query---What are you going to do about getting this water out so as to be available in case it seems advisable to permit them to haul water from El Morro? It is sad but true news that the wells started for them under FERA have not produced a gallon of water nor have the dams they were to build been effective.

I will need your help in solving this problem as we will need 200 feet of pipe or hose to bring this water but where it can be put into wagon tanks without the need of demaging the valley we made where the great arroyo formerly scarred the terrain.

Vacation in Bed While attending the conference of sheep and cattle men in Albuquerque Jamuary 13 and 14 on the Grazing Administration of the Public Demain I suddenly succumbed to the flu which had been gnawing at my morale for some weeks. I spent eight days in a hospital and dame out to the reach again on the 23rd with a profound respect for doctors, nurses and hospitals and their great need in the scheme of things. I am all well now end proud of the fact that the liquid diet reduced my belt two natches.

New Books I have secured recently two very helpful books. One, "Mammals of New Mexico", by the Department of Agriculture, and the other "Flora of Nevada and Utah", by the U.S. Herbarium. Both are most useful in informing me about things I should know in line with my duties as Custodian.

#### CASA GRANDE RUINS NATIONAL MONUMENT

Hilding Palmer, Custodian

Travel for the month of January was rather feeble until the mast part of the month when a sudden burst of travel brought the registration up and passed that of January, 1934. The early period of slow travel is accounted for by the cold and rainy weather.

For this month there were 2327 visitors which is a slight increase over 2272 for the same month last year.

All states were represented except Delaware, South Carolina, and Vermont. Arizona ranked first with 987 visitors, California second with 273 and Illinois third with 99.

Canada, Alaska, Cuba, China, Sweden, India, Belgian Congo, Philippine Islands and Ecuador were represented.

These visitors were taken through the ruins on 316 guided trips and through the museum on 283 guided trips.

The temperature range for the month was great. Maximum was 89 on the 29th, while minimum was 20 on the 21st. The greatest daily range was 51. Mean maximum was 64 while mean minimum was 35. Total precipitation was only .32 of an inch. This rain was accompanied by a hail on the 19th.

Kay Heaton, brother of Leonard Heaton of Pipe Spring National Monument, visited us to see the ruins during the month. Mr. and Mrs. T.B. Plair visited the ruins for the first time on January 6 when they passed through here on their return to San Francisco from Chiricahua. Mrs. W.H. Robinson, whose husband, Will, wrote "Under Turquoise Skies", visited is on the 10th. Harry Langley of the Landscape Division spent several hours here the last of the month. Custodian Earl Jackson of Bandelier was here January 21.

Several crews of FERA laborers have been working at the Monument recently. They have graded a road to the utility area and made a general cleanup in that vicinity. Proposed work for them will be the making of adobe bricks and landscaping of several small areas.

#### ENGINEERING REPORT

G.H. GORDON, ASSISTANT ENGINEER

Transmitted herewith will be found the monthly report covering activities of myself and Field Engineering crew for the month of January:

The first two days of the month were spent at CasaGrande National

#### ENGINEERING REPORT (CONTINUED)

Monument.

January 3 I left for Bandelier National Monument with Mr. Attwell, arriving there January 5. Examined ECW work of past year and next ECW program.

Left Bandelier January 7 for Headquarters, arriving January 9.

January 10 I made a trip to Saguaro National Monument where the Field
Party was making a survey to be used in the ECW program for that Monument.

Until January 16 I was at Headquarters, and on that date I made another trip to Saguaro National Monument.

From January 17 to 23 my time was spent at Headquarters completing plans for ECW programs. During this period the Field Crew moved the White Sands National Monument.

January 22 I left Headquarters ones field trip taking me to Tumacacori National Monument, Chiricahua National Monument, Silver City, New Mexico, White Sands National Monument, and back to Headquarters on January 28.

Jamuary 29 I went to Phoenix where I met Mr. Langley, Landscape Architect, and from there we went to Chiricahua.

January 30 we went to Nogales, Arizona, and the collowing day visited Tumacacori, leaving there at 10:30 A.M. and proceeded to Phoenix, stopping at Casa Grande.

The field crew was located at White Sands National Monument from January 19 until the end of the month.

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Just a word in closing, Chief, to say that it seems to me from these field reports that things are moving along all right in this district. We have had an unusual lot of sickness through the Southwest during the month, flu being the principal variety and most of the fellows refusing to give up, several of them have been dragging around about half sick but containing to run the job. They all act like they thought the world would promptly go to pieces if they quit work for a few days, ---not that I blame them for I feel the same way about it myself; it's funny how easy it is to fool ourselves that way.

However, we haven't lost our sense of humor and can still get a lot of fun out of the work and those are saving graces that carry us over the rough spots. My general idea is that we ought to be serious in our work and plans----but not too serious.

We certainly have more visitors at the winter resorts of the Southwest than for several years and I believe the outlook for an increase of visitors this coming spring and summer is good in this section of the country at least.

Cordially,

Superintendent

Frank Vinteley.

# THE SOUTHWESTERN MONUMENTS SUPPLEMENT TO THE MONTHLY REPORT

BEING THE PAPER EQUIVALENT OF THE TAURIAN SESSIONS SO OFTEN HELD WHEN SOUTHWESTERN MON-UMENT FOLK GET TOGETHER. SHOP TALK, GOSSIP, AND OTHER INTERESTING THINGS ABOUT THIS

AND THAT: THE WHOLE CONTAIN—
ING SOME INFORMATION AND NOT
MUCH MISINFORMATION ABOUT
WHAT GOES ON IN THE SOUTH—

WESTERN MONUMENTS.

#### PROCEDURE TO BE FOLLOWED IN INSECT CONTROL WORK IN THE SOUTHWESTERN PARKS AND MONUMENTS

bу

#### Donald De Leon Entomological Technician

Where an infestation is at all heavy or where a preliminary sample cruise has shown that the infestation is sufficiently severe (at least 50 trees to the section) to warrant control work, a hundred per cent spotting program should be used to insure complete coverage by the control crews, to determine the actual infestation per acre and to show the distribution of the infestation.

Briefly, the spotting program should be as follows. A spotting crew composed of a compassman and two or three spotters, depending on the density of the stand, start at a known point, where possible a section or quarter corner, and cover completely the entire area in which treating is to be done. The compassman runs a compass line either due north and south or east and west, keeping his distance by pacing and checking his pacing by tieing in on section lines or corners and mapping in on a treating plat (Exhibit E) the salient points traversed, such as streams, roads, trails, gullies and rock out-croppings, change of type, or anything that will help the treating foreman to locate the spotted trees.

Each spotter works a strip two and a half or five chains wide on each side of the compassman and examines all trees that may possibly be infested. When a spotter locates an infested tree, he calls out "bugs" or some similar term agreed upon. The compassman then calls back the number that should be put on the tree, say, one, and also places the location of the tree, and its number, on the map that he is making. The spotter then makes out a tree tag (Exhibit A), cuts a slit in the bark and places the tag in the slit. The spotter also calls out the tree species, D.B.H., number of logs, and the beetles killing the tree. This information is recorded by the compassman on a spotting record (Exhibit B) in case the tree tag is lost, or in case the treating foreman can not locate the tree he can be told what size of tree to look for. This record is also used for another purpose, given later. Besides placing the number on the tree in black crayon, the spotter also blazes the tree on three or four sides so that it can be easily seen from a distance. When the tree has been blazed and numbered and the tree tag made out and placed in the tree, the party proceeds until the next infested tree is located, when the same procedure is gone This time the compassman will call back to the spotter locating the infested tree, Number Two, and so on. When the compassman comes to the end of the strip, he offsets and returns. For example, the compassman has been running due east and the width of the strip covered by each spotter is five chains, making a total strip covered of ten chains. the compassman comes to the section line, he turns off due north ten chains, then turns and goes due west, leaving a strip to his south of five

chains which have not yet been covered. This strip is taken by the man who had the strip to the north of the compassman when the line was being run east, so that in going back (west) the spotter will be covering the edge of the strip which he covered in going east. He will then be acquainted more or less with whet he has and has not covered.

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In this manner the compassman goes back and forth across the section until it is completed, which will be four times east and four times west, if the total width of the strip covered by the spotters is ten chains.

When the section has been completed, the compassman will have made a complete field map of that section showing the position of all the infested trees. He then makes a copy of this map and hands it to the treating foreman, who can see at a glance the location of each infested tree and can thereby plan his work in an efficient manner.

The spotting crew covers each section in the same manner so that when the job is completed, a map will be had of each section showing the location of each infested tree.

In the evening the spotting foreman or compassman records on the Daily Camp Spotting Record (Exhibit C) the number of trees spotted for the day, the acres covered for the day, and the total number of trees spotted to date.

The spotting foreman should also make a master map that is kept in camp showing the location of the infested trees. These, when circled in red, indicate that the trees have been treated.

