

THE

Desert

M A G A Z I N E



NOVEMBER, 1945

ANNIVERSARY NUMBER

25 CENTS



BOOK PUBLISHED FOR ARIZONA ROCKHOUNDS

After being a rockhound for half a century, 40 years of which were devoted to Arizona minerals, A. L. Flagg, president of Rocky Mountain Federation of Mineral Societies and Mineralogical Society of Arizona, wrote a book for others who collect or plan to collect in Arizona. It is **ROCKHOUNDS & ARIZONA MINERALS**, published in 1944 by Fred Wilson, Whispering Wind Press, Phoenix.

Say you're a novice, you've been wanting to find out what it takes to make a rockhound—and finally you have some time and gas. Mr. Flagg tells you how to make the first start—what to wear, what to take, and where to look in Arizona (such as openings of mines and quarries, streambeds and the projection of rock formations through the soil). After telling you about the elements of identification, he sorts Arizona minerals into Ore minerals, Non-metallics, Semiprecious stones and Rock-forming minerals, then describes each.

Just 1800 copies of this De Luxe numbered and autographed edition were printed. Two full-color plates show 10 rough and polished specimens of Arizona minerals. Identification key, biblio., complete list of Arizona minerals, 82 pp. \$3.50.

HE FOLLOWED THE WILDERNESS TRAILS

"I will follow my instincts, be myself for good or ill, and see what will be the upshot," wrote John Muir when he was 29. "As long as I live, I'll hear waterfalls and birds and winds sing. I'll interpret the rocks, learn the language of the flood, storm and avalanche. I'll acquaint myself with the glaciers and wild gardens, and get as near the heart of the world as I can."

And John Muir did just that. He abandoned a career which probably would have taken him far in the world of industry and business, for he was gifted with mechanical genius and strong character.

He chose the outdoors—a field that has never been over-crowded—and devoted a very active lifetime to exploration and study and the recording of the lessons he learned from Nature.

The story of his life and work has been well told by Linnie Marsh Wolfe in **SON OF THE WILDERNESS**, published this year. Mrs. Wolfe gave many years to an intimate study of Muir's life and associations, and the biography she has written is complete and authoritative.

Muir was born in Scotland in 1838. He came with his family to Wisconsin as a child. He attended the university at Madison, and at one time planned to be a phy-

sician. But he was restless indoors. It was a restlessness that nothing but the wilderness could satisfy.

He came to California in 1868. In San Francisco he saw nothing but the "ugliness of commercialism," and it was not long before he drifted to San Joaquin valley. He got his first glimpse of Yosemite valley when his employer sent him to Tuolumne Meadows to herd sheep. Then began a close association with the western mountains that continued as long as he lived.

Muir despised the dog-eat-dog struggle for existence of the competitive economy. He saw in Nature a never-ending sermon in cooperation—and he felt that man must adjust his philosophy to a closer harmony with the natural world if he was to survive.

In his later years Muir's writings and lectures brought him international recognition, and he was able to use this prestige effectively in the cause of conservation of the country's natural resources. He fought successfully to protect Yosemite from the encroachment of lumber and cattle and power interests. He was one of the little group of men who fathered the national park system at a time when commercial interests were seeking—as they are today—to grab and exploit for private profit, every natural resource.

The vision which John Muir had of man's relation to society and to the world of Nature has greater significance today even than in the period of his active leadership. **SON OF THE WILDERNESS** is a refreshing and stimulating book.

Published by Alfred Knopf, 1945, New York. 364 pp., with halftone illustrations. Index. \$3.50.

PLACER MINING FOR THE TENDERFOOT

Writing for the novice rather than for the experienced miner, Jack Douglas, "The Old Prospector," has prepared a rather complete guide for use in placer mining without the use of expensive equipment.

The author tells how to use a pan, how to build and operate the cradle, rocker, sluice box, the Long Tom and the Papoose. There are chapters on camping equipment, where to look for placer gold, dry placering, women prospectors and a score of other subjects. Several lost mine stories are included.

"Books have been written on this subject by men with a better understanding of geology," writes the author, "but no book has ever been written on placering that goes into the detail so necessary for the prospector to know when he is trying to fill a small bottle."

The book is offset printed with type-writer type—not an artistic creation—but readable and full of the author's experiences in placering over the Southwest.

Published by Hobson Book Press, Cynthia, Kentucky. Halftone illustrations, glossary. 150 pages. \$2.00.



THE DESERT INN

A triumphant new season under the winter sun at Palm Springs! America's pioneer desert resort welcomes a distinguished colony to its 35-acre estate... secluded bungalows, all sports. Season October to June.

37th season under original ownership and management of Nellie N. Coffman, Earl Coffman and George Roberson

PALM SPRINGS, CALIF.

DESERT Close-Ups

• This month's cover is a view of Navajo Falls, one of several beautiful falls in Havasu canyon in northern Arizona—land of the Havasupai Indians about whom Dama Langley has written in this issue. Navajo Falls are located about half a mile below Supai village, "where the creek comes to the rim in a dozen rivulets between brilliant green islands of water-cress, then tumbles 140 feet to a churning pool of liquid turquoise." The beauty of Navajo and the other falls was described by Randall Henderson in the June 1942 issue of DESERT.

• Readers are still commenting on Hope Gilbert's biographical sketch of Charles Fletcher Lummis, the man who "discovered the Southwest for Americans," which appeared in September 1944 issue. This month she has written about Adolph Bandelier, who laid the scientific foundation for archeologic research in the Southwest. It was Lummis who as a young man accompanied Bandelier during the Pajarito plateau and Frijoles canyon explorations, and whose photos taken at that time later illustrated Bandelier's book *The Delight Makers*.

• For the next issue of DESERT, Nancy Lunsford tells about furniture made from cholla and saguaro cactus by Herb Wood, cabinet maker of the southern Arizona desert, who makes furniture for many of the rambling ranch-style homes which dot the mountain foothills surrounding Tucson.

• Melissa Stedman, who works for the Los Angeles board of education, is one of a horde of those who wanted land—land anywhere, just so there was "dirt underfoot and space to breathe." When the five-acre tract law went into effect she was one of the first applicants. Her trials and errors—and her triumph in finally locating one of those Jackrabbit homesteads in Morongo Valley, between Banning and Twentynine Palms, California, will be told next month, in her first contribution to DESERT.

DESERT CALENDAR

Nov. 3-7—Ogden, Utah, Livestock Show. Judging, premium awards, exhibits, annual Stockmen's banquet.
Nov. 10-12—Indio, California, Frontier Days celebration. Air show, date exhibit, flower show, arts and crafts, hobbies, carnival.

HUNTING SEASONS

Migratory waterfowl—California (Riverside county): Nov. 2-Jan. 20; Nevada: Oct. 13-Dec 31; New Mexico: Nov. 2-Jan. 20; Utah: Oct. 13-Dec. 31.
Pheasants—California: Nov. 26-Dec. 10, bag limit 2; Nevada (Humboldt and Pershing counties): Nov. 4 only, bag limit 3.
Deer—New Mexico (Senroito refuge, Sandoval county): Nov. 10-21, 400 permits.



Volume 9	NOVEMBER, 1945	Number 1
COVER	NAVAJO FALLS, Northern Arizona. Photo by Josef Muench, Santa Barbara, California.	
BOOKS	Rockhounds & Arizona Minerals, other reviews	1
CLOSE-UPS	Notes on Desert features and their writers	3
HISTORY	He Explored the Ancient Home of the Koshare By HOPE GILBERT	4
INDIANS	Supai Shangri-La By DAMA LANGLEY	9
DEVELOPMENT	Ah-Ve-Koov-o-Tut, Ancient Home of the Mojave By CHARLES F. THOMAS, JR.	13
NATURE	'Circus Bug' of the Desert By RICHARD L. CASSELL	18
FIELD TRIP	Geodes in an Old 'Battlefield' By JOHN W. HILTON	19
BOTANY	Giant and Midget Poppies By MARY BEAL	23
OASIS	Where Palm Meets Pine By RANDALL HENDERSON	24
MINING	Current news briefs	28
ART OF LIVING	Desert Refuge, by MARSHAL SOUTH	29
INDIAN CRAFTS	'The Wood That Sings' By JERRY LAUDERMILK	31
HUMOR	Hard Rock Shorty of Death Valley By HARRY OLIVER	32
LETTERS	Comment from Desert readers	33
TRUE OR FALSE	A test of your desert knowledge	34
NEWS	Here and There on the Desert	35
CRAFT	Amateur Gem Cutter, by LELANDE QUICK	40
HOBBY	Gems and Minerals —Edited by ARTHUR L. EATON	41
COMMENT	Just Between You and Me By RANDALL HENDERSON	46
POETRY	Navajo Maiden, and other poems	47

The Desert Magazine is published monthly by the Desert Publishing Company, 636 State Street, El Centro, California. Entered as second class matter October 11, 1937, at the post office at El Centro, California, under the Act of March 3, 1879. Title registered No. 358865 in U. S. Patent Office, and contents copyrighted 1945 by the Desert Publishing Company. Permission to reproduce contents must be secured from the editor in writing.

RANDALL HENDERSON, Editor. LUCILE HARRIS, Associate Editor.
BESS STACY, Business Manager. — EVONNE HENDERSON, Circulation Manager.

Unsolicited manuscripts and photographs submitted cannot be returned or acknowledged unless full return postage is enclosed. Desert Magazine assumes no responsibility for damage or loss of manuscripts or photographs although due care will be exercised. Subscribers should send notice of change of address by the first of the month preceding issue. If address is uncertain by that date, notify circulation department to hold copies.

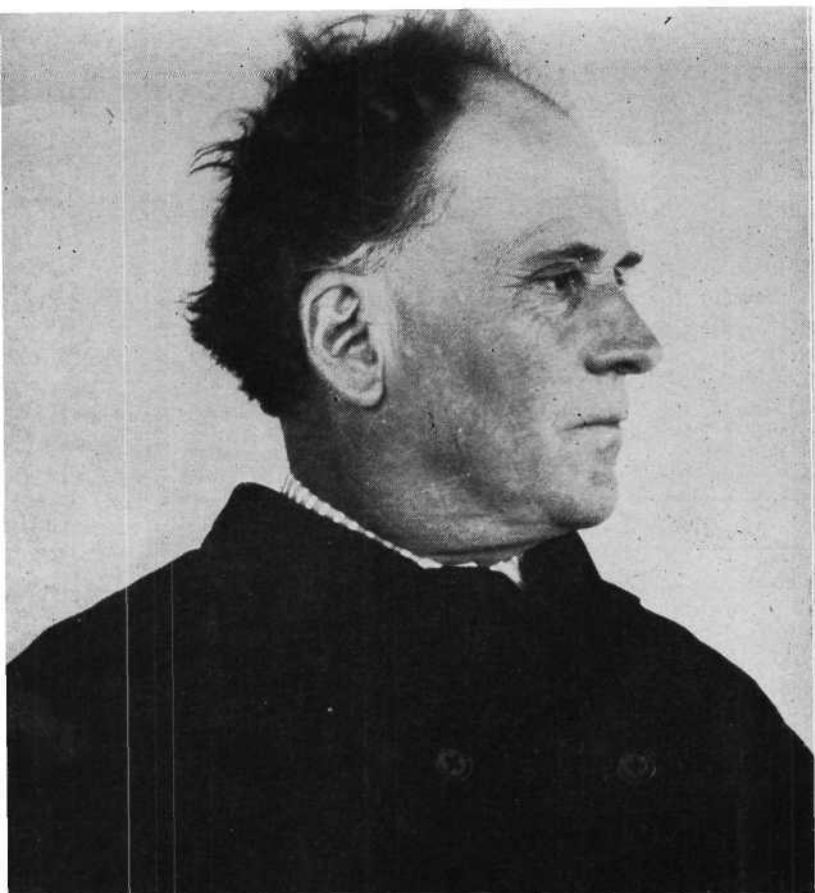
SUBSCRIPTION RATES

One year \$2.50

Canadian subscriptions 25c extra, foreign 50c extra.

Subscriptions to Army personnel outside U.S.A. must be mailed in conformity with P.O.D. Order No. 19687.

Address correspondence to Desert Magazine, 636 State St., El Centro, California.



Adolph Francis Bandelier.

THICK folds of falling snow in the darkening January afternoon almost blotted out the slight horseman and his mount. Both man and beast bent their heads low to ward off the stinging blasts of the blizzard. The prospect of finding shelter and warmth in the semi-desert country of New Mexico that winter day in the early 1880's was slight. But Adolph Francis Alphonse Bandelier, pioneer archeologist, ethnologist and documentary historian, was not one to be daunted by nature or man.

"I started on horseback for the south on the 18th of December," Bandelier wrote his friend Lewis Henry Morgan. "On the 19th, cold and snow set in, and I got out of the latter only on the 17th of January at noon. During the whole trip it snowed on 16 days (or nights), which is not surprising since I was constantly at an altitude of over 7000 feet. I made on this trip 293 miles on horseback and 35 miles on foot, secured the ground plans of 11 ruins, located 26 more, took 21 photographs and made fair collections. The scientific results, although obtained under the greatest difficulties that could be imagined owing to the often severe cold and deep snow, are very gratifying to me."

The name of Adolph Bandelier will live long in the annals of the Southwest. As a tribute to his memory, the ruins of the canyon of *El Rito de los Frijoles*, first explored by him, have been established as Bandelier national monument. Here it is that he laid the setting of his classic novel *The Delight Makers*. Although Bandelier always will be most popularly associated with this intriguing romance of the Pueblo Indians in the days before the coming of the white man, his name stands for more substantial attainments. It was he who more than any other individual, in the period 1880-1890, laid the cornerstone of all future studies in the history, archeology and ethnology of the Southwest.

