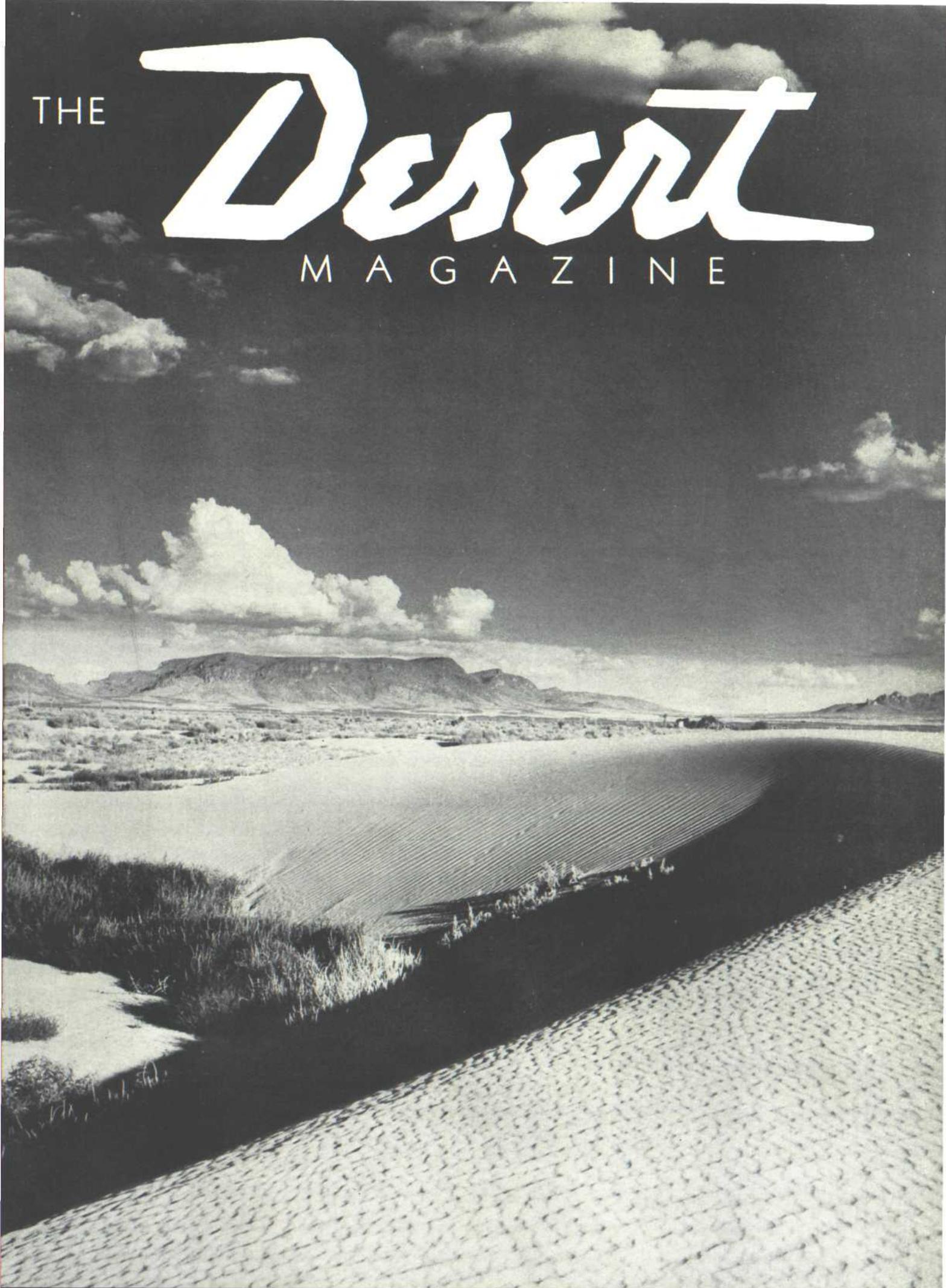


THE

Desert

M A G A Z I N E



MARCH, 1939

95 CENTS



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597 State Street

THE *Desert*
MAGAZINE

El Centro, California

MARCH

Calendar

Civic groups in the desert area are invited to use this column for announcing fairs, rodeos, conventions and other events which have more than local interest. Copy must reach the Desert Magazine by the 5th of the month preceding publication. There is no charge for these announcements.

FEB. 26 TO MARCH 5—Arizona State Citrus show and fiesta at Mesa, Arizona.

MARCH 1 — Southwest Museum, Los Angeles, will open exhibit of American Indian portrait paintings by E. A. Burbank. Fifty of Mr. Burbank's collection of 125 figures, will be presented.

MARCH 3-10—Livestock show at Tucson.

MARCH 4-5—Sierra club of California to camp near mouth of Carrizo canyon in Santa Rosa mountains and explore lower sector of Deep canyon. Don Kelly, leader.

MARCH. 5—Lecture on "Silverwork of the Navaho Indians" at Southwest Museum, Los Angeles, by Arthur Woodward.

MARCH 5—Annual trek of the Dons of Phoenix to Superstition mountain. James A. Murphy, chairman.

MARCH 5-13—Annual Imperial Valley Midwinter fair at Imperial. Dorman Stewart, Secretary.

MARCH 11-12—Convention of International Four States Highway Association at Brawley, California. Bob Hays, secretary.

MARCH 11-12—Dog show at Tucson.

MARCH 13-15—Highway 66 (the Will Rogers highway) convention and fiesta at Albuquerque, New Mexico. W. H. Black, chairman.

MARCH 15—Dr. John J. Thornber to lecture on "Plants of the Desert" at All States club house in Tucson.

MARCH 17—Frederic H. Douglas of Denver Art Museum to lecture at the Herad Museum, Phoenix.

MARCH 17—Desert Circus at Palm Springs, California.

MARCH 18—Annual northern Arizona high school debate at Arizona State Teachers' College at Flagstaff.

MARCH 22-25 — Pioneer miners to hold celebration at Miami, Arizona.

MARCH 23-27—Annual Arizona horse show to be held in Phoenix.

MARCH 24-25 — Second annual conference on roads and streets at Tucson, conducted by University of Arizona engineering department.

MARCH 25-26—Sierra club of California to camp in Red Rock canyon on Mojave desert and explore Petroglyph canyon. George Diack, leader.

Roads Closed by Snow

According to the Arizona State highway department, the following roads have been closed for the winter due to snow:

Jacob Lake to North Rim of Grand Canyon; Coronado Trail, Beaver Head lodge to Eagle creek; State 72, from McNary to Greer Junction.



Volume 2

MARCH, 1939

Number 5

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RANDALL HENDERSON, Editor
TAZEWELL H. LAMB, Associate Editor
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Marie Guassic

By MRS. BILLY ANDERSON
3517 Rowland Avenue
Burbank, California

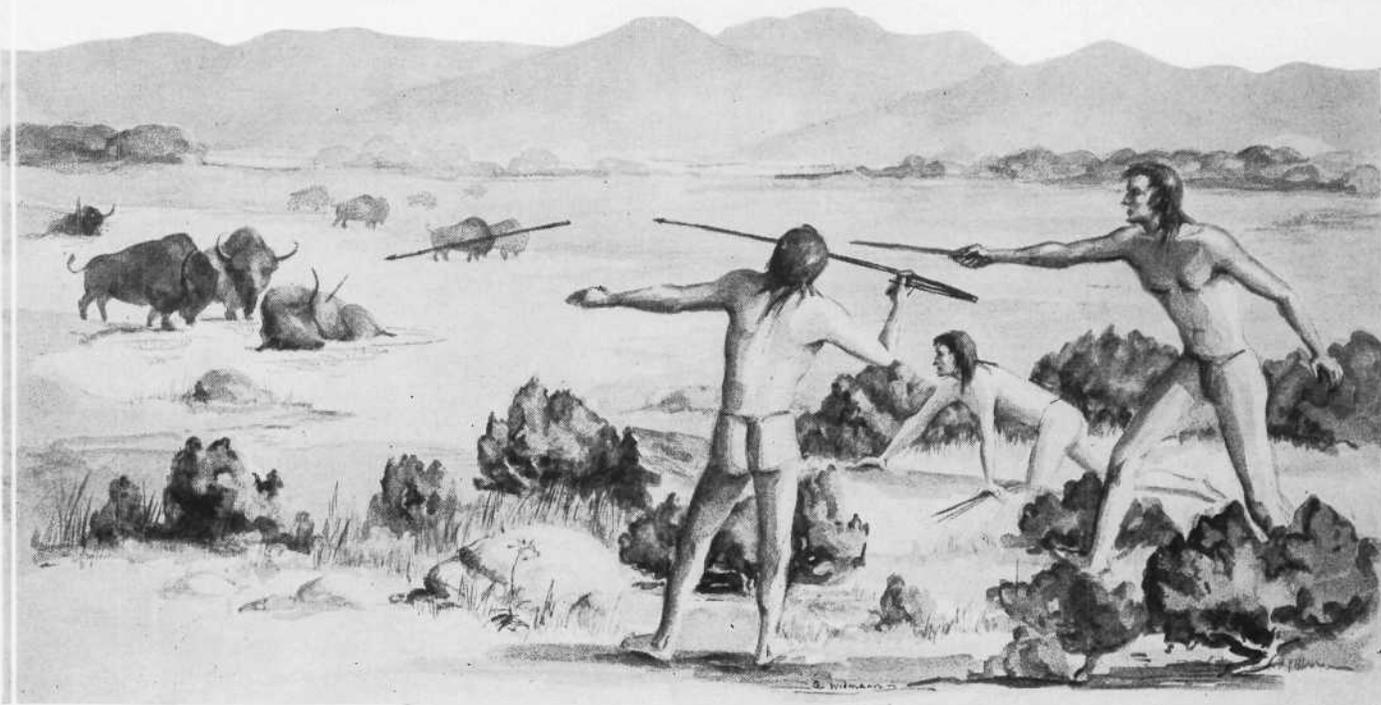
First prize picture in the January contest sponsored by the Desert Magazine. Mrs. Guassic is a 113-year-old Cahuilla Indian woman residing near Thermal, California. The photograph was taken with a Leica at 2:30 p. m., December 31. Exposure 12'5, time 1/100 second.



Death Valley Dunes

By HARRY DACQUET
710 West 108th Street
Los Angeles, California

This picture awarded second prize in the January contest. Taken with a Zeiss Super-Ikomat 616. S. S. Pan film, 1/25 second at f16. Making use of the delayed shutter action in his Zeiss, the photographer took this picture of his wife, Amelia and himself in the early morning hours.



Art sketch by Gloria Widmann

Glimpses of the Ancients

By RUTH FALKENBURG KIRK

Photos Courtesy School of American Research Museum of New Mexico

WHAT the man looked like, and how he was dressed, is purely a speculative matter. That he peered anxiously out from behind a clump of bushes no one doubts, and it is definitely established that he watched a herd of bison grazing nearby, a predatory light in his eyes. It is all rather vague, having taken place many thousand years ago. Maybe he got his prey, maybe not. They found some of his spear points and the bones of the prehistoric beast in a cave near Folsom, New Mexico, and that is all we know about the Folsom man of ancient times. It was important even to learn that man had existed in this great American Southwest contemporaneously with herds of an extinct species of bison.

Another phantom on the horizon is the Bishop's Cap, New Mexico, man, whose actual bones were all mixed up with those of cave bear, camel, ground sloth and even the tiny horse of the dawn-of-time era. But there's not too much sub-

stantiation for Mr. Bishop's Cap, since he might have come along somewhat later, laid himself down to die on a heap of prehistoric bones, and then stirred around until his remains were all mixed up with those of the long dead animals. There may have been an actual contact between the man and the beasts; there may not have been.

Now Mr. Gypsum Cave, Nevada, is another matter. He was lucky enough not to leave himself in the cave with the ground sloth, but he left convincing evidence of his occupancy at the same time. This evidence consists of knife blades, well worked sticks and even a stone-tipped spear, which he must have regretted losing. Ground sloths lived in this country a mighty long time ago, so Mr. Gypsum Cave is really an ancient inhabitant. Whether it was he, or some of his undiscovered descendants who brought corn into the country—probably from Mexican cousins to the south, we are sure some of these good people were responsible, and a great boon they proved to coming civilizations.

We are a little short of dates about the whole business, but by the time the

What manner of man inhabited the desert area of the Southwest before the dawn of the civilized era? For years the men of science have been digging into ancient ruins and exploring caves and burial grounds and prehistoric garbage dumps seeking the answer to this question. Volumes have been written as to the findings and conclusions of those engaged in this research. Since few readers have the time and opportunity to study all this material, Ruth Kirk in the accompanying text, has condensed the entire story to a brief outline for those who would like to get the general picture at one reading.

Basketmaker first left his imprint, a good deal of time had elapsed, archaeological computations dating him somewhere from 2000 to 1500 B. C.

This Basketmaker I man—his era is divided into three phases — was a nomadic soul, who lived on game, wild vegetables and such fruits as grew in the untamed country around him. He probably had inherited the corn of Mr. Gypsum Cave, but at the beginning of his era he didn't take agriculture very seriously. We must pay tribute to this fellow's basketry, because he earned his title well. The baskets, sandals, rope and textiles of this early period, made mostly from yucca fibers, are fine and smoothly woven, of intricate design and high craftsmanship. This man was an artist, even when he had no permanent home, and little of anything else.

Mr. Basketmaker II with his wife and babies is a descendant of No. I, being a semi-hunting, semi-agricultural chap. The corn he grew was hard and flint-like, but it was food, and in time he learned to store excess crops against scarcer days. The storage compartment was simply a hole in the floor of a cave — the same

cave he had always used as a shelter in time of cold or stress. This No. II man was a real expert at basketry, making bags both twined and woven, ropes and nets, sandals, etc. as well as baskets. Some of these are of an incredible fineness of weave. He also knew how to make stone knives and javelin points, and several types of wooden implements. His offensive weapon was a short spear used with a spear thrower or atlatl.

Mr. No. II slides rather smoothly into the period of Mr. Basketmaker III. By this time a thousand years or more had slipped by since Basketmaker I had claimed the center of the spotlight and this early citizen was beginning to learn things. He first lined his corn storage pits with slabs of stone, and that proved to be such a good idea, he next enlarged the hole, stuck poles and mud over the top, and crawled in himself. He was freed from his homeless state, with only a cave as temporary protection. Some of the more venturesome climbed into the new fangled homes through a hole in the roof, but probably the more conservative souls were those who insisted on a special type of entrance. First, the home owner dug down into the earth at a little distance from his pithouse, to excavate an antechamber, then he connected this antechamber to the pithouse proper with a narrow passageway, either in the form of a higher level bench along which he crawled to effect his entrance, or on a lower level from the floor of the antechamber to the floor of the pithouse in a tunnel-like passage topped with a low roof and filled with debris to the ground level. He had a hole in the roof to let the smoke out, his fire being built in a firepit in the center of the room directly

Archaeological students on field assignment assist with the excavations at Chetro Kettl.



under the smoke hole. The household gods were enshrined spiritually in a small excavation near the firepit, known as the *sipapu*.

Later Basketmakers finally got around to evolving a side doorway, but this early pithouse left an imprint that is borne to this very day, as we shall see.

Another big thing this third Basketmaker learned was to make a sort of pottery. At first it wasn't much good. Probably from chinking in his roof with mud he got the idea of chinking in his basketry; maybe the idea came from carrying mud in a basket for covering over his roof. Sometimes, after mud had dried in the baskets, chunks of it fell out, making handy little receptacles for uses such as storing seeds. More often he smeared the outside of the basket with mud, and this idea didn't bolster the art of basket making. Why bother about a fine weave or a lovely design when mud would cover it all anyway? So basket making declined and pottery making was born the minute an accidental fire taught this last of the Basketmakers how to bake his clay.

The same period added beans as an agricultural product, feather robes were inaugurated to replace the furs worn theretofore, and word of a marvelous new invention trickled in — bows and arrows.

Roundheads Take the Stage

But Mr. Basketmaker was not to enjoy the fruits of his discoveries. A new people were upon him, a strange round-skulled type of man—a Mongolian. It is a surprise to learn that these Basketmakers were not Mongolian; they were a long-headed people, of three distinct types. To quote an eminent archaeologist, "The first of these groups is closely allied to the fundamental brown-skinned European-African long-headed stock called 'Mediterranean,' the second seems

to have been derived from an archaic type of modern man which is represented, mixed with other elements, in the native Australians and the Ainu; the third was almost certainly negroid but not negro." (Frank H. H. Roberts, Jr. in his report to the Smithsonian Institute, Bulletin 111.)

The new race arrived in small groups. On some occasions there undoubtedly was strife between the old and the new. In some sections the newcomers settled peacefully. Whichever the procedure, as time went on the round heads absorbed or destroyed their predecessors until only round heads remained.

Pithouses and Graves Tell Story

How can we know these things? Mostly from remains of the pithouses and from graves. In many sections the pithouses were destroyed by fire, possibly by enemies of the Basketmaker dwellers, and during the long centuries since, in this arid land, nothing has disturbed the charred remains. A few tons of sand blown in were a simple problem for archaeologists to solve, as sand is easily cleared away from the packed earth of the pithouse floor and walls, and often the baked, fire-burned clay from the rooftop was found in the bottom of the pit just as it had fallen in, still bearing the marks of each stick and pole used in building the roof.

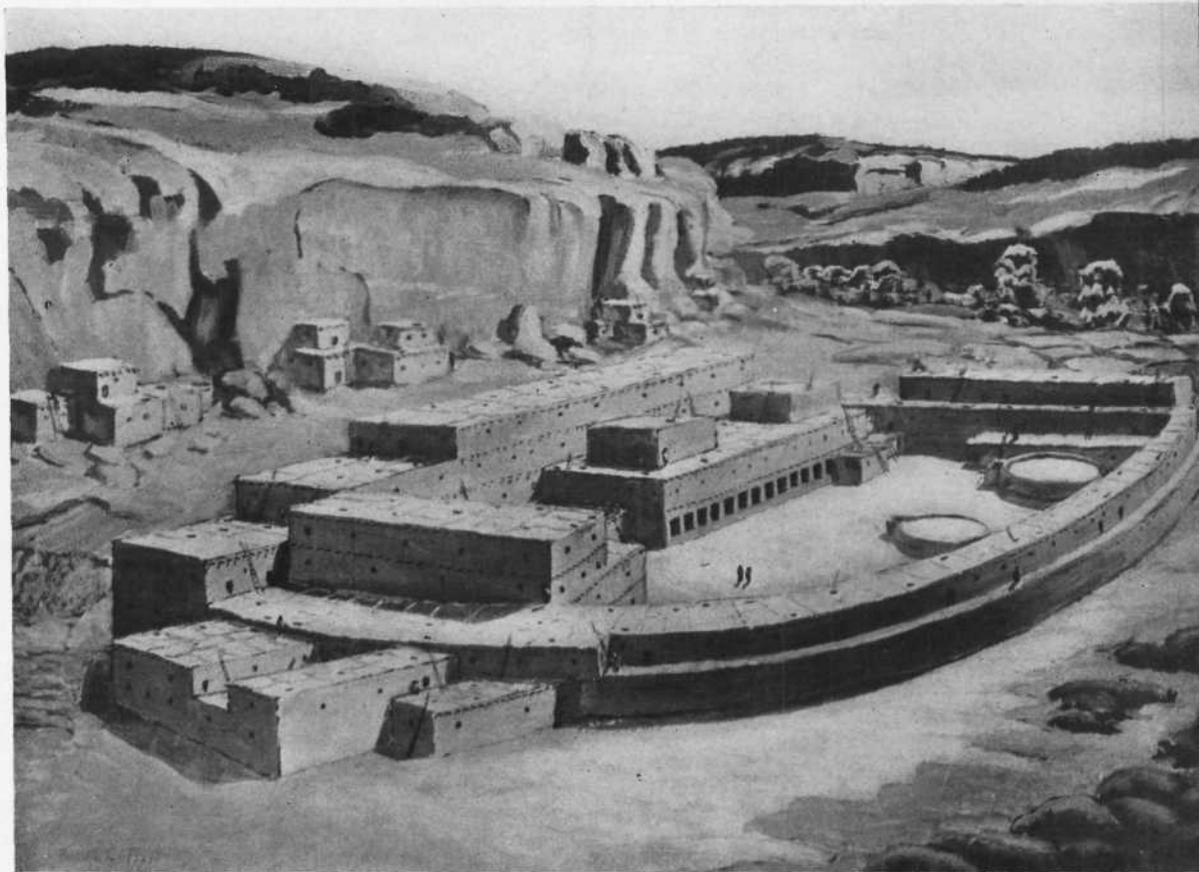
The graves nearby, usually in the refuse heaps, tell the rest of the story, with their implements, feather robes, baskets, etc. buried with the body. The skeletons show these old chaps weren't stretched out comfortably in their graves, but were doubled up, their knees under their chins. Some of them are in a remarkable state of preservation.

The later pithouses, easily identifiable by differences in construction, accompany graves where some round-headed folk lie with long-headed ones. Eventually the long heads became scarcer and scarcer until the dawn of the day when the new people were completely in possession and only round-headed corpses were buried. The day of the Basketmaker was over.

The passageway entrance of our earliest pithouse survived in the latest pithouse form of a ventilator, as we call it, only a few inches large. Whether this evolution which turned an entrance into a ventilator was the product of tradition or whether the primitive man recognized the value of a ventilator we can't say, but at any rate it served its purpose well.

The dawn of the Christian era was also the dawn of the Pueblo cultures—of the round heads who replaced the ancient Basketmaker peoples. The Pueblo era has been divided into five groups, the earliest, or Pueblo I, dating from about

Ancient pueblo of Chetro Kettle as it probably looked at the peak of its Indian occupancy. This picture is a reproduction of a painting by R. M. Coffin for the Museum of New Mexico. It was loaned to the Desert Magazine through the courtesy of the School of American Research.



the end of the 2nd Century, A. D. They were rather progressive people, too. They took the Basketmaker one-room house (which had finally been improved until it had straight walls instead of sloping ones) and strung several of them together to make connecting rooms. They evolved the first true masonry from the Basketmaker use of stone slabs to line his pithouse. They introduced cotton and the weaving of cotton fabrics, a simple step for a people accustomed to basketry. Nearly every museum of the Southwestern American Indian displays tattered specimens of early cotton textiles from this period.

Mr. Pueblo II advanced these achievements, learning to build walls all of masonry—very fine ones, too. He dwelt in small villages, and perfected the art of pottery-making and designing. He developed agriculture, growing squash and other delicacies in addition to the usual corn and beans.

Some of the conservatives of his day, however, worried about religious observances. They didn't like the new rectangular, adjoining rooms and were sure their gods would resent the new surroundings. Was it to placate these "old guards" that a pithouse hangover occurred? Because here and there as occasion required, pithouses of the old type were constructed for use solely for religious observance—the first kivas. This custom persisted through all the Pueblo cultures, with some variations as to location, size, shape,

number, etc. but to this day our Pueblo kivas are replicas of ancient Basketmaker pithouses. They retain the ventilator, remains of the former entryway; and they have a firepit, also the excavation known as the *sipapu*. From being the household shrine the *sipapu* developed naturally into the special abiding place of the spirits in the modern kiva.

Pueblo Culture Develops

Pueblo II civilization marched on until the era gave birth to the greatest culture of them all, Pueblo III (about 950 to 1350 A. D.). This "classic era" did not dawn simultaneously all over the country, however. The Basketmaker culture was quite general and so was the early Pueblo development. The piling up of rooms to achieve many stories and the grouping of villages into the great communal centers occurred more sporadically, and artistic development became more localized. This resulted in variety of ceramics and other arts. One locality with a certain type of clay produced a pottery different from another section with different clay. Materials for use in decorating jars differed in various localities. In the west, for instance, a carbon mixture was used for the design, applied before the vessels were polished, while toward the east an iron paint was applied over the polish. Shapes, sizes and designs varied. Today an expert can look at a pot, or even a fragment, from this classic Pueblo period, and know where it was produced.

More and more, due to regional drought and ravages of wilder tribes—first Shoshonean and then Navaho—the smaller villages were consolidated and the great apartment house developed. These immense dwellings, some of them housing as many as 1000 to 1500 people, have been bequeathed to us in the spectacular ruins which may be seen at Mesa Verde, especially Spruce Tree House and Cliff Palace, also in the Kayenta region at Betatakin and Kietseel, and in the Chaco canyon where the civilization reached its height, in southern Arizona and elsewhere. At Aztec, New Mexico, an early Chaco people moved in. Later the site was abandoned and eventually a group of Mesa Verde people settled there. This is an interesting spot for tourists, as one of the large kivas has been reconstructed to show how it must have looked when in use.

At Pueblo Bonito and Chetro Kettle in Chaco canyon, New Mexico, one sees magnificent masonry, in structures almost too huge to believe. Here also are the great kivas, the largest known. Some of the finest of the late Basketmaker pithouses have been excavated nearby.