The treating foreman, when he comes to treat a spotted tree, takes out the tree tag placed there by one of the spotters, marks on it the date of treating, the infested length, and puts the tree number on the stump of the treated tree; in the evening he turns in the tags of the trees that have been treated that day to the spotting foreman, who then checks these off on the spotting record (Exhibit B). By glancing down the spotting record the spotting foreman can tell what trees, if any, have been over-looked by the treating foreman!

The treating foreman also fills out the Daily Camp Treating Record (Exhibit D) so that there is a record of how many trees and (or) board feet he has treated that day, how large his crew was, and how many more trees there are left to be treated.

When such a procedure is followed, there is available an accurate record of the entire control operation that is of value in estimating costs for later control operations and of value scientifically, as it shows the size of trees infested, the infested length, the beetles killing the trees, and the distribution of the infestation as well as the infestation per acre.

The numbers given the trees should run consecutively from section to section so that no tree will have the same number. The spotting records, however, should be kept by sections so that the number of infested trees and the board feet per section can be quickly and easily compiled.

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In recording the number on a tree, or on the stump after the tree has been treated, it is best to record the year the tree was attacked. This is easily done by recording the number as a fraction with the numbrator as the tree number and the denominator as the year of attack, as 98/34, which means that the trace numberwas attacked in 1934. If the number is placed on the side of the stump, especially the north side, it remains legible for a good many years. Black (graphite) crayon is much more permanent than red or blue crayon.

The above instructions are run here as a matter of general interest to all the Southwestern Monuments forces whether the individual monument over which you have jurisdiction may have trees or may not have them.

Of course the instructions will have especial interest at Bandelier, Capulin and Chiricahua. White Mountain Smith is welcome to use them but his trouble will be to find the stumps upon which to put his record. A hundred thousand trees and only half a dozen stumps! The only saving grace about that situation is that thus far he hasn't found any bugs in his trees.

We want to congratulate Editor-in-chief Story on her fair statement of what constitutes a national monument which we have lifted from pages three and four of the recent edition of the Glimpses of our National Parks and run on our front cover. The following paragraph is also lifted and run here under the impression that not many of our readers of this report would find it or notice it in the Glimpses;

"When the consolidation of the various park units into the one system occurred, a duplication of type was found to exist in the various classes. For instance, in addition to Morristown, the one national historical park, there are historic areas classified as national parks, as national military parks, and as national monuments. The National Park Service is studying this situation and proposes later to recommend a desirable reclassification plan for the approval of Congress."

May the day come soon when we of the monuments may be able to get not only the general public but some of our our Park Service people as well to understand that national monuments are not a group of small parks which are the leavings of selecting the big scenic areas, but that they are a very definite class apart and that under a scientific classification we would take some second rate monuments out of the park class and some third rate parks out of the monument class and thus get the situation straightened out to where the general public as well as ourselves could understand what was meant when we said national monument or national park. The rub will come, of course, in trying to take a monument out of the park classification, due to the idea that parks are more important.

#### SOME STATISTICAL ASPECTS ON THE SIX MONTH CASA GRANDE VISITORS RECORD

On page 313 of the Supplement to the Monthly Report for December 1934 a series of tabulations was made from which data were determined on the basis of Time Clock records covering about 2,000 groups of visitors over a period of six months. These 2,000 groups comprise nearly 10,000 visitors who received Ruins and Museum guide service in parties ranging from only 1 person, up to a few 25-person parties.

No. people per group	No. of groups	Av. Minutes stay Increase of decrea	ıse
1	72	46.9	
2	487	50.1 3.2 Min 6.8%	
3	271	52.5 2.4 Min 4.7	
4	247	55.7 3.2 Min 6.0	
5	181	53.1 <sup>4</sup> .6 Min <sup>2</sup> 8.3	
6	134	60.2 7.1 Min13.4	
7	82	58.61.6 Min2.1	
8	58	57.5 <sup>-</sup> 1.1 Min <sup>-</sup> 2.0	
9	45	65.1 7.6 Min14.0	
10 to 25	35 down	to 3;-65 to 85	
-			

(For details, see December Report, page 313)

#### NUMBER OF CARLOADS MAKING UP DIFFERENT SIZED PARTY GROUPS.

- A. All of the 72 parties of 1-person each, came in 1-automobile per party and received guided Ruins and Museum service as individual groups.
  - 1. The time clock slips for 1-person parties are therefore a reliable record on just how long that class of parties spent because those tickets show actual time of arrival and actual time of departure for every automobile and every visitor included in those 72 parties of 1-person each. Therefore the 46.9 minutes is statistically sound provided that in examining the slips, no single extreme case of a visitor staying several hours more time than all others is found. Even should this be the case, the average remains sound unless the extreme was of sufficient magnitude as to produce a material change in the average. The more the number of parties involved the less likely a single extreme case is going to change the average.
  - 2. For illustration: Suppose but one 1-person party stayed 21 hours more than the averagefor all the remainder. The total time would be swelled by 150 minutes and the average per party with 72 such parties would be raised 2 minutes! Notice how double the number of parties would operate such as to give but half the error. Let us state the effects of numbers of parties, etc. in terms of statistical principles. Here they are:
    - a. We can conclude that for a given period of time, single

extremes of considerable magnitude together with comparatively few parties, will operate toward making the calculated average time per party, less rigidly accurate. Likewise we can turn that statement around and say that the more frequent the extremes occuring in a given length of time and the greater the number of parties involved, the more reliable and valuable the calculated average times become from a standpoint of statistics.

- B. Groups of 2-persons each, appear to require 6.8% more time per group than do party groups of 1-person each. In addition to the suggestion offered last month in explanation, these additional ideas are proposed:
  - 1. Groups of 2-persons each, might have arrived in:
    - a. 1-car of 2-persons-----very common
    - b. 2-cars of 1-person each-----occasionally
      - a'. See later pages for probability graphs.
  - 2. Often the group or party ticket is stamped the instant the <u>first</u> incoming car comes to a stop against the parking area curbing. It will require two people arriving in the same or in different cars a little longer to (a) get out of their cars; (b) walk to the registration desk; (c) write 2 names instead of 1; and (d) go to the washroom which one out of a 2-person party is about twice as likely to do as is 1 person of a 1-person party.
    - a. Perhaps the first car to arrive and the last to depart are not the same car. Thus, the ticket will show not the average time each carload stayed as was true with 1-person parties, but it will show a time all the way from 2 or 3 minutes up to as high as 20 minutes, more than either carload was actually with us. This point will be illustrated later with examples.
    - b. Note now also that as the number of carloads of people making up single parties increases, so also increases the probability that any one ticket will bear a stamped arrival time "TO RUINS" for one car and a stamped departure time "FROM MUSEUM" for an entirely different car. Again, we will note that this is apt to occur two or three, or even five or six, times as often for large parties as it is for parties of 2 and 3 persons; this cannot happen with 1-person parties where but 1 person and 1 automobile are involved.
    - c. We realise therefore that these factors tend to push the average times for large party tickets up to higher and higher figures as the number of people per party increases WHEN ACTUALLY THE TIME CONSUMED IN SEEING THE RUINS AND THE MUSEUM HAS NOT DIFFERED MATERIALLY IN ANY CASE.
  - #. With parties of 2-persons and more, the same psychological factors are not present that exist with 1-person guided groups. Of course these factors vary from 1-person party to 1-person party as well as from guide to guide, but that they do present themselves is an important fact. These factors will tend toward lower average time per 1-person parties. What are these factors?
    - a. First; many modest visitors showing up alone feel that they

command more than their individual due of attention from the guide who must devote an hour's time with him. Thus, I visitor will tend to keep moving, entering into fewer discussions of side issues; he will feel that the guide may have a party of several persons waiting, or apt to show up; and of course this I visitor is likely to have less questions coming up and will feel that he just wants the highlights of the story and be on his way.