The life of a pioneer archeologist and ethnologist in the nineteenth century Southwest was hazardous. The American archeologic scene, lacking the spectacular results of the Greek and Egyptian settings, was unable to command the sustained interest of American patrons. So in addition to the physical dangers to

Lew Wallace was governor of New Mexico and Billy the Kid, still at large, its most notorious citizen in the year 1880 when a 40-year-old man of Swiss birth arrived in the territory to see what he could find in the way of Indian ruins. The archeologist was Adolph Bandelier and so important was his 10 years of work and study in the ancient Indian villages of New Mexico that today a national monument is named in his honor. And here is the story of Bandelier.

He Explored the Ancient Home of the Koshare

By HOPE GILBERT

be encountered, our early archeologists were harassed by the ever-pressing need of money.

With the exception of the geologic surveys made by William H. Holmes and John Wesley Powell, and the ethnological study then being made by Frank Hamilton Cushing at Zuñi pueblo, the Southwest was a virgin archeologic field. Setting out alone and unaided to attack the tremendous project of mapping this unknown area, and of studying the Pueblos at first hand, was a challenge to the most hardy. Except for several intervals spent in Mexico studying the ruins and Spanish archives there, Bandelier was to devote the decade 1880-1890 to intensive ethnological and documentary research in New Mexico and Arizona, with Santa Fe as his headquarters.

New Mexico in 1880 was undergoing one of the territory's more tempestuous periods. Cattle and mining booms had come into full swing with the entry of the railroad into New Mexico less than a year before. The bloody Lincoln county war, waged for several years by two factions of rival cattlemen and political groups, with Billy the Kid as one of the colorful participants, but recently had been brought under control by General Lew Wallace, then territorial governor. Billy the Kid was still at large and was to continue his wild career for another year. Elsewhere in the territory, Apaches were on the rampage under the leadership of Chief Victorio, and a short time later under the dread Geronimo.

Adolph Bandelier's arrival in Santa Fe the summer of 1880 marked the beginning of a long-awaited dream. Born in Berne, Switzerland, August 6, 1840, Bandelier as a child had emigrated with his parents to Highland, Illinois. There his father, who had been an officer in the Swiss army, became a banker and prominent citizen of the town. At the age of 17 young Adolph was sent to Switzerland to study geology for a year. Returning to Highland he became associated with his father in banking and mining interests, and he married a Swiss-American girl, Josephine Huegy.

But to one of young Adolph's studious nature, a career in business was uninspired drudgery. A fluent linguist, reading

and speaking German, French and Spanish, as well as his adopted English, he began to burn the candle at both ends. By day he attended to his business affairs; by night he spent long and thrilling hours studying historical and archeological works. The pre-Columbian and Spanish colonial periods became his chief interest. In the decade 1870-1880 he wrote a number of learned monographs on the civilization of the ancient Mexicans.

Through his interest in the American aborigines, Bandelier became a close friend and ardent disciple of Lewis Henry Morgan, the "father of American ethnology" and author of the first scientific study of a tribe of Indians. It was Morgan who secured for Bandelier the appointment by the newly organized Archaeological Institute of America to conduct special research on the Pueblo Indians.

The 40-year-old student accepted the appointment with the eagerness of a schoolboy. His journal records his enthusiasm as his first adventure into New Mexico began in August of 1880. From La Junta, Colorado, which he left about midnight, and on through Ratón pass, he spent a sleepless night watching from the coach window the passing scene and recording his impressions. Of the crossing into New Mexico he jotted down: "Very wild and picturesque." The train was late in reaching Santa Fe that evening, and he records that he slept until 9:00 the following morning despite a set-to with bedbugs. His first notes on the territorial capital are interesting: "Houses all adobe, some

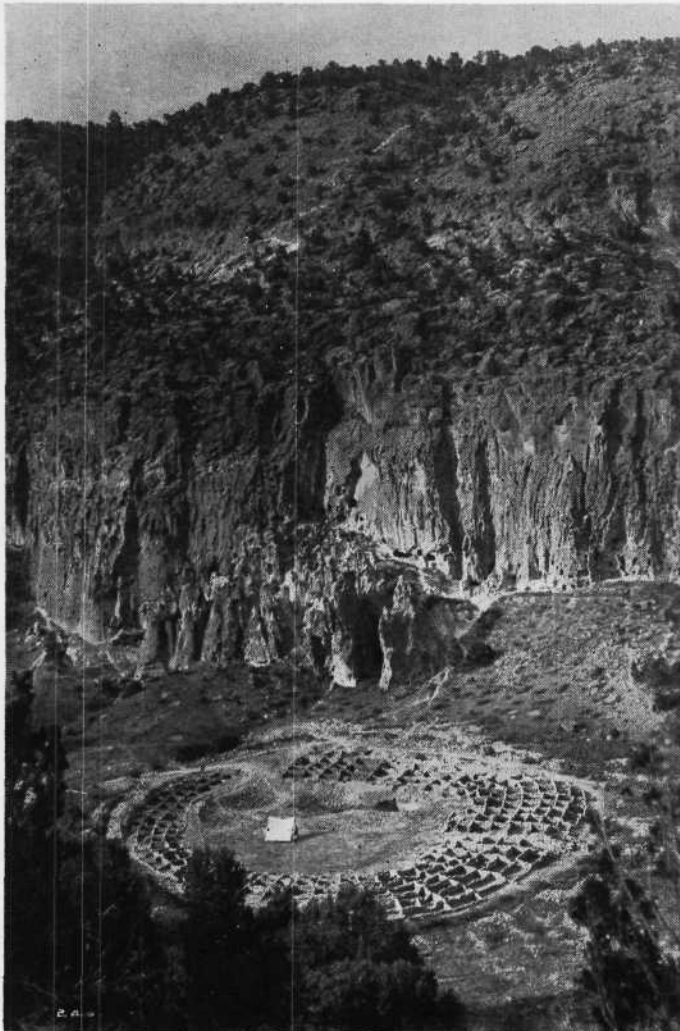
new. Population 6500 souls . . . Saw Pueblo Indians on the streets, fine fellows clad in white, with hair tressed behind and hanging down each side."

Bandelier immediately sought out General Lew Wallace in the Palace of the Governors, for authorization to study the government's Spanish archives and to conduct archeological reconnaissance. General Wallace, who recently had completed the writing of his novel *Ben Hur*, heartily approved of Bandelier's plans.

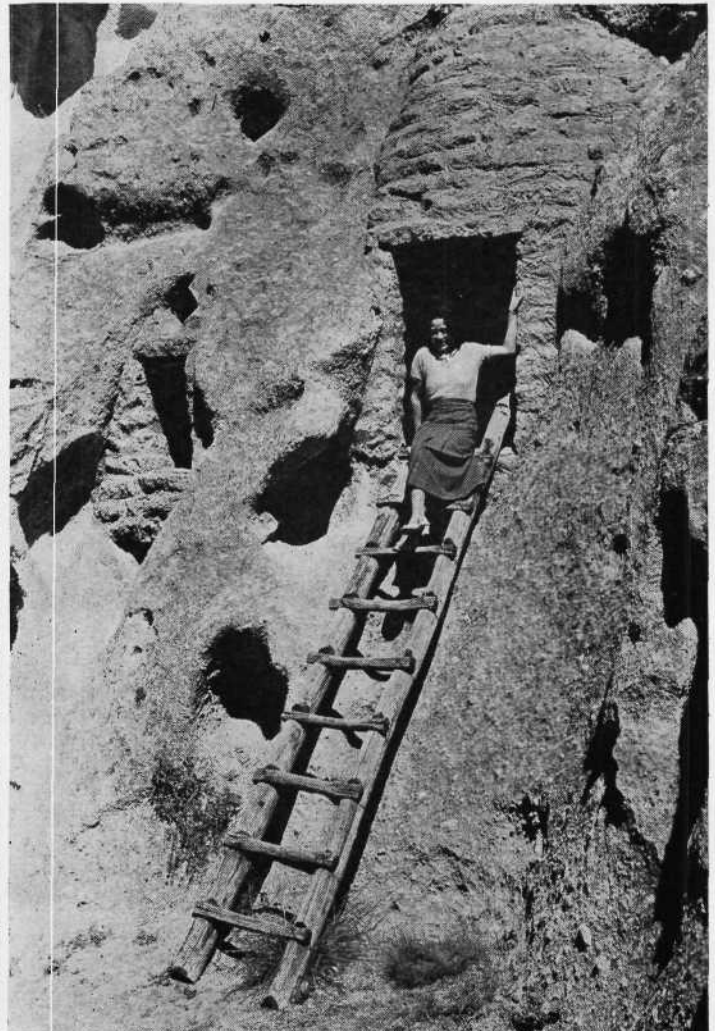
With characteristic energy Bandelier now set out to survey the ruins of Pecos pueblo, easternmost frontier village of the Pueblo world and site of the town of Cicuyé. In a letter to Morgan on Sept. 5, 1880, he wrote, "I am dirty, ragged and sunburnt, but of best cheer. My life's work has at last begun."

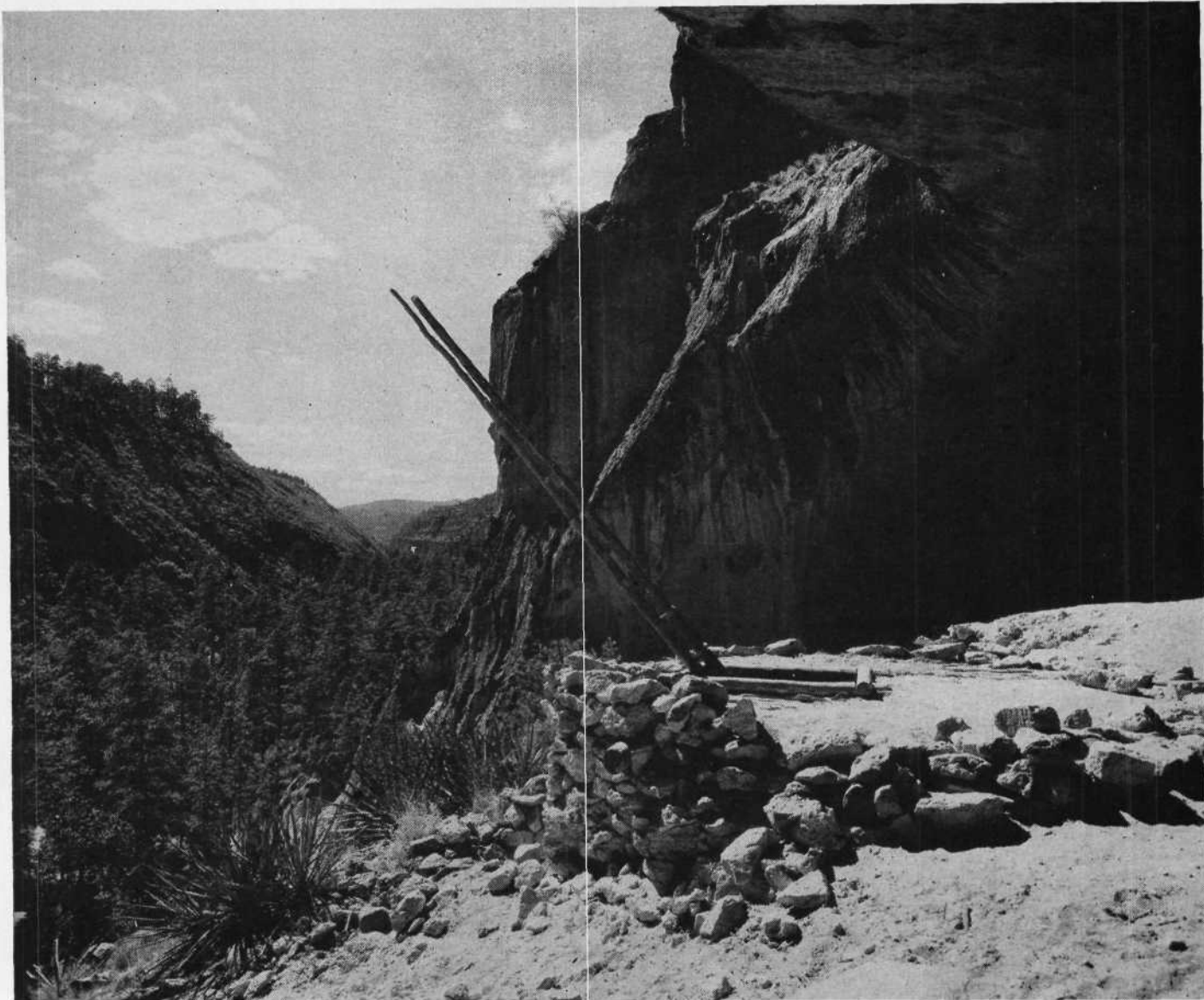
Before the month was out he took up residence at the Keres pueblo of Santo Domingo, on the Rio Grande 27 miles southwest of Santa Fe, traditionally one of the most conservative of villages. In living with the Indians Bandelier had as yet to learn how to adjust himself to their mode of thought and action. His eagerness to accomplish much in a brief time met the stone wall of Pueblo suspicion and reserve. Within a few days he quarreled with the pueblo council, and after accusing the governor of lying he forcibly ejected that august personage from his quarters. When the pueblo retaliated by refusing to supply him with food, Bandelier attempted to subsist on watermelons. Finally, how-

Partly restored community of Tyuonyi. The building of this village was featured in "The Delight Makers." Photo courtesy Museum of New Mexico.



Some of the Frijole canyon rooms are cut in the sheer canyon walls and may be reached only by ladder. Photo courtesy National Park service.





Ceremonial kiva of the prehistoric cliff dwellers in Bandelier National monument, Frijoles canyon, near Santa Fe. Photo courtesy New Mexico State Tourist bureau.

ever, the watermelons became "obsolete," and he took leave of Santo Domingo.