As Pueblo III slips into period IV (1350 to 1700 A. D.) some of these communal centers break down, while others expand. Notably among the latter are the great civilizations of the Pajarito Plateau, near Santa Fe, New Mexico, especially Frijoles and Puye', which reached their height early in the Pueblo IV



Excavating among the ancient ruins in Chaco canyon

phase. This era is one of localized development instead of a general growth and it has been a tremendous task for archaeologists to trace the trends of population and house building in the various districts.

How do we know all this? Patiently digging under the blistering sun, for many long seasons, archaeologists have labored to piece together, bit by bit, the knowledge we have. It is still incomplete, but with scientific exactitude there has been established a sound framework of data on which to build. Not one shaky fact has been allowed to stand in this framework, so today archaeologists can point with pride, and say, "This much we know for sure."

Tree Calendar Proves Dates

From the refuse heaps came potsherds. From abandoned rooms came household utensils, seeds, weapons. From graves came the physical selves and the artifacts of forgotten peoples. Dating was at first hazy, based on a system of stratigraphy but without definite time marks. Later the dating problem was solved by Dr. A. E. Douglass' discovery of tree ring readings.

Checking sunspots and their relation to climate, Dr. Douglass discovered that trees growing in the same section show identical reactions to moist or dry seasons by the width of the tree ring grown each year. Trees in a moist year all grow a wide ring, in a dry year a narrow one. Checking back he found, for instance, that the last ten rings in a 50-year-old tree would be identical in size with the inner rings of a tree just ten years old,

proving they had both lived through certain seasons together. From living trees to those cut some time ago, and back to timbers in old churches and old homes, then back further yet to timbers in ancient ruins were the trees checked. Finally the time came when the talkative rings proclaimed that such and such a tree in an abandoned village had grown during a certain definite period; had been cut down and used for the construction in a certain set year. The ruins were dated! Borings have been taken from timbers in all the ruins available, and from them has been evolved a master chart which pushes known dates back, year by year, to 700 A. D. Timbers from the much earlier pithouses have been charted, but so far it has been impossible to match them to a master chart to date them. Figures for civilizations earlier than 700 A. D. are based on calculations as to how long it takes for primitive ideas to develop, and are therefore tentative, although based on sound logic.

Some of the great cultures fell into a decline near the end of the Pueblo III era. Many of the palace houses were abandoned because of droughts, the country having undergone nearly 30 years with practically no rain during this period. Others may have been decimated by disease or the further encroachment of savage enemies. Often an entire community would move out to settle beside a river, or on a remote mesa top. These migration trends have all been traced; for instance the Mesa Verde people and Canyon de Chelley people moved into the present day Hopiland and the folk from Frijoles and Puye' drifted down to

settle some of the Rio Grande Pueblos.

The middle of Pueblo IV, with this shifting of population, saw the coming of the Spaniards and their conquest of the Pueblo people. It is convenient to consider the second phase of Pueblo IV as the time after the conquest, which saw the Pueblo Rebellion of 1680 and the reconquest by the Spanish in 1692.

Pueblo Indian of Today is No. V

Which brings us to Pueblo V, our final and present phase. All of the modern Pueblo villages, from Taos to Hopiland fall under this classification. Mr. No. V is our 1939 Pueblo Indian—not streamlined, but tenacious of old beliefs and old customs. He is the rug and jewelry peddler you meet in the hotel, the dancer who entertains you so splendidly with his quick, light steps and his savage dance regalia. He is the hard working farmer of Cochiti and Santo Domingo — so primitive and colorful when he threshes his wheat and shucks his multi-colored corn. He is the patient beadmaker of Zuni, forever drilling on bits of turquoise or wampum to string a necklace. He is the guard on duty before the kiva of Isleta or San Ildefonso, the stern visaged snake priest of Walpai or Hotevilla.

In his veins runs the blood of the ancient Basketmakers. In his heart are the instincts and pride of the great communal house era. In his fingertips is the artistic heritage of his ancestors. In this little known and less understood Indian the whole glamorous past lives. In him, as Charles Lummis so aptly put it, we "catch our archaeology alive."

One Navaho verb has nearly as many forms as there are words in the vocabulary of the average English-speaking person. It is a difficult language to learn, and even more baffling is the problem of reducing it to writing. Here is the story of a mission father who has devoted 38 years of painstaking work to the solution of this problem—to the end that the Navaho may understand and accept the teachings of Christianity.

Gentle Padre Inventor of Alphabet for Navaho Tribe

By MRS. WHITE MOUNTAIN SMITH



Father Berard in his study.

OLDEST man in the monastery of St. Michael's in northern Arizona, both in years and in service, is a small gray haired monk, low voiced and unobtrusive. He walks quietly on sanded feet, but the heart of St. Michael's beats in unison with his measured movements.

"Father Berard is our historian," or, "When we need to know anything about the Navahos or their country we go to Father Berard." These were the answers when I questioned the friars stationed there in that beehive of the Catholic church.

"I wish to know something of the development of the written Navaho language," I said, and then I knew why all inquiries led to this Father Berard. For thirty-odd years he has occupied himself with learning and teaching one of the most difficult of all Indian tongues—the Navaho.

I hesitated before breaking in on the good Father's routine, but desire to hear first-hand about his work spurred me on.

I drove along the winding road through hills once creeping with hostile Navahos and revengeful soldiers, until I reached the stone mission snuggled down in a sheltered ravine. This branch of the church is in the heart of the reservation, almost in the shadow of historic old Fort Defiance, built in 1852 for the purpose of subduing and killing, if necessary, the Navahos of that region. St. Michael's was erected to save this tribe of Indians, body and soul, and help them become useful Christian men and women. Since its modest beginning in 1897 it has grown steadily with the years. When I rang the bell and asked for Father Berard I was prepared to meet a very stern, perhaps impatient person, who'd be resentful at being disturbed by an inquisitive woman. Instead, I found one of the most interesting and most human gentlemen I've ever seen in any walk of life.

Back in Ohio in 1874, a son was born to German parents. His parents named him Jacob. All too soon they died and the child was placed in an orphan-

age. Doubtless he and his companions played "Indian" and made many a red-skin bite the dust, just as small boys have done since our forefathers came to America. Somewhere along the way Jacob Haile decided to spend his life serving his Church, and he was educated for the priesthood at a Cincinnati seminary. Remembering the placid old river city with its low, tree-covered hills, and the eternal ringing of Church bells, I wondered what possible connection his training there in Ohio could have with barren Arizona and its 40,000 Navahos.

"When did you first plan to come out here and work with the Indians?"

The shabby old reception room with its battered furniture and well worn Navaho rugs was very quiet and peaceful in the late afternoon sun. Over the piano a picture of Father Weber, loved by every one who ever knew him, dominates the room. While I waited for the scholarly monk to answer my question, I recalled the many things I'd heard of this mission from my Navaho friends. They may

wander away from its teaching and influence until some tragedy overtakes them, or until they scandalize whatever religious faction they've taken up, but they return to St. Michael's and its helpful fathers like small boys returning home at dark. My thoughts were interrupted by a most unorthodox chuckle.

"I never remember giving Arizona Indians a single thought until I found myself obliged to come here!" Another pause. "A priest conducting a visitation told us about the mission here and its need of workers. He asked volunteers and I was caught napping. I couldn't think of any reason for *not* coming, and so here I am. I've been here 38 years."

Thirty-eight years away from the things he must have loved—good books, fine paintings, beautiful music, wooded mountains, congenial friends, all the things we associate with real living; but I doubt if he really has missed them. His fine brain and courageous heart have built for him a life that is not lacking. His keen eyes sparkled with fun as he talked of his first fantastic years at St. Michael's. I gathered that living here then was boiled down to mere existence. The first buildings were makeshift affairs, and the young volunteer must have thought frequently of St. John's 40 days' fast in the wilderness. The mission had been estab-

Navaho should be spelled with an "h"

By A. BERARD HAILE, O. F. M.

Probably **Navahú** is of Tewa origin, and the Apache band inhabiting that district was known to the Tewa Indians as "Apaches of **Navahú**". Fray Benavides in 1630, and most Spanish authors since that time Hispanicise the name Navajo, as is quite natural.

Americans, after the occupation of New Mexico, accepted this Hispanicised form, but erroneously and somewhat tenaciously insisted upon its Spanish origin. That tradition, if we may call it so, still persists in the usage of the Indian office and government printing office which have adhered to the Spanish form of the spelling.

It may be true enough that **navaja** connotes a knife or razor, and if we desired to derive Navajo from **navaja** we should impose upon the sensibilities of Spanish grammar. **Las navajas** "knives" and **los navajos** (my accenting) for "knifers," do not appeal to the Spanish ear. And so with other words in Spanish which seem to parallel "Navajos."

Common usage among Spanish speaking people in the Southwest acknowledges the foreign origin of Navajo. Commonly we hear "**una Navajosa**," a Navajo woman; **los Navajoses**, the Navahos. Under the leadership of the late Dr. Washington Mathews, U. S. A., the best scholars have dropped the Spanish (?) form of spelling, and have Anglicised it Navaho, as it should be.

You may rest assured that the Navahos themselves consider this a foreign word. They pronounce it **na-be-hó** (a as in father, e as in met, o as in go). In their language they call themselves **di-né**, meaning "the people."



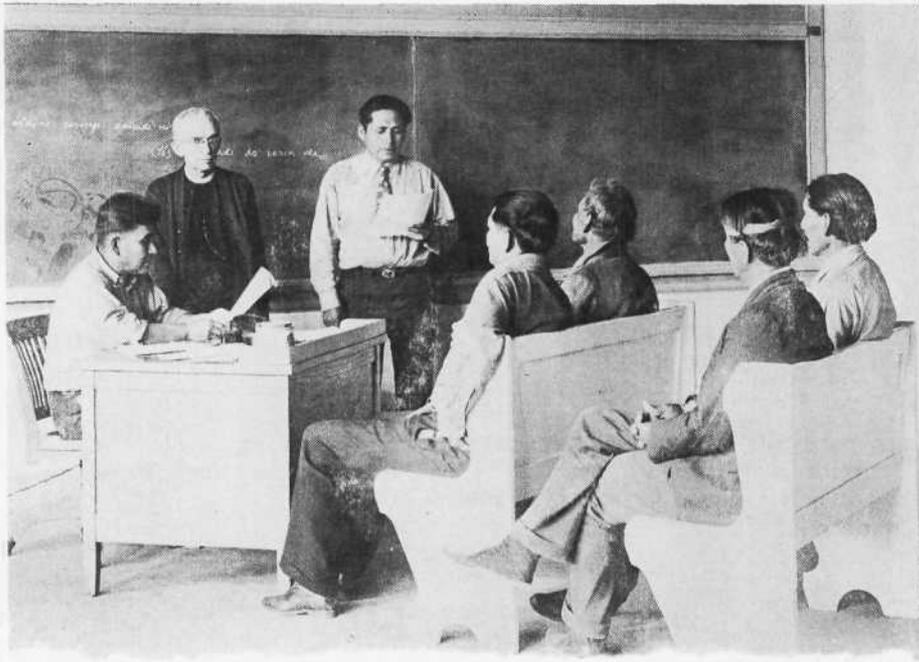
In the center—Pete Price, great singer of the Mountain Chant. He and the other Navahos with him have great admiration for Father Berard — but they are not ready yet to abandon their tribal rituals for the faith of their friend.

lished two years when Father Berard, our erstwhile Jacob Haile, took his place with its members.

"The Navahos spoke no English of course, and we knew not a word of Navaho. We'd pick up some ordinary object and name it. The Indian would repeat the word over and over until he knew it and connected it with that certain object. Then we'd struggle with the Navaho name until we more or less mastered it. The trouble was so many things in *our* daily life were nameless as far as the Navahos were concerned.

"I firmly believe that intimate contact with any people must come through their language. Particularly is that true when a tribe has no written language, and all their history, their legends, their beliefs and their endeavors are handed down from generation to generation by word of mouth. And so all these years I've been trying to put their thought into writing, and their language sounds into symbols. In the Navaho language are sounds that our limited 26-letter alphabet does not cover. It is therefore necessary to invent a series of phonetic symbols. There is no precedent to follow in learning or teaching Navaho."

I silently agreed with my instructor. I know of nothing more confusing than an attempt to reduce Navaho groans and grunts to intelligible oratory! And yet



Father Berard is helping the Navaho Tribal constitutional committee draft the new constitution and by-laws under which the Navahos are governing themselves.

there are some new books just published that promise the teaching of Navaho in six easy lessons, so to say.

"How many words are there in the Navaho language, Father?"

"My dear lady, how many stars are there in the heavens? One Navaho verb has almost as many forms as the ordinary person has words in his vocabulary. A working vocabulary? Hum-m. Let's skip that!"

"Do you find anything to indicate that the Navaho and Chinese languages are derived from the same source? Or that they are in any way similar?"

"Absolutely not. Not in the slightest detail. In fact several scholars have made intensive research into that moot question. A Chinese student of the University of Chicago, for instance, is now in Southern China and Siam and is making linguistic studies there in order to compare southern Chinese languages and dialects with the Navaho. He has found no similarity. He had previously made a study of the Mattole, an Athapaskan tribe, really made comparative studies, and found no connection."

"In what way does the Navaho alphabet you've evolved differ from ours? Is it a sort of shorthand combination of sounds for which one character represents several - - - !"

I floundered on, sadly beyond my depth, and the twinkling regard of Father Berard did nothing to put me more at ease.

"Stay out of the technical side, I'd advise you. It would only confuse you and your readers. There are 26 characters in the Navaho alphabet I've worked out. Some of them represent sounds for which

two and three English characters would be required, and even then, what would you have? One has to have an ear for languages to understand the work I'm doing. I'm afraid your ear for Navaho is atrocious!"

Needless to say I'll practice my two Navaho words no more in the presence of Father Berard!

"Have you tried your system on others than the friars under your tutelage?"

"Yes. Last year the government induced me to work with the Navaho council interpreters while the constitution of the tribe was in preparation. And I was supposed to go to Fort Wingate and teach there but Uncle Sam ran out of funds or decided to use some other method of teaching the young Navaho. I'll stick to my own private classes from now on I think."

"Do you, yourself, have instruction periods for the Navahos?"

"Oh, no. I instruct the workers only. I teach the friars, and they in turn teach in the schools and instruction centers. The Sisters have regular instruction and they use their knowledge in the school-rooms."

For awhile we spoke of the old-time cruel method of punishing Navaho children who spoke their native tongue in the government schools. It is only in recent years Indian children are encouraged to learn English and at the same time retain their own language.

St. Michael's mission was established to save souls of Navahos. In order to save a Navaho soul, the Navaho must know he has a soul and must have a desire to have it saved. He and his spiritual advisor must have a means of communica-

tion. He must know what is being said to him and in turn be able to express his thoughts and questions to his instructor. In short the Navaho must speak English or the fathers must speak Navaho. All must learn to put their words into writing and read it after it's written, before any great progress can be made. Father Berard, perhaps more than any other person of any existing institution, is spanning the difficult gap that must be bridged before there can be complete understanding between the Indian and his white neighbor.

Monthly Prizes for Amateur Photographers

Each month the Desert Magazine offers cash prizes of \$5.00 and \$3.00 for first and second place winners in a photographic contest for amateurs.

Pictures must be limited to desert subjects, but include a wide range of possibilities — landscapes, close-ups of plant and animal life, character studies, Indians, canyons and rock formations, in fact any picture that belongs to the desert country.

There is no restriction as to the residence of the photographer and during the 15 months the contest has been held more prizes have been won by visiting amateurs than by desert residents. Following are the rules:

1—Pictures submitted in the March contest must be received at the Desert Magazine office by March 20.

2—Not more than four prints may be submitted by one person in one month.

3—Winners will be required to furnish either good glossy enlargements or the original negatives if requested.

4—Prints must be in black and white, 2½x3¼ or larger.

5—Pictures will be returned only when postage is enclosed.

For non-prize-winning pictures accepted for publication \$1.00 will be paid for each print.

Winners of the March contest will be announced and the pictures published in the May number of the magazine. Address all entries to:

CONTEST EDITOR,
DESERT MAGAZINE,
EL CENTRO, CALIFORNIA.

Saga of Old Picacho

By J. WILSON MCKENNEY

AS the mining camp of Picacho sleeps, the brown waters of the Colorado creep up to drown the last flicker of its once robust vitality. Ancient arrastras and crumbling adobe walls will soon be under the surface of a lake formed by the recently completed Imperial dam.

The townsite of Picacho will disappear but there remain the open glory holes and dark shafts of the Picacho basin gold-mining district, five miles southwest of the river and 20 miles north of Yuma, Arizona. Abandoned for many years, the mines may soon be revitalized, reminiscent of bonanza days half a century gone, which a few veterans can still recall.

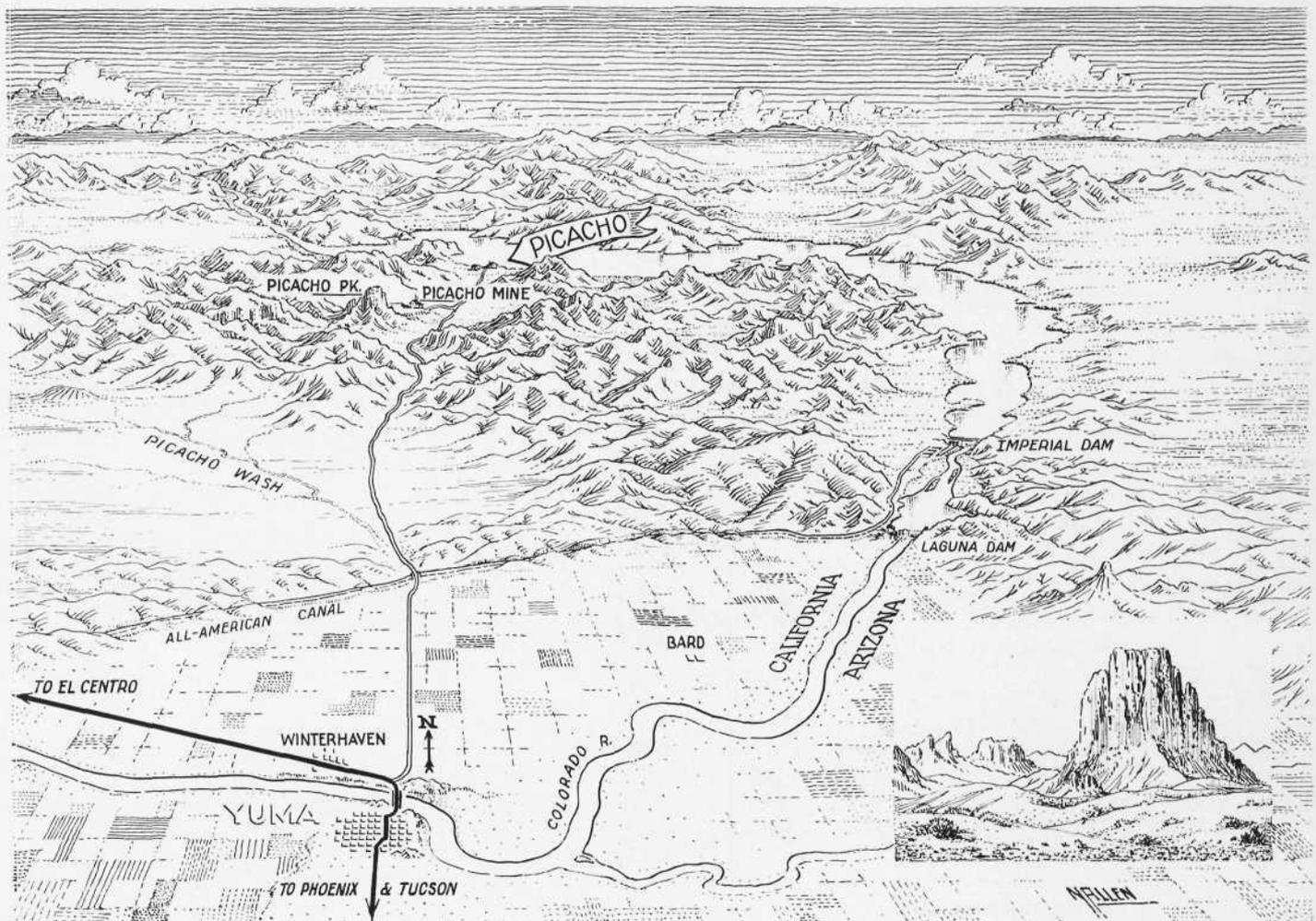
Mendivil is a magic name in the story of Picacho, for it was Jose Mendivil who discovered rich gold-bearing gravels there three-quarters of a century ago. Thus he became the hero of a western saga rife with lust and chicanery, but brightened with the sounds and sights of Mexican cock-fights and *bailes*.

Ysidro, 66, eldest son of Jose, is one of the survivors of Picacho's turbulent life. From him and his son Michael; from Mrs. Clara Townsend, daughter of the first school-teacher and postmaster; from early state mining reports and county legal records, came fragments of information with which I pieced together this story of Picacho.

Jose Maria Mendivil was born in central Sonora, December 8, 1838, the son

of Ramon, a Mexican geologist. His father was part Spaniard and part Oaxaca Indian, his mother half Spaniard and half Pima Indian. One morning in his seventh year he trudged off to school waving goodbye to his father and mother, not knowing it would be the last time he would ever see them. That day a band of roving Apaches captured him and took him away to the north. As an old man he told his grandson Michael the thrilling episodes of his life as a captive, wandering for eight years in the desert, always alert for an opportunity to escape.

The Mexican War was turning American eyes toward the Southwest, General Kearney's Army of the West had scored wheel tracks in the Arizona desert, and the first of the California gold-seekers



were starting westward when Mendivil began his youthful adventures with Geronimo's fierce marauders.

He was about 15 years old when the band was pursued by American cavalry, sent by the U. S. government to check the Apache raids and guard the overland stage trail. By night he eluded the squaw appointed to guard him and crept into the camp of the Americans.

During the remainder of the army campaign on the border Jose served the Americans as guide, scout, and teamster. Granted an honorable discharge, he turned westward with the overland wagon trains. In his pocket he carried a paper bearing the name of Mendivil.

Miners Reach New Gold Field

At Fort Yuma Jose found feverish excitement as miners and deserting soldiers hurriedly left the frontier town for the newly discovered rich placers of La Paz, 50 miles north on the Colorado. The gold fever may have urged him northward.

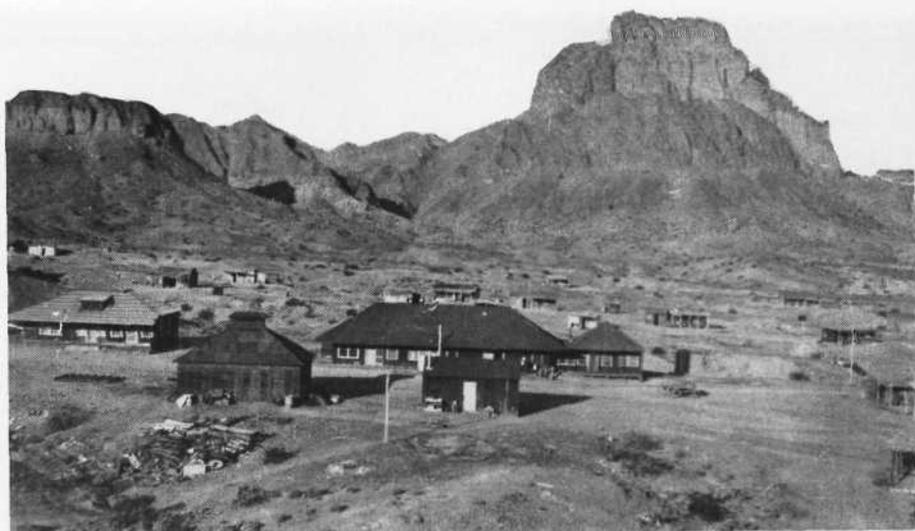
Dates are uncertain in the Mendivil story, but it was about 1862 when Jose started north along the river from Fort Yuma. The Civil War was on and Jose had seen enough of army service, which was good reason for him to avoid the traffic on the Arizona road. He crossed the river and started north alone on the California side. All day the bold outline of Picacho peak stood on the horizon before him.

In the gravel bed of a dry wash leading down to the river Jose found the Pachecos, a Sonoran family, searching for gold. He watched them curiously. They laid a blanket on the ground, shoveled a few pounds of gravel on it, then two men would grasp the corners of the blanket and flip it so that the breeze would carry away the dust. Then laboriously they picked the heavy gold particles from the nap of the wool.

Jose knew enough about prospecting to realize that the source of the gold was on the higher ground where the washes began. So instead of joining the Pachecos, he prospected the ledges several miles from the river in the shadow of Picacho peak.

From where he stood he looked to north and east, where sunlight glistened from the face of the sinuous Colorado. Like a great serpent, the river wound through hills splashed with myriad colors. And rising behind him was the majestic form of Picacho, perpendicular sides lifting 1500 feet up from the ground on which he stood. "La Reina del Desierto," he murmured to himself, as he tore himself from his dreaming to resume the search for gold.

He found rich ore at his feet, not in quartz veins but in fractured granite. He



Top: Mine buildings in Picacho basin about 1906. The monolith in the back ground is 1963-foot Picacho Peak, picturesque landmark of the famous mining region. All buildings in this picture are now removed. —Mendivil photo.