- b'. Point (a) above- the psychological factor as it affects the l-person party-, operates regardless of whether it is, or is not true, that guides should make it a policy to use a minimum of time when he is guiding but 1 person around.
- 4. With 1-person parties, the performance of the guide himself is apt to be different from what it is with parties of 2,3, 12 or more. How will it likely differ?
  - a. If a guide has 1-person somewhere in the course of a ruins or museum trip, and if he knows the other guide or guides are all occupied with 2 or more persons each, he may realize that carloads of people are arriving at the registration desk with no one to tell them what to do or where to go. He will consider it the lesser of two evils to choose to hurry with his 1-person trip than to let 5 or 6 times that many people scatter and get beyond immediate control.
  - b. While we give no formal speech, nethertheless, guiding 1-person around is not as conducive of enthusiasm, presenting a thorough, orderly narrative with all interesting sidelights, etc., as is the guiding of a larger group. That this does operate probably is a fact in the abstract, even though the guides them selves may always make a sincere effort to never "short-change" a 1-person just because he happened to show up alone. Exceptions to this statement are very numerous and hence it is not as important as (a) just above as a reducing factor.
- C. Groups of 3-persons per party appear to take 52.5 minutes average, or 2.4 minutes (4.7%) more time than do parties of 2-persons, and 5.6 minutes more than 1-person parties. Can the matter of pure statistics, on our present basis of keeping records, really operate to cause stamped tickets for parties of 3-persons and more to show materially higher time averages when actually each carload of people involved might have averaged the same or even less, time than carloads making up 2-person parties? Consider the possibilities on how a 3-person party can arrive at our door:
  - 1. Records indicate that automobile tourists average about 3 1/3 people per car. Therefore 2,3, and 4 people per car will make up the bulk of travel represented in our 2, 3 and 4 person groups. However, mush of this travel of 3-person parties will be composed of arrivals in:
    - a. 1-car arrivals with 3-people-----often.
    - b. 2-cars of 1 person in one and 2 persons in other----often.
    - or 2 at one time and one at another time----rare.
  - 2. Granting the greater frequency of 3-person parties arriving in 2 or more cars, and at different times, then we must conclude

the possibility of more time being consumed in several ways described as follows:

- a. More time getting out of cars
- b. More time in registering
- c. More frequent occurrence of one or more of party going to washroom and being waited for.
- d. Ticket being stamped for first car to arrive, with occasional 2nd or 3rd car arrivals being from 2 or 3 to 10 or 15 minutes late. Consider a 3-person ticket stamped for 60 minutes, made up of 2-persons arriving first, joined by an arrival 15 minutes later:

1-carload of 2-people-----60 monutes 1-carload of 1-person-----45 minutes

Actual average time per carload---52.5 minutes Ticket stamped "3 Persons-----60 Minutes

- a. Thus, two parties averaging 52.5 each were stamped 7.5 minutes, or about 15% higher than actual average stay.
- b': We must conclude that if this happens very often, our 3-persons up to 25 person groups will show increasingly higher trip time with little or no change whatever in average actual stay per carload or per person
- 3. Three person parties do not usually feel conscious of monopolizing a guide's time although occasional instances have happened in which 3-person groups often remark"We're sorry to have taken so much of your time....etc". The 271 parties of 3-persons is sufficiently high as to give the number pretty stable statistical worth.
- D. A 4-person party shows a time average of 6%(3.2 minutes) longer than 3-person groups. The 4-person party average for 247 parties is 55.7 minutes.. The 247 is high enough to have pretty reliable statistical worth.
  - 1. One or two arrival and departure probability tables will be listed a little later to show the the vast number of chances of several cars making up party groups of 4-persons and of the number of chances that the first car to arrive and the last to leave will be different cars. This is probably the factor which, more than any other, causes the progressive increases per party-time as the number of people per group increases.
    - enter the more nearly a given ticket becomes merely
      THE TIME THE GUIDE SPENT WITH THE PARTY and the farther
      the ticket gets away from being the average per carload
      staying time.

- E. Groups of 5-persons per party show a decrease of 2.6 minutes or 4.6%. Notice that up until 5, the time increased.
  - 1. With the most of the 1,2,3, and 4-person parties being composed of I-carload arrivals, it is conceivable that only the figures on 1,2,3, and 4-person parties have statistical worth. 5-person parties begin to be made up of <u>late</u> arrivals and early leavers, but tickets showing only time of <u>first</u> to arrive and <u>last</u> to leave
    - a. The greater the necessity for joining people to parties late in the progress of a trip, the more the tickettime increases above the average time per carload.

#### EXAMPLES

Ticket 7 2084:		
3-persons; N.Mex. carArr.	first	11:46
Same carloadLv.	last	12:46

TICKET STAMPED -----60 Min.

#### Later joiners:

4-persons; Pa. car	Arr: 1	.2:02
Same carload departed	]	2:21
ACTUAL STAY		

#### Also joined by:

2-persons	arrive	d 11:54
Same departed		- 12:46
ACTUAL STAY		52 minutes
AVERAGE of 60:	19; and 52139	44 minutes.
•	3	

AV. STAY PER CARLOAD ------44 minutes.

(Ticket stamped 16 minutes too high to indicate true average stay of people)

#### EXAMPLE II

Ticket 2086:
Texas Car (2)
Mass car (2)87
Ill. car (3) hurriedarr2:55lv3:08 13
2-others(2)arr2:21lv3:08 47
9-person ticket stamped87 Min.
CARLOAD AVERAGE is sum of 73;87;13; & 47 div. by 4.
55 Minutes.

Av. Per person(3x73) \(\frac{2}{2}(2x87) \rightarrow (3x13) \(\frac{2}{2}(2x47)\) or \(\frac{453}{9}\)

AVERAGE PER PERSON-----50.3 Minutes.

#### GENERAL REMARKS AND CONCLUSIONS:

As the number of parties of a given class, such as 3-person groups, involved increases, the value of the calculations increase in statistical worth.

- 2. As the number of persons per party increases, so increases the probability that these persons arrived in more than 1-car. For example, each 5-person pfrty during the past 6 months visited us in more different automobiles per party than did each -1-person, 2, 3, or 4-person party.
- 3. As the number of people per party increases, so also increases the actual time consumed in getting out of cars; registering; getting through gates and doors; and waiting for the return of washroom breakaways.
- 4. As the number of persons per party increases, so also increases the number of carloads involved; and in turn increases the probability that the individual cars arrived late(some of them) and departed early.
- 5. As the number of carloads involved in any given party increases, so also increases the chances that the time-clock slips will be stamped for one car arriving and a totally different car departing.
- 6. Sundays and other days having heavy travel, will by necessity have more late joiners and early leavers, and hence the tickets for persons in 3 to 25-person parties are apt to contain greater errors. Parties from as low as 2-persons up to 25-persons will show ticket-time increases with no actual increase in time per automobile load because of the variables described.
- 7. We might expect that if every carload of people arriving each had an individual guide the average time stay per carload would increase, but a list of tickets on big parties with their numerous late joiners and early leavers cannot prove this unless the times of arrival and of departure for every carload are known and compared with what actual averages for 1-carload parties show.
- 8. There are apt to be more carloads making up a given party, showing the same time of departure than there will be showing the same time of arrival for the "Gods of Chance" control the number of carloads who will arrive within any 15-minute to half hour interval. Nor is there any predicting how many are going to appear at any instant at any time of the day. The reason there will be more departure times the same than arrival times lies in the fact that once people at different times of arrival are here, only hurried and disinterested ones will leave. This makes for a goodly percentage who may stay until the entire ruins-museum trip is finished. However, some Sundays and busy days will see whole parties of sometimes 25 people, end with 10 or 12 people and even less, and such parties must have had at least 2 to 3-carloads as breakaways.

#### FIN.LLY:

- 1. It seems we must seriously doubt the statistical worth of average timestays per party in all instances where the number of such parties as quite small, or whereone or two individual extremes of the same kind occur.
- 2. For all party groups of 3-persons up to the highest limit of 25-persons, where such parties begin to be composed of more and more carloads of people who will be arriving and departing at different times, the average times per group represent not the average time each carload stayed as it does for 1- and 2-person parties, but merely indicates the length of time the guide was busy with the group. It will represent the clapsed time between the first carload to arrive and the last carload to depart.

- 5. The examination of these tables from the standpoint of statistics merely points out the number of variables involved and indicates how these might operate to produce differences in average times per party as indicated in the table. While from the records we are not able to show the comparisons between carload-time averages and the average time stay per party group, isolated examples have been included whowing how in some instances the differences were great.
- It seems that before we can conclude that the time-of-stay averages for groups made up of from 1 to 25-persons can indicate anything definite about whether individual caroads of people stay longer in one instance than in another, we must arrange to get the actual arrival and the actual departure time for every carhoad. This in turn amounts to saying that at all times the ruins and museum trips must be so regulated as to have I ranger or guide free to greet people, attend to registration, and keep the arrival and the departure times accurately. It seems we could not keep these records on one day, or part of day, and not on another for if we did that, we could not have much confidence in the accuracy of such records. We sometimes find than none of the 2,3, or 4 guides are free to keep this record of arrivals and departures for perchance 3 of them have guided parties and the 4th is joining new arrivals on, and when he is doing this, another carload or two arrives and gets into the museum or otherwise scatters and rectifying the record is thereby made just a little difficult and sometimes impossible.
- 5. It has been pointed out how the psychology of the situation tends to influence 1-person when he comprises one guided party, to cut his time a little short. There seems little doubt but what when a second person or a second carload is added, the psychology of the situation operates such that both the people and the guide will be inclined toward taking more time. However, for 4 or 5 people and above, it is doubtful whether this time-increasing factor continues to operate.