Several miles upstream, on the western side of the Rio Grande, was Cochiti, a sister Keres pueblo. He evidently had profited by his experience at Santo Domingo, for shortly after becoming established at Cochiti he wrote to Lewis H. Morgan, "You have no idea how much I am becoming attached to these Indians." He remained several months with the Cochiteños, was made a blood brother of one of the *principales*, and progressed rapidly in learning the Keres tongue and in studying their rites and traditions.

Bandelier went farther and farther afield in his explorations. Armed with a stick one meter long and graduated for the measurement of ruins, he covered thousands of miles on foot and horseback. Bandelier was far from being a robust, vigorous man. He suffered from both cold and heat, but he never permitted weather to interfere with his work. With Spartan-like determination he carried on his reconnaissance work. Charles F. Lummis wrote of him several years later, "He was in no way an athlete, nor even muscular. I was both . . . and not very long before had completed my 3000-mile tramp across the continent. But I

never had to slow down for him. Sometimes it was necessary to use laughing force to detain him at dark where we had water and a leaning cliff, instead of stumbling on through the night to an unknown 'somewheres.' "

Traveling through the sparsely settled and arid regions of New Mexico, Arizona, Sonora and Chihuahua, Bandelier's habit of wearing a reversed clerical-type collar frequently served to protect him because of his resemblance to a priest. While surveying the Apache country he had more than one narrow escape. On one occasion he saved his life and was released by raiding Apaches through the successful ruse of simulating insanity, a state which the Indians regarded with superstitious awe. He once was reported in eastern newspapers to have been killed by raiders, but he telegraphed friends that this was a case of mistaken identity. Smallpox on another occasion threatened his life. And yet again his life was spared when caught in a snowstorm in company with two Mexicans—the latter were frozen to death, but he survived.

Bandelier disliked notoriety. He detested titles, especially that of "Professor." When so addressed he would reply, "I profess nothing! If you would attach a handle to my name, let it be

Mister." When called "Doctor," his retort was, "Don't doctor me—I'm perfectly well, thank you." However, he was very sensitive about the pronunciation of his surname, insisting that it be pronounced with the French termination—Bahn-del-YAY.

He had an insatiable desire for perfection in everything that he did. Lummis said that Bandelier cautioned him: "Never forget TRUTH. Truth is the first and last thing in life—and it is never truth until it is as exact as you can make it."

Bandelier's desire for truth was responsible for his ambition to disprove the popular, romantic theories concerning Southwestern history and archeology. To this end he established the falsity of the fanciful beliefs regarding the Aztec origin of various pueblo ruins, the legend of the birth of the Aztec emperor Montezuma at one of the New Mexico pueblos, the location of the Seven Cities of Cibola and of Gran Quivira, the routes of the sixteenth century Spanish explorers. He was the first to present scientific evidence as to conditions and range of the Pueblos and other tribes prior to and during the Spanish regime.

On an exploring trip in western New Mexico in 1883, Bandelier visited Zuñi and there met and formed an enduring friendship with Frank Hamilton Cushing. Cushing had been living as an Indian at Zuñi since 1879, making an intensive study of

the life, language and traditions of this people. Cushing and Bandelier were similar in their thoroughness as scholars and seekers of the truth. According to Bandelier, Cushing was the only American ethnologist who "saw beneath the surface of the Indian, and who was able to think as the Indian thought."

When in 1886 the Hemenway Southwestern archeological expedition was organized to conduct the first systematic excavations in the Southwest, under the directorship of Cushing, the latter secured the appointment of Bandelier as documentary historian. With this added financial help Bandelier was able to carry on more vigorously his research into Spanish archives stored in Santa Fe, in various mission churches and in Mexico City.

Bandelier would have been more than human if he had not drawn some erroneous conclusions concerning the vast archeological and historical field that he covered. But these errors were of minor consequence and due to the inaccessibility of evidence and documents which since have come to light.

His popular fame, however, always will rest on his classic portrayal of the Pueblo Indian as he was before the coming of the white man, in his novel *The Delight Makers*.

The title originally selected by Bandelier for his romance was

El Rito de los Frijoles canyon. Cliff dwellers' homes and the ancient ceremonial cave are reached by ladders. Photo courtesy New Mexico State Tourist bureau.



The Koshare. To anyone who has attended a ceremonial Green Corn dance at one of the Rio Grande pueblos, the sight of the grotesquely painted Koshare is a familiar one. During the ceremony they weave in and out among the dancers, supposedly invisible to mortal eyes. Their antics cause much merriment among the spectators. These "delight makers" form a strong secret organization within the pueblo. Their sinister power over the lives and welfare of the inhabitants forms the theme of Bandelier's romance. The setting chosen for this tale of love and intrigue is the strikingly beautiful canyon of *El Rito de los Frijoles* (Little River of the Beans).

It was during his sojourn at Cochiti that Bandelier, in company with an Indian guide Juan José, first visited the ruins of Frijoles canyon and formulated plans for his novel.

"Left about 7 a. m. from Cochiti," he writes. "Reached the Rio Grande in the Cañon about 12 a. m. Towering cliffs on all sides; river rushing down rapidly . . . We unsaddled and made coffee. The *Capitán de la guerra* joined our dinner which consisted of coffee, tortillas, and fine cheese . . . About 4 p. m. the border of the almost precipitous descent into the Cañon de los Frijoles was reached, and it took one-half hour to descend, on foot of course. The grandest thing I ever saw . . . The cliffs are vertical on the north side, and their bases are, for a length as yet unknown to me, used as dwellings both for the inside, and by inserting the roof poles for stories outside. It is of the highest interest . . . The valley is almost fully closed on the East where it enters the Rio Grande which, there, flows through a fearful dark cañon. The Rito is a splendid clear brook, vegetation around it splendid, showing very good soil."

Frijoles canyon, now known as Bandelier national monument, is located in the Pajarito plateau at the base of the Jemez mountains, 46 miles northwest of Santa Fe. The five-mile canyon nowhere exceeds one-eighth mile in width. The Rito, a never failing stream, flows into the Rio Grande which skirts the eastern mouth of the canyon. The northern wall of the canyon is a vertical tufa escarpment, 200 to 300 feet high, along the base of which 11 talus villages of several stories in height were built. On the canyon floor have been found the ruins of four community houses, the most important of which was the almost circular pueblo of Tyuonyi which is featured prominently in Bandelier's novel.

Bandelier national monument may be reached by automobile. Ninety per cent of the area, however, still is in a primitive state, accessible only by foot or horseback. The national park service maintains 50 free campsites, and a privately operated lodge is open part of the year.

No visit to the Rito is complete without a reading of *The Delight Makers*. Even as Bandelier had undertaken in his scientific works to destroy the Romantic school of sheer speculation concerning the Indian, which was so prevalent in the mid-nineteenth century, so he wished in his novel to present an exact, authentic picture of the Pueblo Indian. "By clothing sober facts in the garb of romance," the author explains, "I have hoped to make the truth about the Pueblo Indians more accessible and perhaps more acceptable." He goes on further to explain: "Prescott's Aztec is a myth; it now remains to show that Fennimore Cooper's Indian is a fraud. Understand me: I have nothing personal in view. Cooper has no more sincere admirer than I am, but the cigar-store red man and the statuesque Pocahontas of the *vuelta abajo* trade as they are paraded in literature and thus pervert the public conceptions about the Indians, THESE—I want to destroy first if possible."

Bandelier originally wrote *The Delight Makers* in German, then translated it into English. It has been said that he lived for several months in one of the kivas at Frijoles canyon during the writing of his romance, but this is without basis of fact. As the manuscript was turned down by one publisher after another, his

reaction was as follows: "If the publishers desire any change in the text that does not conflict with the truthfulness of the pictures presented, I shall gladly submit to it. But as far as the correctness of description, or the faithfulness of rendering Indian speech, are concerned, I would rather have the manuscript refused than sacrifice one iota of what I believe to be the truth."

His hopes of a warm public reception, when the novel finally was published in 1890, met with disappointment. It was not until more than 25 years later, after Bandelier's death and after the Pueblo country had become better known through the publicity given it by Charles F. Lummis, that a second edition illustrated by Lummis' photographs met a more understanding and appreciative audience.

Bandelier's scholarly works brought out by the Archaeological Institute of America include the following titles: *Contributions to the History of the Southwestern Portion of the United States*, 1890; and the two-volume *Final Report of Investigations among the Indians of the Southwestern United States*, Part I, 1890, Part II, 1892. The basis of all historical research in the Southwest is contained in the volume *Historical Documents relating to New Mexico*, collected by him and his second wife, Fanny Ritter Bandelier, and published in 1923 under the editorship of Charles D. Hackett.

A very readable, unannotated version of his documentary history of the Rio Grande pueblos appears in a recent volume of the Handbook of Archaeological History series, published in 1937 by the University of New Mexico and School of American Research, titled *Indians of the Rio Grande Valley*, by Bandelier and Hewett. *The Gilded Man* (or *El Dorado*), 1893, presents in even more popular form some of the subjects treated in more scholarly style in his publications by the Archaeological Institute. For those interested in reading further about the region so closely associated with Bandelier's *Delight Makers*, another valuable publication in the Handbook of Archaeological History series is *The Pajarito Plateau and its Ancient People*, 1938, by Dr. Edgar L. Hewett.

In 1892 Adolph Bandelier left the Southwest never to return. In that year he went to South America where for the next ten years he was to engage in intensive research in the Indian cultures of Peru, Bolivia and Ecuador. He invited Lummis to accompany him on this expedition. Referring years later to this invitation, Lummis, who accepted the offer and spent several months with the ethnologist in the Andes, asserted, "This is the highest tribute ever paid me by civilized man!"

Following the death of his first wife in Lima, Peru, Bandelier married the Swiss ethnologist and linguist, Fanny Ritter, who thereafter collaborated with him in all his investigations. Upon his return to the United States in 1903 he was offered a chair in ethnology at Stanford University. However, he preferred to remain in New York where he was associated with the Museum of Natural History, and where he lectured on Spanish American subjects at Columbia University. In 1906 he joined the staff of the Hispanic Society of America. During the period 1909-1911 he was almost totally blind, but he continued to write aided by his wife. In the latter year he was appointed research associate of the Carnegie Institution of Washington for archival research in Seville, Spain. After a year of preliminary investigation in Mexico he proceeded to Spain. Although still handicapped by near blindness, with the aid of his wife Bandelier continued his researches into the history of Spanish America until his death in 1914, at Seville.

In commemoration of the one hundredth anniversary of the birth of Adolph Bandelier, a group of scientists, historians and political figures assembled August 6, 1940, in Frijoles canyon, there to pay homage to the man who 60 years before had begun the patient, exhaustive labors which laid the foundation for all scientific, critical research in the Southwest.



*Bridal Veil falls—one of the four major waterfalls in Havasu canyon below Supai village.
The figure of the man in the upper left corner will indicate the height of these falls.
Photo U. S. Indian Service.*

Supai Shangri-La

By DAMA LANGLEY

SHANGRI-LA is no mythical spot beyond the horizon. I have definitely located it in Cataract creek's private portion of Grand Canyon. It is the homeland of the Havasupai Indians!

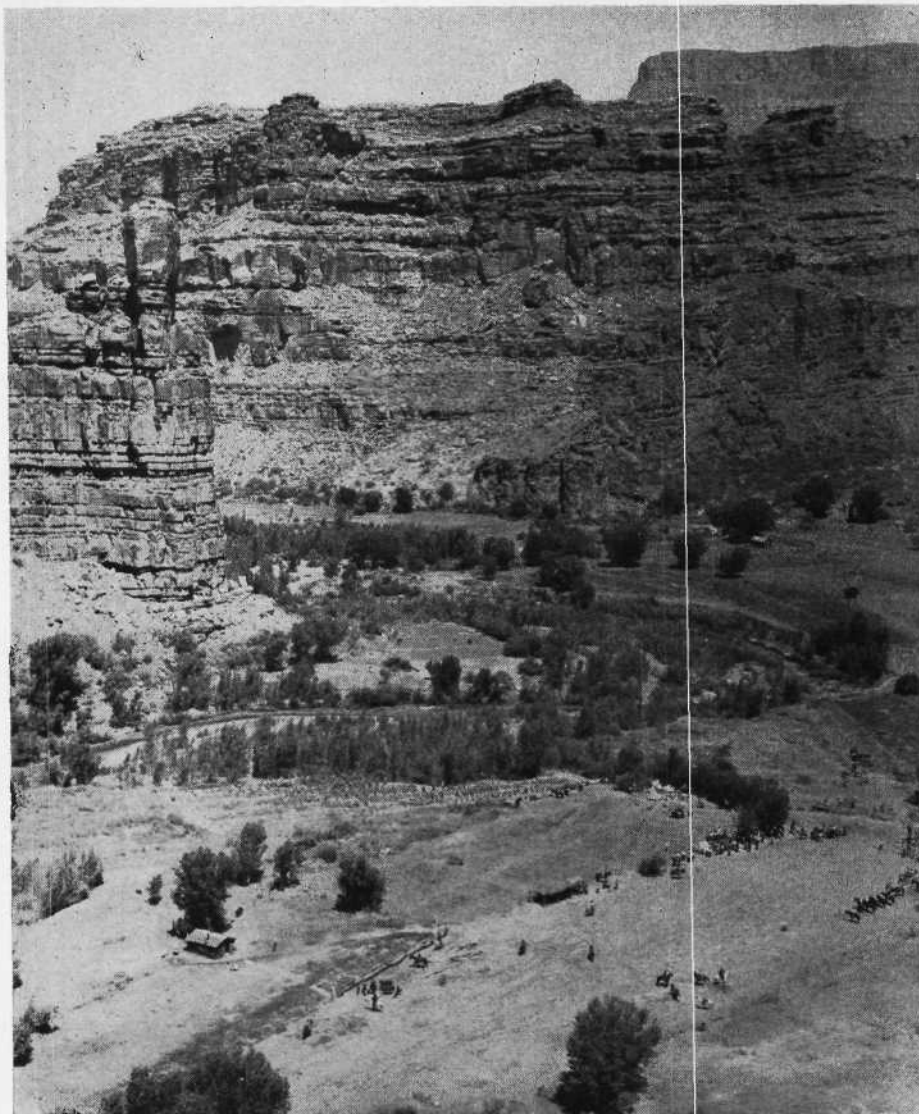
The curator of a very fine private museum in Chicago showed me his collection of Southwest Indian baskets and was quite deflated when I remarked that I saw no "water-tights" made by the Hualpai and Supai. The discussion waxed hot and resulted in my promise to secure these items for his collection.