Center: The general store and postoffice at Picacho about 1900. On right is Mrs. Ferguson, postmaster, and next is her daughter Gertrude, who later became Billy Horn's wife. The small girl is Clara Ferguson, youngest daughter, who is now Mrs. Townsend of Yuma Valley. —Clara Townsend photo.

Bottom: This 450-ton stamp mill was built at Picacho about 1897 by Sen. Stephen Dorsey and associates. The long railroad trestle is the last lap of the five-mile run from the basin to the mill. —Clara Townsend photo.

satisfied himself there was much gold, but decided he had not the energy to take it out. There were no nuggets lying around, the sun was too hot in midday for hard labor, and he had only just begun his journey. So he moved along, telling other prospectors about his find.

The nature of the low-grade ore made large milling investment necessary and mining capital was interested in richer fields at the time. For almost 20 years Picacho basin remained unvisited by mining promoters.

A miner named Dave (or James) Neahr built the first crude arrastra in 1873, crushed a small quantity of ore and loaded it on flatboats for transport down the river to Yuma.

First mention of Picacho appears in the state mineralogist's report for 1882 with the brief note that 6,000 tons of ore were raised during the census year, bringing an average of \$21 a ton. Dr. DeWitt C. Jayne of Florida, N. Y., entered the field in 1879, built a 15-stamp mill on the bluff overlooking the river, and hauled a great deal of ore by mule-wagon from the basin. The mill building was constructed of rhyolite tuff quarried on the site, a substantial structure the walls of which still stand today. Dr. Jayne worked at Picacho for several

years, suspended operations after being seriously injured by a runaway horse, and died in 1898. The Jayne claims covered Mendivil's discoveries and included the famous Goshen, Mars, St. George, and Venus mines.

In the meantime Jose Mendivil wandered north and got a job carrying the mail by pony express between Needles and Ehrenberg. Although he knew the Chemehuevis well and spoke their tongue he frequently rode into Fort Tison and Fort Mojave with reports of narrow escapes from unfriendly Indians.

Married at Yuma

About 1872 Jose married Jesus "Jessie" Romo, a Sonoran girl who lived at Fort Yuma. Their first child, Ysidro, was born at Fort Yuma the next year. As the years rolled by they became parents to five more boys and two girls, all born in or near Picacho. It is to be assumed that Jose worked in the district all the latter years of his life.

There are no available records that give Mendivil title to any of the larger gold mines, though he had an interest in and did assessment work on several properties. Imperial county (then San Diego county) records show that a homestead patent was issued to Joseph M. Mendivil

for 155.63 acres of land in sections 19 and 24, T 13 S, R 22-23 E, SBM, on January 17, 1895. This piece of land is on the south bank of the river, a flat area around which the town of Picacho was to spring up overnight.

That same year the town of Picacho was born. Mendivil may have been negligent in securing his gold discoveries, but he showed rare diligence in protecting his home-site against the army of squatters. There had been prospectors' shacks in the mesquite brush for many years, but not until the mining czars cast their eyes with favor on the district did the town begin to boom.

Within a radius of six miles from Picacho, extending into the canyons and ridges of the Chocolate range, literally hundreds of claims were staked out. Some of the claims were known producers, like the Jayne group, but many remained undeveloped. When it became known that important capital was coming in, claim-holders rushed in to do needed assessment work. Prospect holes and small dumps soon pock-marked the faces of the hills like rabbit warrens. Every likely spot was attacked with pick and shovel except rugged Picacho peak, standing in solitary aloofness from these frantic proceedings.

Mining Company is Formed

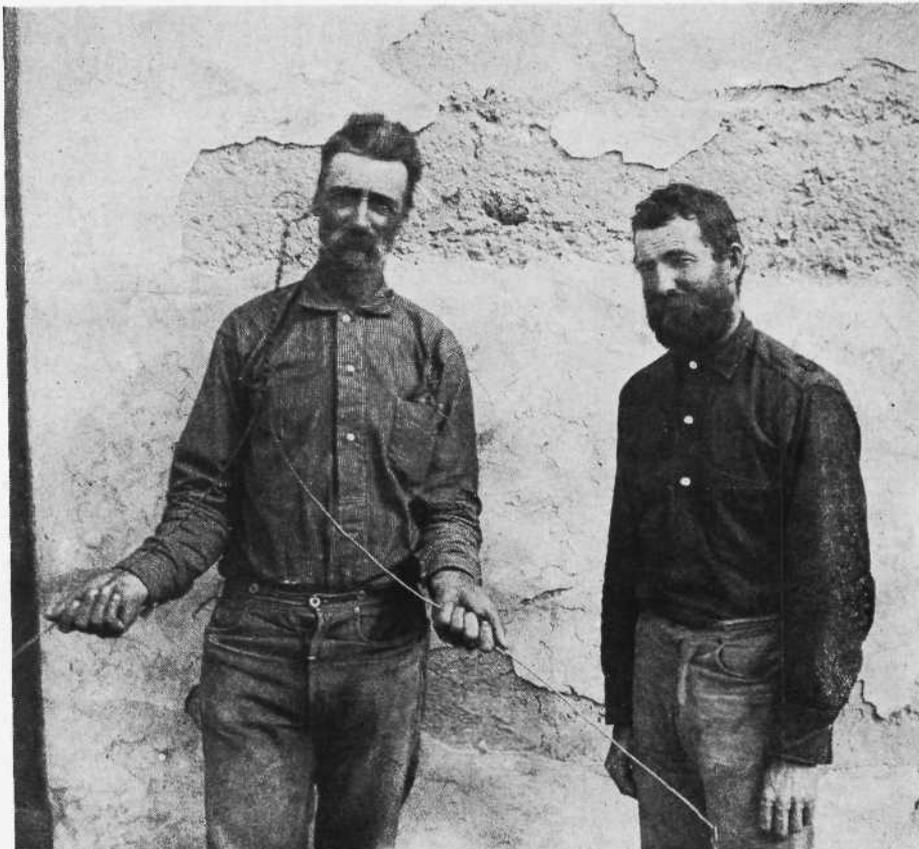
Stephen A. Dorsey of Denver, one-time senator from Colorado, was a mining promoter of great ability. He saw the chaos, dreamed of the possibilities under large scale production, and proposed a consolidation of claimants in one operating company. His dream came to fruition in 1896 with the organization of the California Gold King mining company.

Dorsey cut out for himself a laborious task and he did not complete the consolidation until 1902. Thirty claims were included, with the four Jayne mines as the nucleus. Sixteen of the claims were patented, including the Apache, last of the great producers; the Dulcinea, the great glory hole near the basin mill-site; the Eastern California, Golden Casket, Extension, Mina Rica, Tierra Rica, and many lesser claims, most of them bearing Spanish names.

From 1904 to 1906 the stamps at the great river mill never stopped their thunderous roar. The little steam locomotives with their trains of swaying ore cars clattered back and forth on the crooked rails from the mines to the mill. Loaded, the trains went down-grade through high-walled washes and over dizzy wooden trestles, usually at break-neck speed. Dorsey's mill included a 450-ton unit, specially designed to treat large quantities of low-grade.

Great mining engineers of the day, including Seeley Mudd and John Hays

Si Hamlund, old Picacho prospector, with his gold divining rod. He claimed it led him to rich deposits by pointing downward when he passed over gold. At right is Walter Ferguson, principal of the Picacho school, who had just returned from a prospecting trip with Hamlund when this picture was taken.
—Clara Townsend photo.



Hammond, lent their genius to the development of the property.

Hopes ran high but apparently profits were low, for in 1906 the Colorado Iron Works company foreclosed after placing an attachment of \$38,845 on the mill.

Then followed years of legal entanglement. The consolidation was reorganized as the Picacho Basin Mining company, and continued to operate the river mill two years longer.

Houses of adobe and arrowweed sprang up in the mesquite thicket within sound of the stamps. Saloons became the focal point of community life for the miners. In 1895 Mr. and Mrs. Walter Ferguson came to teach school and found awaiting them a neat white-washed adobe building which had been erected by public subscription. Mrs. Ferguson later became postmaster and operator of the only independent store. The mining company operated a cooperative mercantile establishment across the road and put up a long squat hotel building, topped by the largest roof in Picacho. Billy Horn, saloon keeper, mail contractor, freighter, deputy sheriff, and stage operator, now 81 years old and still living on his old stamping grounds, was a central figure in community life. The town grew lustily without government and the law was the knife and six-shooter—and Billy Horn.

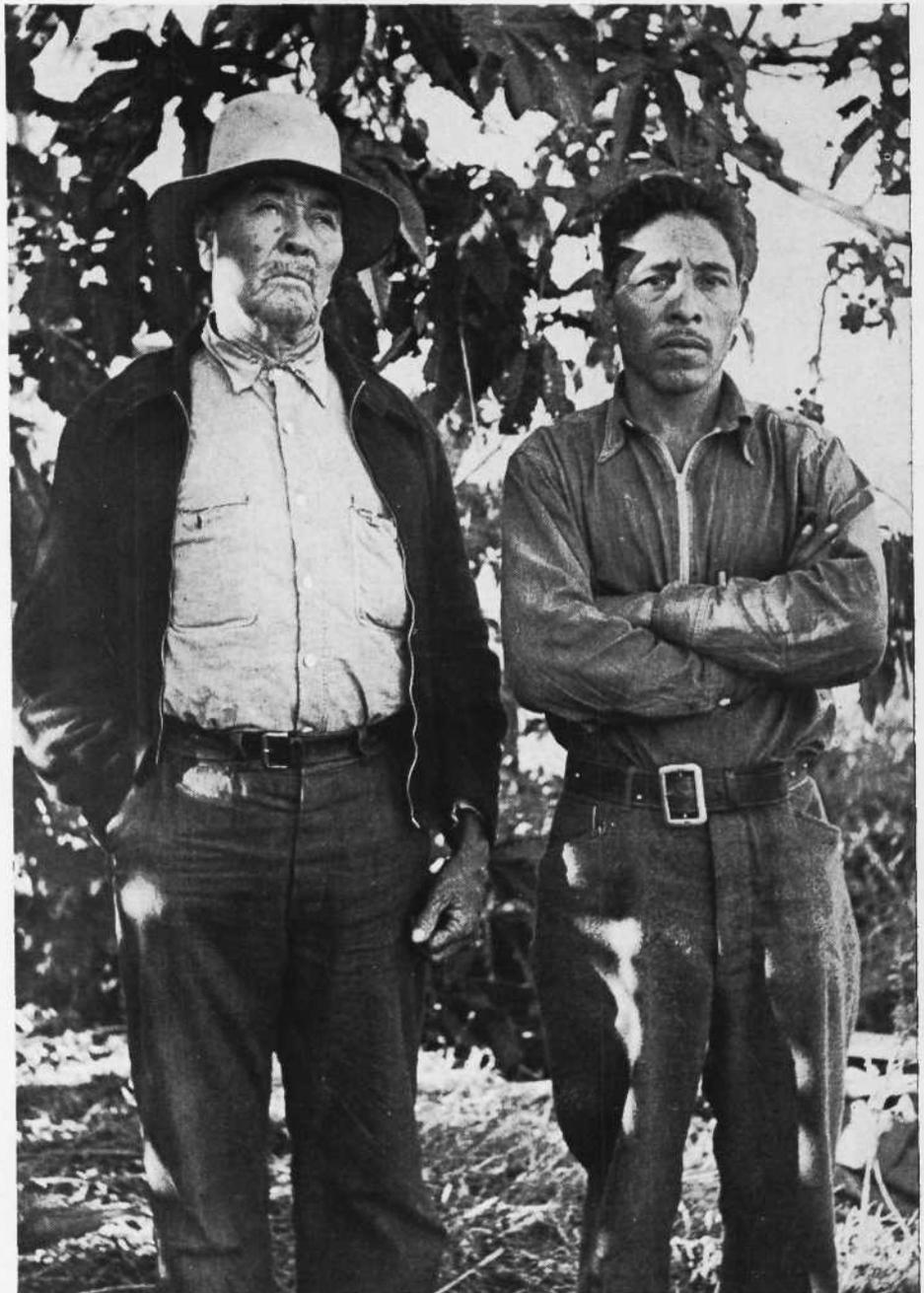
New Gold Town Grows

At the peak of production about 1904 more than 700 men were employed at the mines and mill. The population of the town reached 2500.

Jose Mendivil built a substantial house on his homestead, planted grapes and date palms. His sons were growing up and finding work in the mines. Grandchildren climbed on Jose's knee during the long desert evenings. Jose was a poor trader in matters affecting his future. Life, he thought, should be an untroubled affair.

In 1901 he deeded 28 acres of his land to the California King for a mill-site, which was defined in the records with corners of mesquite trees and crosses marked on rocks. The next year he deeded the same company five acres for a pumping plant. Mendivil and his heirs subsisted for several years on the subdivision of the homestead.

Michael says that his grandfather might have become a rich man, "if he had not been so big-hearted." He was bored by frequent business trips to Los Angeles and San Francisco, much preferred to sit under his grape arbor at home. To the mining tycoons he would say, "Go ahead and take it if you want it. I got enough for me and my family." Michael relates the story of Jose refusing the beach-front of San Diego in exchange for the valuable Clip silver claim (Blaine



Son and grandson of Jose Mendivil, discoverer of gold in Picacho basin. Ysidro, left, has spent virtually all his 66 years in or near Picacho and was associated with his father in mining for 20 years. Michael, his son, speaks perfect English and knows the history and personalities of the Picacho region.

mine) he had given away, simply because he did not want to be bothered with the worries of the wealthy.

In spite of the legal difficulties, production was pushed to fever heat for the four years following the reorganization of the company. Some ore assayed as high as \$700 a ton, but toward the end of the boom it dropped to \$3 a ton, finally becoming too poor to work profitably.

It became impractical to carry the ore to the river and in 1908 the mill was moved to the Diablo shaft, where most of the wooden framework still stands. About this time construction started on

the Laguna dam between Picacho and Yuma and the steamers could no longer carry ore down the river. During the early years concentrates had been shipped by boat to San Francisco for smelting. With the change in mill locations Billy Horn's 12-mule freight wagons became the principal mode of transportation.

Zane Grey, famous western novelist, visited Picacho before the mill was shut down in 1910. Out of his sojourn in the camp came his "Wanderer of the Wastelands," published in 1922. His story gives a colorful, though romantically exaggerated picture of life among the Mexican miners. High point in his de-



Class in Desert Botany . .

Beginning with this number of the Desert Magazine a series of wildflower pictures will be presented—one each month. The purpose of this series is twofold: first, to test the knowledge of those who already know something about desert botany, and second, to help identify the various desert blossoms for those who would like to become better acquainted with the colorful wildflower life of the desert region.

Some of the flowers pictured on this page will be fairly common, while others will be selected from the rarer species. The flower presented this month is found only in limited areas. This specimen was photographed in Nevada not far from Boulder dam by Charles Webber of San Leandro, California. The picture was taken the latter part of April and the color of the blossom is light yellow. The plant grows from 12 to 30 inches in height.

This is not a prize contest. Rather, it is just a botany class in which the more advanced students will help the novices become better informed as to the natural life of the desert. The Editor of the Desert Magazine invites readers who recognize this flower to send in letters identifying it and giving all available information as to the plant and its habits and range. The most accurate description received before February 20 will be published in the April number of this magazine.

scription is the *baile*, where gay music and dancing feet reflect the care-free character of the Sonorans. *Cascarones* burst in dark hair and the flashing eyes of the señoritas made a fitting background for the climactic struggle of his story.

When the mines shut down Jose Mendivil and his family moved to Yuma, where the 78-year-old man died in 1916. With him passed all that was left of Picacho's gay Sonoran life. Little remained of the Mendivil homestead. As the government took claim to the Im-

perial dam flood basin this year, title companies found great difficulty in untangling the involved claims and counter-claims.

Changes in corporate control settled the mining properties on Jacob Ridgeway of Philadelphia, who died in 1908, leaving the estate in the hands of several heirs. Title lay in a Quaker City bank for 20 years, forgotten by all except a few promoters who knew the value of rich ore still lying in the shadow of Picacho peak.

Five years ago an energetic mining pro-

moter, William C. Doak, bought the titles and proceeded to lay plans for the rehabilitation of the Picacho mines. Death overtook him in 1935, leaving the unfinished work in the hands of the Doak estate and E. H. Page and wife. This combination in turn conveyed options to the Picacho Gold Mining company which began operations in 1936.

During the past two years the company has been exploring and blocking out ore in the basin. Within recent weeks the Picacho Gold Mining company has pooled its interest in the property with the Nipissing Mining company and the consolidated group is operating as the Picacho Mining company.

A 2000-ton mill recently purchased in Nevada has been transported to the Picacho site and is to be erected as soon as a five-mile pipe line can be completed from the Colorado river to supply water for mixing cement for the foundations.

Since the completion of Imperial dam and improvement of roads in the Yuma Indian reservation, many motorists have found the trip to Picacho an interesting adventure. Turning north off U. S. 80 highway at a point a mile east of Winterhaven, California, the Picacho road dips under a railroad trestle and continues due north across the reservation five miles, where it crosses the new All-American canal. The road continues north up Picacho wash, climbing to an elevation of about 900 feet as it passes through a rugged range. Always ahead is the profile of Picacho peak, shaped like a huge organ console. At a point 17 miles from the highway may be seen a group of mining buildings: this is the center of the basin mining district.

Picacho did not find fame comparable to the great boom camps of Nevada: Tonopah, Goldfield, Bullfrog, Rhyolite, and Rawhide, probably because its span of life was shorter and its gold production was much lower. Statistics are meager, but Ysidro Mendivil says Wells-Fargo handled \$13,000,000 in Picacho gold. Picacho had romantic color other boom towns did not have. It was set in a background of turbulent river and mesquite, many-hued hills and picturesque Picacho peak. It was the battle-ground of mining tycoons, the field of honor for knife-and-pistol fights between hot-tempered Sonorans, encounters which usually ended in rows of white crosses on Cemetery hill.

Picacho basin may again become the scene of mining activity on a grand scale. But it will be a coldly modern and efficient system. The Fergusons, the Horns, and the Mendivils will not be there; they look on from a distance, remembering when Picacho was the home of care-free miners and rough adventurers.

This month the Desert Magazine publishes another of the letters written by Everett Ruess, young artist-vagabond who dropped from sight in the desert wilderness of southern Utah late in 1934, as told by Hugh Lacy in the September, 1938 issue. No trace of Everett has yet been found, but the unusual character of this young man is disclosed in the fascinating letters he wrote to friends during the wanderings which preceded his disappearance.

Southwest Wilderness Journeys

By EVERETT RUESS

Illustrated by G. A. Randall

Dear Mr. and Mrs. Ben Reynolds:

After leaving Roosevelt in May, I had a very adventurous summer. Although I did not accomplish much in a tangible way, I had some worth-while experiences. There was very little routine for me. After the Henderson cowboy brothers caught my bronco, I traded him for Pacer, a middle-aged outlaw horse who knew all kinds of tricks. I forded the Salt river and climbed up the opposite side of the valley in the terrific heat. After a strenuous day I reached a cool, dark canyon below the asbestos mine, and made camp by moonlight. The next day I rode to the mountain top and stood in the wind, looking down on the lakes and blue peaks and ranges, on the sweltering valley that I had come from. I was very grateful for the pines and firs and flowers. Pacer wanted to eat all of the lupines he saw.

That night Pacer broke his rope and started home. I tracked him until it was dark, and I saw him on the road ahead. Then began a furious chase. He was hobbled, but he galloped nevertheless. Past black canyons, blue vistas, forests and fields we raced in the moonlight. Whenever I was just about to catch him, he would break into a gallop again, and I couldn't seem to get around him. Finally he tired and I caught him and rode bareback to the darkened camp, arriving late at night.

Then I went up and over the mountain, coming down a steep trail to Cherry creek and Flying H ranch. I killed two rattlesnakes which were coiled in the trail. After a day or two at the ranch I went up the creek and explored some side canyons with unusual cliff dwellings. There is one dwelling three stories high in a narrow crack in the cliff which goes back about a hundred feet, then turns and comes out in a balcony on the other side of the cliff. I had to find my own way up the canyon. No one had been there in a long time, and the trails disappeared every now and then. I followed



In Canyon de Chelly

across the creek, crossing and recrossing, until I came to waterfalls Pacer couldn't climb. Then we forced our way through the dense manzanita brush until we were on the plateau. Four or five times Pacer tried to get away from me in pastures. He was not in condition either, so in Pleasant Valley I traded him for two little burros, Peggy and Wendy. We crossed the Mogollons, stopping at ranches now and then. The people in the cow country were all very friendly and hospitable.

Peggy and Wendy were fine little burros, friendly and good, always staying with each other, very droll and lovable in their actions. I used always to carry corn for them. I myself made many meals on parched corn and jerky. Before long, however, it became evident that Peggy was going to be a mother. When I was on my way to Holbrook from Zeniff, a rancher stopped his car and invited me to stay at his ranch as long as I pleased. It was hailing at the time, so I turned back to his place, where I stayed for a whole month. I learned to brand cows and wrangle horses. I did not learn to milk, and I was thrown from a horse once. I did all kinds of work, and at the end of the month my rancher gave me a saddle, another rancher gave me a horse, and I bought another old horse for six dollars.

Camp in Deserted Hogan

Northward I rode, wandering through the Painted Desert and the Navajo country. I spent days serene and tempestuous in Canyon de Chelly, then traveled up Canyon del Muerto in the shade of sheer, incurving cliffs, breathtakingly chiseled and gloriously colored. I passed the last Navajo encampments and stopped for a space in a deserted hogan, constructed of smooth clean-limbed cottonwood, with singing water at the door and sighing leaves overhead—tall, gracefully arched trees screening the sky with a glistening pattern. All day I would brood in the cool of the hogan, lying on the diamond saddle blanket I bought from old Dilatsi. Beneath it was a swirl of crisp brown leaves, over the earth floor. Now and then a trickle of sand pouring through a crack in the roof would sift down, rustling the leaves, and the circle of sunshine from the skylight would move from hour to hour. At evening I would go out into the glade and climb high above the river to the base of the cliff. I would gather scarlet flowers and come down when the stars gleamed softly. Sighing winds would eddy down the canyon, swaying the tree tops. Then the leaves would cease to tremble; only the sound of rippling water would continue, and the spirit of peace and somnolence would pervade the

grove, as the red embers of my fire one by one turned black, and shadows deepened into a gently surging slumber.

It was while I was staying at this hogan that I made the drawing for the print which I am sending you.

When I was climbing out of the canyon, Jonathan, my gentle old pack-horse, missed his footing on a steep trail, and was killed. I cached the saddle in an unvisited cliff dwelling and went on afoot, leading tricky old Nuflo, my white horse. When I reached the Lukachukais of New Mexico, I could go no further, so I rested at the edge of a lake among the aspens and pines. I saw a big brown bear. Then I went on toward Mesa Verde, but before I was halfway to Shiprock my strength failed me, and I stopped again in the heart of the lonely desert, staying in an ancient high-vaulted hogan, with juniper logs night-black, darkened by the smoke of many fires.

White Horse Falls in River

In the Mancos river, Nuflo fell into the flooded stream from a narrow trail on a ledge, and I had to jump in after him to save the pack. The camera was spoiled by the alkali water, and I could hardly get the tarpaulin out. Nuflo was not hurt, but it began to rain as soon as I spread things out to dry.

I went through the Ute Reservation and entered Mesa Verde from the canyons. There I spent the month of August. Part of the time I stayed in the ranger quarters. I explored the mesa and had some adventures in Wild Horse canyon. Then I turned Nuflo loose with a band of other horses. In late August I decided I would like to go to college for awhile, so I started west, but I stopped for several days at the Grand Canyon, descending alone to the depths, to submerge myself in the steep silence, to be overcome by the fearful immensity, and to drown everything in the deafening roar of the Colorado, watching its snaky writhings and fire-tongued leapings until I was entranced.

In the canyon I killed my eighth rattler of the summer—a rare species found only in the Grand Canyon.

But I turned my back on the solitudes, and one chill, foggy dawn, I arrived in Los Angeles, where I discarded my sombrero and boots for city garb.

I don't belong in college (U.C.L.A.) but it has been another experience, and anything that happens is of value as an experience, when it's over. Today was the last day of school this year, and I think I shall go up the Coast of Carmel and Point Lobos to do some work and consider a few problems. After months in the desert and months in the city, I long

Sez Hard Rock Shorty of Death Valley



By LON GARRISON

"Windy? You think this is windy?"

Hard Rock Shorty spat experimentally over the porch rail.

"Naw, it ain't really windy when spit don't feather more'n that afore it hits the ground. Not that it don't get windy around here sometimes though . . ."

Hard Rock pulled his hat down over his ears to keep it from blowing away and went on with his tale of the year of the big wind.