# CARLOAD ARRIVAL PROBEBILITY TABLES

- A. Groups of only 1-person each might have arrived:
  - I. Only as 1-person in 1-car
- B. Groups of 2-persons might have arrived:
  - 1. 1-car of 2 persons-----very common
  - 2. 2-cars of 1,1;-----fairly rare.
- C. Groups of 3-persons could arrive:
  - 1. 1-car of 3 persons----very often.
  - 2. 2-cars of 2.1:-----frequent.
  - 3. 3-cars of 1,1,1;-----very seldom, if ever.
    - a. Note how where more than 1-carload is involved, arrivals and departures times can occurat different times for all cars.

Groups of 4-persons each could arrive in: (1) 1-car with 4-people -----frequent. 2-cars; 3,1 - 2,2 -----frequent (2) . (3) Those underscored are probable occurrences. Underscoring will indicate this in the tables to follow. E. Groups of 5-persons each could arrive in: 1-car with 5-people -----frequent (1) 2-cars; 4,1 - 3,2 -----frequent (2) 3-cars; 3,2,1-----occasionally. (3) 4-cars; 2,1,1,1;-----seldom if ever. (4)(5)5-cars; 1,1,1,1,1-----seldom if ever. F. Groups of 6-persons each could arrive in: 1-car with 6-people -----occasionally (1) 2-cars; 5,1-4.2-3.3-----frequently (2)3-cars;  $\frac{4,1,1-3,2,1-2,2,2----$ frequently 4-cars; 3.1,1,1 - 2.2,1,1 -----seldom (4) 5-cars; 2,1,1,1,1 -----rarely if ever. (5) 5-cars; 1,1,1,1,1,1 -----rarely if ever. (6) Groups of 7-persons each could arrive in: (1)1-car with 7-people----rare 2-cars  $\underline{\epsilon, 1} - \underline{5, 2} - \underline{4, 3}$ -----frequent 3-cars; 5,1,1-4,2,1-3,3,1-----Some frequent. (3) 4-cars; 4,1,1,1-3,2,1,1-2,2,2,1 ----seldom. (4) 5-cars; 3,1,1,1,1 - 2,2,1,1,1 -----seldom if ever. (5) (6) 6-cars; 2,1,1,1,1,1 -----rare or never (7)7-cars; 1,1,1,1,1,1,1-----Never H. Groups of 8-persons each could arrive in: (1) 1-car with 8-people----seldom (2) 2-cars; (3) 3-cars; 6,1,1;-5,2,1;-4,3,1;-3,3,2;-2,2,4----Last four common 4-cars; 5,1,1,1;-4,2,1,1;-3,3,1,1;-2,2,2,2----lined ones common (4) 5-cars; 4,1,1,1,1; 3,2,1,1,1; -2,2,2,1,1 -----All rare (5) 6-cars; 3,1,1,1,1;-2,2,1,1,1,1 -----rare or never (6)

(Tables continued next page)

(8\* 8-cars;

(7)

7-cars; 2,1,1,1,1,1 ----never

1,1,1,1,1,1,1,1----never.

- I. Groups of 9-persons each could arrive in:
  - 1-car with 9-people-----very rarely (1)
  - 2-cars; 1,8;-2,7;-3,6;-4,5 -----fairly often. (2)
  - 5-cars;  $7,1,1;-\frac{6,2,1}{5,3,1};-\frac{4,4,1}{5,3,3};-\frac{3,3,3}{5,4,2};-$  often. (3)
  - 4-cars; 6,1,1,1;-5,2,1,1;-4,3,1,1;-3,2,2,2;-3,3,2,1;-2,2,4,1.5-cars; 5,1,1,1,1;-4,2,1,1,1;-3,3,1,1,1;-2,2,3,1,1; 1,2,2,2,2
  - (5)
  - (6) 6-cars; 4,1,1,1,1,1;-1,1,1,2,3;-1,1,1,2,2,2----seldom if ever.
  - 7-cars; 3,1,1,1,1,1,1; 2,2,1,1,1,1,1;----nover (7)
  - (8) 8-cars; 2,1,1,1,1,1,1,1----never
  - 9-cars; 1,1,1,1,1,1,1,1,1-----never. (9)
- A. Average times of stay can be resolved into the following:
  - Time the ranger began and the time he finished with a field trip group or party.
  - 2. Average stay per carload of people,
  - Average minutes stay per person
- B. Examples of (A) above will be here given to show how all three of the above may be either the same, or different, depending upon the circum stances under which each party or carload arrived.
  - 1 1. Example:

3-peoplearr.	1:15depart	1:50stay	35 minutes.
2-poople"	1:10 " "	1:50 "	40 Minutes
4-pcople "	1:10" "	2:15-, "	65 Minutes.

3 x 35-----105

2 x 40----- 80

9-persons-------------------445 person-minutes

AVERAGE MINUTES STAY PER PERSON--49.4 minutes

 $\frac{35 \text{ plus } 40 \text{ plus } 65}{3}$  or  $\frac{140}{3}$  equals 47 minutes

AVERAGE MINUTES STAY PER CARLOAD ----47 minutes.

TICKET READ-----65 minutes

2. Notice that average minutes per carload, average stay per person and time spent by guide can all be different. Following is an example of where all would be the same.

2-persons-----stay 55 minutes.

3-persons-----stay 55 minutes

6-persons s-----stay 55 minutes

Av. per person; av. per carload, and stamped time----55 minutes.

C. We will now show that where each carload making up a party, contains different numbers of people per carload, it <u>does</u> affect the average stay per person when it happens to be the carload with the most people that stays the least amount of time.

Average per person-----(3x35) $\neq$ (4x40) $\neq$ (2x65) or 395 or 44 MIN.

AVER GE MINUTES PER PERSON------44 minutes.

1. Notice how all figures are the same as those used on the previous page except for the fact that in this case it was the 4-passenger carload that stayed only 40 minutes instead of the 2-carload group. NOTICE HOW THIS LITTLE CHANGE ALONE RESULTS IN 44-MINUTES AVERAGE STAY PER PERSON AGAINST 49.4-MINUTES ON THE PREVIOUS PAGE. This factor alone affects a decrease of 5.4 minutes or 11%!

Out of this discussion on probabilities there seems to stand out the conclusion that actual times of arrival and departure must be kept in order to determine whether visitors in large field trips and museum lecture audiences really stay longer with us than when they come in small groups. We have already discussed one case where a ticket showed more than 80 guide-minutes but the average minutes per carload was 55 and the average per person was 50.3 minutes.

If it could be arranged without too much difficulty and without too much interruption, it seems that a 3-months winter and a 5-months summer record on actual arrival times only would be desirable. This would need to be done for every carload in order to be of service in making desirable studies on just how many carloads as a rule arrive for different hourly or 15-minute intervals through the day. After compiling such a record for the 3-month period it might be discovered that by having arriving carloads of people wait say 10 minutes before starting a field trip, we could eliminate about 50% of the joining late which we do when a trip starts the minute someone arrives. WE MUST NOTE THAT IN STARTING FIELD TRIPS THE MINUTE A CARLOAD ARRIVES, THE PERCENTAGE OF JOINING IN OF LATE ARRIVALS IS VERY HIGH. Thus, only 1-carload of a big party may really get all of the trip from start to finish while anywhere from 40 to 90% of the people were joined late. Studies of the arrival times would show us whether or not a 10 minute wait would reduce late joining by 20, 50% or some other figure.

NOTICE THAT CUTTING DOWN ON THE NUMBER OF CARLOADS OF PEOPLE WE JOIN ON LATE IS NOT THE SAME PROBLEM AS THAT OF TRYING TO REDUCE THE NUMBER OF FIELD TRIPS MADE DURING A GIVEN DAY. IN OTHER WORDS, WE MIGHT FIND THAT A 10-MINUTE TO 15 MINUTE WAIT WOULD CUT DOWN THE LATE JOINING BY 50% WHEREAS THE ACTUAL NUMBER OF FIELD TRIPS TAKEN WOULD REMAIN ABOUT THE SAME. Just now, with only a part of

the museum contemplated for the future, constructed, and with no suitably developed Lobby for people to wait in for 10 minutes to a half hour, it is just a little difficult to put into practice the idea of having people wait for groups to collect. However, even now, if instituting the practice of having garloads wait a few minutes before taking a ruins trip, actually reduced late joining by 25%, the idea would be worth serious consideration. It would be worthwhile even though the number of trips per day might not be reduced at all.