August's sun was a little too hot for comfort while I waited at Hilltop, 50 miles

from headquarters of Grand Canyon national park, for the arrival of my Indian pony which would carry me down the trail to the village 15 miles distant and 3000 feet deeper in the canyon. Della Sinyella, granddaughter of the Supai chief, was with me. At the end of two years in California where she worked on airplane wings, she was coming home for the Peach Dance during her vacation.

Together we had ridden from Grand Canyon that morning with the Indian mail-carrier who makes the trip twice a week with mail and supplies for the Indians and the agency at the foot of Supai trail. He

Living beside the tumbling blue-green waters of Cataract creek deep in one of the gorges of the Grand Canyon country are the Havasupai Indians—a tribe of less than 200 people whose one connection with the outside world is a long steep trail that may be traversed only on foot or with sure-footed ponies. No motor car has ever reached Supai village. Dama Langley knows these people well—and in the accompanying story gives *Desert Magazine* readers a glimpse of the manner of their life in this isolated canyon-rimmed valley.



At the end of the long steep trail into Havasu canyon the green vegetation of Indian gardens is in striking contrast to the arid plateau above. Every Supai is a horseman—they catch wild horses on the rim of the canyon above. This picture was taken on a fiesta day when the Indians were gathered for field sports on the floor of their valley. Photo U. S. Indian Service.

loaded his mailsacks on ponies and went ahead down the trail while we waited. Della's people were bringing ponies for both of us. I looked at my companion and wondered what her conservative relatives would think of her smartly tailored slacks, the cold-wave permanent and brightly painted fingernails. The Supai women still cling to their full calico mother hubbards and bright cotton handkerchiefs!

"I've been homesick since the day I left here. I wish the ponies would come!" complained Della. We were not strangers, she and I, although it had been many years since I'd seen her last. When I lived at Grand Canyon it was always one of the sure footed ponies belonging to her grandfather that I hired when I wanted to ride across to the North Rim or down to Hermit camp. More than once his ponies had met me here at Hilltop when the Supai people were in trouble and the white race could help

them. Once I went down when the entire tribe was ill with measles and their medicine men were treating them with sweat baths and then dipping them in the cold waters of Cataract creek. Half of the tribe, including all the children, died then. Della couldn't remember those sad days, but it was after that the medicine men found themselves out of favor and the tribe welcomed white doctors and nurses.

Far down on a little level place we saw what looked like three ants crawling along and Della declared it was ponies. Two hours later they "topped-out" and we began the descent. The trail into Supai is not conducive to relaxation, but remembering it as it used to be I found no fault. At one place I leaned over the cliff to see if traces of the grand piano which one *artiste* Indian agent attempted to move by sled down the trail, were visible. Gravity hastened descent of the sled and the piano landed on a

ledge 2000 feet off the chosen path. There its gaunt skeleton lies and the lonely winds and small desert animals play among the rusty wires.

We turned from our trail at the junction of Lee and Cataract canyons, and rounded Suicide Point to look at some petroglyphs. Some interpreters of Indian writings insist that these pecked-in pictures depict an Indian fighting a dinosaur. Before I believe that story I'll have to revise my belief that the sojourn of saurians on this earth ended some millions of years before Indians appeared.

Postwar travelers to Supai will be glad to know that it is not compulsory to negotiate Suicide Point in order to reach the village. It is on a side trail and is where some ponies loaded with ore from mines far below went over the trail pulling their owner with them. In fact many visitors to Supai Village do not use the Grand Canyon entry but go in from Peach Springs on U. S. 66, and pack only seven miles from the automobile road.

As we rode on down the trail the dryness and heat and sun glare were almost unbearable. Sometimes the walls seemed to push in so closely we felt suffocated and I felt so sorry for my horse I thought of getting off and carrying him for a change. All at once we were there, and the same surprise I always feel came over me when I saw the clear streams of water and springs gushing out from cottonwood roots and overhanging red ledges. Here at the source the water is not the blue-green that gives us the song *Land of the Sky Blue Water*. It runs clear until after it dashes over one or more of the magnificent falls farther down the valley. There it cuts through banks of soluble lime and gains the milky blueness. One of the fascinating sights of Cataract is the thickly encrusted shrubbery bordering the stream. Everything within reach of the dashing spray turns into limestone.

Our welcome was warm and Indian stoicism vanished when Della and her family met. Joy was deepened by the presence of a cousin who had volunteered and fought through several major engagements. A wounded foot earned him honorable discharge. The Sinyellas would not hear to my occupying the agency guest room so my belongings were placed with Della's on iron cots under a big cottonwood tree. We both viewed with apprehension the huge caterpillar webs dotting the limbs and Della wondered why the webs hadn't been destroyed by spraying. Already I could see that Supai would benefit by its homecoming children whose minds were being filled with practical improvement ideas. We were dusty and hot from the long ride and we gratefully took advantage of a certain swimming hole screened by willows and

definitely out of bounds to any but the Sinyella clan.

There is little indoor life in Supai. The rough stone houses built for them by the Indian service or their own conical shelters of brush and grass serve as storehouses, but the cooking, eating, sleeping and all sorts of tasks are done out of doors. When dusk came that night we gathered around a small smudge fire which is, theoretically, a menace to mosquitoes. To me it seemed the whole little valley was filled with fragrant smoke of willow twigs and leaves intermingled with the more familiar tang of tobacco smoke. All of the homey, happy sounds of an Indian village came to me there—the children romping in the last of the twilight, mothers calling to them, a mare nickering to her colt, men lazily bickering over a game of cards, and somewhere almost out of earshot a popular song was being ground out on a portable phonograph.

Here was peace, as absolute as could be found anywhere on a war-tortured earth. I thought of the Mormon renegade, John D. Lee, who after his heartless slaughter of pioneers at Mountain Meadows, fled to this hidden canyon and stayed three years eluding federal officers. While he was in Supai, where the Indians neither knew nor asked his history, he planted peach trees and grapevines and even fig trees and

showed the Indians better methods of farming and gardening. It was only when he left the Supai Shangri-La that he was captured and executed for his crime. Father Garcés drifted into Supai back in 1776 and his records show that he was kindly treated. From here he was guided to the Hopi mesas, and because he was sponsored by their Supai friends they did not kill him as they usually disposed of priests. They simply ignored him and after several days of hunger and being unnoticed he left them and went wandering on through the desert.

Supper that night was stew of beef and fresh vegetables from the gardens and a sort of baked pudding made of corn. Peaches and figs completed the meal. I took my tin cup of coffee and sat on the cot while Grandfather Sinyella told me the legend of the two stone pillars guarding the entrance to the canyon. The story was old but always a pleasure when told by an Indian believer. First my host pointed to the low hanging stars, so soft and bright. "Those are the lanterns of the Gone-Aways," he said. "They watch over us just as closely as do Wigglee and Wiggi-eye put at the entrance of our land to warn the Supais they must always keep this as their home. Should we ever attempt to move away those stone gods would fall and our tribe would be ended right then." Then he

said that the stones once were Supais. One was a chief and the other his travel-minded wife, who kept pestering her husband to get out and see the world until he tried to escape with her. They were doing very well climbing the red cliffs which imprisoned them until the gods discovered them and promptly turned them into stone and dropped them back into the canyon. This warning to other itchy-footed Indians has been effective; the Supai people seldom wander far from their homeland. Until war took their men and war production plants enticed their girls, the end of school days found the young folks back there busy with their fine herds of cattle kept on the plateaus above the rim, and with basket making and plantings.

Della and I loafed through the days. Housekeeping is reduced to a minimum. The cook wanders through her garden and selects corn—always corn—regardless of what else is to be cooked. She picks a basket of green beans, pulls some beets and radishes, gathers a few summer squash and snatches off several big yellow pumpkin blossoms. Then she saunters to the cooking fire and begins the meal.

I watched the cooking because I wanted to know how to make the delicious baked corn pudding we had for supper. Della took over and showed me. The husks were stripped from green corn and the biggest

This sewing machine was brought down into the canyon on a packhorse. Indian Service employes of the Truxton Canyon agency teach the Havasupai to sew and farm, and provide medical care and schooling. Photo U. S. Indian Service.





The land is irrigated by ditches from Havasu creek. The soil grows bumper crops of corn and melons and beans. The Supai live almost entirely outdoors. These youngsters go to the government school. Photo U. S. Indian Service.

ones saved. Then the corn was silked and cut and scraped from the ear into a deep stone mortar. It was crushed to milky pulp with a stone pestle and then handfuls of it packed in separate cornhusks. These were fastened together with thorns from a nearby bush and buried deep in the hot ashes. Slow burning wood was piled on top and hours later they were brought out, dusted off and the husks peeled away leaving crisp brown bread, sweet and nutty. No salt was added in the mixing and I found that salt is never cooked in food but placed in a dish where it can be reached if one wants it.

The stew Della made followed an old time recipe. Green corn was cut from the cob and boiled with green squash. The big yellow pumpkin blossoms were cooked down to a pulp and added to the stew. They gave a pungent sweetness that I did not find attractive. Now and then a bread would be made of store flour and patted thin and cooked in deep suet fat. This fried bread served much the same purpose as tortillas.

The Peach Dance brought hordes of hungry Navajo with their deerskins and rugs to trade for peaches, ripe and dried. The Supai men are experts at tanning and bleaching deerskin and the Hopi and Apache Indians bid against each other for the finished product. The Hopis use the skins to make wedding moccasins and leggings and the Apaches must have it to dress

their young girls for the Coming-out ceremonies. Hopi and Hualpai visitors were there and they traded baskets and gossip, and now and then a bit of silver jewelry. We wandered around in the crowd looking for the kind of baskets I wanted, with small luck.

Chief Sinyella talked to the village crier and after that personage addressed the crowd they all turned and looked at me. Della giggled and led me back to our cots under the cottonwood which soon turned into a market place. The crier must have made extravagant promises from the number of women that arrived with poor, mediocre and fair baskets. There was nothing there I wanted. Della patiently told them I would buy only something outstanding, only something worth showing to the world as the kind of baskets her people could make if they tried. An old woman slipped away and came back with three magnificent baskets. Two were bowl shaped with the tops brought slightly in. Each would hold about six quarts and they were as near alike as two Indian baskets ever are. The other matched them in workmanship and design but was a deep plaque. The willows out of which they were woven had been split very fine, and carefully scraped smooth and even. And so skillfully were the black figures woven into the baskets they looked like they had been stenciled. I held the baskets between me and the sun and not a ray of light came

through. These were true water-tights, the beautiful work of a master weaver.

Word had filtered through the village that something special was going on and even the men came to watch the bargaining. I insisted that I must know exactly what the designs meant if I were to pay the price asked. Chief Sinyella was consulted and he talked to an old friend of mine, a Hopi Snake Priest, down for the Peach Dance. This is what they told me:

The baskets had been intended to serve as utensils on a Hopi Snake Dance altar. The two larger ones would hold seashells, water smoothed pebbles, charms and some crushed piñon nuts and twigs. Later the special brew used by the Snake Priests would be poured into the baskets with great ceremony. First it would be poured from the north, then west, south and east and finally up and down, representing the six cardinal points of the Hopi compass. The six zig-zag black figures, woven from the outer bark of Devil's Claw (*martynia*) were the sacred winged serpents, one for each direction. This mixture must stand in the woven bowls nine days and there must be no seepage. No wonder they were so closely woven. The flat basket would hold sacred meal and pollen from which the Snake Clan women would sprinkle the snakes after the dance and before they were returned to the desert shrine and turned loose to carry prayers to the water gods. I asked the Supai chief and the Hopi Snake Priest to fix a fair price for the baskets, and they were later proudly added to my Chicago friend's collection.

Less than a hundred acres of land are tillable in Cataract canyon but every foot is used. Whatever is planted grows, and the women are experts at drying fruits and vegetables. Racks of drying apples, peaches, apricots, figs and grapes were everywhere and the women were busy every afternoon stringing beans and cutting corn for drying. The creek wanders and meanders around using a lot of precious ground, but no Supai would be happy away from the sound of it rushing along and plunging over the four magnificent falls on its way to join the Colorado.

The tribe never numbers more than 200 when they are all at home and new blood is needed if they are to survive. I like to think that war brides will be brought home when the boys come back and that bright young women like Della will eliminate disorder and unhealthy ways of living. I even have hopes that permanent shelters will be built over the faithful sewing machines which do such loyal service for their owners, notwithstanding the fact that they stand outside the whole year through, blistered by the sun and drenched by rains.

But maybe after all, too much civilization would ruin my Supai Shangri-La.



Two Mojave Indians, He-re-in-ye and his wife Oach, photographed at the starting of Headgate Rock dam construction as one of the engineers was telling them about the project. He-re-in-ye is believed to be over 100 years in age. Photo by William Fox of the Metropolitan Water District.

Ah-Ve-Koov-o-Tut, Ancient Home of the Mojave

When the white man moved into the Southwest and took over much of the hunting range of the Mojave Indians and confined the tribesmen to reservations, the promise was made that adequate water would be furnished for irrigation. Seventy-five years passed before that promise was completely fulfilled for the Indians on the Colorado River Indian reservation at Parker. But just before the war a great dam and diversion works were completed—and today the lands in this fertile valley of the Colorado hold the promise of a secure and comfortable future not only for the Mojave and Chemehuevi, but for thousands of other Indians in the Southwest.