"Here three-four years ago I was up at Windy pass in the Panamints, an' stopped at lunch time to cook a pot o' coffee an' some bacon. It was blowin' some all right, but I never thunk nothin' of it—it was always that way up there. I licked together a little pile o' greasewood sticks to get my coffee water heatin' an' then to fry the bacon I started another little fire off to one side. I was holdin' the fryin' pan with the bacon over the little fire when durned if the wind didn't blow the fire right out from under the fryin' pan. Blowin' so hard, too, that it didn't blow the fire to pieces—blowed 'er out all in one lump. Well sir, I took out after it, a tryin' to hold my fryin' pan over the fire with the wind a kitin' it along about four foot off the ground, an' do you know—by the time I got that bacon cooked I was four miles from the coffee pot!"

for the sea caves, the breakers crashing in the tunnels, the still tropicolored lagoons, the jagged cliffs and ancient warrior cypresses.

Of all the families I have met, there was none I liked better than yours, and none where I felt more at home. I will always remember your hospitality toward me. It was deeprooted and sincere, I know, and has meant much to me.

I wish you a very happy Christmas and a blithesome New Year.

Sincerely,
EVERETT.



Life in a remote desert settlement is no hardship to Mr. and Mrs. Oberteuffer. They've been too busy creating this cozy home to worry about the so-called "cultural" disadvantages of the frontier.

This Is My Desert Song

By
ORA L. OBERTEUFFER

"**Y**OU can't lick the desert!" was the warning hurled at us from all sides when my husband and I announced to the little windswept village of Trona that we were going in for a yard and patio. That was 15 years ago, and I rise now to remark that if we haven't got it licked, at least we have it so well roped and tied that we can go looking for trouble in greener fields.

So, at the risk of being regarded as a female trouble-hunter, I am hereby starting a friendly feud with those Desert Magazine readers who have established homes, gardens and patios in places where the going is easy. I am rather proud of the fact that out here on the Mojave desert of California we literally have created a show place out of NOTHING! Where you who dwell in more fertile lands have soil that is deep and

They live on a desert where the soil is drifting sand, where the water is salty, the temperature sometimes reaches 140 degrees, and the air is saturated with chemicals — and yet they have created a home that is a show place. If you wonder how such a miracle could be performed read this delightful story written by Mrs. Oberteuffer about her own experience on the Mojave salt flats.

rich, we have drifts of white desert sand, heavy with salt. Where you have fresh pure water for irrigation, we have salt water. Where you have soft gentle rains and sunshine, we have practically no rain at all, with the thermometer bursting at 140 degrees in the sun, and contrary to the popular opinion that the desert is always hot, dropping to around

12 and 14 above zero in the winter. For good measure, the chemical plant, which is the sole reason for this little desert village, keeps the air saturated with life-sapping chemicals, covering everything with a white dust which resembles a heavy frost.

My husband is a civil engineer and in the 20 years of our married life we have gone from one assignment to another, each time making at least a semblance of a home, growing what we could in the ground and where that was not possible, having potted plants and hanging baskets to nurse and care for. But in all construction work the end of the job must come eventually, so up would come the stakes and on we'd go to the next assignment — to start all over again. When we came to the little village of Trona, nestled on the edge of dry Searles

lake, out on the Mojave, my husband took stock of the possibilities for a yard and flower garden and said, "Well! ain't that somethin'!"

To digress a bit by way of explanation. Many hundreds of years ago Searles was an inland lake. As the supply of fresh water from the mountains diminished and evaporation took place, the water turned salty and slowly receded, leaving a bed of dry white salt which looks for all the world like snow and ice. The lake is entirely surrounded by unusually beautiful mineral mountains, bare of vegetation but with colorings that would bring tears to the eyes of an artist. The ground where the village now stands was at one time under water, which left it impregnated with salt. And, as if to add insult to injury, because of the scarcity of fresh water, we must irrigate with salt water.

Our first step was to get some kind of trees and shrubs to grow. After experimenting with many kinds we found that only three could "take it," each being a species of cedar, the African cedar, the Athel *Tamarix articulata* and the Tamarisk *Tamarix parviflora*. We also found

that Bermuda grass would thrive on a salt water diet. So, with "ol' debil grass" for a lawn, and our three kinds of shrubs, we set about to make a yard and patio that would do credit to Beverly Hills.

For the floor and wall of the patio we salvaged old fire bricks and tile from dump piles. Beginning at the front corner of the house and extending along the entire side, it followed no particular line, but, like Topsy, it "just grew," taking in a tree here and leaving one out there, until it reached the back corner of the house, a distance of 50 feet from where it took off.

Then for the fireplace! Each trip into the surrounding mountains yielded many beautiful rocks, some with Indian inscriptions, others that look like seed pearls, petrified bark, onyx, opal, many from Death Valley, even Scotty's Castle. Friends and neighbors rarely forgot us when out on pleasure trips and picnics, bringing us beautiful specimens of colorful ore, some from the far-away coast. We had never built a fireplace before but it was great fun sorting out the rocks, placing one here, standing off and sur-

veying the effect, pulling it out and placing it somewhere else, until the ensemble of color and shape satisfied us. For firsthand information about hard labor on a rock pile, we recommend building an outdoor fireplace!

For the mantel we made a trip to the lovely homestead of Mr. and Mrs. John Thorndike, on the top of the Panamint mountains overlooking Death Valley. The elevation is 8,000 feet and the piñon pine and mountain mahogany grow abundantly. A piñon pine log was cut and loaded onto the car. When it arrived at its new home in Trona it was sawed into two pieces lengthwise. One-half became the mantel, held up by curved brackets of iron. The end of each of these brackets terminates in a candle holder. The other half grew some legs and became a fireside bench. It took us six months to complete the fireplace. And it draws, too!

Along the side of the house my husband has what he is pleased to call his desert museum. It contains many interesting relics of early days in this part of the west. There are tools discarded by the ill-



Here's a glimpse of the Oberteuffer patio. The candlesticks on the table are inverted sections of cholla cactus.



Business life in Trona centers around the operation of the big plant of the American Potash and Chemical Corporation. —Copyright Spence Air Photos.

fated Manly party which dragged its weary way through this valley after all but perishing in Death Valley in 1849. There are Chinese rice-whiskey flasks which formerly held the native drink of Chinese coolies employed by John Searles shortly after he discovered the lake in 1862. There are old pack saddles, gold pans, miners' picks, Indian baskets, and a papoose carrier.

We have an enviable collection of old iron kettles and cauldrons. One big old black fellow recently found by my husband while on a surveying trip in the mountains had been left as a marker at a section corner by the original government surveying party in 1859. For 78 years it stood guard over government records. There is also a hub of a wagon wheel used by Rimi Nadeau who first freighted ore through to San Pedro from Panamint City and Skidoo on 20-mule team wagons. Included also is our prize collection of purple bottles, bottles which have been lying out in the desert sun

and sand for so many years that they have taken on the deep violet rays of the sun. In fact, our little museum is fairly packed with the romance and tragedy of the early days on the desert.

As for potted plants and baskets, we found that certain succulents will thrive in pots, which, added to various species of our local cacti, give the entire place a cool green fresh appearance—a real oasis in the heart of the desert. With homemade rustic tables and benches, gay canvas chairs and swings, and colorful pottery purchased from roadside vendors in various parts of Southern California, the whole takes on a romantic glamour that only the desert can know.

To give color, as well as a more modern note, we wanted some dinner gongs, so we salvaged three old automobile brake drums, different sizes, from an ancient dump pile, removed the rust by sand-blasting, then painted them green and orange. Each drum has two distinct musical tones. We dissected a three-tier

wrought iron flower stand, purchased from a mail-order house, and hung each gong on a "leg," then topped each one with a gay colored pot of trailing ivy.

Building our patio has been great fun, but the greatest fun of all comes when we sound off on the gongs to summon kindly friends and neighbors for barbecued steaks. For our cocktail, while the steaks are sizzling, we'll drink in the beauty of the desert sunset—now painting the mountains with a wine-colored glow, now fading gradually into mauve. Then suddenly the myriads of stars, and the moon, like a giant Japanese lantern, spilling a shimmering light over the desert sands and the white "snow" of the lake bed. If you could drink in this picture with us you would indeed say with my husband, "Ain't that somethin'!"

That's my Desert Song and I'll challenge all readers to name a more hellish place to accomplish such a heavenly result.

Zuni . . .

where Coronado trod

By JOHN STEWART MacCLARY

IN mid-May, 1910, two white-skinned young Americans halted their four-horse team near the base of Thunder mountain — about ten miles east of New Mexico's western boundary, nearly 40 miles south from Gallup.

The horses were caked with dust and mud, from several hundred miles of desert trails and frequent crossings of unbridged arroyos. The iron tires of the wagon were shiny from much contact with gritty sand and malapai. The men were burned and weary from sunglare and unaccustomed exposure in desert winds.

William M. Pennington touched the skin of his blistered neck, commented through wind-dried lips, "I guess that little bunch of mud huts must be the famous Zuni we've heard so much about. There's the Spanish mission that was wrecked by the Indians in 1632, and there's the mesa where they hid from the avenging Spaniards. We're looking at the spot where Southwestern history began. I wonder if the days were as hot as this when Coronado paid his first visit to the city of Zuni?"

"Hotter—to men dressed in steel armor and wearing metal helmets," guessed Pennington's companion, L. C. Updike. "But I suppose the conquistadores didn't mind this northern heat—after riding horseback all the way from Mexico City. They probably were glad to climb down and rest their saddles!"

"Probably it's safe enough to camp out here in the open," said Pennington. "The Zunis are regarded as some of the most highly civilized of all western Indians. Tomorrow we

can drive over to the pueblo and see whether we can make some good Indian photographs but on the way let's find out what they keep in those mud-walled pens down by the stream."

Will Pennington told me 15 years later of this first visit to Zuni.

"The mud-walled pens were the most unusual man-made things I ever had seen," he said. "Actually they were garden plots, laid out in small rectangular basins. Green plants were growing in the basins, and the soil was kept moist by water which the Indians brought from the Zuni river in large earthenware jars they carried on their heads.

"My picture of the little Zuni garden I prize very much, both because the subject was unique and because taking the picture was very difficult. You see, I had to set up the tripod for my plate camera on a shaky adobe wall in order to shoot down into the garden. If I had fallen over into that little garden and messed it up, there's no telling what the Indians might have done to me! After all, I was a stranger trespassing where I had no right to be. Luckily for Updike and me, we had no accidents. Instead, we found the Zuni Indians very friendly and willing to pose for us in their everyday activities. I consider my Zuni views some of the most interesting I ever have made in desert regions of the Southwest."

Many legends, myths, tales, and historic accounts have come from the ancient city of Zuni—which once was an extensive province and now is considered the most populous pueblo in the United States. Since the days of Coronado and his predecessor Fray Marcos de Niza, this unique settlement has drawn the attention of countless artists, writers, anthropologists, sociologists, archaeologists.

To me Zuni and its friendly natives provides a standard of comparison that shames our mechanized civilization.

In this year of 1939 when Southwestern cities and states are celebrating the 400th anniversary of the white man's first penetration of the region, it seems timely for the Desert Magazine to present a sequence of Pennington's Zuni views. And so "The 'Feel' of the Desert" series will be continued indefinitely, with Zuni photographs and their interpretation. The first of the new series appears on the opposite page.



Zuni Pueblo today, showing Thunder mountain in the distance. It is said that when the Spanish invaders came here the Zunis retreated to the top of Thunder mountain and lived for many years — until the Spanish padres won their confidence and induced them to return to their homes. Photo by Frasher, Pomona, California.



INGENUITY

By Wm. M. PENNINGTON

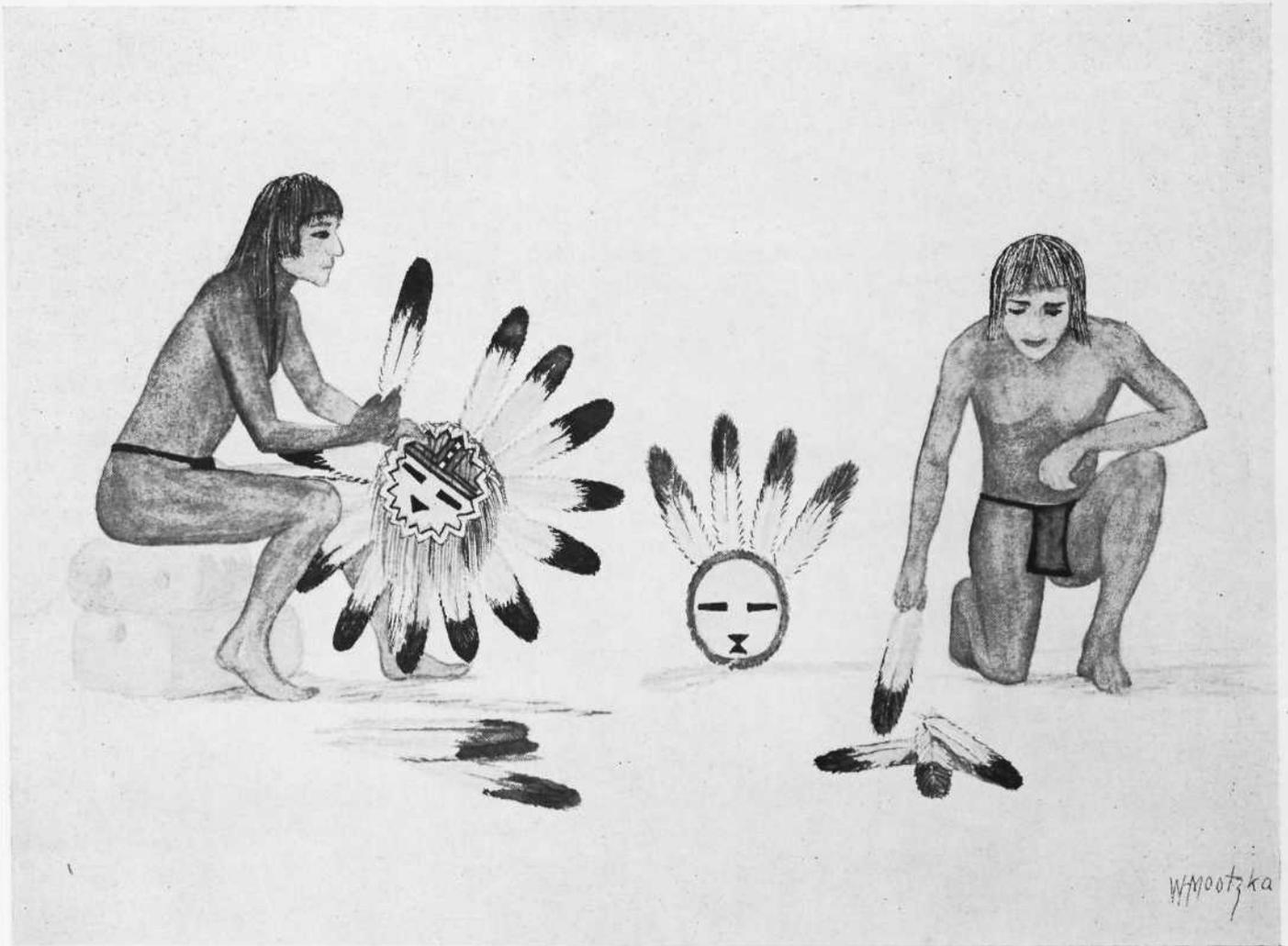
'Feel' of the Desert

The "waffle" gardens of Zuni are picturesque examples of what may be accomplished by native ingenuity. Incidentally, the term "waffle" is used only as descriptive of the seed bed plots—which are used for plants requiring much water and needing protection from strong winds.

Like the terraced fields of the Incas, these checkered gardens of Zuni may have been conceived in days of antiquity. Topographic problems of the region forbade the use of dams and irrigation ditches lined with stone in the cliff dweller fashion. Torrential floods of the Zuni river discouraged agriculture in low areas along the banks of the stream.

But the problem was solved by old-time Zuni farmers and their system is still in use. Half-buried sections of logs divide the plots into small rectangles—little basins. A wall of wooden staves reinforced by adobe surrounds the plot, protecting it from damage by violent floods, breaking the force of destructive winds, barring hungry burros and sheep.

Zuni women carry water from the river in earthenware jars skilfully balanced on their heads, faithfully supplying the thirsty plants. Perhaps the ingenuity was of masculine origin.



How the Great Chiefs Made the Sun . . .

As told to
HARRY C. JAMES

Starved by famine in the underworld, the prehistoric ancestors of the Hopi Indians migrated to the surface of the earth. All was dark when they arrived and so they made the moon. Harry C. James told the story in last month's *Desert Magazine*. And now the next step is to create a sun—and this is the legend of how it was done. W. Mootzka, Hopi Indian boy, has given his concept of the creation of the sun in the above sketch.

ALTHOUGH the moon made it possible for the people to move around less stumblingly, its light was so dim that frequently the workers in the fields would cut up their food plants instead of the weeds. It was still so very cold that the fires had to be kept burning around the fields all the time.

The chiefs again met in council with Skeleton and again they decided that they must do something.

This time instead of taking a piece of buffalo hide, they used a piece of warm cloth which they had woven themselves while they were still in the underworld. They fashioned this as they had the disk of buffalo hide, but this time they painted the face of the circle with a copper-colored paint. They made eyes and mouth with colors that the old chiefs decided upon according to their beliefs. Around

the circle they then wove in a ring of corn-husks worked in a zig-zag design. All around the circle of corn-husks they threaded a heavy string of red animal hair. To the back of the disk they attached a small ring of corn-husks through which they poked a circle of eagle feathers. To the tip of each eagle feather the old chief tied a few little red feathers from the top of the head of a small bird. On the forehead of the circle he attached an abalone shell. The sun disk was now complete.

Again the chiefs chose a young man to stand on top of the disk which they had placed on a large sheet. They raised the cloth by its corners and swung it back and forth again and again until with a mighty thrust they threw the man and the disk far into the air. It travelled fast into the eastern sky and disappeared.

The onlookers watched carefully and

in a short time it grew light in the east as if a great fire were burning. Soon the new sun rose and warmed the earth with its kindly rays.

Now with the moon to light the earth at night and the sun to light and warm it by day, the people decided to pick up their provisions and go on. As they started they divided and the white people took a trail far to the south, the Hopis one to the north, and the Pueblo Indians one midway between them. Thus they journeyed on from Sipapu to the places where they were to live. The Hopis wandered a long time, building houses and planting at different places until they arrived at the mesas where they now live. The ruins of these ancient villages are scattered to the very beginnings of the great river of the canyon — the Colorado.

There are two main reasons why thousands of people go to a remote sector of the Mojave desert every year to visit the Mitchell caverns. One attraction is the fantastic arrangement of the stalactites and stalagmites with which Nature decorated these great underground caves. The other reason is the hospitality of Ida and Jack Mitchell, who own the homestead where the caverns are located. Here's how two westerners lost \$100,000 in a mining venture and then started life anew at an age when most folks are ready to retire.

They Guard the Caves in Providence Mountains

By RANDALL HENDERSON

THIS is the story of the house that Jack built—not only the house but the garage, the water system, the trails, the campground, the bird pens—in fact, Jack's enterprise in this case has transformed the rocky slopes of a remote desert mountainside into a complete habitation with all the comforts and many of the luxuries of a modern American city.

Jack's wife helped with the job. According to his own admission she supplied much of the work and all of the brains for the project.

The folks I am referring to are the Mitchells, Jack and Ida, of Mitchell's caverns, located high on the alluvial slope at the eastern base of the Providence mountains on the Mojave desert of California.

These caverns are well known to those who travel the Mojave country. Thousands of people—students, scientists and curious motorists, visit them every year and wonder at the beauty and symmetry of nature's handiwork.

It required several million years for the natural elements to form these strange caves and decorate them with stalactites and stalagmites. The Mitchells had nothing to do with that achievement. Their task has been to make these caverns accessible to the public, and to protect them from thoughtless human beings. They have done their work well. Near the entrance to the caves they have created in stone and cement and wood a little haven of rest and peace where visitors may park their cars and enjoy the hospitality of a friendly desert home—and go into the caves if they wish.

The Mitchells have a 160-acre homestead. They built their



Jack and Ida Mitchell on the veranda of the stone house they built near the entrance to the caverns.

spacious cabin of native rock. The house faces the east like a Navajo hogan and the front yard is a typical desert landscape of sand and rocks and greasewood and cacti. Guests sit on the veranda of the home and watch the sun come up over a mountain range that is 120 miles away to the east in Arizona—and they witness the coloring of beautiful sunsets in the sky above that same range.

Those who have lived in the mountainous areas will understand this paradox. The Mitchell home is crowded close beneath the precipitous slopes of the Providence mountains. The sun drops behind the range and their cabin is in the shadows by midafternoon.

But nature, as if to compensate for the barrier which shuts out the western sunset picture, provides a reflected spectacle in the eastern sky which often is more colorful than the true sunset.

From the doorstep of the stone house a gravel road winds

across the floor of the desert to the little town of Essex, 23 miles away on U. S. Highway 66. The Mitchells always know long in advance when they are to have callers. During the day a little cloud of dust is seen moving along the road from Essex. At night the dancing headlights of incoming cars give the same advance notice.

The visitors may be motor tourists who have come to see the weird formations in the limestone caverns. Or they may be bug-hunters or botanists out for a field trip in the Providence mountain region. Some come to spend a day or a week in the guest cabin, or to camp on the little plateau which has been levelled for that purpose. Many drive long distances just to enjoy the quiet and freedom of the desert outdoors in an atmosphere of friendly hospitality such as always prevails in this off-the-beaten-highway desert homestead. All are welcome.

Perhaps I should make an exception to this last statement. I stood by the rock-built terrace in the front of the cabin with Jack Mitchell a few weeks ago. Suddenly the quiet of the late afternoon was broken by a series of shots, evidently from the floor of the desert some distance below us. Mitchell frowned. "They're killing my birds," he said, and there was annoyance in his tone.

The Mitchells do not welcome the intrusion of game hunters. Much of the surrounding desert is public domain and there is nothing they can do about it. But like many others who have lived long years on the desert and have themselves known something of the struggle for existence which is necessary if life is to survive in the arid region, they rebel at the thought of killing for mere sport.

Jack and Ida were not strangers to the desert when they moved out to the Providence mountains and established their camp on the slope at the base of the jagged juniper-clad peaks nine years ago.

They are natives of Texas. Jack came to California in 1911, and a year later Mrs. Mitchell followed him. He was a painter and decorator by trade and soon built up a successful contracting business.

That was during the period when the Southern California metropolitan area was making its most phenomenal growth. From the painting of houses to the complete building of them

was a logical step, and Mitchell soon was in the home construction business on a big scale. He made \$100,000 buying and building and selling Western avenue real estate and houses. He gives Mrs. Mitchell much of the credit. "I found that if I followed her advice I seldom went wrong," he explains today.

In one of his real estate deals Mitchell acquired an equity in some mining claims in Arizona near Flagstaff. He didn't intend to go into mining, but he wanted to see if he had anything worth holding and so he invited a friend who was a mining engineer to go with him on a hunting trip, and incidentally to look over the claims.

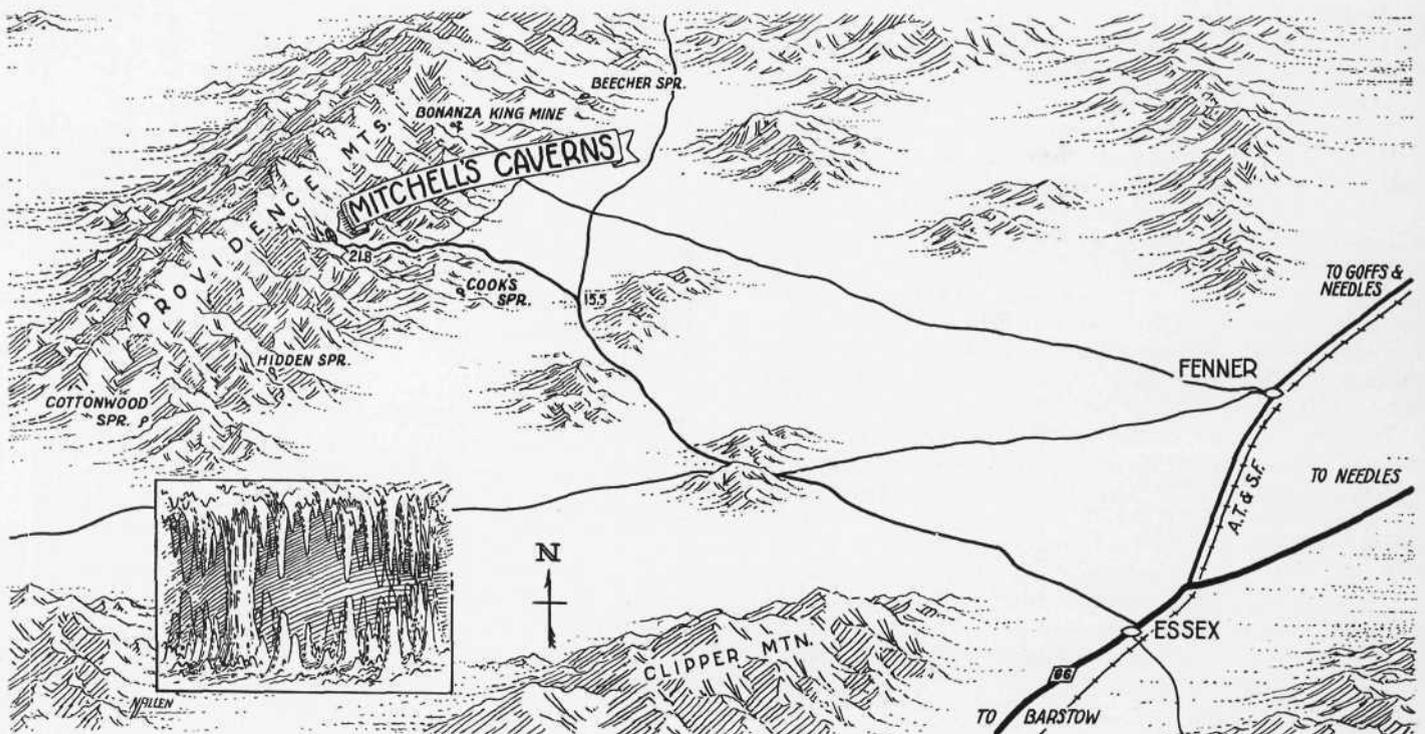
"If I had gone on a big-game hunting expedition in Africa it wouldn't have cost me one-tenth as much as that trip to Arizona." He laughs as he tells the story today. "As a result of that trip I decided to develop the property. That was in 1923. I sank \$103,000 in those mines.