The development of an attractive, spacious Lobby such as is contemplated in the arrangement of the future, will help this problem of late joining of people. The Lobby will serve as a collecting station. Here during 15 minutes to a half hour, carloads of people will collect and there will be attractive, interesting displays to occupy their attention. Then when a ruins trip starts, there will be several carloads of people at the start instead of only one. The Lobby should also operate toward cotting down a little the number of field trips required and should thereby make each one last a little longer. The remainder of the museum exhibits could then be seen by the group as a guided party. We will probably continue to have a great many terribly hurried people, who will went to see everything in 10-minutes. However, -if most of the people willingly and gladly wait for organized groups, there might be a way of handling those hurried ones so they can see it all hurriedly and be on their way. At any rate, just a few hurried people should not spoil the service or wreck a system which happens to operate for the greatest good to the greatest number. If we found that during a day in which 30 carloads of people arrived, only 3 to 5 carloads felt that they just must have a quick look and go, should the remaining 25 carloads of people have to be affected by what the 4 or 5 carloads did? Of course the 4 or 5 carloads are a problem but it would seem that if through a system of waiting in a good Lobby, we could give finer service to 5/6 of all of our travel, then we might consider letting the hurried or uninterested 1/6 have their fletting glance and hurry on their way.

All of which may be very true, Chief, but it doesn't explain to me why five person parties take less guide time than three, four or six. The explanation that adding to the number in the party adds to the time it takes for the party to get out of the automobiles and get ready to start isn't satisfactory. It is true that these tickets represent, when covering the larger parties, the number of guide minutes rather than the length of the party stay, but on that basis why can't a guide hold a five person party, even though it comes in three sections of two, two and one, longer, or at least as long, as a four person party? It seems to me what we need is an explanation which will cover this and at the same time reverse itself and explain why the guide can hold a six person trip together considerably longer than a five. Possibly the law of probabilities doesn't hold in this dry Arizona air.

### RANDOM THOUGHTS ON A MUSEUM AT CANYON DE CHELLY.

The following paragraphs are extracted from a recent personal letter from Mr. Budlong. The trend is a little informal and Bud will probably be shocked to find himself on record this way, but the thoughts are too good to lose and I think the very informality makes them alb the more valuable. These remarks may be said to open the discussion on this particular museum and we hope the Branch of Plans and Designs, the Educational Division, and the various members of the Service in the Southwestern Monuments will all join in and give us the benefit of their advice. Mr. Budlong speakin:

Boss, we have quite a museum problem here. In the first place, we don't know what is going to be done about headquarters -- where, when or what will be built. We don't know a thing about what is going to happen to de Chelly. I imagine a modified Hopi architecture would be about right for the outside and in keeping with the nearby surroundings. I should think that first of all we should have a LARGE central room -- a lobby, if one prefers to call it that -- with a few comfortable chairs and benches in inconspicuous places here and there. Not too many windows -- skylights or artificial illumination, not only for wall space, but because of the sand. I would like to see, in the center of that room, a large model of the canyans built upon that method you and I once discussed. I would like to see the ruins modelled in where they belong. The thing would take up considerable space, but I would like to see it there by all means. I am strongly in favor of making provision for an automatic slide changing machine, in time -- that is, allowing space for it. I would want the walls decorated with photographs of the major ruins, of the canyon (from a scenic point of view) in good weather and bad; of the Navajos in their present garb. self-explanatory charts showing the geologic formation of this country; typical bits of prehistoric pottery, labelled to indicate their "habitats" -- in short, a general exhibit of things of interest to visitors who may have some considerable time to spend by themselves -- either through choice (bad weather, mealtimes, or whatnot or necessity (in event we have definite hours for certain trips they may wish to wait to take.)

There should be a large room devoted exclusively to geology. would be one of the rooms where visitors are personally conducted, though all rooms should be so arranged, as to their exhibits, that students who had been taken through by ranger service could be permitted to browse about to their heart's content in order to make notes, study, etc. should think this geology room would be the first to which tourists would be led, in going through the museum under guidence. There should be samples of the various rocks, diagrams showing their relative positions in regard to stratification, etc. We should have examples of petrified wood, photographs of it; photographic examples of cross bedding (especially of such places as one encounters when taking the trail at the White House, but m many others as well.) We should have samples of rock containing fossils, if it is proven in time that we have the proper strata here for that. understand that it is still questioned and that geologists do not agree upon the formation here). We should have charts showing the order of the various strate, their approximate times; we should have types of petrified wood, and either the guide should explain how it was formed, or, if necessary, for the student and those interested, we could have one of those

brief -- but still too long -- descriptions of it. I am not in favor of slighting or neglecting the archaeological side of things here, but the average visitor is interested in scenery, and we might as well educate him properly while we have hold of him.

I should favor proceeding from that room to one devoted exclusively to Not just the archaeology of this particular region: I would like a few general archaeological exhibits. I imagine we'lb cover all the Basket Maker and Pueblo periods anyhow in what is left of our ruins and burials, but we might just as well do some fancy education in archaeology while we can. I would have charts showing the Basket Maker and Pueblo I would have them illustrated, showing the typical house construction of the time, together with the dates covered by the periods; there should be photographs of actual burials typical of the period; of baskets, of pottery; there should be arrowheads and atl atls. I think it might be well to devote one case to each of the more spectacular ruins -- pottery, etc. I am not worried over what to put in that room in the way of archaeological material, or how to arrange the exhibits. I think I have lots of ideas on display of material that I would like to try out.

Anthropology or ethnology should be given, probably, a room of its own. Perhaps it might be well to have that entered before the room on archaeology - in fact I am sure it would be better. This room could easily be fairly big.

Flora and fauna. Another room. That is easily filled with interesting exhibits and needs no great discussion.

Needless to say we'd need a files and storage room; rest rooms; a main office with plenty of space in it, for, if we keep this place indefinitely -- the Service, not we as individuals -- it is going to need a large force to do the necessary work; a light, properly-built laboratory, with supplies room adjoining, also storage room of large size for material not on display. We could almost use a separate building for these last, in time. I surely do favor & laboratory AS IS A LABORATORY. these dinky clothes closet laboratories, used also for storage of material not on display. Have the main windows face north and have plenty of them. extending clear along the back of the main work bench, which should have leg space under, and drawers and supposands built in here and there. for leg space, with the workbench of such height that a man sitting on a stool of moderate height would find the height of the bench proper. Electrical outlet plugs at the back of the bench, with built in sink nearby; with pipe running along the back of the bench for bunsen burners, run by Windows should be properly protected to prevent any breaking There should be PLENTY of working space. in.

There is one thing which I think I may have mentioned in the past which I am heartily in favor of installing in each room. I wonce saw -- I believe it was in the National Museum, a device consisting of a central supporting column with provision made for its rotation. Hinged to this central column were large glass frames (two sheets of glass with its surrounding wood frame) about three by five feet. They hinged, or swung, about the central pillar -- like pages of a book, if one considers the thing as a book with no covers, the thing opened out to form a circle. My hurried

explanation is not very clear, but perhaps you are familiar with the thing. The frames can contain photographs on both sides, explanations, diagrams, etc. One can stand by the critter and keep turning these 'leaves' looking on both The whole thing revolves, so one doesn't have to walk around it as sides. the 'pages' are turned. With such a device in each exhibit room, details of the various "ologies" could be gone into at great length. The student or more interested tourist would find them of great value. AND THEY TAKE UP PRACTICALLY NO ROOM. Far better than well displays that are great westers of space, anyhow, and many of which are of no interest to the average visitor. I would so arrange the exhibits in cases and on the walls that the would be of some interest to every tourist -- or so that they would consist of material always brought into the lecture of the guide. The revolving show cases would be for those more interested.

Well, Boss, apologies. This isn't my official burst into museum plans. It is rather a written account of ideas. Having written 'em, they'll be firmly fixed in me mind, and when it is time for definite plans for a building and a discussion of exhibits planned therein, this "first impression" will be of some value to me. Hope you have stood up under it fairly well.

#### 

All of which, you will probably agree with me, constitutes a pretty interesting outline for a mighty good museum. I think if I were choosing a place for an archaeological museum where the visitor could go and get the foundation of southwestern archaeology in one sweep, from the Basket Maker right down to the modern Indian, I would choose Canyon de Chelly National We can take a visitor in there and give him a basic knowledge of the archaeology of the region, showing him examples of each type of ruin and explaining the cultures as they rose and fell. Them, when he has this basic information, we could direct him to the outstanding ruins of each type which are to be found in the various reservations under the charge of our Service elsewhere in the district. I think I can safely say that at no other place can you get such a bird's eye view of the human history of the Southwest over the last two or three thousand years right down to the present Indian as at Canyon de Chelly National Monument. The scenic end of the Monument is so spectacular and strikes the visitor with such overwhelming force that the archaeological end does not at first register its true proportions, but the value is there and if we fail to bring it out, the fault will be not with the Monument but with our own short-sighted policy of not properly developing what has been put in our hands.

Mr. Budlong is right about wanting to play up the geology of the region, but it must be kept in mind that the visitor should first get the scenic thrust of first viewing the Canyons before any attempt is made to give him the geological explanation of how it happened. If you want to get the biggest scenic effect, take your visitor up on the rim opposite the White House about sun down and LET HIM ALONE. Back out of the way some place you might want a shelter house for stormy weather, but you don't want any puny little man made structures or any little school room explanations of how it happened coming between this visitor and the Great Architect8s master job which lies there before him. Afterward, that night down at headquarters or the next day he might want to know what tools the Master used, but not at that first contact.