By CHARLES F. THOMAS, JR.

OTASHA and I stood on the bluff overlooking the newest of the white man's five dams in the lower Colorado river—the Headgate Rock dam two miles north of Parker, Arizona.

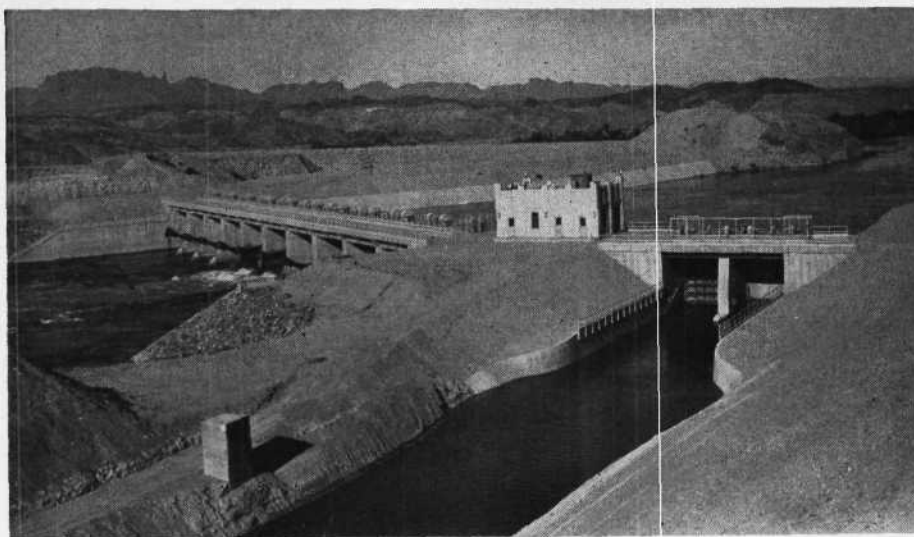
For more than 100 years Otasha had lived by the Colorado, first named Rio del Tizon, the Firebrand River, by Melchior Diaz a year after its discovery by Alarcon in 1540. The aged Mojave had seen the

river in all its moods—a mad raging torrent at one season, a sluggish stream that threatened to dry up at others.

I was rather proud of the dam and diversion works Uncle Sam's engineers had built here for the benefit of the Colorado River Indians. But Otasha was non-committal. He had seen too many failures in the government's efforts to irrigate the Indian lands in the great fertile valley that comprises the Colorado River Indian reservation.

"Yes. Mebbeso this time white man do pretty good job. We see!"

Always, until Boulder dam was completed, the Colorado had been a muddy stream,



Diversion gate and sluiceway at Headgate Rock dam. The main channel of the river, fringed with trees in the background, has been closed with a rock-filled dam, and the entire stream diverted through the sluiceway on the left and the irrigation heading on the right. What is left of Headgate rock is directly above the canal heading. Monument peak pinnacle is in the upper left. Photo courtesy Colorado River Indian Irrigation project.

oftentimes described as "too thick to drink but too thin to plow."

Good fishing and hunting and a mild winter climate had provided here an ideal home for desert Indians. Thousands of acres along its shores, densely wooded with cottonwood, willow and mesquite furnished shade, shelter and game through the seasons, with wood for their crudely constructed houses and fuel for their fires. For countless centuries his tribesmen had farmed, in their fashion, the lowlands of this American Nile, planting crops in areas which had been previously inundated and in dry seasons laboriously carrying water in ollas for irrigation.

"Otasha, how long have you lived here?" Otasha gazed away across the valley, pondering an answer to my question. I could imagine him looking back in memory through the vista of years, in much the same manner as he looked over his homeland, gauging the span of time from important events occurring in Indian life.

"I do not know. All my life. What does a year mean to Indians? Our people come to this land. We live a while. Then we go away. We fish, we hunt, we grind nuts or corn or wheat for meal. We eat. We are happy. We do not measure a year. For a long, long time my people have lived here."

It was difficult to believe the wiry, erect Mojave had seen the passing of a hundred or more years. I asked him regarding his early recollections of the Colorado.

"Yes," he declared, "I was just a boy but I remember when many white soldiers first come to this country. Old soldiers from Mexico leave and new soldiers come. My

father told me of soldiers who come long time ago always looking for gold. Soldiers with axes and spears. They make slaves of Indian men and women. My people do not like to fight. My people have not cared for gold." He pointed to the south. "I saw white men bring *camellia*. They do not like to swim the river. Some camels drown in the river. Our people did not know animals like that live. Many strange things the white man bring. I see the first steamboat on the river. Indians run away and say 'The devil is coming! He blows fire and smoke from his face and kicks water with his feet!'"

Thus he definitely set the date of his birth as prior to the time of acquisition of the territory by the United States or the first journeys of the camels through the desert and the coming of the early day steamboats to the Colorado in the 'fifties. Stories of the camels are legend to us today but the steamers are remembered by many.

An act of congress passed in March, 1865, established the Colorado River Indian reservation from a part of the domain of Arizona and California. It was composed of about 75,000 acres and extended upstream from Halfway Bend near Ehrenberg to a rocky river point then known as Corner Rock, including within its bounds all land lying between that line and the river, together with certain portions west of the Colorado. This promontory has later come to be known as Headgate Rock.

President U. S. Grant, in 1873, increased the reservation to 240,000 acres, of which about 150,000 acres were bottom lands. Monument peak, the outstanding landmark of the entire region was chosen as

the northern boundary point of the reservation. (See story of first scaling of Monument Peak in April, 1940, issue of *Desert Magazine*.) In 1915 the reservation was reduced by 16,000 acres by order of President Wilson while more recently it has been increased 19,000 acres.

With its establishment Col. Charles Poston, Superintendent of Indian Affairs in Arizona, hoped to bring about a grouping thereon of the tribes of Yuma, Yavapais, Hualpais, Chemehuevi and Mojave Indians who inhabited the western part of Arizona and southern Nevada. Col. Poston had as his assistant George W. Leihy, of La Paz, who later became superintendent but was killed during a quarrel in 1866 by a small band of Hualpais and Yavapais. George Dent was then appointed superintendent. Herman Ehrenberg, pioneer of Ehrenberg, was selected as the first agent of the Mojaves.

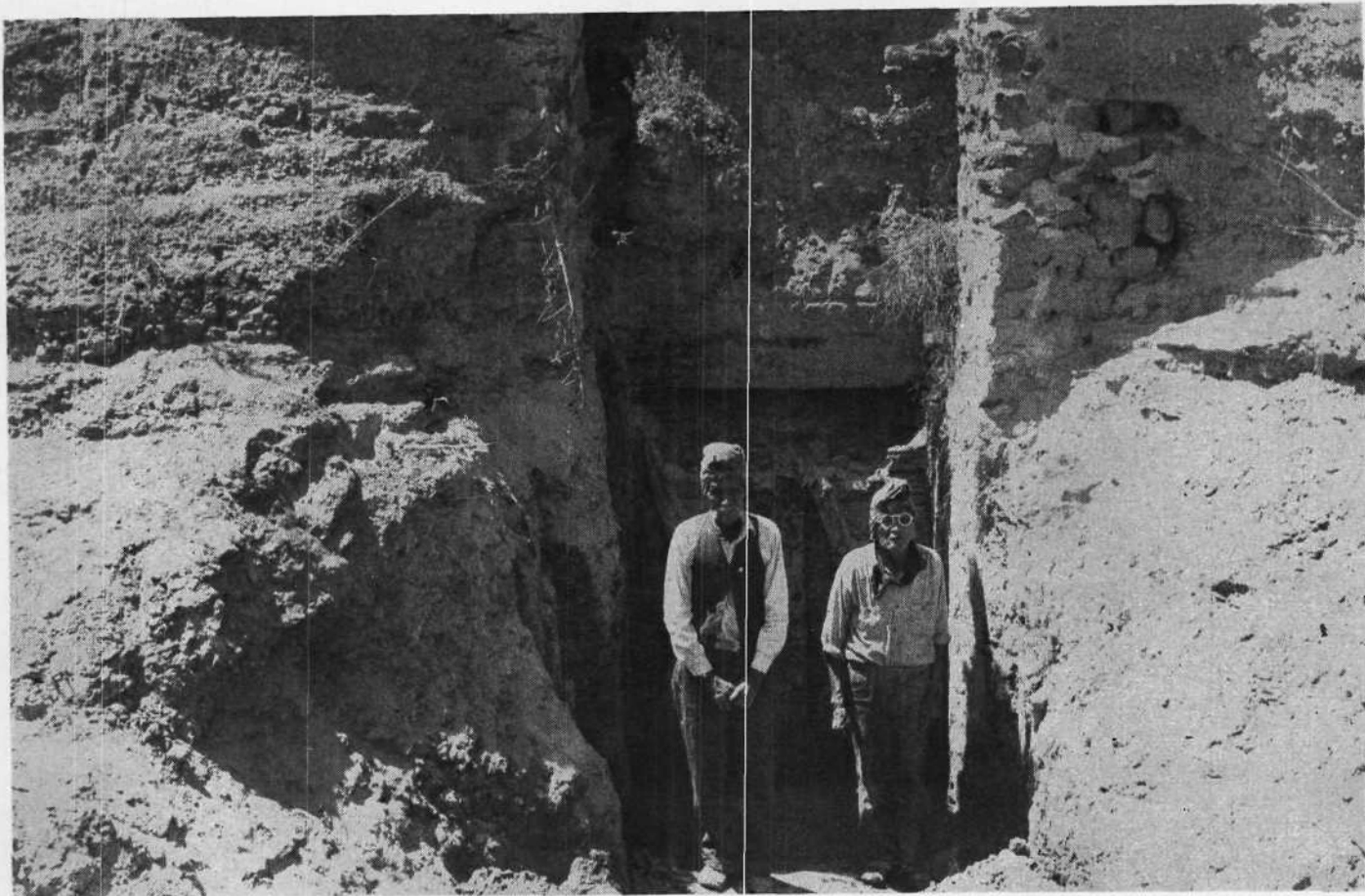
But centralizing and controlling tribes who had been free to wander as they wished presented serious problems. These tribes had been normally peaceful, warring only against roving bands of Apaches or Yaquis who occasionally came up from the southeast on raiding expeditions. Against the mistreatment of the Spaniards they had been slow to anger or attempt to avenge their oppressions. Even with the later inconsiderations of the Americans they seldom became resentful. Most of the promises of the government were accepted with childlike faith.

The restricting of these Indians to a limited reservation called for more productive farming methods than in the former period when the Indian could range far and wide and fend for himself.

A. F. Waldemar, a civil engineer employed by the United States, suggested a canal be constructed from which the Indians could irrigate their crops. Surveys and estimates were made and sent to Washington and early in the year 1867 congress appropriated \$50,000 to construct an irrigating system for the reservation. This was the first money to be appropriated by the government for any irrigation project. Late in that same year work was begun and continued until June, 1868.

"Did you work on the canal?" I asked Otasha.

"No. Not then. My father sometimes worked. The white men promised to pay Indians 50 cents a day and feed them. But Indians never got money. Just got little pieces of meat and Indians have to grind meal for flour. Young men not like to work that way. But we fish and hunt game to eat. The soldiers have horses to ride but the



Portal of the old tunnel bored through Headgate rock in 1868—first diversion of water from the lower Colorado for irrigation purposes. The tunnel was in use only a short time. Otasha, left, and Frank Homer of the Mojave tribe, both were living when this tunnel was bored.

Indians do all the work digging ditch with shovels."

Curiously I checked up on the amount of canal excavated that first year and from old records found five miles had been constructed. It was stated that at times more than 300 Indians were engaged in the work.

In 1868 an additional \$50,000 was appropriated and the work continued. A headgate was constructed, the canal enlarged and in July, 1870, water was diverted to the canal. "White man's job then not good like this," reminiscently said Otasha. "They build big box from trees but river washed it out and much water run into canal. Many farms flooded. Much canal washed away and water go back to the river. Many times Indians and white men try to get water for land. The river is like a wild animal. It does not like to be put in a cage!"

In 1870, Lt. Col. Andrews, new Superintendent of Indian Affairs, examined the project and recommended tunneling through Corner Rock and constructing a headgate at its upper portal. Work was commenced, with moneys provided in 1872, and four tunnels were driven, totaling 4152 feet in length. The tunnel

through Corner Rock was the shortest, being only 430 feet long, but cut through solid rock.

"White men come from mines to do much of the work in the tunnels," Otasha replied in answer to a query regarding that part of the work. "They get money. Agents want Indians to work for board and ask for soldiers to make them work. Indians do not like this way of white men but help make the tunnels. At last everything is finished. White men and Indians have great feast and powwow. Many men get drunk on whiskey. The Great One (chieftain) of the Mojaves opened the gate. The water goes into the tunnel. Indians and white men run to other end of tunnel to watch water come out. For many hours the water run into canal and go toward farms. Then tunnels fall in and water stops! Indians do not have water again. Next season white men fix tunnels. Tunnels fall in again. Lots of water in river. No water on farms."