"Yes, we took out some gold. But we never took it out fast enough to pay the expenses. I had invested several thousand dollars before we began milling the ore, and then I kept putting in more trying to recover what I already had invested.

"Finally when all my capital was gone my family persuaded me to give it up and return to Los Angeles. I not only had lost my money but I was crippled with rheumatism and hardly able to work.

"During my mining operations I had acquired 20 claims in the Providence mountains, including the caverns. I didn't give the caves much thought at first, but when I learned that vandals were going out there and destroying those beautiful limestone crystals I had to go out and protect them."

That was nine years ago. They have been busy years for the Mitchells. They lived in a tent at first. Stone by stone they gathered and carried in the rocks to build their house. It was necessary to haul water a long distance. They solved this problem by running a pipe line down the canyon from a spring 6000 feet away. Ordinarily it would require several thousands of dollars in capital for such an undertaking. They did not have the money so Jack arranged to salvage some pipe from an old mining property, and he carried much of



t up the rocky slopes himself. It was hard work, but he regained his health in the task.

There were long periods when the Mitchells had little more than flour and beans and coffee for their three meals a day—but they were doing a creative job and they did not mind. As long as there was food in the cabin they had security and independence.

They have never made more than a living out of the caverns. They charge \$1.00 for adult admission with a special rate to children and to student groups and Boy Scouts. The income has all gone back into the improvement of roads, the installation of an electrical plant, the building of trails, making the caves accessible to visitors.

The big living room in their home also serves as a museum where an interesting collection of mineral specimens and Indian artifacts is kept. A trip to the caves includes a lecture in the museum for those who are interested.

"I am neither a mineralogist nor an archaeologist," explains the host. "I never went to school much. All I know about these things is what the scientific men have told me."

And then he proceeds with his lecture in non-technical language which is more informative to the average visitor than if the terms of science were used. He tells the story of the Indians who inhabited the caves during countless generations before the white man came to this country.

Chemehuevi Indians Lived in Caverns

The archaeological history of these caverns has been pieced together by M. R. Harrington, Arthur Woodward and other scientific men who have visited them. Woodward and a group of associates spent several weeks excavating the floor of the caves and sifting the dust for evidence of prehistoric dwellers. The task is still incomplete, but the archaeologists believe the Chemehuevi Indians lived in these underground cavities until a comparatively recent date. Probably they were occupied by more ancient tribesmen before the period of the Chemehuevi.

A rocky bench on the slope below the Mitchell home has been levelled as a camp ground for motor visitors. Water has been piped and fireplaces built on the campground and motorists are always welcome here. Adjoining the camp is one of the old Indian mescal pits, used by the aborigines for roasting the hearts of the agave, which was one of their staple items of food. The pit has been restored for the benefit of visitors.

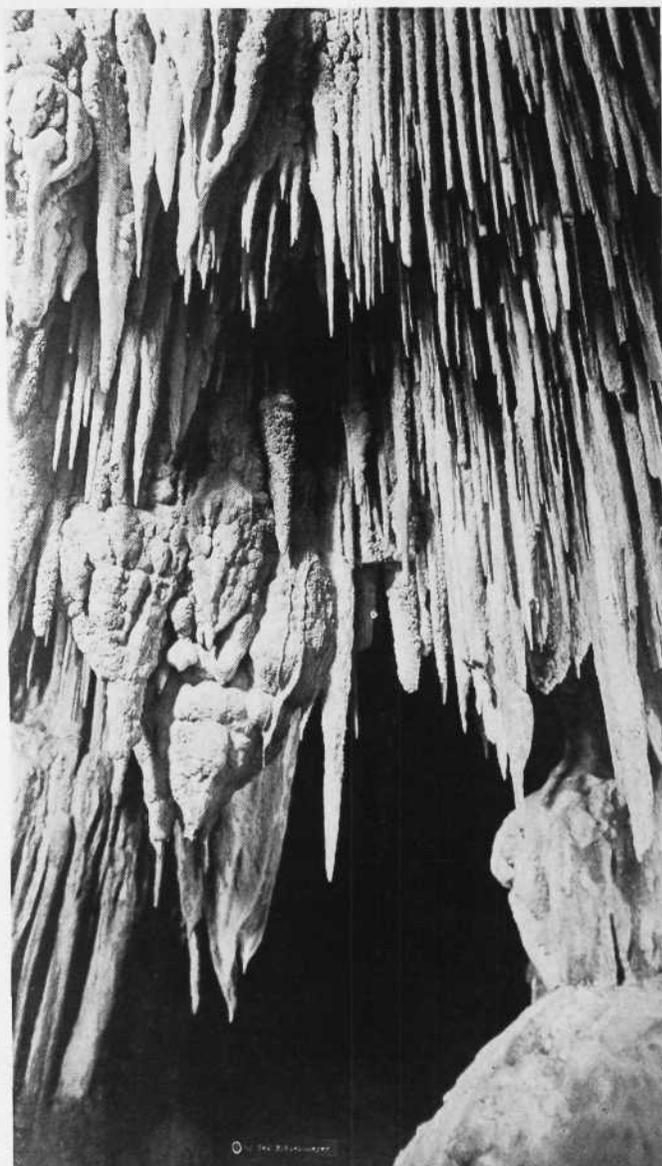
Partly as a hobby and partly to provide added income for the development of their resort, the Mitchells have gone in for wild game breeding as a sideline. They have hundreds of mountain quail and other species of game birds in airy runways in a well-sheltered cove. Some time ago they released a flock of chukker partridges at their homestead. These birds roam the slopes of the Providence mountains and return to the home pens morning and night to share the food of their captive brothers and sisters.

While Jack has been absorbing archaeology and mineralogy from the men of science who frequently camp at the Mitchell place while they are carrying on their field work in the vicinity, Mrs. Mitchell has made desert botany her special study and can answer most of the questions about the wildflowers and shrubs which grow here.

The area is rich in interest for the desert explorer, whether scientist or just a lover of the rugged outdoor landscape. In addition to the two caves opened to the public, there are two other caverns on the Mitchell property which will remain closed until archaeologists have had an opportunity to complete their research.

Over the ridge northeast of the Mitchell home are the remains of the old ghost town of Providence, and the workings of the Bonanza King mine, once a big producer of silver and lead.

Another interesting sidetrip is the Hole-in-the-Wall region



Nature spent millions of years creating these stalactites in the Mitchell caverns. Thoughtless visitors were carrying them off for souvenirs until the Mitchells took charge nine years ago and developed a resort at this place.

where a group of fantastic rock formations is found. These are to be described in detail in a later number of the *Desert Magazine*.

Two guides are available to conduct visiting parties into the caverns. Jack Mitchell himself still does guide service. His understudy for several years has been A. Russell, who knows the caves and the surrounding region thoroughly and whose enthusiasm makes him no less entertaining than his employer.

The underground cavities at the Mitchell caverns are not comparable in size with those at Carlsbad, but within the more limited dimensions of the Mitchell caves the stalactites and stalagmites are no less fantastic than those in the famous underground rooms in New Mexico. The geological history and the chemical formation are approximately the same.

The caves are an attraction, yes, but after all nothing on the desert is more interesting than the people who make their homes in this mystic arid region. For the Mitchells, the desert has been a never-ending adventure, and they have absorbed much from the character of their environment. They are real desert folks whom it is a pleasure to know.

Here Are the Answers--

They say the first year in a new magazine publishing venture is the hardest. And so, having guided the Desert Magazine safely along the desert trail on the first 12-month journey, the publishers last December sent out a questionnaire to learn how the subscribers were faring. The question blanks went to 1001 names, picked at random from the mailing list. The purpose was twofold: first, to find out what kind of people read the magazine—their occupations, incomes, travel expenditures, etc., and second, to learn what special types of feature material they prefer to read in this magazine. The response to this survey was most gratifying. Within 30 days 329 answers were received—nearly 33 per cent. Assuming the information obtained from these questionnaires will be no less interesting to the readers than to the publishers, a brief summary of the results is presented herewith:

READERS were asked to indicate by number—1, 2, 3 etc.—their preference among the 12 general divisions of subject matter appearing in the magazine. Of the 312 subscribers who responded to this poll, 121 named the map-travelog features as their first choice. The complete tabulation of first place preferences is as follows:

| | |
|------------------------------|-----|
| Map-travelog features | 121 |
| Historical features | 109 |
| Nature features | 64 |
| Landmark features | 48 |
| Desert gem features | 47 |
| Editorial comment | 47 |
| Personality sketches | 40 |
| Place Names department | 31 |
| Monthly news briefs | 17 |
| Book reviews | 16 |
| Letters page | 10 |
| Poetry page | 7 |

(Note—The total figures in the above column exceed the number of reply cards returned for the reason that several magazine readers indicated "first choice" preference for more than one feature on the list.)

The questionnaire cards were then rechecked by another method. All the first, second, third, etc. votes given to each type of feature were averaged together. Under this plan of tabulation the results were as follows:

| | |
|------------------------------|------|
| Historical features | 2.69 |
| Map-travelog features | 2.82 |
| Personality sketches | 4.07 |
| Landmark features | 4.16 |
| Nature features | 4.38 |
| Editorial comment | 4.49 |
| Desert gem features | 4.66 |
| Place Names department | 5.44 |
| Monthly news briefs | 6.57 |
| Book reviews | 6.98 |
| Letters page | 7.44 |
| Poetry page | 7.93 |

On the basis of this return it is needless to say that the map-travelogs and historical articles will continue to occupy

an important place in the editorial program of the Desert Magazine.

From the survey cards the editorial staff gleaned many interesting sidelights as to the taste and preferences of the readers. Many of the suggestions given in the "remarks" blank on the questionnaire will contribute to the improvement of future numbers of the Desert Magazine. The publishers are very appreciative of the constructive remarks sent in by friends of the magazine.

Doctors, lawyers, engineers, teachers and other members of the professional group predominate among the subscribers, the survey disclosed. Figures showing classification follow:

38% are in professional work.

30% are tradesmen, business and sales executives, salesmen, hotel men and utility employees.

12% are craftsmen, machinists and skilled workers.

6% are ranchers, orchardists and cattlemen.

2% are students or engaged in occupations not included above.

Average annual income of a Desert Magazine family is \$4007, compared with a national average, according to Department of Commerce figures, of \$1530. The classification of readers according to income is as follows:

6% have incomes of \$10,000 to \$80,000.

19% have incomes of \$5,000 to \$10,000.

30% have incomes of \$3,000 to \$5,000.

29% have incomes of \$2,000 to \$3,000.

16% have incomes of \$1,000 to \$2,000.

Desert Magazine readers travel widely and spend a liberal amount each year for vacations. Expenditures for gas, oil and upkeep of the car average \$324.63 a year. The average distance traveled is 13,450 miles annually, and the cost of

the yearly vacation is \$217 for each reader.

The Desert Magazine on January 25 was going into 6181 homes with an average of 3.1 readers in each household, according to figures disclosed by the survey. Some of those who returned cards complained that neighbors and friends borrow their copies so often the back issues "are nearly worn out."

• • •

MILLIONS OF ACRES NOW BEING RECLAIMED

During the past year the Bureau of Reclamation has had work in progress on 32 projects in 12 states—the largest number under construction at one time in the history of the bureau. On 35 government irrigation projects already in operation in 16 semi-arid western states the bureau is supplying water to 3,034,769 acres. Crops harvested from these areas had an average value of \$39.09 an acre, according to figures compiled by the engineers.

New projects now under construction will add another 2,500,000 acres to the irrigated area, according to federal estimates, and will provide 31,000 additional farmsteads. That there will be a ready demand for these new farm lands was indicated more than a year ago when 3,300 persons made application for 69 farm units opened in Klamath project.

• • •

NO RESTRICTION ON MINING IN NEW REFUGE

Lands in northern Yuma county, Arizona, which have been withdrawn from settlement, location, sale or entry and set aside by federal executive order as the Kofa Game Refuge, are as follows:

Tps. 1 and 2 N, R 15 W, all.

Tps. 1 and 2 N, Rs 16 and 17 W (unsurveyed) all.

Tps 1 and 2 N, R 18 W, all.

Tps 1, 2 and 3 S, R 15 W (unsurveyed) all.

T 4 S, R 15 W, all.

Tps 1, 2 and 3 S, R 16 W (unsurveyed) all.

T 4 S, R 16 W, all.

Tps 1 to 5 S inclusive, R 17 W (unsurveyed) all.

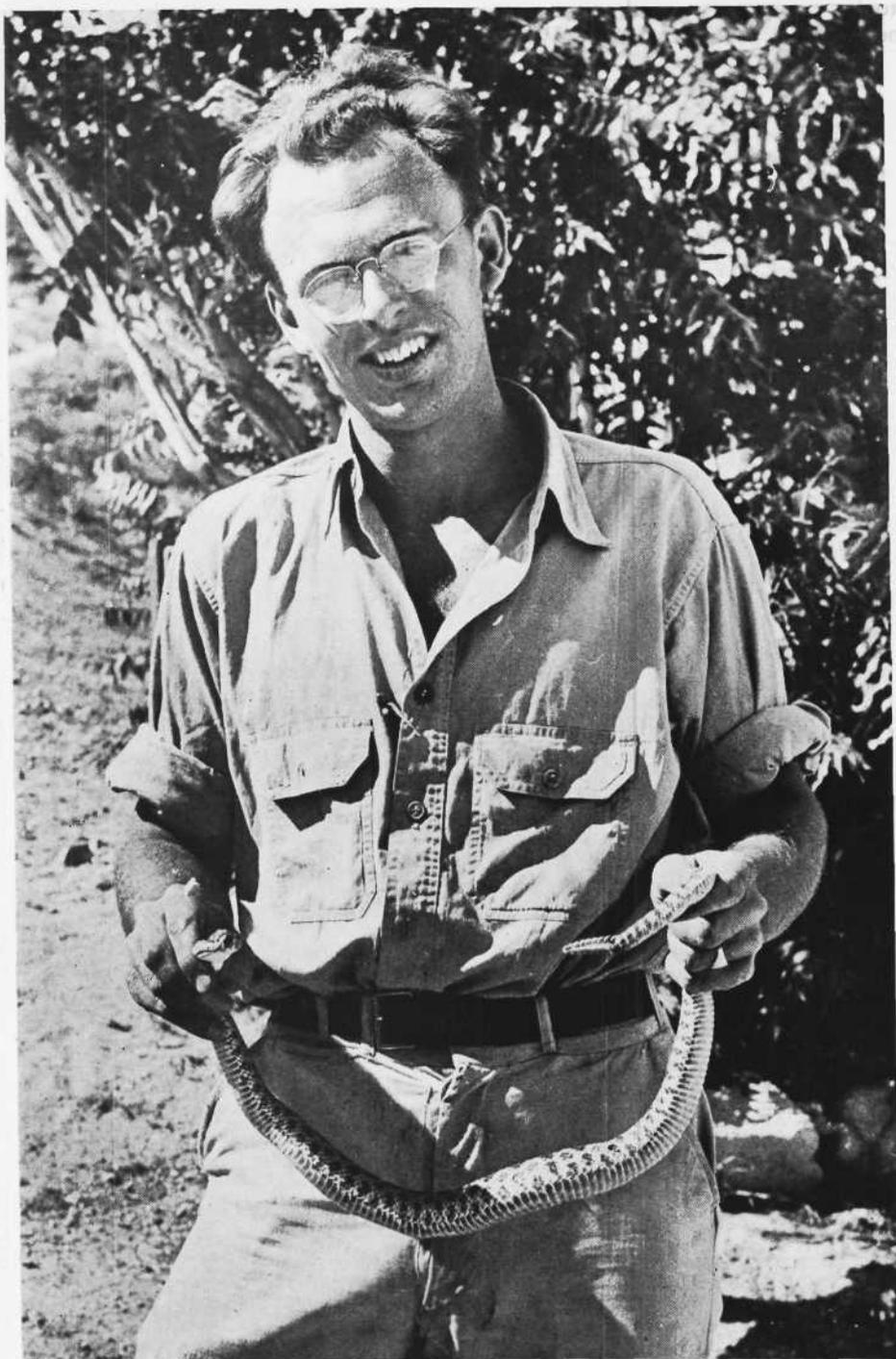
T 2 S, R 19 W (unsurveyed), Secs 1, 2 and 3, Secs 10 to 15 inclusive, Secs 22 to 28 inclusive, and Secs 32 to 36 inclusive.

T 3 S, R 19 W (unsurveyed), Secs 1 to 5 inclusive, Secs 8 to 17 inclusive, Secs 20 to 28 inclusive, and Secs 33 to 36 inclusive.

T 4 S, R 19 W (unsurveyed), Secs 1 to 4 inclusive, Secs 9 to 16 inclusive, Secs 21 to 28 inclusive, and Secs 33 to 36 inclusive.

T 5 S, R 19 W (unsurveyed), Secs 1 to 4 inclusive, Secs 9 to 16 inclusive, Secs 21 to 28 inclusive, and Secs 33 to 36 inclusive.

The federal order states that "nothing herein contained shall restrict prospecting, locating, developing, mining, entering, leasing, or patenting the mineral resources of the lands under applicable laws."



Johns Harrington, writer of the accompanying story, insists that rattlers are quite harmless—if they are handled properly.

I swung into open space, then downward into semi-darkness. Through the opening above my head a dreary sort of twilight filtered into the strange chamber into which I was being lowered, clinging to a stout rope.

The three of us, members of a Southwest museum party from Los Angeles, had been directed to this weird cavern in Eastern Nevada, by Ted Thatcher, ranger-naturalist from Lehman Caves national monument, Nevada. I had volunteered to explore the cave floor first,

and was being lowered 30 feet from the ground surface. The cave opening was merely a large crevice in the rock on the top of a desert hill. Extending down gradually for a few feet, a black hole suddenly loomed. On close study, a great, shadowy pit, about 50 feet in diameter, was revealed below.

I twisted and spun in circles as the ranger and S. M. Wheeler, leader of the party, manipulated the rope and pulley which were slowly dropping me into this place of darkness. It was evident the cave was a perfect death trap. It was a

Digging in the debris of ancient ruins and exploring newly discovered caves in the desert Southwest, archaeologists have interesting and sometimes thrilling experiences. Johns Harrington, who has been a member of many field expeditions sponsored by the Southwest museum, tells in the accompanying story of the unexpected welcome he received when he was lowered by rope into one of Nevada's caverns.

Pit of the Dead

By JOHNS HARRINGTON

large and deep stone chamber, with a patch of daylight spreading from the small opening in the roof. Once a person or animal had fallen into the pit, escape would be impossible.

Having almost reached the cave floor, I inspected the surface carefully with the aid of a flashlight.

It had been reported that this place, known as "Indian Cave," was a rattlesnake den. Other stories, though varied, also pointed to a gruesome background. Since no reptiles were visible, and I could not detect any other danger, I gingerly placed one foot on the floor. At that moment I was prompted, for some reason to look directly under me. There a Great Basin rattler lay coiled!

Quickly climbing out of reach, as the rope swung crazily, I watched my host buzz lazily, then move to one side, down the sloping floor. He had been reposing on a mound formed by a large boulder and some loose dirt, which rose several feet above the rest of the surface.

Swinging out of the reptile's way, I alighted, and having shouted the nature

of my reception committee, stood by while Thatcher descended the rope, more nimbly than I.

Looking around and keeping a watch on the rattler, I discovered piles of bones scattered about on the rocky uneven cave floor. Near my foot was a piece of a human skull. Other bones nearby appeared to be human. The twilight traced a circle on the floor, beyond which was blackness, cloaking the walls of the great chamber. At one side was a huge rock fall, where the water from the rains coming through the cave opening had flowed downward, seeking an outlet. On the other side were steep inaccessible passages in the wall. The beam of the flashlight showed clusters of sleeping bats, seemingly hanging on nothing.

Leaving on the surface E. F. Walker, the remaining member of the group, so there would be no danger of our being trapped, Wheeler, Thatcher, and I proceeded to search the cave floor. The protesting rattlesnake had been tied to a leash, the loose end of which the ranger fastened to our dangling entrance rope. We found the remains of two other snakes, but as there was no entrance to

the pit save through the roof, the reptiles must have fallen from there. The rattlesnake den story, then, was dismissed.

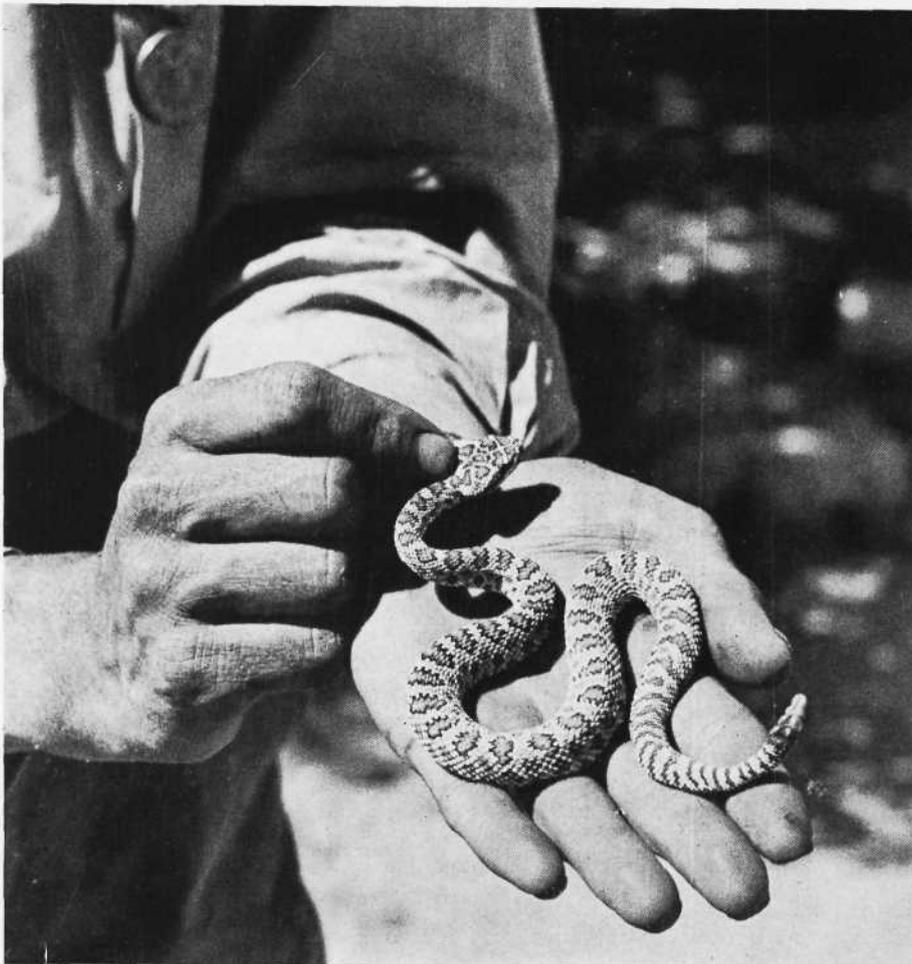
The scattered bones of at least ten human skeletons were found. It seemed likely that a little digging would reveal the grim remnants of others. Most likely, we decided, the bodies of the dead were dumped in here by Indians. The fragments of a handmade pack saddle indicated the redskins may have used the caves to dispose of white travelers, as well as the corpses of their tribesmen.

Two heavy sticks, with evidences of curious bindings, were found. These probably were of Indian origin, but their purpose could not be known definitely.

It seemed likely that the bones and relics we had found were deposited in the pit in comparatively recent times, and therefore not old enough to be of interest from an archaeological viewpoint. Indian basketry or wooden utensils would have disappeared through decay, due to the dampness of the cave.

Finally, with Thatcher leading the way, we began the descent of the rock fall which led downward at a steep angle

Park Ranger Ted Thatcher is holding the Great Basin rattlesnake found at the bottom of the "Pit of the Dead." The snake was added to the collection which Thatcher keeps at his headquarters at the Lehman caves in Nevada.



from one side of the room. Crawling on hands and knees, squeezing between rocks, jumping into pits—we followed the inclined tunnel.