### A TRIP TO THE TONTO CLIFF DWELLINGS

### By Charlie Steen, Custodian

The Tonto Cliff Dwellings are located in a northern spur of the Superstition Mountains, about six miles southeast of Roosevelt Dama

A look at "Glimpses of Our National Monuments will tell one that the Tonto National Monument was created in 1907 and placed under the jurisdiction of the National Forest Service to protect and preserve two cliff dwellings.

For once the national government received more than its money's worth. Instead of two dwellings on the 640 acres of reservation there are six. The four cliff dwellings are, in order of their importance: a four story structure of some 80-85 rooms; a two story house of 20 rooms; and two one story ruons of nine and six rooms each. In addition to these there are two very small surface houses of low hill in the southeastern corner of the Monument are a series of low stone circles, ten feet in diameter, the nature of which the writer is unable to explain.

Official transfer of the Monument from the Forest Service to the Park Service was made July 1, 1934.

Our visitor, after driving nearly a mile and a half up a narrow winding canyon, arrives at the parking lot and gazes at the 27 room house which is located on the hillside before him. He asks some pertinent questions and learns that the house is about 600 years old, and to reach it he must walk a good half mile by trail and climb three hundred feet.

Well, he has a little cardice trouble or has walked through the Carlsbad Caverns on the previous day, but he has read about cliff dwellings, and has always wanted to see one, and "what's the use of driving all this distance if I don't go up?"

The long trail which is usually taken at a rather slow pace gives this man a chance to observe the typical desert flora of the Monument, He sees the ll varieties of catti which grow near the trail; he is usually unfamiliar with mesquite, greasewood, palo verde, ocotillo, and several other plants. These the ranger points out and describes to the best of his ability. As the party climbs higher the view opens up until at the top of the trail one has a glorious penorama in from of him. The center of the stage is held by the Salt River Valley, flanked by the Sierra Ancha, the Salt River Mountains, and the Apache Mountains. This view, in the opinion of your humble servant, has no rival in the several vistas to be had at any of the other Southwestern Monuments.

Once inside the fence which protects the ruin from vandels our visitor sees a typical cliff dwelling, about 30% complete. He is shown through all the rooms, details of construction are pointed out, together with the usual discussion of living conditions, etc. Many of the timbers are still preserved and one room is complete. Bits of floor matting, metates, manos, a sandal, some cotton and yucca fiber cord are scattered about in advantageous positions.

This hombre going through is deeply interested and has forgotten the walk through Carlsbad, so he wants to go up to the big dwelling. Off we go up the gulch and climb the next hill, using the cow trails, for another 500 foot climb. This climb takes another 25 minutes, but when the goal is reached he is satisfied. The upper dwelling is really a spectacular structure, standing four stories high. The view is more constricted here, but at that is not to be sneezed at.

On the way up the ranger says that he is willing to sign a written guarantee to the effect that he will find some article or artifact which the Indians left. Sure enough, he lives up to his promise and finds something, perhaps a sandal, a bit of cotton cloth, or some shell jewelry. This site has never been excavated and is very rich. Here are more roofs in place, but no complete rooms. The walls form quite an irregular maze and it is a fact that last fall a young lady became turned around in the back rooms, believed she was lost, and had to be lead out of the house.

The trip down takes not nearly as much time as going up and calls attention to a new set of muscles. This visitor we have been showing around is glad to get back to the parking lot where he may walk on level ground for a change.

He claims to have enjoyed the trip very much but seems suspiciously eager to climb into his car and sit down for awhile.

Probably he feels that he has been exposed to an education whose curricula are archaeology, botany, and mountain climbing.

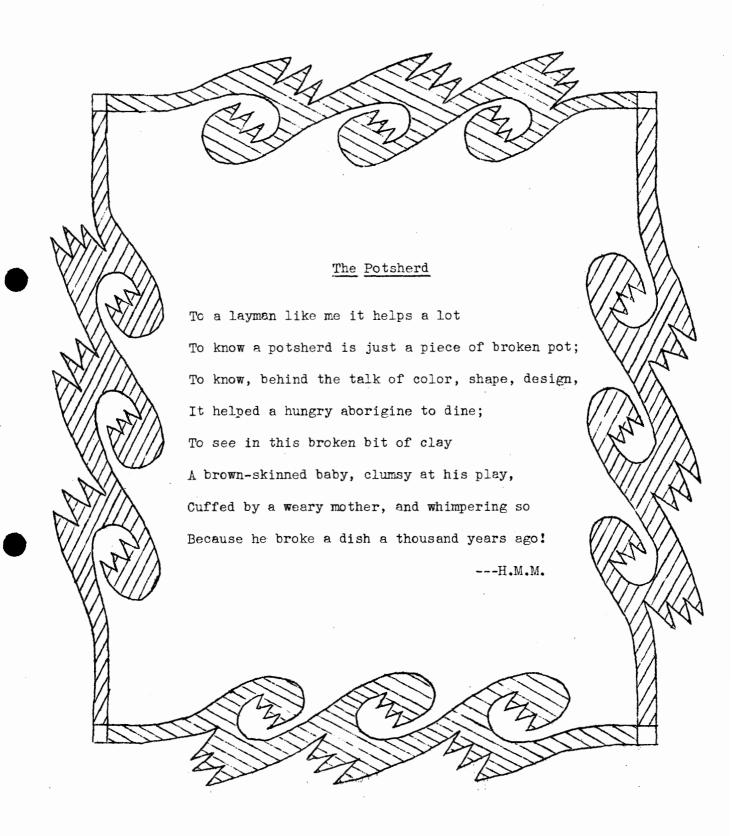
## ARCHAEOLOGICAL NOTE

During the past month the construction of a lower ruins trail at Bandelier National Monument was completed by the C.C.C. boys. This trail nears some of the cliff ruins. After removing a huge boulder which blocked the route of the trail one of the mon found about half the pieces of a large pottery vessel, or olla. These pieces fit together and the original form of the jar can be accurately conjectured. A sketch is shown.

The olla measured 10 3/4" high, 12 inches greatest width, 6½ inches across the rim. It was a plain brownish red, with well fired thick walls, thicker at base, and no apparent tempering meterial. The slip was crackled, and well finished. The base has a slight concavity for use in cerrying on the head. Some person probably 400 years ago had dropped and broken this vessel, and later a rock had rolled over the pieces.

No other artifacts were found, and no occupational signs nearby. Such little items as this pot loom important as future museum exhibits.

----Earl Jackson



### NOTES ON TUMACACORI EXCAVATIONS

(Following are notes written by Paul Beaubien, foreman of FERA excavations now being carried on at Tumacacori National Monument, written to the Boss regarding progress of work. In no sense a complete report, they are included in the Monthly Report Supplement for their informative value and because they serve to show some of the interesting new problems arising. Beaubien received his B.A. in 1930, his M.A. in 1931, in Anthropology from the University of Denver. He served the past summer season as Temporary Ranger at Walnut Canyon National Monument.)

I arrived at Tumacacori National Monument December 15 to find work well started under the direction of Walter Attwell, Associate Engineer, attached the Southwestern Monuments Headquarters staff.

One brick problematical structure, tentatively identified as a smelter, and the foundation stones of a large building about 64 feet by 20 feet (Possible Church I, see Ground Plan) already had been uncovered. Foundation stones correctly placed to support a choir loft would indicate that this was an early mission. I can think of no other use for which a building this size would have been erected and then either torn down or allowed to wash away. Walls of a later date were found above.

Next, rooms (B, see Ground Plan) in a long mound on the north side of the patio were excavated. There were eleven on the ground floor and the seven at the west end, better ORE AND protected by a stone wall, contained FIRE MATERA largo fragments of lime plaster flooring from a second story. Two of the ground floor rooms had brick floors, E AND Olla for one a floor of flat OPENING catching metal stones, one a plaster floor, and two had comblestone floors COPPER SMELTER (?) on which a few patches of

plaster remained. The other five rooms had no flooring, but several modern residences in this vicinity have been floored with brick and stone flagging taken from here.

While a few interesting benches, bake ovens, and storage bins were found, the artifacts were of native character. Evidently these rooms were reoccupied after being abandoned by the Spaniards.

Several more rooms along the west side of the patio toward the north end have now been excavated. One (E, see Ground Plan) with plastered walls has no entrance. Hope to have a theory before the engineers arrive to complete maps.