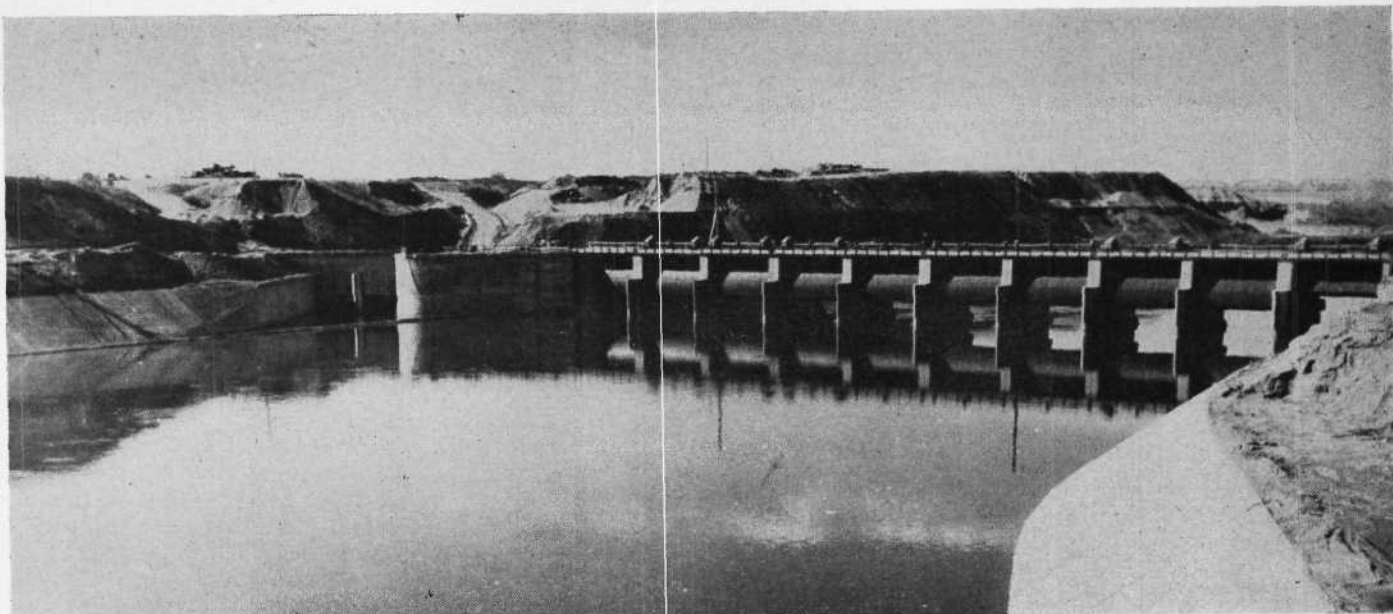
The difficulties caused by the washing out of the unprotected timber supports and resultant cave-ins of the tunnels caused the abandonment of the tunnel plan in 1876. Several wells had been dug on the farms and plenty of water encountered but no means existed for pumping or raising

water to the little farms except with crude ropes and buckets.

A large water wheel was constructed in 1879 and mounted upon two barges on the river but one of the barges sank and the wheel was destroyed. Again in 1880 a larger wheel was built but a sudden rise of the river wrecked it soon after it was placed in operation. No further attempts were made to irrigate until 1883 when a shallow trench was cut through to the river and a generous flow of water entered the canal.

Installation of a steam boiler and pump for use of the school farm was the highlight of the year 1884. This pump was used only for the farm and the succeeding years from 1885 to 1891 were marked by serious water shortages, crop failures and hunger.

I asked Frank Homer, a Mojave friend who had migrated from Needles many years ago, regarding a strange story I had heard regarding the eating of mesquite beans. "Yes," he said, "two kinds of mesquite beans grow on our lands. One bean is good and makes a good meal. The other bean is very bitter. When crops do not grow the Indians eat the bitter bean; it makes the stomach small and they do not need to eat as much to live." To test it I later chewed one of the beans and the ef-



Spillway at Headgate Rock dam, constructed by the Indian Irrigation service. It diverts water sufficient for 90,000 acres of bottom land along the Colorado river.

fect was far more pronounced than eating a green persimmon and I could appreciate better the result the Indians wished to obtain.

Two new pumps and a boiler were shipped to the reservation by boat from Needles in 1892 and installed below the headgate first erected. The plant operated successfully for three years, furnishing water to crops planted on 100 acres of land. Then badly needed repairs necessitated its abandonment.

By 1898 many of the Indians had become disgusted and discouraged with the various attempts to provide and maintain an irrigating system and moved north to the Needles region where they began farming along the bottom lands near old Fort Mojave. Only about 300 Mojaves remained at or near the headquarters of the Colorado River reservation.

New equipment was again brought down the river from Needles in 1899 and installed and the Indians soon had 850 acres of land planted to crops. The pumping plant was placed in care of an Indian who was paid \$240 per year. The chap deserved great commendation for he kept the pumps operating successfully until 1904 before many repairs were required. New machinery was installed in 1905 and 200 acres continued under cultivation.

The Indian Service, in 1911, commenced construction of a new pumping plant. After successful trial runs the system was placed in operation in March, 1913, a little over half a century after the establishment of the reservation. Allotments of ten acres of land were made to

each of 500 Mojaves and a few Chemehuevis. Through the following years the area has been slowly improved and the pumping system kept up-to-date with the changes in mechanical methods. A change was made from steam to diesel power and in 1941, with the coming of power generated at Boulder dam, one motor was installed and the larger of two pumps operated with electricity.

In the meantime, the Indian service under the administration of John Collier had been laying plans for a great diversion dam that would bring stable and permanent improvement in the economic conditions of the Indians. Here was a great river valley, similar in character and larger than the Palo Verde or Yuma valleys, with fertile soil and a 12-month growing season. Boulder dam had solved the problem of flood control. A diversion dam at Headgate Rock would provide a generous livelihood not only for the Colorado river Indians, but for tens of thousands of other desert tribesmen if they could be induced to come here.

To R. H. Rupkey, project engineer for the Indian service, was given the task of installing the dam. He brought an able corps of assistants, several of them Indians from various other tribes in the nation. The Colorado river was turned from its age-old channel by a complete diversion type, earth filled, rock faced dam. The south abutment rests against Headgate or Corner Rock, a monument more fitting than a marble statue to the patience, dreams, ambitions and hopes of those who have builded and lived their lives in this little valley of the Southwest.

The old tunnel was plugged with several hundred yards of concrete. Into the body of the dam was placed 800,000 cubic yards of earth and rock; material which was removed and selected from more than 4,000,000 cubic yards excavated from the site of the newly completed spillway and headgate structure.

Large radial gates control the level of the impounded waters and regulate the flow into the canal. The control structure and spillway contains 11,293,000 pounds of reinforcing steel, embedded in 127,000 cubic yards of concrete.

Cost of the new project to date has been approximately \$5,000,000. Through a main canal 40 miles in length and in many miles of smaller laterals, a maximum of 2100 cubic feet of water per second can be delivered to over 90,000 acres of river lands made rich by hundreds of years of sedimentation from the spreading waters of the Colorado. Until the Japanese were moved here and established in the relocation camp at Poston in 1942, less than 5000 acres were under cultivation. The Japanese added 2500 more. Crops raised here are cotton, maize, barley, wheat, melons, vegetables and alfalfa.

The reservation now has an Indian population of about 900. Near Parker, where so much of the effort of the past years has been expended in establishing an irrigation system, lies the headquarters of the reservation. There are located the administration offices, schools, hospital and homes of many of those engaged in the service. Across a wide paved road from the older buildings lie the new, modern office build-

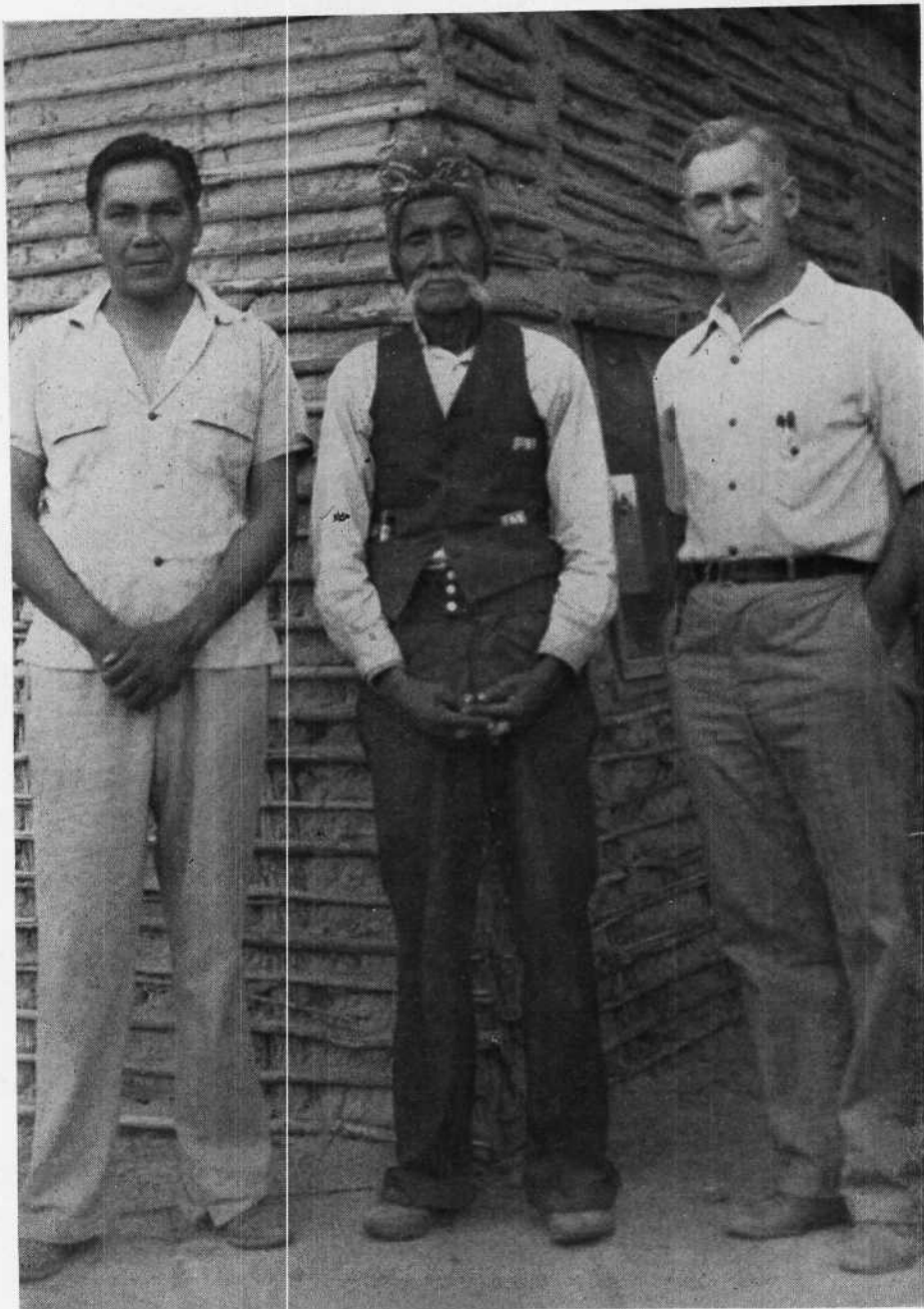
ing, dormitories and homes of the employees. Surrounded by green lawns and brightly blooming flowers "Silver City," the headquarters community, demonstrates what can be done in a desert area where water is available. At the Fort Mojave reservation near Needles about 300 more Mojaves reside and it is hoped these may be persuaded to move to the south. Certain government grants and large amounts of money placed in escrow by the Metropolitan Water District of Southern California as compensation for lands acquired or flooded by Lake Havasu above Parker dam, have created a feeling of independence.

Most of the Mojaves with whom I have visited are appreciative of the efforts of the government to aid them, yet, as with many other tribes of the West, they often question the motives of the white man. One expressed himself thus: "White man say he want to help us. We help white man fix good farm. We build good houses. Then white man wants it. White man take it. Mojaves move and start over again where land is no good. Indians like sheep. White men drive them where he wishes."

The Mojaves are an interesting people. Most of them are good workers and are imbued with a keen sense of humor as well as the patience that is a common trait among the Indians of the West. They have a religious belief deeply rooted in antiquity, of which they tell little. Cremation after death is followed by funeral rites far more impressive and beautiful than the usual customs of their white brothers. The young men are industrious. They performed nearly all the work on the new canal and tunnel and the new road developments of the project.

Otasha preserves at his farm home a few miles southwest from the agency headquarters, a testimonial of which he has genuine right to be proud. "For patriotic services voluntarily rendered" as a nursing assistant during the influenza epidemic of 1918, Otasha was given a Special Service citation by Surgeon General Rupert Blue for the United States. For weeks, it is said, Otasha worked day and night and traveled hundreds of miles about the reservation assisting the doctor and nurse in caring for the ill among his people. "Many times I never sleep for days," he stated. "Many times four days with no sleep. I never get sick. Many of our people die. Many times I sleep walking!"