After working our way over and between the damp chilly boulders for 250 feet we came to several small chambers. The passageway continued, but the route became so dangerous we turned back and with some difficulty made our way back to the pit from which we had started.

Wheeler went up the rope first, then I followed. The ranger came next, with the rattlesnake squirming on the leash below. When Thatcher appeared and began pulling his little reptilian pet after him, we deserted the immediate cave mouth to watch from a distance.

As we turned away from the opening and started toward the museum station wagon down the hill, it was agreed that although no important discoveries had been made, the cave had been an interesting place to visit.

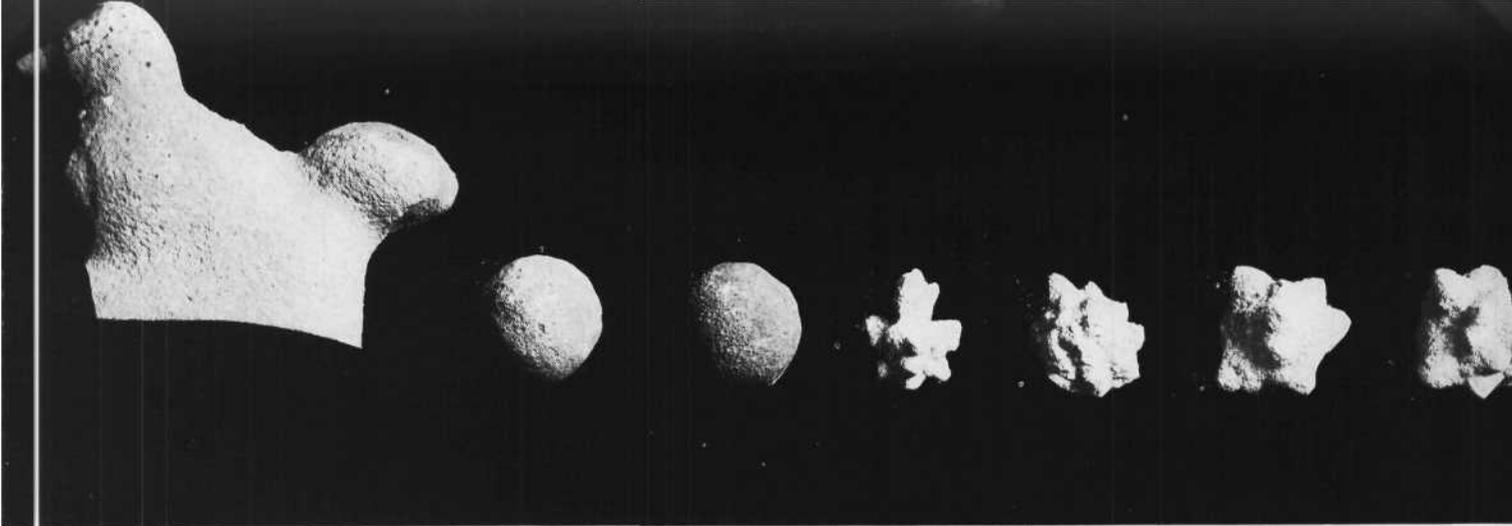
That evening, as we stretched out around the campfire and watched its flames climb into the night, we thought of times gone by—how the Indians had trudged in solemn procession to their burial cave while a coyote yelped his ageless song to the mysterious desert.

We saw brown, half-naked figures against the rising moon, climbing silently up the hillside. Two of the lean Indians were bent from the burden of an oblong bundle swung between them on a pole. Suddenly, the single-file procession paused. Several of the group knelt down, peering into the black opening of the cave.

Not a word was spoken. One of the Indians motioned to the pair holding the bundle. They lowered their burden gently, for inside the wrapping of cedar-bark blankets and animal skins was the body of a fellow Shoshone warrior. Quietly, a half-clad figure collected from his comrades articles which had belonged to the dead.

The Indian, gathering the things together, shoved them down the sloping cave mouth into the pit opening. There would be a swish, followed by silence, as the personal possessions dropped into the abyss. First, went the dead warrior's trivial belongings, then lastly, his bow and arrows and bag of medicinal herbs.

There came another pause as the group stopped with bent heads as though in silent prayer. Finally, the body of the Indian himself on the sloping rock. Again there was a swish, this time followed by a heavy, lifeless thud. All was silent, but as the Indians stolidly turned away, there came a whirl of wings and the sharp cry of disturbed bats who raced from the blackness of the hole to dart against the yellow moon.



Nature created these sandstone figures, but the photographer did the arranging.

"Those Funny Shaped Rocks"

Out among the mud canyons of the Borrego badlands and in other places in the Salton basin of Southern California are found large numbers of fantastic sandstone rock forms—concretions they are called. Many theories have been offered as to the origin of these strange specimens—but science never has been quite sure. John Hilton has been studying them for years—and in the accompanying text has given his theory as to their formation. "I am not sure this is the final answer," he writes, "but it may help clarify the subject." This is a rather technical discussion that will be of special interest to chemists and geologists, as well as rock collectors generally.

By JOHN W. HILTON

Photos by Leo Hetzel

"WHAT makes those funny shaped rocks?" This is one of the most frequent questions asked in my gem shop, and one of the most difficult to answer. The "funny shaped rocks" are those odd sandstone concretions which occur in abundance in the Salton basin of Southern California. Nearly every collector has a few of them on the shelf or in the rock garden.

I asked that same question myself when, as a youngster, I visited the famous Mullet island near the eastern shore of Salton sea. There in a background of spouting geysers and bubbling paint pots Captain Charles Davis had assembled the finest collection of concretions I have ever seen.

His explanation was colorful, even if not scientifically correct. He told his visit-

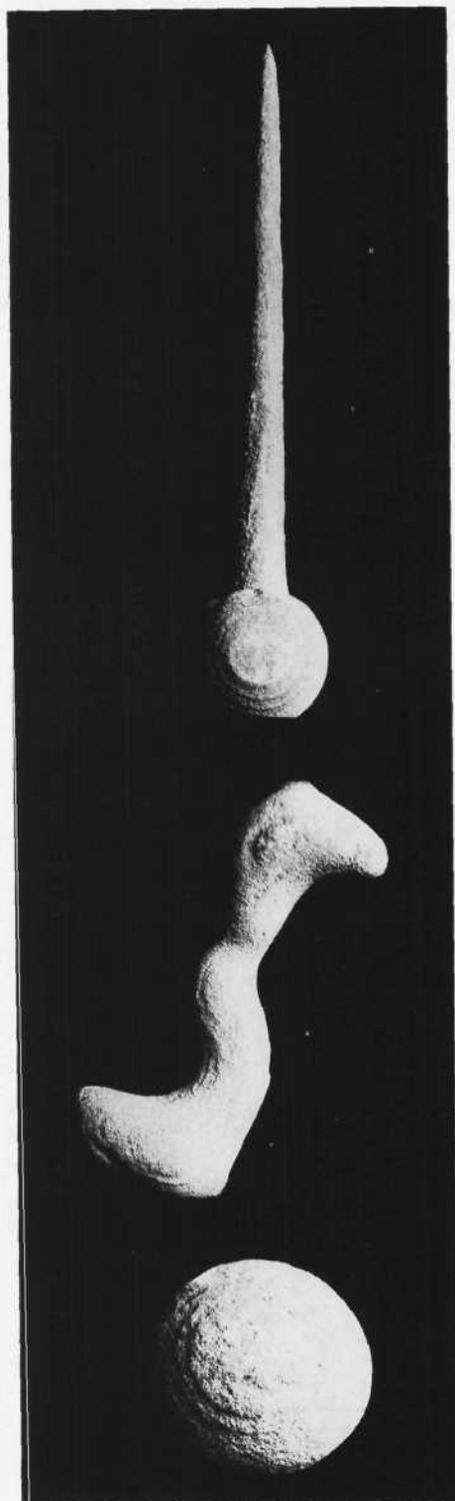


Arthur L. Eaton, gemologist of Holtville, California, is shown here in the "beehive" concretion field in Borrego badlands.

ors they were fossils. This answer served very well as long as he confined his remarks to petrified potatoes, fish, birds and members of the animal kingdom. But when he began displaying his fossil doughnuts, bananas and T-bone steaks, even the most gullible of the listeners began to suspect the old captain was having his little joke.

Pseudo-scientists who wrote stories for the newspapers of that period were not much closer to the truth than was the

The upper figure in this trio of concretions is one of the sandspikes which remain a puzzle to scientists.



picturesque "mayor" of Mullet island. Once I took a trip out into the desert country to see the giant vertebrae of a prehistoric monster that had been described by a "scientific" newspaper writer. It turned out to be a great, long concretion that had been broken at regular intervals by earth movement and then cemented at the broken cracks with limestone.

The sections of original sandstone had weathered away somewhat, leaving protrusions of limestone at the joints. The form may have had some resemblance to the backbone of an ancient monster—but the sandstone substance of the rock very definitely denied such a possibility.

Misnamed Volcanic Rocks

At old Fish springs station — now known as Coolidge springs—near Salton sea on U. S. Highway 99, there is a fine collection of sandstone concretions. Several years ago a self-styled expert from New York saw the rocks and immediately identified them as volcanic mud which had flowed out onto the desert and hardened in these fantastic forms. This theory seemed plausible to the owners who were operating the station at that time and this explanation was repeated so often it became generally accepted as fact. Even today, many dealers who sell this material to rock garden enthusiasts refer to it as Imperial valley volcanic rock.

Another theory commonly accepted is that these concretions are still in the process of formation in the desert area. This is substantiated by the finding of clay balls in the arroyos near the concretions following a heavy rainfall. These balls are formed when a pebble, impelled by a flow of water, starts rolling along the bottom of a shallow wash in which there is a thin layer of soft clay. The ball is built up in layers much as a snowball is enlarged when it is rolled in soft snow.

Neither this answer nor the volcanic mud theory, however, will explain all the weird forms in which these concretions are found.

Nor am I sure that I can explain every detail in the long natural process by which these shapes were created, but after several years of study in the field where they occur I believe I can throw some light on the subject.

Sand and clay are the main elements in the composition of these concretions, but there is always present a cementing material or bond which makes them more resistant to weathering than the materials about them.

Examination discloses that there are several distinct types of concretions and that the cementing substances are different in each general type. The most common binding agents are calcite and arago-

nite. These are both carbonates of calcium and are found in sandstones all over the world.

Next in order is gypsum which is also rather common as a bond in certain types of sandstones. In smaller quantities we find carite, strontianite and even limonite. All except limonite could have been deposited by water solution, and especially by water which contains a high percentage of carbon dioxide.

The limonite concretions are explained more easily than any of the others. Iron or pyrites of iron will slowly oxidize or rust in damp soil and form a limonite concretion. Digging up an old nail or iron object will verify the fact that the size had been increased by the cementing of sand particles with the rust, forming a hard crust. Limonite concretions are nothing more than fragments of iron sulphides that have weathered from other rock and, lying for a long period in damp silt, have completely oxidized.

Studying the occurrence of concretions we find that they not only lie in flat layers out on the open desert, but that they follow certain strata in the sedimentary sandstones of the Borrego badlands. Examining these stones in place we note that tiny bands and stripes in the sandstone matrix continue through the concretion itself. It is apparent then, that the concretions must be nothing more than segments of the sandstone which have become harder than the rest through the action of some cementing agent.

Formed in Ancient Rivers

Geologists tell us that these sandstones were formed in the beds of ancient rivers which drained the Southwest long before the present Colorado river system existed. Probably some of these ancient stream beds are still in place, while other sections have been upturned and form the Mecca mud hills, the Borrego badlands and the sedimentary deposits found in the northwestern part of Fish creek mountains and in other sectors of the great Salton basin, extending southward into Mexico.

Like all great rivers this watercourse drained a vast area composed of many kinds of rock and soil, and picked up various soluble minerals. These together with the sand and clay suspended in the water became more concentrated as the river approached its delta.

In reality there are two types of movement in a flowing river. One is the movement of the water itself, and the other is the volume of sand and mud creeping along the bottom. This layer of sediment is what forms deltas and changes the outlines of continents. It is in the successive layers of this sediment that these concretions were formed.

Chemical analysis of the typical

western river today shows a fairly high content of calcium carbonate and a relatively small amount of gypsum in solution. There are still lesser quantities of the other soluble minerals I named as cementing agents in the formation of concretions.

It can be demonstrated in a laboratory that although calcite and aragonite are only soluble in water, the presence of carbon dioxide increases their solubility many times. Since present day rivers contain enough of this gas to hold a high percentage of limestone in solution, it is reasonable to believe a similar condition existed in our prehistoric river.

Once the calcium carbonate is in solution several things can happen to throw it out again. For instance: an increase in temperature which would drive off part of the carbon dioxide would lessen the solubility of the limestone and force some of it out of solution. Violent agitation of the water can produce the same effect. Neither of these is a probable occurrence near the mouth of a river, however.

Another factor which possibly could have forced the lime out of solution is the increase of aquatic plant life in the delta area. As the velocity of the stream decreases there is heavier growth of marginal and sub-aqueous plants, and when the movement becomes extremely slow countless millions of microscopic algae begin to develop.

It is known that plants take up carbon dioxide in much the same manner that animals breathe oxygen, and that as the plant life in a body of water increases the carbon dioxide content diminishes, and with it the solubility of the limestones.

Here is Clue to Origin

The last, and I believe the most plausible possibility is that the limestone may have been forced out of solution by the presence of ordinary salt. Just as an increase of carbon dioxide will increase the solubility of calcium carbonate, so the addition of more salts will retard the dissolution of limestone. As the ooze in the river bottom crept slowly along, it is reasonable to believe that at a certain point, salt water coming up the delta with the tide could have been an important factor in crystallizing the less soluble substances carried in the muddy floor of the river.

Whether one or a series of these factors is responsible, the fact remains that at a certain sharply defined point in the riverbed, these minerals started to crystallize out, and the formation of concretions was begun.

Most substances, when they crystallize, tend to form around some central nucleus. We are all familiar with old-fashioned crystal candy, which is nothing but sugar crystallized around a piece of

string. Were the string bent, or several strands tangled together, there would be no limit to the weird forms the sugar crystals might take.

If the experiment is carried farther and particles of sand are added to the concentrated sugar solution we will find that while the sugar has continued to carry on its crystallization around the string the forms no longer are clear and sparkling. The general form of the crystal is there but the faces are not sharp and clear-cut. They contain a percentage of sand.

If both clay and sand are added to such a solution the result will be still different. Sugar will continue to crystallize around the string, but the small particles of clay will prevent the forming of crystals visible to the eye. The result will be a cylindrical sugar concretion with a surface almost smooth. The sugar content will be lower than when sand alone was added to the concentrate.

Instead of using string, if tiny bits of organic matter such as seeds or twigs are substituted, the result will be still different. The crystallization then will take the form of round or oval concretions. These will settle to the bottom where some of the radial groups will grow together and form the knobby type of concretion.

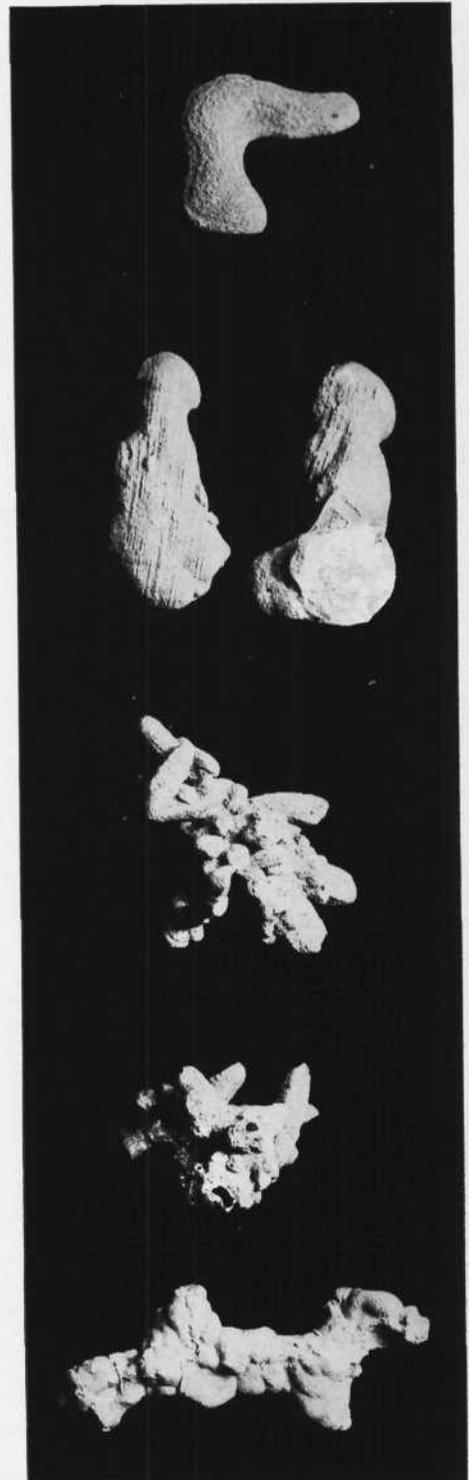
Crystals Formed Around Old Roots

There is a striking resemblance between the results produced from these experiments and the concretions of the Salton basin area. It is entirely reasonable to believe that the soluble minerals in the muddy river bottom could have crystallized on bits of organic matter to form the weird shapes we now find.

Some of the concretions show crystalline forms—and yet they are 60 percent sand. Those produced in combination with calcite have the typical shape of dogtooth spar. Others contain gypsum and have the exact shape of rosette crystals of ordinary gypsum.

There are others with higher percentages of sand and clay which show no evidence of crystalline structure on the outside, yet if they are examined in the reflecting rays of the sun it can be seen that the tiny cementing particles of calcite are arranged in parallel planes.

It is interesting to note that certain areas and layers contain definite types of concretions. For instance in one spot I found dozens of long cylindrical concretions all pointing the same way and about the same diameter. Upon closer examination I discovered that these concretions were arranged parallel with the flow lines in the sandstone in which they were formed. Their cross-sections showed a tiny tubular cavity that may once have contained a long piece of fibrous root. In



No two concretions are ever alike. The three lower forms in this picture plainly verify John Hilton's crystallization theory.

some places they take the form of spheres, while in others they may be lumpy aggregates of small balls or ovals.

With the nuclei varying from place to place and the character of the cementing material and the ratio of sand and clay also variable, it is no wonder there are so many different shapes.

The organic character of the particles around which some of these concretions

crystallized can be proven without microscopic examination. In the case of some of the hollow limonite concretions actual prints of reed-like plants around which they formed are still plainly visible.

One phenomenon puzzling to those who study these strange rocks is the fact that wherever there is an old crack in a concretion it is likely to be filled with a raised ridge of harder material.

Here again it is a good idea to study them in place, especially in the walls of canyons and the banks of washes. It will be noted that the cracks which show this peculiarity run up and down at right angles to the bedding layers of the sandstone.

It will also be seen that these cracks continue into the parent crack and that they have been the path of limestone bearing waters of more recent flow. These percolating waters were absorbed by the porous sandstone causing a slightly harder wall on each side of the crack. Where the fracture extends through a concretion a different situation prevails. Here the rock is less porous and already saturated with limestone, so the crack is filled with nearly pure calcite, creating the hard raised joint now seen.

In rare instances these cracks are wide and fine crystals of calcite and barite have formed on their walls. These specimens are desirable for mineral collections since the calcite is usually a dark yellow and the barite waterclear. Both minerals fluoresce under ultraviolet light which makes them even more attractive to collectors.

Sandspikes Still a Mystery

There are two types of concretions which I cannot explain under this crystallization theory. They are the sandspike or scepter concretions found in the Mt. Signal area, and the spiral concretions discovered by Guy Hazen in the Seventeen Palms region. Chemically they are practically the same as other forms, but their shape is so regular and unusual that I do not understand fully the factors entering into their structure. It is my belief that the clue (if any) will be found by microscopic study of the thin rock sections at the center of these concretions. Thus may be found the nuclei around which these unusual forms were built.

Many of the surface concretions exposed on windy flats and sand swept hill-tops have been altered to some extent by wind erosion. Concretions from strata composed of alternate layers of sand and clay become wind-weathered in deep parallel grooves, the denser clay-bearing portions forming the ridges.

In some instances spherical concretions have been cut by the wind to expose the layers of growth and these resemble an

onion or a rosebud. In others they have been completely hollowed out to form almost perfect bowls.

Concretions that originally were long slim cylinders have often been streamlined by the wind to perfect "tear drop" proportions. Flat plates exposed to the shifting sand have sometimes been eroded to veritable pieces of stone lace, so delicate they cannot bear their own weight.

Near the Mexican border is an area known locally as the "Cabbage Patch." Here large concretions that have been exposed to the weather resemble giant cabbage heads.

One could go on describing enough different kinds and variations of concretions to fill a book, and a complete study of the chemistry and physics involved would fill several volumes.

I do not present this theory as the final answer, nor do I claim it all for myself. It has developed through a period of eight years and is based largely on the actual observations of my friends and myself, in the light of known facts of chemistry and geology.

My only hope is that this article has so far clarified the subject that people will quit calling our sandstone concretions "those funny shaped volcanic rocks."

Weather

JANUARY REPORT FROM U. S. BUREAU AT PHOENIX

| | |
|--------------------------|---------|
| Temperatures— | Degrees |
| Mean for month | 52.4 |
| Normal for January | 51.2 |
| High on January 1 | 72. |
| Low on January 18 | 33. |
| Rain— | Inches |
| Total for month | 0.18 |
| Normal for January | 0.80 |
| Weather— | |
| Days clear | 16 |
| Days partly cloudy | 9 |
| Days cloudy | 6 |

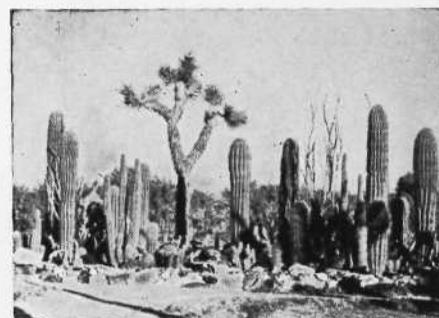
G. K. GREENING, Meteorologist.
FROM YUMA BUREAU

| | |
|--|---------|
| Temperatures— | Degrees |
| Mean for month | 55.2 |
| Normal for January | 54.4 |
| High on January 26 | 73. |
| Low on January 8, 12 and 14 | 38. |
| Rain— | Inches |
| Total for month | 0.91 |
| 69-year average for January | 0.45 |
| Weather— | |
| Days clear | 18 |
| Days partly cloudy | 9 |
| Days cloudy | 4 |
| Sunshine 75 per cent (240 hours out of possible 318 hours) | |

Colorado river—
January discharge at Grand Canyon 180,980 acre feet. Discharge at Parker 319,930 acre feet. Estimated storage February 1 behind Boulder dam 22,270,000 acre feet.

F. C. CROMBIE, Meteorologist.

IMPERIAL COUNTY FAIR



Cactus Garden on Fairgrounds

March 4-12 At Imperial, California

The Abundant Agriculture of Imperial Valley on Parade

Included in the exhibits will be presentations of agriculture, horticulture, dairy cattle, beef cattle, poultry, dairy products, 4-H clubs, F. F. of A., apiary, domestic arts and science.

Showing the Wealth of the "Winter Garden of America",

This is a grand opportunity to witness Imperial County's annual midwinter fair, and at the same time see the desert in bloom, visit the great, new all-American canal, enjoy the hospitality of the Valley's seven cities.

HORSE SHOW Sat., Sun., MARCH 11-12

For further information or premium lists, write D. V. Stewart, Secretary, Imperial County Fair, Imperial, California.



Sunset on the Desert

By E. A. BRININSTOOL
Hollywood, California

There ain't no artist paints it with his colors and his brush
Like the Master Artist does it at the sunset glory's hush,
When the reds and pinks and crimsons are a-floodin' all the skies
With a hint of heaven's beauties through the Gates of Paradise!
Oh, there ain't no daub on canvas that was ever yet displayed
That can show a desert sunset like the hand of God has made!

How the colors blend and soften underneath His master-hand,
Till they flood the buttes and mesas and creep off across the sand!
How the draws and coulees glimmer with the gold He spills afar
Flingin' back the sunset's blushes where the stately yuccas are!
And the clouds grow sort of filmy in a gorgeous crimson sheen,
Like they tried to keep the angels from a-peekin' on the scene!

Then a gorgeous glare of color seems to tip the peaks and hills,
With a gleamin' golden splendor, which the Master Artist spills!
And the mountains, white and hoary, seem to bend and smile to me,
And the sand-dunes are a-sparkle like a dazzlin' summer sea!
While the dreary wastes seem likened to some stretch of Fairy-Land,
As He deftly shows their luster by the magic of His hand!