Just over a wall on the east side of the patio several brick problematical structures have been found. Intelligent appearing visitors have identified two

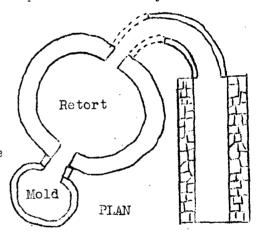
(D,E, see Ground Plan) as copper or silver smelters, one as a lead smelter (F, see Ground Plan) and one as a soap vat. But I can only call them "things" for the present.

Probably the most important work accomplished was the uncovering of thickwalled rooms (H,J, see Ground Plan) attached to each side of the present mission. Their presence was suggested to Mr. Boundey, Custodian of Tumacacori National Monument, by filled-in doorways or archways on the inner side of the Mission. I believe now that the Jesuits had a cruciform mission here and that the Franciscans have closed the side rooms while adding the present sacristy, bell tower, and dome sanctuary. If true most of the present Mission is of much older date than heretofore has been accepted.

The west wall of the cemetery is in line with the newly discovered wing and once extended to it. Evidently the cemetery wall was built when the cruciform mission was in use and before the present senetuary was built.

I believe we have found where the metal for the bells was melted and cast. Parts of what probably are the mold have been found between two of the brick structures that are now being uncovered.

Sorry to say, very few museum specimens have been found. Perhaps there has been too much treasure hunting in the past. A few interesting pieces are found each week, so suppose it is only a question of more weeks. Hope to have a bell or two or maybe a candlestick to report next time.



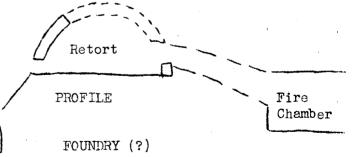
January 26

Dear Boss:

Just discovered that there is no mail service until Monday afternoon, so can only hope this arrives in time to catch the Monthly Report.

Thought maybe I should add a few additional statements.

The side rooms (H,J) have crushed brick decoration

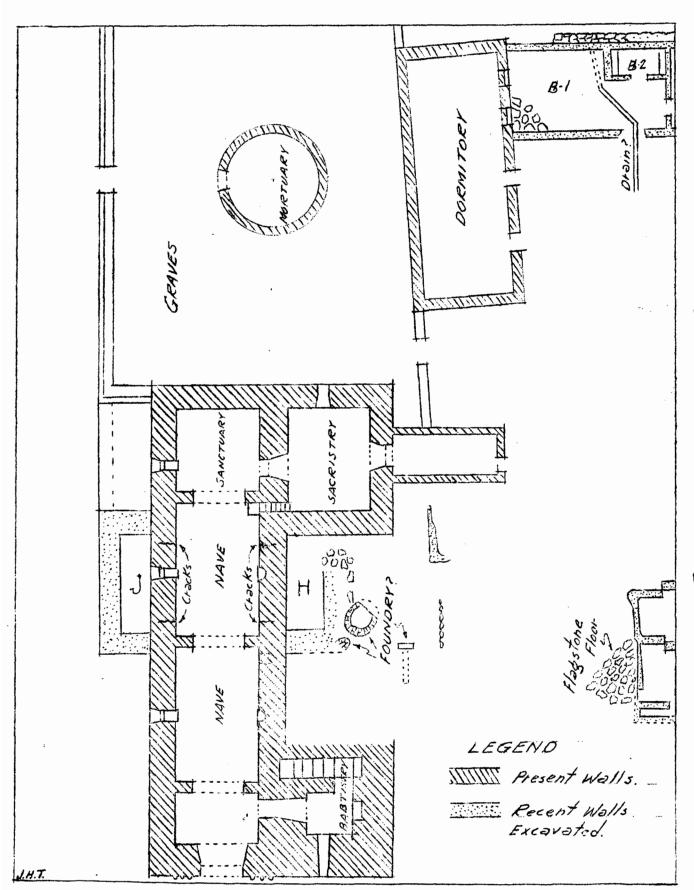


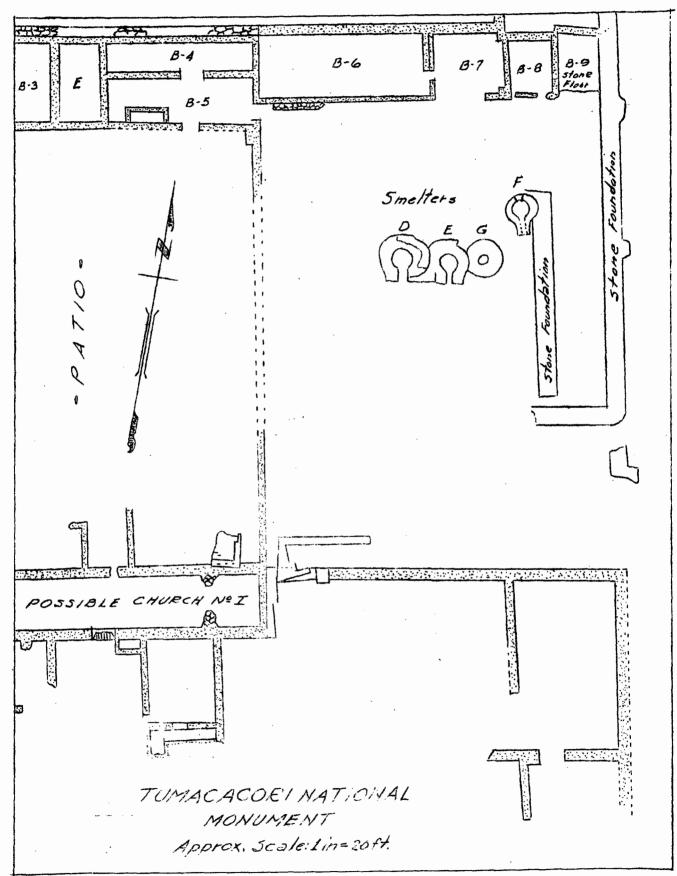
(both inside and out) similar to the slag and brick decoration on the Mission proper. But am afraid the east wing (H) is too far north to line with the wall cracks I supposed to represent the old pulpit entrance.

The four east rooms on the north side of the patio are built on loose dirt and in one or two I have plenty of adobe but no wall surface.

Mold

Where I think the metal for the bells was malted is where Mr. Boundey thinks they were cast. This is between the bell tower and the sacristy.



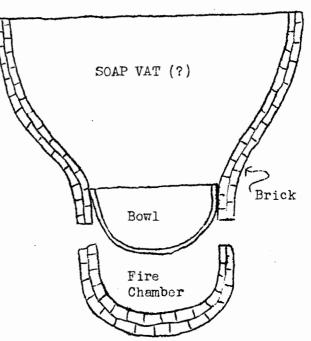


The smelter (?) (D, see Ground Plan) uncovered by Mr. Attwell has a twin brother (E) just beside it with about two thirds of an adobe dome. There is a ditch leading either into or out for water or smoke. Alongside was a deep

(nine feet, perhaps) brick-lined hole funnel-shaped at the top and halffilled with ashes. Possibly a soap vat. (G, see Ground Plan).

Next, I can't explain why the foundation of Possible Church I is offset. Have worked both corners out to a considerable depth and found that the ditch for the modern pipe line runs through one. But couldn't find anything at the other.

Then the south wall was first uncovered I left some adobe on it in places. Took some of it off and found a door or window. But whether it belonged the the Mission or to the room to the south is beyond me--- cannot tell whether it was coming or going.



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Possible explanation for the soap vat sketch above is that the fire might have been built in the bottom, bowl placed in and lye and fat put in on top. Soap would be caught in bowl.

# MUSEUM DEVELOPMENTS AT TUMACACORI

Note: Dr. Carl Russell, Field Naturalist from the Berkeley Office, after his recent study of the Kino chain of Missions, submitted a fine outline for the proposed Museum at Tumacacori. Copies were sent, among others, to the Southwestern Monuments Headquarters and to Paul Beaubien, both making criticisms and suggestions.

Beaubien's suggestions, we think, form a good example of constructive criticism, and we are running them as such in the following article.

Some explanation regarding the "cruciform" church is necessary, however.

Authorities differ as to the number of churches built on the Tumagacori site. Most certainly there were two; some say three. The building labeled "Possible Church Y" has potentialities of proving itself the old Kino church. For purposes of argumentation we are presuming that the second church (Possible Church II) might have been incorporated in the present Mission (Church III). Thus, the newly discovered lateral rooms (H,J) plus the nave of Church III would form the "cruciform" church mentioned by Beaubien in the following article.

Beaubien wrote the article just after the lateral rooms H and J were

discovered and before their relationship to the non-bonded joints (now showing as "cracks") inside the Mission had been surveyed.

It will be noticed that Beaubien states in his letter of January 26 above that his theory of Possible Church II was shaken by the facts disclosed by the surveying.

However, with the above facts in mind, the following article is very interesting. If weight of scientific evidence shifts to prove Possible Church II a reality, the church's outline might well be preserved in our new Museum Building, as suggested by Beaubien.