"Young men among the Mojaves laugh at me today when I tell them of old Mojaves. In early days Mojave men great runners. They carry messages for agents and soldiers. Sun come up in the morning, we



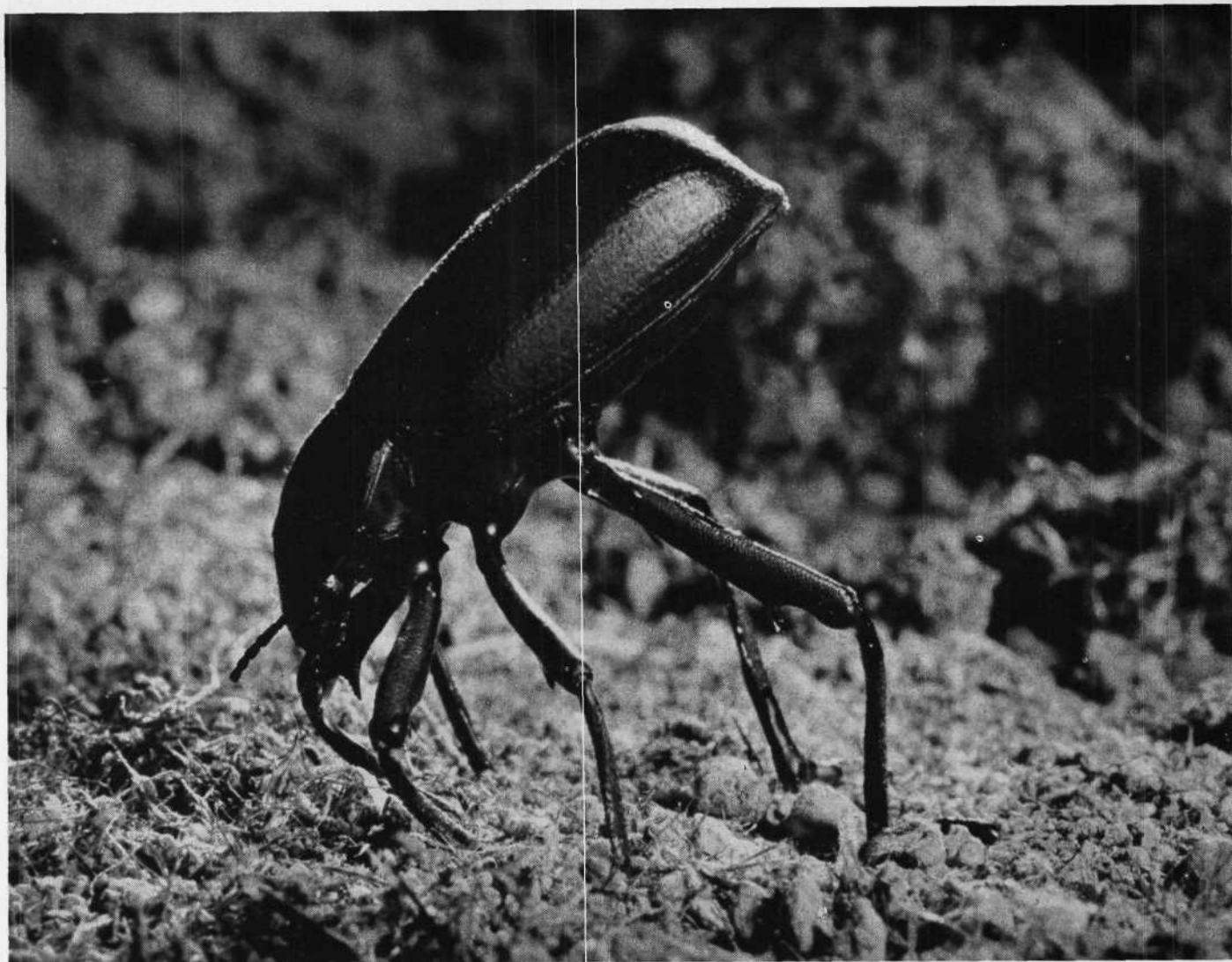
Left to right: Pete Homer, Mojave in the employ of the Indian service, Otasha, and Charles F. Thomas, Jr., writer.

run from our agency to Needles and come back when sun goes down at night. My friend, John Grant, who died a few weeks ago do that many times. I do it. Other Mojave and Yuma men run the same way. Many times run to Yuma and back in two or three days. Young men today too fat. Not run enough. Many times Mojaves swim from Needles to my home or down the river to Yuma. Women ride on logs."

By airline old Fort Mojave near Needles is a long 50 miles from the Parker headquarters while Yuma is 100 miles away. Today signs are still found on the California side of the river of an old trail said to have been traveled by the early Mojaves. Along its route have been found metates

and broken pottery and it passes close to Monument Peak, which I learned was a sacred rock to the Mojaves. I had previously heard a story regarding its importance to the Mojaves and asked Otasha concerning the significance of the rock.

"Many ages ago the Mojave God drove a great wooden stake into the earth. He told Mojaves this marked their land. Today that stake has turned to stone but Mojaves still here. This is our homeland. We never want to leave it," explained Otasha. "The Mojaves lived here before the first soldiers come. My fathers lived here before the first white men come. Always to the Mojave that great rock means home. We call it 'Ah-Ve-Koov-o-Tut.'"



'Circus Bug' of the Desert

By RICHARD L. CASSELL

QUITE a clown, is this "circus bug" of the desert, more commonly known as pinacate beetle or tumble-bug, and scientifically classified as *Eleodes* sp.

Alarmed, he will stand on his head and emit a pungent odor, and he is very adept at buckling forward on his forelegs and playing dead. But when picked up and handled excessively, the "dead" comes to life and trundles off in such a hurry it often tumbles about head over heels. Hence the name circus or tumble-bug.

The term "bug" as applied to this creature is a misnomer as it is a true insect characterized by its chewing of food, while bugs always suck juices through a long, sharp proboscis or beak. Also, bugs have soft wing covers, while the Tumble Bug has hard, horny wing covers. Both have six legs.

Although the pinacate beetle possesses wing covers, it is flightless, there being a total absence of an underwing as possessed by the flying varieties of beetles.

The food of this beetle consists chiefly of vegetation and fungi during both the larval stage and adulthood. Food is gen-

erally imbibed by holding a fragment down with one foot while gnawing it, much as does a dog.

The habitat of this beetle varies as to altitude and no place seems to be too sun-scorched, desolate or wind-driven to be abundantly inhabited by the *Eleodes*. The more resistant species live to be several years old. They are chiefly nocturnal, but can be found frequently by day.

Photographically, the pinacate beetle presents somewhat of a problem. Not that he is a poor model, for his characteristic stance is usually held long enough to permit careful focus. But all black subjects in nature are difficult in that they contrast sharply with their immediate surroundings. However, strong back-lighting will give sufficient rim-lighting or drawing line to make the subject interesting in outline if not in texture. Then, too, it is possible to catch a few glistening highlights, especially if the subject has been hastily picked up and brushed off with the fingers to clear the jet black surfaces of dust particles, then replaced on the ground. If too much handling is done, the pinacate becomes accustomed to the idea and no longer stands on his head for the photographer.



Visitors to this field should gauge their distance by the landmarks described in Hilton's story, as well as by the speedometer readings—it is well to remember that due to many factors, no two speedometers ever register exactly the same.

Geodes in an Old 'Battlefield'

TO THE ROCKHOUND: . . .

This is the first of a new series of field trips to be written by John Hilton for the mineral collectors.

Before publishing these field logs, Hilton and members of Desert's editorial staff discuss the nature and accessibility of each location with the following factors in mind:

We do not knowingly map mineral areas involving trespass on private property without the owner's consent.

We omit deposits of commercial value. Such deposits probably already have been staked, and in any event the gem and mineral dealers are in a legitimate business and we recognize and try to protect them as such. There are numberless fields scattered over the Southwest where beautiful specimens may be obtained without infringement on commercial mining.

Mineral collecting is a fine, exhilarating hobby, and it is our theory that the recreational value of a field trip is even more important than the loot. So do not expect to bring home a carload of museum specimens from one of these trips. In every field there are a few specimens of outstanding form and color—and tons of garden rocks. The true collector seeks only the rare and the beautiful—and a single specimen of exceptional quality is ample reward for hours of tramping.

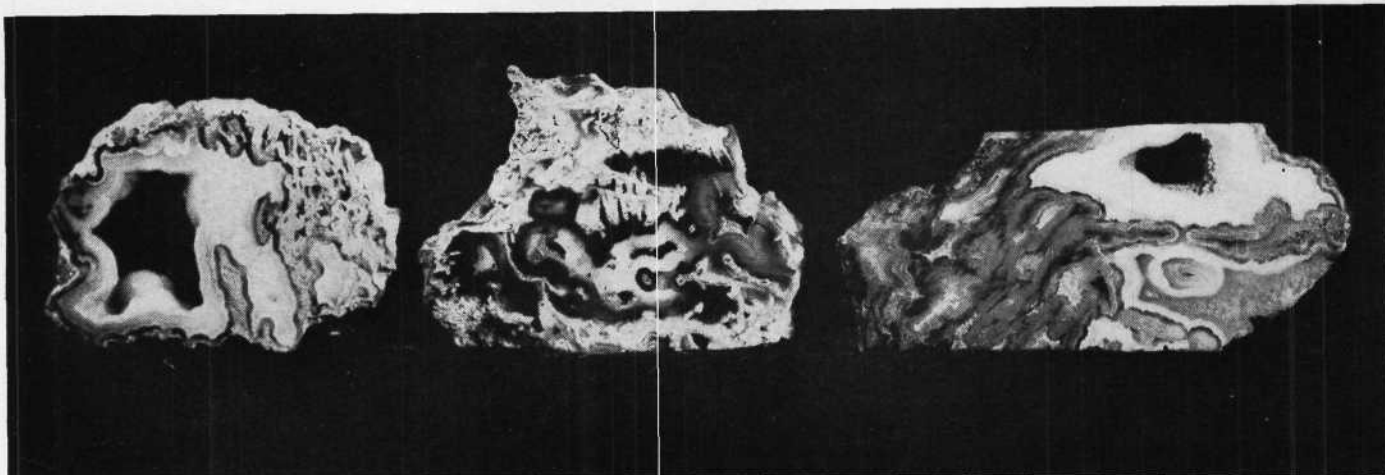
Generally it requires a saw and lap-wheel to disclose the beauty of a rock found near the surface. Don't risk the destruction of a rare specimen by breaking it with a hammer.

There is a fine code of honor in field collecting that every true hobbyist will respect.

By JOHN W. HILTON

IT WAS a pretty good foxhole—as foxholes go—probably not as deep as the same G.I. dug later, but situated behind a low bank to give added protection. It had been vacant a long time. A few wispy desert plants had grown up during the last spring rains and died again in the bottom. A sand lizard had dug a hole in the side. The empty cartridges scattered about were turning green in the weather and the half buried communications wire had lost part of its insulation in the desert sun. But the thing that stood out above everything else was the agate geode in the bank. The rains had washed it clean and there it was, white and inviting for the first collector who came that way. The geode had been partially broken at sometime, enough to expose attractive clear and white bands inside.

We were on the army's "Red Route" in the heart of the Southern California desert



Geodes and agate seams are spotted over an area nearly 25 square miles in extent.

training area used by General Patton to condition his troops for the desert of Africa. The cartridges had been blanks and the anti-tank mines we found later proved to be practice mines. But the orders that came over those communications wires had been real. So were the dust and the heat and the thorns, the long weary marches on limited water supply, the rumbling of giant tanks and the roar of planes overhead and the feeling of actual combat. The general had wanted to make these sham battles so tough here on the Colorado desert that Tunisia would seem like a sissy job by comparison. There is little doubt that this desert training although unpleasant at the time saved thousands of American lives.

To provide better access to portions of the wild Chuckawalla country, the army sent its bulldozers out to blaze a new road from Highway 60 south through a pass in the Little Chuckawalla range to Paradise valley, the great uninhabited plateau between the Chuckawalla and Chocolate ranges.

We had stopped on this now unused army road to see if we could pick up a trail that should have led off to the west toward

Chuckawalla spring. But the old trail had been lost in a maze of jeep and tank tracks. It was here that we saw the white geode glistening in the side of an army foxhole. And as we wandered over the area looking for the trail we picked up other fragments of agate geodes and chalcedony roses that had been washed down from the hills beyond.

I could see the old landmark I had used before the war to locate Agate valley. This landmark is a pyramid-shaped peak of granite that is visible for miles. The new road swings near its eastern base and continues on through a pass and across other desert hills and valleys to Niland near the Salton Sea.

We continued up the wide graded road and my companion John Hall, who has spent many years with the county road department, admired the work of the army engineers. The road was in very good shape even after two rather severe cloudbursts. As we got to the base of the hills, water had cut the grade in a few places but not badly. Hall, who retired from road work this year, expressed the hope that the Imperial and Riverside county road authori-

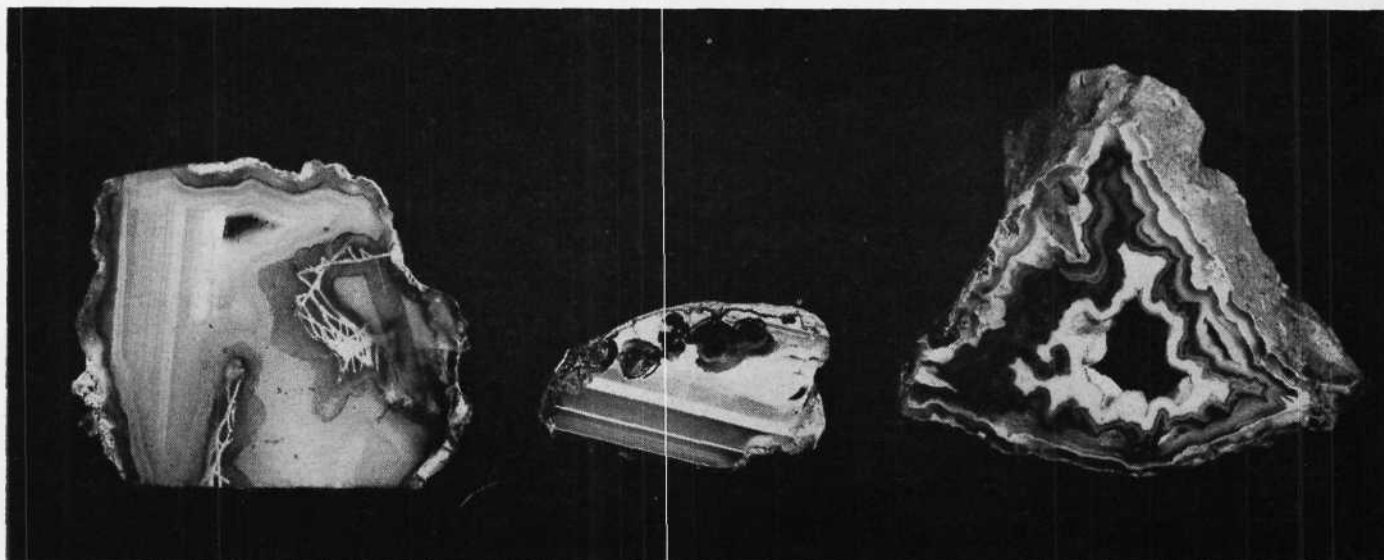
ties would take enough interest in this new desert short cut from Niland to Rice to keep it in shape. He suggested that a few oiled dips would take care of storm water, and an occasional trip over the route with a blade would keep it in good condition for desert travel.