Then He draws the curtains closer by His varied lights and shades,
And paints in a touch of purple, as the picture slowly fades.
And the brown, bare, arid stretches, which at noontime were a-glare,
Take on tints of wondrous beauty, and grow roseate and fair.
And I stand in awe and wonder as the colors flash and glow,
Tingin' all the somber desert, till they blend and overflow!

Then the hush of evening gently, softly, slowly settles down
On the lonely dreary mesas and the hills so dry and brown;
Till the star-world sheds its luster, and the moonlight floods the range,
And the dark buttes loom up yonder, grim and spectral-like and strange!
And I drowse—and doze—and wonder at the picture I have seen,
Which the hand of God has painted on old Mother Nature's screen.

CLOSE OF DAY

By SARA W. HARTON
Caliente, Nevada

The sun dropped down in a bed of gold,
Heaped high with blankets, white.
Then twilight fell and day was clasped
In the tender arms of night.

• • •

DESERT RAIN

By ELIZABETH BROWN
Los Angeles, California

Like Furies, all their passions spending;
Like clouds deep rent, a deluge sending;
Like punishment, so swift descending;
With winds grown mad, the desert lashing;
With thunder on the mountains crashing;
With lightning's dazzling, deadly flashing:
So falls the desert rain!

• • •

JOSHUA TREES

By LEDAH ANN PETERSON
Victorville, California

You look so gaunt and ghostly
And your limbs are so grotesque,
And your flower resembles mostly
The shape of a hornet's nest.
You look so weird and fantastic
Against the desert sky,
Perhaps you're phantom scarecrows
On birds and beasts to spy.

• • •

COSMOS

By THELMA IRELAND
McGill, Nevada

A cosmos is a flimsy flower,
So fragile and so frail,
And yet it seems to carry on
Where others flowers fail.
It doesn't fall to early frost,
Nor drouth, nor scanty soil,
But thrives through all the handicaps,
More bravely for its toil.
Some folk are like the cosmos, frail,
Apparently just fluff,
But in conditions most adverse,
Prove of much sterner stuff.

• • •

WE OWN THE VIEW

By IVAN G. OSTLING
Beaumont, California

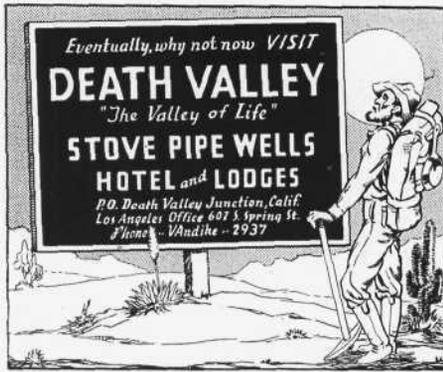
Off to the east of our little home
Looms a mountain of towering height;
Snow-capped San Jacinto stands
As a sentry o'er desert night.
And in the evening when friendly sun
Is seeking a place to rest,
The blues and purples in eastern sky
Contrast the gold in the west.
Rich folks may own the ground up there;
I guess there are quite a few
Who take great pride in their cabin homes—
But my wife and I own a view!

• • •

CREED OF THE DESERT

By JUNE LE MERT PAXTON

The Creosote Tribe is a hardy race;
It makes its home in a desert place.
Though the soil be barren or the
sun be hot
It never grumbles or bemoans
its lot.



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THE Desert MAGAZINE

El Centro, California

Here and There ... ON THE DESERT

ARIZONA

Tucson ...

U. S. Senator Carl Hayden has sponsored a bill to make a national park of Saguaro monument, located a short distance east of Tucson. The Hayden bill would authorize purchase of about 1500 acres of privately owned land adjoining the monument, would obtain title from the university of Arizona and from the state to other acreage and would appropriate \$42,000 for private purchase, \$55,000 to go to the university.

Litchfield Park ...

George Sloan of New York, attending a meeting here of Goodyear directors, took time out to go coyote hunting in a blimp. Soaring over the Arizona desert, Sloan bagged a coyote with a rifle shot.

Fort Wingate ...

Navajo medicine men are steering sick Indians to government hospitals all because Dr. Leo Schnur had a bright idea. Dr. Schnur, fearful that diphtheria might spread from a sick Indian woman, tried without avail to persuade the patient to enter the hospital here. He found her under the ministrations of the tribal medicine man. Finally white medicine man propositioned his red brother medico: "You come along, bring the patient. We'll give you a white robe like the white doctors wear." It worked. Now, if an Indian medicine man wants an operating gown, he gets it. He can have a stethoscope, too. And he can carry with him his gourd rattles and his feathers. Reports sent to Washington say the plan is a success.

Grand Canyon ...

Possibility of irregularities in the sale of Bright Angel Trail in the Grand Canyon to the government is under investigation by Joe Conway, state attorney general. According to the original sale Coconino county received \$100,000 for the trail, which is the popular means of descent to the bottom of the canyon from the rim. At the time of the transfer the county's revenues from the trail approximated \$12,000 annually. Conway is quoted as pointing out unofficially that several provisions of the sale may have been illegal and that certain terms of the agreement have not been carried out. County records are being checked, under permission of the county board of supervisors.

Yuma ...

Yuma celebrated 6,990 marriages in 1938, falling 198 licenses below the number issued in 1937. Californians continued to account for many of the weddings here, where no law balks impatient couples. More than 65 couples were wed in Yuma on New Year's day 1939.

Phoenix ...

Local chapters of the Territorial Sons and Daughters of Arizona will be organized throughout the state, according to John H. Barry, recently installed as president of the organization here. Membership is limited to persons born in Arizona before February 14, 1912, when the territory was admitted into the union as a state.

Yuma ...

President Roosevelt has set aside 1,400,000 acres in Yuma county as two separate game ranges for the Gaillard bighorn mountain sheep. One range includes about 600,000 acres in the Kofa (S. H.) mountain region and the other 800,000 acres in the Cabeza Prieta region on the Mexican border. Both are in Arizona grazing district No. 3.

Flagstaff ...

Discovery of a natural bridge in the wild country between Oak creek canyon and Sycamore canyon in the southern part of Coconino county has been announced by the forest service. Ranger Harold Pilmer of Sedona and Assistant forest supervisor E. C. Groesbeck of the Coconino forest made the find. They report the bridge is between 75 and 100 feet high, about 50 feet long and eight feet wide on top.

Tucson ...

Bears that refuse to hibernate but which go about knocking down the yellow and black U. S. forest service fire signs, are the despair of Fred Winn, Coronado forest supervisor and his rangers in the Chiricahua, Graham and Galluro mountains. Bemoaning the fact that Bruin declines to become fire-conscious or to take his traditional winter siesta, supervisor Winn said, "Bears seem to have a grouch against fire signs. It's time they went to sleep for the winter and left us alone. Maybe they figure the country's getting too civilized for 'em. Guess you would have to study up on bear psychology to figure it out."

CALIFORNIA

Brawley ...

Stuart Green, active in civic affairs, is new president of the Brawley chamber of commerce. His associates in the 1939 administration include these directors: Paul Palmer, Eugene Anderson, jr., Harold Brandt, L. W. Ballard, Daymon Ellis, W. I. Hoopes, George Butters, S. D. Carey, George W. Cutshaw, Dave Goodrich, J. A. Jacobson, C. H. Morrow, H. P. Wilke and Dr. J. L. Parker. The board elected Goodrich vice president, Brandt treasurer and Charles E. Nice secretary-manager.

Death Valley ...

A Catholic chapel and all souls' memorial will be built in Death Valley national monument, according to announcement in the Register, a church publication. The article says architect's plans have been completed and the Very Rev. Monsignor John J. Crowley will start collecting funds for the new church, to cost \$30,000. Site for the edifice has been donated by the Pacific coast borax company. The church will be built of native rock, limestone and travertine, will have a seating capacity of 200.

El Centro ...

Bills introduced in the state legislature by Assemblyman Clarence Walker of Imperial county propose two important highway links, one in the Imperial route between San Felipe and Warner Hot Springs and the second between Niland and a point near Hopkins' well on the Four-State highway from Canada to Mexico.

Indio . . .

Next May on Salton sea Sir Malcolm Campbell, British speed king, will try a new boat of special design powered with a mystery motor in an attempt to set up new world's records. The craft is being built in England, will be shipped to New York in April on board the Queen Mary and then by express to Salton sea. Schedule calls for three weeks' trial runs. Negotiations for the Campbell speed tests have been handled by Arthur L. Bobrick, racing commissioner of the American Power Boat association and Clarence F. Joyce, commodore of the Salton sea yacht club.

Centro . . .

Imperial valley flaxgrowers set two world records in 1938, according to L. G. Goar, superintendent of the state experiment farm at Meloland. Goar reports approximately 25-bushel average yield of flaxseed on 9,000 acres farmed by members of the Southwest flaxseed association and an average of 31.74 bushels on 1926 acres operated by 15 members of the association. These yields from such large acreages have never been produced before, according to Goar.

Calexico . . .

Mrs. Porter Brown of this city has sponsored a movement to utilize rocks, cactus and desert vegetation generally, to make Calexico unique among communities of this arid region. Said Mrs. Brown at an enthusiastic meeting of her fellow and sister citizens: "My idea is to start at one end of town, encourage planting of cactus beds and rock gardens in plots that would be otherwise bare." One large, public rock garden and cactus bed was suggested as first move, to inspire private projects; school children would be enlisted to assist in the work.

• • •
NEVADA

Las Vegas . . .

Making room for spring floods on the Colorado river, bureau of reclamation is releasing 2 million acre feet of water from storage behind Boulder dam. By March 1 level of the lake will be lowered 13 feet. If a snow survey of the watershed at that time indicates the spring runoff will be greater than normal, discharge at the dam will be stepped up. It will be possible, officials say, to allow the water level to rise high enough to enable the spillways to be operated and tested. First discharge of the spillways of the world's greatest reservoir will be a "very notable occasion," according to Irving C. Harris, power director at the dam.

Yerington . . .

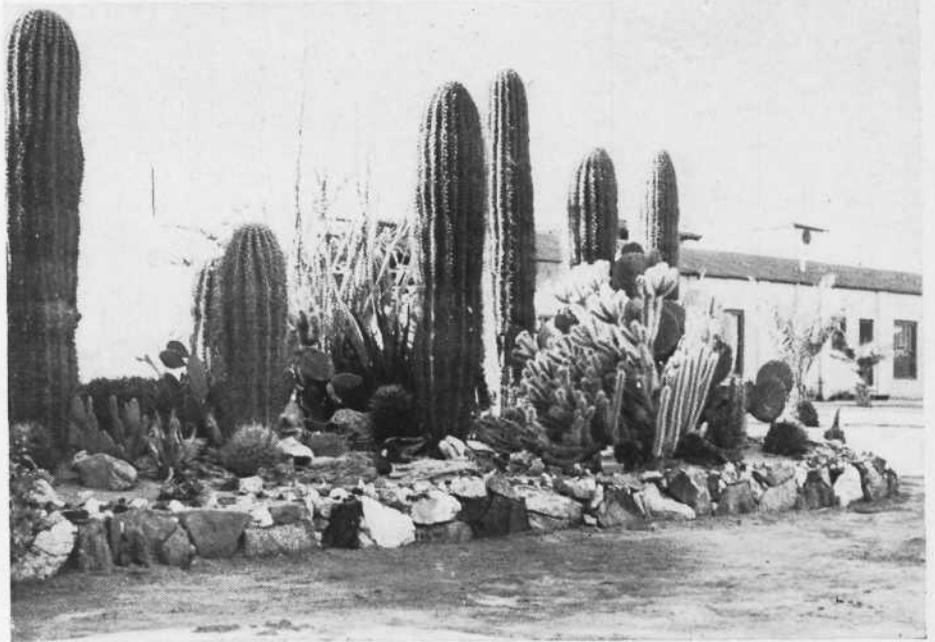
Nevada had no pine nut crop this year, according to local dealers who usually ship the nuts to eastern markets, but jack rabbits have been plentiful and the Indians have had abundant supply of winter meat and rabbit blankets.

Las Vegas . . .

U. S. Senator Key Pittman has introduced a bill to create a Nevada state park on the shores of Boulder lake. The measure asks the department of the interior to grant to Nevada 16 sections of land including land and water of the lake surrounding Las Vegas wash. This is the closest point on the lake to Las Vegas and a survey has been made for a paved highway into the area.

Carson . . .

William Allen Powell, jr., of Fallon has been appointed Nevada fish and game commissioner, to succeed Bob Douglas, under announcement from the office of Governor E. P. Carville.



While the annual Imperial Valley, California, Midwinter Fair will be devoted mainly to agricultural and livestock exhibits, the desert background of this reclaimed winter garden spot has not been forgotten. The fairground park has been landscaped with native cacti, the gardens having been installed by County Horticultural Commissioner B. A. Harrigan. Ben Hulse is president and Dorman Stewart secretary of the Midwinter Fair. The dates are March 5-13.

NEW MEXICO

Virden . . .

On orders from Gov. John Miles, state engineers cut the chains to locked headgates on the Gila river and released water to dusty fields of local farmers after displacing C. A. Firth, federal water commissioner. Three years ago federal court issued a decree naming a water master to conserve the supply of Gila headwaters for the San Carlos Indians on their reservation 70 miles west of here. Farmers in the southwestern corner of the state complained that their lands were reverting to the desert. The dispute again went before United States court in Tucson.

Albuquerque . . .

Clinton P. Anderson, local business man, has been selected as director of the Coronado Quarto Centennial, which New Mexico will celebrate in 1940. Announcement was made by Dr. James F. Zimmerman, president of the centennial commission. Anderson succeeds Herbert O. Brayer, who will be retained by the commission "in an important capacity."

Rociada . . .

A strand of telephone wire and an airplane pilot saved 120 residents of this small farming community high in the Sangre de Cristo mountains when snow, which even covered the trees on mountain slopes here, made trails impassable and food supplies were exhausted. Officials of the village telephoned to Las Vegas, 30 miles away. Lloyd Bible, pilot employed by a Las Vegas newspaper, loaded his plane with food and dropped the provisions in a big snowdrift at the edge of the town. Then the community telephoned its thanks.

Albuquerque . . .

Howard Freeman and Thomas Payne reported that they recently found smoke coming from fissures in the old volcanic region bordering the Rio Grande river west of this city.

UTAH

Cedar City . . .

Paul R. Franke, new superintendent for Zion and Bryce national parks, has taken up his duties and is studying problems of the areas under his jurisdiction. He entered the forest service in 1928 at Mesa Verde national park, where he served until his recent promotion.

Moab . . .

Uncle Sam and the state own 84 per cent of the area of this state, or 45,680,519 acres. Theoretically, says H. Warren Taylor, secretary of the state land board, there is a third of an acre of government land in Utah for every person in the United States. Most of the government owned land, Taylor declares, is worthless except for grazing and the same is true of much of the state-owned land.

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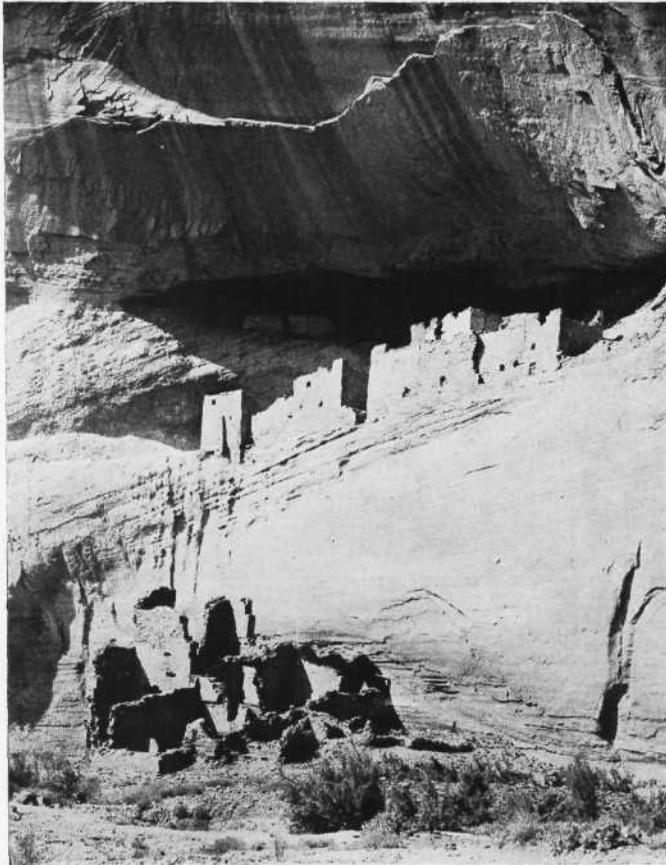
P. O. Box 790 Tucson, Arizona

NAME

ADDRESS

White House

Alfred R. Hipkoe of Winslow, Arizona, is the winner of the Landmarks prize offered in December for the best identification and description of the Indian cliff dwelling pictured below. An unusually large number of well-written manuscripts were submitted in this contest and the judges spent many hours comparing the entries point by point before reaching a decision. Mr. Hipkoe's winning answer is published below:



By ALFRED R. HIPKOE

The cliff dwelling pictured in the January issue of the *Desert Magazine* is the "White House" in Canyon de Chelly, (pronounced de Shay), in the national monument of that name. The dwelling in the cave is the White House proper, and is so named because it is plastered white, not because it resembles the President's hogan in Washington. The ruins are located near the base of a 500-foot cliff which dwarfs into insignificance the Indian structures. On the walls of the cliff and the cave are prehistoric pictographs of birds, animals, hands, and geometrical designs.

Canyon de Chelly national monument lies just within the eastern state line in northern Arizona. The monument includes Canyon del Muerto and Monument canyon. It is noted for its hundreds of cliff dwelling ruins, and its sheer, rose tinted walls. The canyons are cut in the western slope of the Defiance Uplift or monocline, in Permian sedimentaries known as de Chelly sandstones. The first American to see this canyon was J. H. Simpson in 1848, although it was known to the Spaniards long before.

Navaho Indians now live peacefully in the canyons where once they hid and fought. It was here that Kit Carson forced their surrender in 1863. They still make use of the tiny hand and toe holds made in the solid rock by the ancient dwellers of the caves. It is strange that the Navaho who regards anything connected with the dead as "chindee," should

live so closely to the skeletons and homes of the dead. They have a belief that some of their divinities still inhabit the White House ruin. Science dates the occupation of these dwellings as 1060 to 1275 A. D.

This landmark is reached from the town of Chin Lee, which is located at the mouth of Canyon de Chelly and where one may secure excellent accommodations at the trading post of Cozy McSparron. A sandy road, not always passable, leads up the canyon from Chin Lee, or the visitor may drive to the rim of the canyon opposite the White House and take a trail which leads down to the floor and across to the ruins. A custodian is in charge for the U. S. park service.

From the Santa Fe railroad or Highway 66, there are five roads leading north to Chin Lee, two from Winslow, and one each from Holbrook and Chambers in Arizona, and one from Gallup, New Mexico. All are passable roads in fair weather. Two pass through the Hopi villages and all traverse extremely interesting Navaho country.

* * *

Somewhere on the Desert .

Coachella valley in Southern California awoke on the morning of January 9 to see snow almost circling this desert basin. At Cottonwood springs in the Eagle mountains there was eight inches of snowfall.

. . .

Arizona isn't going to give the country back to the Indians, but the state legislature has received a request from the fish and game commission to authorize bow and arrow hunting in designated areas.

. . .

According to figures compiled by the University of Arizona a range cow in that state drinks an average of 6.3 gallons of water daily. The consumption is 2.6 gallons in winter and 11.5 gallons during the hottest days of the summer period.

. . .

Desert tamarisk logs are being shipped from Yuma to eastern manufacturers to determine their value in furniture making. This tree is not a native of the Southwest desert, but flourishes in Arizona, California and New Mexico where an ample water supply is available.

. . .

Indian population in the United States is increasing at twice the rate of the population as a whole, according to figures compiled by the Department of Interior. Reservation holdings of all the Indian tribes in the United States have increased from 49,000,000 acres in 1933 to 51,540,307 at present.

. . .

To make the Arches National monument in eastern Utah more accessible to motorists \$3,000 has been allotted by Supt. Pinkley of southwest monuments, for road survey purposes. Due to the lack of a good entrance road few people know that the Arches is one of the most interesting scenic areas in the West. Harry Reed of the National Park Service is custodian.

. . .

PWA projects totaling \$2,090,500 have been authorized for national parks and monuments during 1939. The projects include a sewer installation in Carlsbad Caverns 750 feet below the surface of the ground, a new pumping plant for the Petrified Forest national monument, \$150,000 for the improvement of Hemenway beach in the Boulder Dam recreational area, and \$35,000 for water storage at Mesa Verde national park.

WHO'S SEEN THIS OASIS on the Southern California Desert?



Traveling Through Riverside?

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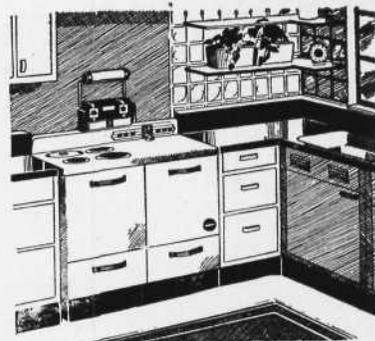
HERE'S THE LANDMARKS CONTEST FOR MARCH

Here is a landmark that stands out conspicuously on the Colorado desert of Southern California — and yet it is a place never seen by those who travel only on the paved highways.

This is a typical oasis of native palms, growing on the floor of the broad sandy plain which once was the basin of an ancient sea. Grizzled prospectors know this place well—because these palm trees always indicate that water is not far beneath the surface.

Desert Magazine readers will want to know more about this oasis, and in order to bring together the best information available a prize of \$5.00 will be given the person who identifies the spot and sends in the best story of not over 500 words describing it. The exact location should be given including road facilities, and also any historical or legendary data which can be obtained.

To be eligible for the prize, entries must reach the office of the Desert Magazine not later than March 20, 1939. The winning answer will be published in the May number of this magazine.



Electric Ranges on the Desert?

Visitors are often surprised to find so many desert housewives cooking electrically.

"It's cleaner," said one desert housewife. "My automatic electric range gives me more time to rest and play," said another.

"All I know is: it costs us less and I get better meals," spoke up the man of the desert.

Electric rates are low, and you can now purchase an electric range for as little as \$3.00 a month. Drop in and talk it over.

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DESERT PLACE NAMES

Compiled by TRACY M. SCOTT

For the historical data contained in this department, the Desert Magazine is indebted to the research work done by Miss Scott; to the late Will C. Barnes, author of "Arizona Place Names;" to Frances Rosser Brown of New Mexico and to Hugh O'Neil of Ogden, Utah.

CALIFORNIA

CERRO GORDO (sair' oh gor' do)
Inyo county
Literally "fat hill," referring to richness of gold ore found there. Hill and mine. Gold ledge discovered in 1865 by Pablo Flores, or by a mule driver whose name is known to no authority available in this research.

PILOT KNOB
Imperial county
Near present intake of Imperial canal. A conspicuous landmark used as a guide for early travelers enroute to California on the old Emigrant trail.

SALSBERY SPRINGS
Inyo county
In Death Valley. From John Salsberry, miner and prospector, who was one of the locators of the Ubebebe mine in 1906.

VAN DUSEN CREEK San Bernardino county
With discovery of gold in Holcomb valley, May 4, 1860, a small rush began and soon a lively settlement was under way. Ingersoll says, "A blacksmith by the name of Van Dusen came with his wife. She made a flag for the first Fourth of July celebration, and the camp was called Belleville for her little daughter."

ARIZONA

CIBECUE (sie-be ku')
Navajo county
Indian camp, farm and creek. August 30, 1881, Capt. E. C. Hentig, 6th U. S. cavalry, and six men of General Carr's command were killed here in a fight with Apaches. Nock-aye-de-Klinney, Apache medicine man, was killed by the troopers. Shortly after the fight an Apache interpreter told Will C. Barnes that when General Carr asked an Apache scout what they called the place, the scout replied "She-be-Ku," meaning "My house." Three White mountain Apaches, Dandy Jim, Dead Shot and Skippy, enlisted Indian scouts who turned against the troops in the fight, were tried for mutiny by military court-martial and hanged at Fort Grant, March 3, 1882. Two others were sent to Alcatraz prison for life. Dead Shot's squaw hanged herself at San Carlos on the day of the execution. Creek rises in northwest corner of Ft. Apache Indian reservation, flows south into Salt river, about 10 miles west of junction of White and Black rivers, which form the Salt.

LA VENTANA (lah ven tah nah)
Pima county
Sp. "the window." A great upstanding rock in the desert about 3 miles east of Papago village of San Miguel at base of Baboquivari mountains about 90 miles from Tucson. Notable for many prehistoric fortifications and old ruins found all over it. On its top is a large natural tank which holds considerable rain water. Lumholtz says the rock is about 400 feet high. Nobody has ever explained the name.

NEW MEXICO

DONA ANA
Dona Ana county
Three theories: (1) For a woman of this name who lived in the vicinity and was known for her charitable deeds; (2) for the daughter of a Mexican general stolen and brought north by Indians and (3) for

a woman who, when the original settlers were leaving El Paso del Norte to found this town, called them to name the town for her. This third story is the favorite of many old timers. Dona Ana county was one of the original nine counties into which the territory of New Mexico was divided by the first legislature of New Mexico in 1851. Named for the town.