#### Dear Boss:

....Regarding Dr. Russell's Museum Outline: First, the evidence now would indicate the Mission once was cruciform in shape and smaller than at present. Of course the wings (H,J) could not be restored without wrecking the present Mission. How would it be to have the floor plan of the Museum correspond to the floor plan of the cruciform church?

I believe the floor of the cruciform church contained about 350 square feet more than the Museum of Carl's prospectus. If this enlargement could not be made, even with cheap adobe, the Museum could be scaled to requirements. If the idea was carried throughout the roof could be made as the present one and the walls decorated in the manner of the newly uncovered wings---that is, with handfulls of red crushed brick imbedded at regular intervals in the white plaster.

The Museum would be beautiful as well as appropriate. Also, the Custodian would not have to explain some of these new ideas like beams projecting from the walls for scaffolding, hidden chimneys, etc.

To me the outstanding thing here is the result accomplished by the padres with the simple means at their command. How would it be to have scale models of brick kilns, lime kilns, adobe pits and moulds, bell casting furnaces, copper smelters, arastras, soap vats, etc., even at the expense of some other exhibits. Their story cam be told only at this Monument. Or maybe the extra 350 square feet of the cruciform Mission could be utilized.

The educational value of the smelter-kiln idea is obvious. Visitors will be able to estimate the fifficulties confronting the padres and can better appreciate their accomplishments. They will remember how lime was made long after they have forgotten the home of Father Kino. They will know why Tumacacori was known as the mining Mission and may remember that the Spaniards initiated the natives into the use of adobe brick. Have often wondered how far down the highway a visitor travels before forgetting that Father Kino came here in 1691 or that he established missions at Guevavi, Tubutema, Caborca, etc.

(The "bell casting foundry" has become more complex. Evidently the heat was generated about ten feet away. Dug some just west of the dormitory(?) trying to find if the grave yard vall once carried through in line with its

northern half. Struck too many human bones and quit unsatisfied.).

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### THE JANUARY CASA GRANDE TRIP CHART

The January Trip Chart, showing the time of beginning and end of each trip of the month is published herewith.

Whereas in December we had only three trips start before nine in the morning, it will be noted that January shows ll such trips. In December we had 25 parties cross the five o'clock line and in January there were 34. In December we had two trips originate after five; in January there were seven. One trip lasted past six o'clock in December and there were five in January.

The indications are that this is the last month of the winter when two eight-hour men could handle the beginning and end of the day satisfactorily by working one from 8:00 to 5:00 and the other from 9:00 to 6:00, each with time off for noon.

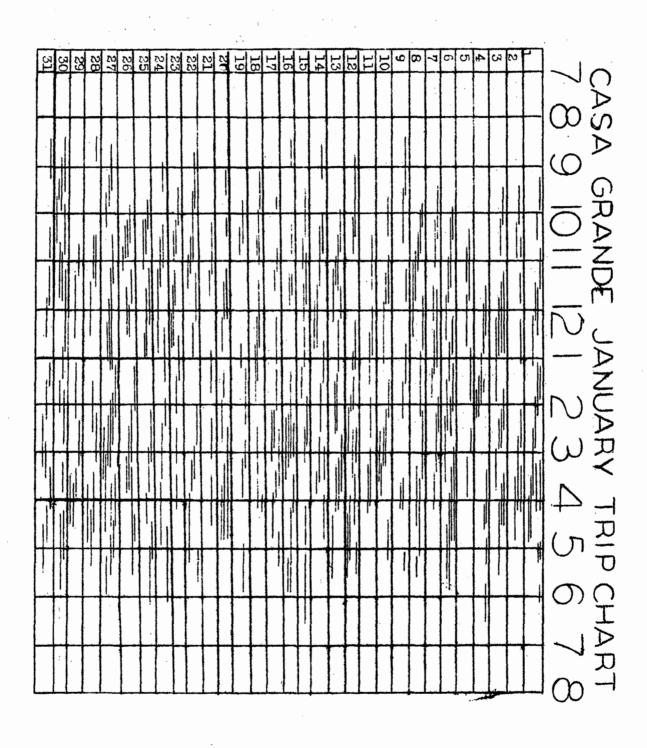
The noon hour sutuation was much worse in January than in December. With one man on duty between 11:30 and 1:30, it follows that any day which shows two parties during that time will show poor service. Cast your eye down the chart and see how many times two or more lines occur.

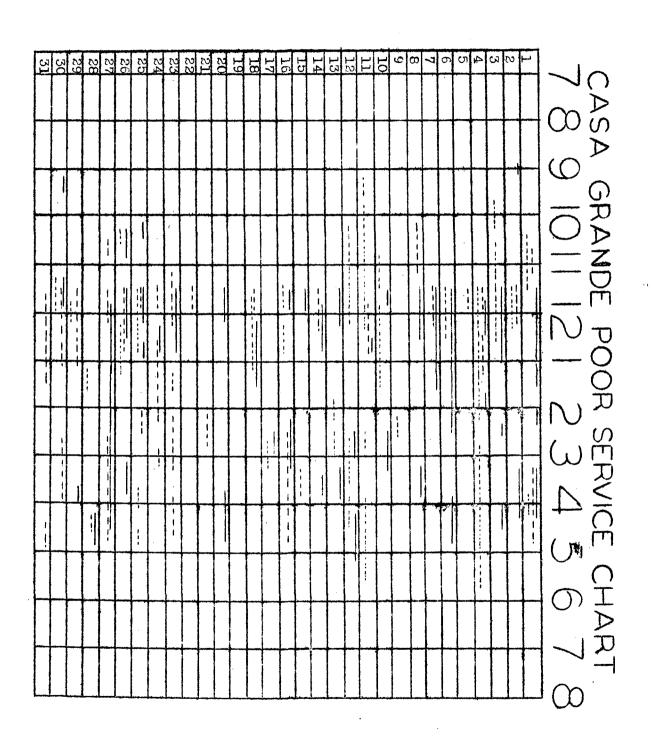
## CASA GRANDE POOR SERVICE CHART

We have gone over the November, December, and January trip charts and tabulated the various periods each day when we were forced to deliver poor service because we had more parties than the man or men on duty could handle at that particular time. Sometimes that situation exists, as shown on the trip chart, for only 15 minutes, sometimes for two hours or more.

We have indicated these periods by solid lines for January, long dots for December, and short dots for November on the Poor Service chart. Even a casual glance at the Poor Service Chart will convince one that two men at Casa Grande constitute an inadequate force for more time than we like to consider.

While it will be noticed that poor service was delivered pretty well all over the shop, there were few cases of it in this 90-day run before ten or after five. For these times, at least, we had the situation pretty well in hand. The worst poriod falls between 11:30 and 1:30 when only one man would be on duty. There is another period between 3:00 and 5:00 when the poor service peaks up again. This is caused by party peaking, for we are inclined to have a flush of visitors between those hours.





## SORROW AMONG THE NAVAJOS

From time to time we at Wupatki National Monument come into contact with bits of Navajo ethnology in the forms of beliefs and taboos. Because of a recent epidemic among our neighbors we have had an opportunity to observe at first hand how religiously some of their beliefs are observed, regardless of the hardships they involve.

After the death of a person it is customary to bury him some distance from the family hogan with all of his personal property. In one instance of the death of a boy the father even included in the burial some new clothes of his own---a real sacrifice in this cold weather. Following the burial, the family moves from the hogan near which the death occurred and remain away until all the tracks of the deceased have been obliterated by the lelments. They seem to think of a newly dead spirit as especially malignant and believe he returns to pick up the tracks he made on earth. This same fear of crossing the path of one just dead rules that they do not travel north following a death, because that is the direction in which the spirit goes.

Do you see how, in the event of more than one death, a family having only the usual two hogans is left without shelter?

I saw a family to which this had happened. Four grown people and three children, one of whom was very small and quite ill, were, in their sorrow and misery, blanket-wrapped and huddled around a small camp fire. The only shelter from a cold, driving rain was a strip of canvas not over three feet high temporarily propped on sticks.

Unfortunately this year the cold weather and lambing came at the same time and added a desolate sight.

I drove down the following evening to be of any help I could and found the camp deserted. There was a saddle horse dead in the small wash, a dam of debris above, and two new-born lambs dead on the bank. In the center of the wash below the horse was a half-buried, half-washed-out porcelain plate --- at other times a prized possession. Death had agin forced the living to move. ---James Brewer

An earlier letter of Jimmie's to Dale King said: "We seem to be in the midst of an epidemic here and the young of all our old friends are dying off. Calvin Peshlakai has lost two grandchildren; one was that sickly son of Thelma's. Clyde Peshlakai lost a boy---you rember "Shorty', the underdeveloped, heart-ailing kid with the bulbous eyes. Two others; all seem to have bad colds.

"There are two or three sings and sandpaintings in progress all the time. An Indian Service man told Clyde it was the same all over the

have thus for put out. The Rose