PORTALES
Roosevelt county
Portales springs, flowing from under a rocky ledge seven miles southeast of Portales, for many years furnished water to travelers, freighters, soldiers, cowboys and buffalo hunters on the trail from Texas to Fort Sumner, and gave this town its name in 1888. Doak Good, first settler, had a camp at the springs in the early 1880s. Col. Jack Potter, Clayton, N. M., contends Portales means "portholes" in Spanish and that the springs were named for the portholes in the rock wall built around them by Spanish buffalo hunters. Some say the name means porches in Spanish and came from porch-like projections of rock over the springs. Most of the citizens claim the interpretation of the Spanish word is "doorway," referring to the valley leading from the springs up the trail. The Clovis News-Journal prints this theory. Roosevelt county was organized from Chaves county in 1903, named for Theodore Roosevelt.

NEVADA

BROOKLYN
Washoe county
Located in 1875; named by the United Brooklyn mining company, which was then developing claims in the Peavine district.

FALLON
Churchill county
Postoffice established in 1896 on Mike Fallon's ranch in a 10x12 shack. Later the property was bought by Wm. W. Williams, who donated the land for courthouse and jail. Incorporated 1908.

JOB'S PEAK
Douglas county
Named after Moses Job, a trader who settled in the valley in 1852. The peak is 10,000 feet high and rises 6,000 feet above the floor of the valley, rivaling in precipitous grandeur California's own Yosemite.

UTAH

CLAWSON
Emery county
Hiram B. Clawson went to Salt Lake City in 1848 and superintended construction of some of the first Salt Lake City buildings erected by the church. He was an adjutant general of the Navoo Legion, effecting a reconciliation of church and military authorities. In 1875 he aided in furthering co-operative agriculture by supplying grist mills, steam engines and other machinery.

HYRUM
Cache county
Town and reservoir. A popular Christian name among the Mormons, notable example being Hyrum Smith, father of Joseph Smith. Town established in 1860 by about 20 families. In 21 days they dug a canal eight feet wide from Little Bear river for irrigation, using only old shovels and living on bread and water the while. The new settlers had no money and for several years they lived in cellars or holes dug in the ground.

Boulder Dam Information . .

For the information of motorists planning to visit the Boulder Dam recreational area during the spring months the following information is given out by the National Park Service:

By Motor:

All major highways leading to Boulder City and the Boulder Dam Recreational Area are paved. U. S. Highway 91 between Los Angeles and Salt Lake City passes through Las Vegas, Nevada, 23 miles from Boulder City. From Las Vegas U. S. Highway 93 and 466 passes through Boulder City, across Boulder Dam, and continues to Kingman, Arizona, here connecting with U. S. Highway 66. The Nevada portion of the road connecting Boulder City with Needles, California via Searchlight is gravel for approximately 32 miles. The road to Pierce Ferry, taking off from U. S. 93 and 466 half way between Boulder City and Kingman, is rough but passable.

By Rail:

Travelers on the Union Pacific detrain at Las Vegas and those on the Santa Fe detrain at Kingman. At both points they are met by scheduled stages for the trip to Boulder City and Boulder Dam.

By Air:

Transcontinental and Western Airlines, Inc. provides daily plane service to Boulder City, while Las Vegas is served by Western Air Express.

The best of hotel and auto court accommodations are available in Boulder City. Several cafes serve good meals at reasonable prices. Similar accommodations are also available at Las Vegas, Nevada, and in Kingman, Arizona. At Pierce Ferry meals and overnight accommodations are available in temporary but comfortable tent-cabins.

A free public campground at a temporary location on the shore of Lake Mead, 5 miles from Boulder City, is maintained by the National Park Service. Campers must carry drinking water from Boulder City. Other facilities are provided. A similar campground is maintained at Pierce Ferry.

Natural Color Pictures and Talk

By a National Park Service naturalist at 11 a. m. and 11:15 p. m. daily in the Boulder City Theater. No charge.

Free Museum

Showing the Ground Sloth, prehistoric Indians, geology, birds and animals. Open daily from 8 a. m. to 5 p. m., National Park Service Bldg., Boulder City.

Free Motion Pictures

Of the construction of Boulder Dam are shown continuously from 7:30 a.m. to 9 p.m. daily in the Boulder Dam Service Bureau, Boulder Theater Building.

Guide Service through Boulder Dam

Provided by the Bureau of Reclamation from 6:45 a.m. to 10:15 p.m. daily. 25c per person, children under 16 free.

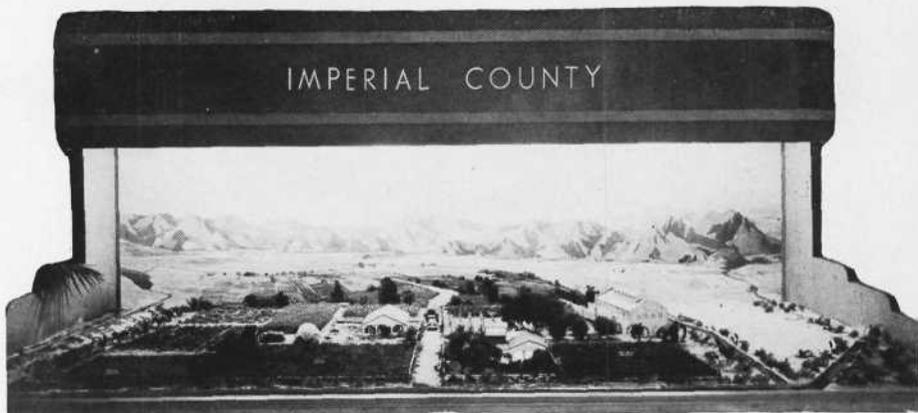
Boating:

Regular schedules through Black canyon to Boulder Dam, Boulder canyon, and the Grand Canyon. Trips from 75c up. Children half fare. (Information concerning private boat operations on Lake Mead may be obtained from Mr. Guy D. Edwards, Supervisor, Boulder Dam Recreational Area, Box 755, Boulder City, Nevada.

Fishing:

Many large bass are being caught. Non-resident license is \$3.00.

IMPERIAL COUNTY



Imperial Valley on Parade . . .

Every winter the Imperial Valley of California shows its agricultural and mineral wealth to the world in a fair which ranks high among the nation's community exhibitions. This year the presentation will be held at the Imperial Fairgrounds March 4 to 12. It will virtually be "Imperial Valley on Parade."

Visit the Midwinter Fair . .

To obtain a quick and accurate cross-section of the county's rich and varied wealth and activity, visitors will find the annual midwinter fair an exhibit of unusual interest. Here farmers, cattlemen, dairymen, poultrymen, and tradesmen mingle with a common purpose: to show the world what abundant production their efforts have brought.

Rich Investment Field . .

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Mines and Mining . .

Washington, D. C. . . .

Mines in the United States and its possessions set a new record for gold production in 1938, says the bureau of the mint. Total of 5,056,308 ounces, valued at \$176,970,800, is about \$9,000,000 above the 1937 output. For first time since revaluation of the dollar, gold production exceeded the peak reached in 1915. Silver production slumped in 1938 to 60,796,673 ounces worth \$39,302,900. The 1937 silver record: 71,735,268 ounces worth \$55,307,892.

Reno, Nevada . . .

Domestic silver mined before June 30, 1939, will be accepted by the treasury department at the current price of 64.64 cents per ounce, even though delivered after that date. Presidential proclamation on New Year's eve continued the 64.64 price for first half of 1939 stipulating this price would apply only to silver "delivered" by midnight June 30. But the treasury has defined "delivery" to permit acceptance during a period approximately five months later of silver mined before June 30.

Reno, Nevada . . .

Nevada branch of the American Institute of Mining Engineers has elected William O. Vandenberg, U. S. Bureau of Mines, Reno, chairman; J. B. Haffner, general manager Consolidated Coppermines corporation, Kimberly, vice-chairman; Jay A. Carpenter, Mackay school of mines, Reno, secretary-treasurer.

Bisbee, Arizona . . .

William P. Crawford has the biggest mine operating job in Arizona. He's superintendent of the Phelps-Dodge corporation mines' division, succeeds the late George B. Lyman. Crawford was promoted from post of efficiency engineer. He has worked in Bisbee 12 years.

Phoenix, Arizona . . .

Arizona Small Mine Operators association hopes the legislature will pass a bill to make it a felony to steal any mining machinery, no matter how little its value. A bill has been introduced to require officers to stop all hauling machinery on highways in the state and demand proof of legal possession.

Jerome, Arizona . . .

"Rawhide Jimmy" Douglas, long a leader in western mining, who dug \$150,000,000 out of United Verde properties here, renounces United States citizenship to return to his boyhood home in Canada. His son Lewis, one-time congressman and former director of the U. S. budget says he is "deeply shocked" at his father's announcement. "Rawhide Jimmy" told his decision after liquidating his Arizona holdings. He is an outspoken critic of the New Deal. Lewis, now principal of McGill university at Montreal, says, "I can never and will never renounce my American citizenship. I was born in Arizona, educated in the United States, wore its uniform in time of war, and tried to serve it for more than a decade in time of peace."

Phoenix, Arizona . . .

Arizona's mineral output for 1938 fell to a gross value of \$57,969,900, a drop of 36 per cent from 1937's \$90,855,462. Mainly to blame was the early 1938 copper slump, although every metal mined in the state showed lower value for the period, except gold, which was stationary. Silver was cut from 77.35 to 64.64 cents an ounce; copper averaged 9.8 cents per pound, as against 12.1 cents in 1937; zinc output was up but sale value off from \$653,380 to \$519,400. Copper production declined from 576,956,000 pounds to 415,500,000, and in worth from \$69,811,676 to \$40,719,000.

Pioche, Nevada . . .

Combined Metals Production company, National Lead subsidiary, will erect a 1,000-ton mill here, work to begin early this spring. Announcement of plans calls for selective flotation process, and in addition to the company's own ores, about 250 tons of custom ore will be handled daily. "Most modern mill operating in North America" is one description of the plant, which will have no windows, will be artificially lighted and air-conditioned. Site is close to the Castleton shaft. Ore to be treated carries lead, zinc and silver, with some gold. The company owns the Castleton, Bristol Silver, Amalgamated and Doris mines and is running a cross-cut more than a mile long from the Castleton shaft to the Amalgamated workings. Power is available from Boulder dam.

Washington, D. C. . . .

Senator Pittman of Nevada has introduced a bill in congress to "separate purchases of foreign and domestic silver." He would peg the price of domestic silver at \$1.29 an ounce. Enactment of his bill would add at most about \$120,000,000 in silver certificates, Pittman says, and this he views as "a very insignificant amount as a matter of inflation." Monetary value of silver is \$1.29 an ounce. The Nevada senator would limit buying of foreign silver to world prices, all payments to be used for purchase of goods produced in the United States.

Silver City, N. M. . . .

New Mexico Miners and Prospectors association has been organized here to represent mining interests, as a policy making agency before the state legislature. T. D. Benjovsky, of Central, president of the Peerless Mining and Milling company, was elected president; Frank Light, banker of Silver City, treasurer and R. M. Twiss of Vanadium, American Smelting & Refining company, secretary.

Las Vegas, Nevada . . .

Study of large deposits of nickel ore in the Virgin mountains between Boulder lake and Bunkerville in Clark county is under way by engineers of the U. S. Geological survey. Congressman Jim Scrugham asked for the investigation as a part of his program for exploration, development and storage of strategic minerals for use in national emergency. Scrugham says the deposit is low grade, value problematic. But he thinks the area north of Boulder is one of the most promising mineral districts in all the west.

Writers of the Desert . . .

WHEN the Sioux medicine men were unable to heal the infected foot of one of the women in their tribe, they gave Antoinette Spiers an opportunity to try her magic. That was in 1894 and Miss Spiers had just gone to the Sioux reservation in South Dakota as a teacher.

Her "good medicine" brought about a speedy cure — and the Sioux were her friends after that. Miss Spiers continued in the Indian service 34 years—always with the respect and friendship of the tribesmen where she was stationed.

In 1903 she married August F. Duclos, a superintendent in the Indian service. Today she and her husband have retired from the service and are making their home at Inglewood, California, but she is still interested in the arts and crafts of the Southwestern tribes. Mrs. Duclos wrote RHYTHM THAT COMES FROM THE EARTH for the February number of the Desert Magazine. This was a story of basketry among the Pima women.

HARRY C. JAMES whose Hopi legends are now running in the Desert Magazine is president of the Trailfinders, a private outdoor organization for boys, and the headmaster of the Trailfinders school for boys at Altadena, California.

For nearly 20 years he took an annual summer trip to the Hopi country and was made a member of the tribe by Chief Tewaquaptewa. He was given the name Honauwayma (Walking Bear).

Folk stories which have been passed down from generation to generation by spoken word only are always subject to some variation, but most of the versions presented in this series come from the older Indians and are as accurate as is possible in translating the Hopi language to English.

A new member of the contributing staff of the Desert Magazine this month is RUTH KIRK of Gallup, New Mexico. While Mrs. Kirk's manuscripts on Indian subjects have appeared in a number of publications in recent years, she does not profess to be a professional writer. In private life she is the wife of John J. Kirk, one of the best known among the Navaho traders of New Mexico.

Mrs. Kirk has an unusually broad acquaintance with the Indians of the Southwest, and especially the Navaho. At a student and archaeologist she has learned their history and background from the ruins and artifacts found in her home state. And as the wife of a trader she has

been in almost daily contact with the present generation of Navaho for the past 15 years. Her "Glimpses of the Ancients" in this number of the Desert Magazine gives an unusually clear picture of the successive Indian cultures in the desert region as interpreted by the scientists.

The Desert Magazine is indebted to G. A. RANDALL of Ventura, California, for a series of crayon sketches now being used with some of the Everett Ruess letters in the current numbers. Just when Randall finds time for his art work is somewhat of a puzzle for he holds degrees in law and engineering, is one of the operators of a successful business in Ventura, manages widespread ranching properties, and is a bank official in his home town.

Drawing and painting are his hobbies. Despite the fact that he does not regard

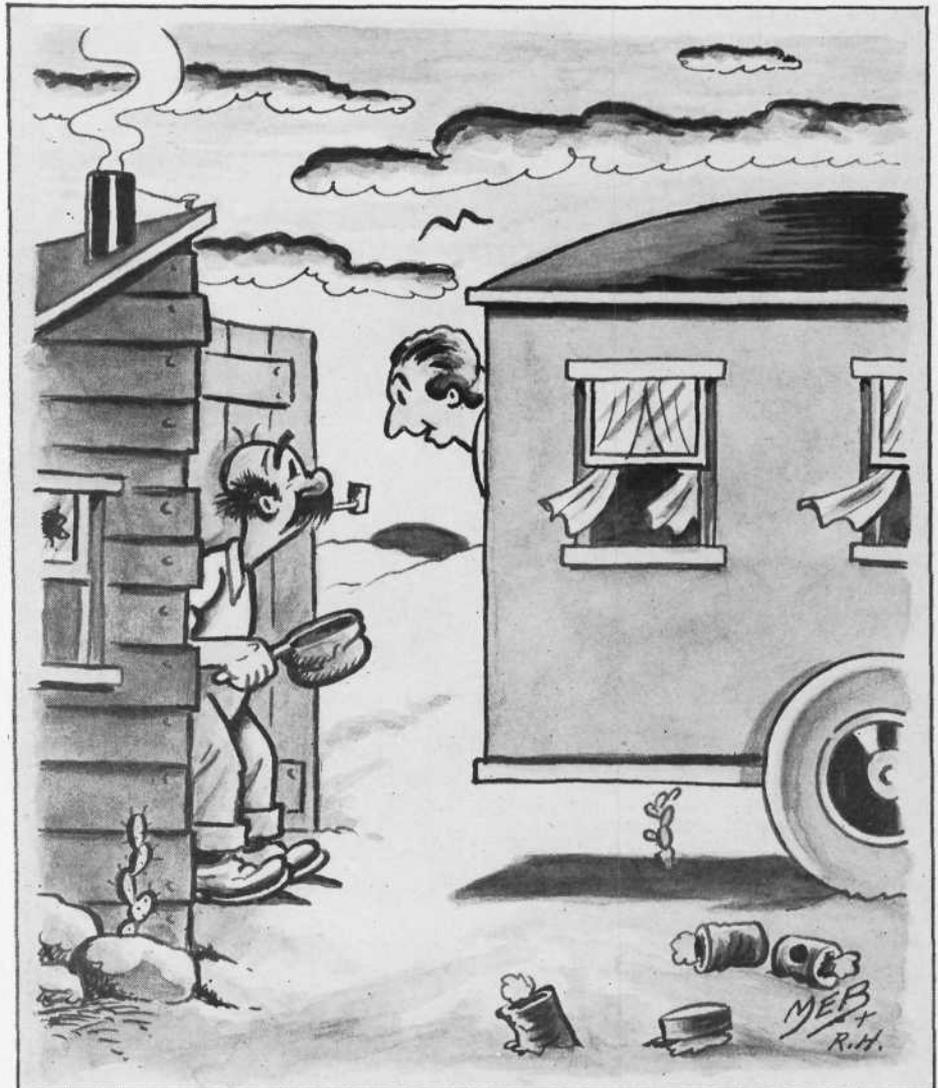
himself as a finished artist his craftsmanship has gained widespread approval. He loves horses and his action sketches of ponies on the range and in polo and racing are especially fine.

Since the Desert Magazine is edited primarily for people who live or spend part of their time on the desert, it always is a bright day for the editorial staff when the mail man brings a well-written manuscript from an actual resident of the desert region. Fifteen years of residence at the little settlement of Trona at Searles lake have qualified MRS. ORA L. OBERTEUFFER as a real dyed-in-the-wool denizen of the desert.

Mrs. Oberteuffer, whose personal experience in the creation of a unique desert home is given in "This is My Song of the Desert" in this number of the magazine is a housewife who writes as a hobby. Her husband is field superintendent for the American Potash & Chemical corporation.

HASSAYAMPA HANK . . .

By M. E. Brady



"Mr. Hank, could we please borrow your casserole?"

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INDIAN POTTERY AND DESIGN SUBJECTS OF MONOGRAPHS

From the Laboratory of Anthropology at Santa Fe, New Mexico, come two new monographs of special interest to artists, students of ethnology and to pottery collectors. Volume One is a detailed study of the decoration of the POTTERY OF SANTO DOMINGO PUEBLO, by Kenneth M. Chapman. The development of a single, widely-used decorative motif is traced in THE RAIN BIRD, the second volume, the work of H. P. Mera. The books are from the press of the W. F. Roberts Company, Washington, D.C.

The remarkable craftsmanship of prehistoric pueblo pottery has long been recognized by scientists. Indeed, such emphasis has been placed on excavating these buried treasures that little attention has been given to the equally valuable ware today found in the pueblos of the living. Realizing this, Kenneth Chapman in 1920 chose the decoration of the Santo Domingo pottery for intensive study. Since 1909 he has been a staff member of the Museum of New Mexico and has collected notes and drawings.

He found himself in an unexplored field. Even in large pottery collections of the museums Santo Domingo ware was almost absent, and little literature on the subject was available. His systematic study began with a complete photographic record of all specimens available. As his work advanced, the importance of preserving the crafts of all the pueblos became more apparent, so from 1923 until 1931 his specific project was suspended. During this period began a significant movement in Santa Fe out of which grew the Indian Arts Fund which sponsored systematic collection tours of the pueblos. The field work was continued after 1929 by the newly organized Laboratory of Anthropology.

As a result of Chapman's research, 1000 designs of Santo Domingo pottery decoration are now available for comparative study.

Most of the text is concerned with detailed analysis of pottery types and their

decoration, from the earliest examples available to those of today. The technology, including modelling, shipping and polishing, painting and firing; and the decoration, including layout, elements of design, motifs, arrangements and symbolism, are discussed in a concise and simplified style. Most of the processes are illustrated with drawings. The 79 plates are made up largely of designs from the black-on-cream ware.

The RAIN BIRD monograph takes the reader to other pueblos where not only more material is available for comparison, but where the influence of one period and culture on another is more easily traceable. The author develops the theme that the popular Rain Bird motif had its origin, not in any conscious idea of symbolism, but as a result of chance arrangement of a few basic elements. He is convinced that designs first used for ceremonial purposes may through repetition and connotation entirely lose their original significance. Consequently, the only conscious use of such a design on every day pottery is to fill satisfactorily an allotted space.

Both papers are significant examples of the work being accomplished by men who are aware of the artistic contribution of the Pueblo Indians. Being serious studies in restricted fields, their evident authority will serve to arouse appreciation in those who are more than casually interested in the Southwest.

LUCILE HARRIS.

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Many fascinating volumes have been written about Zuni—that stone age pueblo in steel age America. But for those who would like to read one of the most interesting source books covering the Spanish discovery and occupation of the ancient New Mexico Indian villages I would recommend *Relacion de la Jornada de Cibola*, literally "Account of the Journey of Cibola" by Pedro de Castaneda.

This record was written apparently in an effort to excuse and justify the swarthy adventurers from Mexico who braved the hazards of the unknown North in search of golden treasure—and returned home with nothing more valuable than a discoverer's title to the lands of Arizona, New Mexico and Texas. Which at that time was not regarded as much of a prize.

The complete account, illustrated with the best maps available in 1540, was published by the Smithsonian Institution in 1893, Publication of Bureau of Ethnology, Volume 14, Part 1, pp 329-598.

It is not the sort of a book one would take on a mountain climbing trip, since it measures 8x12x2½ inches and weighs plenty of pounds. But for one who loves the Southwest and wants the bedside version of her rebirth, this volume contains the realistic drama underlying the white-skinned conquest of the Great American Desert.

I imagine most well stocked libraries contain this volume. The *Relacion* is printed in both the original Spanish version and a literal English translation—both in the same cover.

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By RANDALL HENDERSON

As a youngster in school I learned about the palm oases of the Sahara desert—and gained the impression that an oasis was a geographic phenomenon that existed only among the sand dunes of northern Africa. It was not until my school days were over and I came to the desert of southwestern United States that I realized the error of my early instruction.

I have never seen those Saharan springs in their settings of date palms—but remarkable as they may be I cannot believe that for variety and beauty and historical romance they are comparable to the native palm oases of the Southern California desert.

Two weeks ago Harlow Jones and Jerry Charlton of Twentynine Palms guided me to an old desert watering place known as Forty-Nine Palms in the Joshua Tree National monument. Here I found a little group of *Washingtonias* clustered around a spring that has been known to prospectors for many years. Hidden away in a remote canyon and accessible only to those who are willing to hike for some distance over a little-used trail, this spot is an artist's dream. I'm thankful that it has been taken into the new national monument before it became too easy of access to those jackknife idiots who carve their initials on the trees.

For years I have been seeking out these hidden oases and palm-strewn canyons of the desert. I have visited and photographed scores of them—but the task of cataloging them all is still far from complete. I hope the new school textbooks are teaching about these lovely palm oases to be found right here in the United States.

* * *

In some of the sandy coves along the west side of the Ca-huilla basin verbenas already are in blossom. Everywhere on the Colorado desert of Southern California millions of tiny leaves are coming through the ground. Unless a late freeze interferes, this season will present one of the most colorful wildflower displays in many years. Next month the *Desert Magazine* will publish forecasts for the season's wildflower show from widely scattered areas in the Southwest desert region.

* * *

Among the many fine suggestions which came to this magazine in the recent reader survey, announced on another page of this number, were the following:

That a departmental section of the magazine be devoted to

the exchange of notes from the many local cactus and succulent societies scattered over the country.

That the same be done for the gem and mineralogical societies.

That at least one purely scientific article on archaeology or anthropology of the Southwest be published each month.

That travel hints for desert motorists be given.

That a section of the magazine be devoted to desert landscape gardening.

That a general map of the Southwest be published each month showing the locale of the feature articles appearing in that number.

That one or two fiction stories be published each month.

All these and many more good ideas have been offered. I am sure that every one of the above suggestions will have space in the *Desert Magazine* sooner or later. We are making plans for all of them.

The staff is eager to improve the magazine both in quantity and quality—but it cannot be done too rapidly without jeopardizing the financial security of this new publishing venture.

As a matter of fact we do not aspire to have the largest magazine in circulation. Our goal is that it should be accurate and informative and clean and wholesome.

We have steadfastly refused to adopt high-pressure promotion methods to gain circulation. The *Desert Magazine* must grow on merit, or not at all. I am glad to report that we are making very gratifying progress.

* * *

I hope the poets will not be disheartened over the poor score given them in the reader poll. The result merely confirms what I have long suspected—that poetry is more interesting and inspiring to those who write it, than to their neighbors.

I do not discount the merit of good verse. This world would be a happier place if there were more poetry in the hearts of the men and women who inhabit it. My only complaint is that too many of the verse-writers want their lines published. If they would only write their beautiful phrases and hide them away on the top shelf of the kitchen cupboard—then I wouldn't have so much falsehood chalked up against me on old St. Peter's tally sheet. I just haven't the courage to tell a bad poet the truth about his offering. And I'm a punk judge of poetry, anyway.