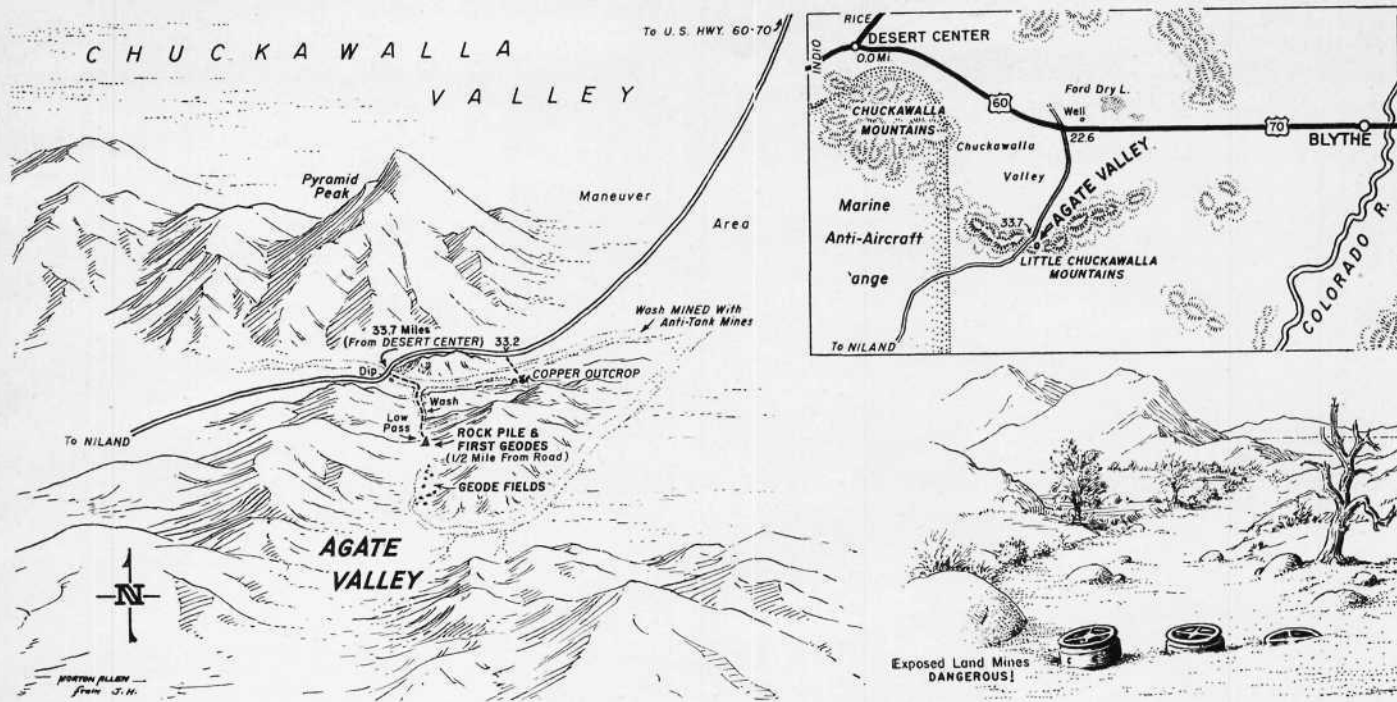
Near the base of Pyramid peak I saw the snow white quartz outcropping of one of the old Williams gold prospects, and remembered the fine copper stained rock which was available there. We stopped the truck and walked about a hundred yards across the wash to the east and there was the old mine just as I had remembered it.

Rockhounds who want decorative blue and green rock for fireplaces or gardens will find wonderful material here. Micro-mineralogists will revel in the variety of copper minerals represented in the minute crystal pockets along the blue and green stains, for some of them are rare.

In the wash at the base of the white and green cliff my son Philip spied what looked like a small turquoise-blue wheel sticking out of the sand. He had dug it out before I noticed, and brought it to me for inspec-

Polished slabs shown on this page were cut from material gathered in Agate Valley.





tion. It was an anti-tank mine. I felt somewhat more at ease when I saw the word "Practice" on it. I realized then that the army would not have charged it with enough explosive to blow up a tank. And yet it does contain an explosive charge—perhaps enough to maim some fingers.

We found more of these old land mines, and I began to doubt the advisability of mapping this area for Desert Magazine readers. Then Philip reminded me that these mines are set for the weight of a tank and that just stepping on them or running over them with a light automobile will not normally set off the charge. A little ordinary common sense on the part of visiting rockhounds should insure against accidents from these mines which are being uncovered by rains in the washes at the base of the Chuckawalla range.

It might be well to repeat here a warning given out by the army and the marine groups who have used desert areas for training. "If you come upon anything that looks like an unexploded bomb or shell or mine in the desert, leave it strictly alone and report its location to the nearest military authority. Such things should be handled only by experts." The greatest effort has been made to clear the desert of such items, but this is a large rugged area and rock hunters are likely to penetrate areas not reached by crews detailed to hunt down these objects.

We went over the hill ahead and stopped again where the road crossed the main wash. It was only a short way back down the wash to the entrance of a familiar side canyon. The old dead ironwood trees still stood sentinels. Many an ax was chipped by G.I.'s who thought they had discovered an easy source of firewood in these old trees. Some tales have been told

of tank drivers who thought they could overrun any growth in the desert but were brought up short by what looked like a rotten old stump sticking out of a wash. They soon learned that these trees were made of wood heavy enough to sink in water and almost as hard as the rocks in which they were rooted. The desert-wise tank and jeep driver learned to respect a dead ironwood, and give it the right-of-way.

The minute we entered the narrow rocky portals of the side canyon, all signs of the war disappeared. The tide of battle had swept on up the main wash and the road and out through the pass. Agate valley had been protected by its narrow rock portals and the dry waterfalls in the floor of the canyon.

A half mile hike brought us out onto a low pass and to the first geodes. There are some cleared circles which may have been made by early Indians, for several Indian trails converge through this pass. Mountain sheep and wild burros have used them for wallows of late, however, and their tracks are visible in the sands. Prospector Williams who built a cabin some miles to the east had some burros which ranged over this area. At any rate it would be very bad taste to carry a gun into this region. What little game there is, certainly should be given a chance to survive.

Geodes of agate were sticking out of the andesite at our feet when we sat on the pile of rocks in the pass for a rest. Some were hollow and lined with crystals. Others had nice marks and would make good cutting material. Wherever they are exposed, others can be dug from the banks by the more ambitious rockhounds.

Geode beds may be encountered over an area many miles in extent in and around Agate valley. They are not being mapped

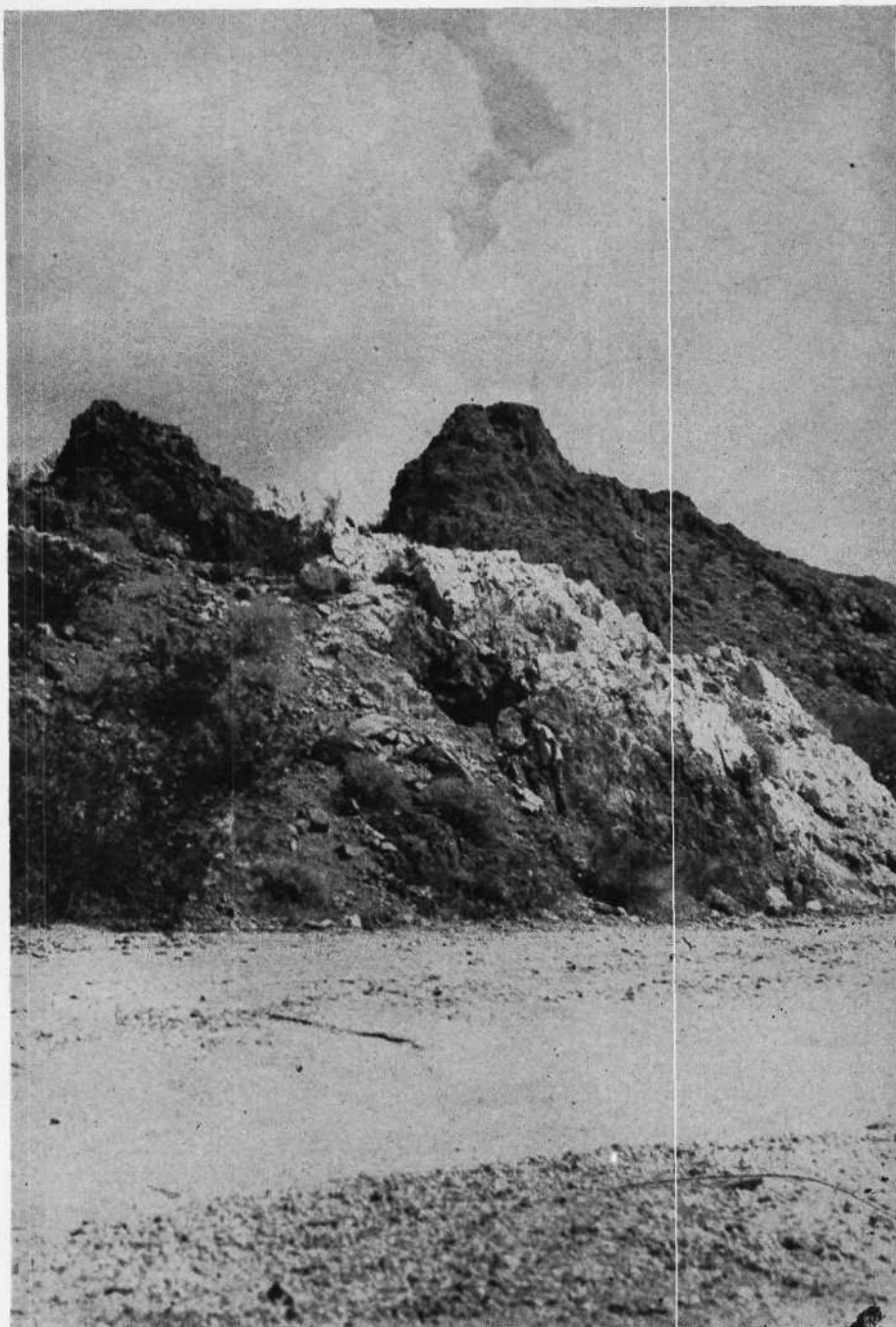
for the reason that although I have made several trips to this region I do not know the full extent of the field. Also, I do not want to make the collecting too easy for the first wave of "early-bird" collectors who come to this field.

Visitors in the area will find as I did that the second or even the tenth trip back will repay them more for their trouble than the first. The agate geodes are everywhere and in abundance but the rarer things are harder to find, farther away and take more energy to dig out—which is as it should be.

This has been one of my favorite gem hunting areas and I have taken such famous rockhounds there as J. L. Kraft, who agrees with me that this field is pretty hard to beat as a collector's paradise.

One of Kraft's pet rock hobbies is collecting desert roses. I took him up a steep hill to where there were hundreds of them and he had the time of his life collecting odd and decorative shapes for his private museum. It was a warm day and a long hike but he kept right on and returned to the car with his bag well filled. I expressed the hope that I would be able to get around in the hills as nimbly when I reached 70-odd years. He said that collecting rocks had made him ten years younger. Like many other rockhounds he likes to share his hobby. He gives talks illustrated with polished sections of gem stones and has an exhibit in Kraftwood lodge at Elcho, Wisconsin, open to the public where hundreds of desert stones are displayed. At Christmas time he makes gifts in his shop for many of his friends and employees. He feels that there is a great deal more to a gift of this sort, made by his own hands from gems he has collected himself, than something bought from a store.

Jade is another of his collecting items,



Copper-stained quartz outcrop which John Hilton cites as one of the landmarks for locating the geode field.

especially American jade. He has specimens of a surprisingly wide range from the American continent between Canada and Mexico.

It seems almost needless to suggest here that fields such as I have described in this story deserve the protection of all members of the collecting fraternity. Any effort to rob the field of more material than needed for one's own use, or to stake claims which would bar others from sharing the stones to be found here would brand the perpetrator as unworthy of the hobby.

Until the army road was built this field was not very accessible. However, it has

been known to many of those who prospect the desert. Now that the area is within reasonable hiking distance of a passable road, we are glad to share the knowledge with others, and can do so with the feeling that they may come here without undue hazard to themselves or their cars. This field will provide a fine collecting area for many, many years—and it belongs to the whole rock collecting fraternity, just as do the pebbles on the beaches.

Visitors are warned not to attempt to reach this field over the road from Niland, or to continue on the road toward Niland—for the reason that the western section

of Paradise valley through which the Niland road passes is still an active marine bombing range.

On the way back to the highway we again crossed the scars of the sham battles waged here, and wondered if among the thousands of men who trained in this area there were rockhounds who took advantage of the opportunity to add to their collections. It must have been quite a thrill for a young doughboy who was also a collector to encounter a pretty geode while digging a foxhole.

• • •

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933

Of The Desert Magazine published monthly at El Centro, California, for October, 1945.

STATE OF CALIFORNIA } ss.
COUNTY OF IMPERIAL }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Randall Henderson, who, having been duly sworn according to law, deposes and says that he is the editor of the Desert Magazine and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, and business manager are:

Publisher, Desert Publishing Co., El Centro, California.

Editor, Randall Henderson, El Centro, California.

Business Manager, Bess Stacy, El Centro, California.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

Desert Publishing Company, a co-partnership, El Centro, Calif.

Randall Henderson, El Centro, California.

Bess Stacy, El Centro, California.

Lucile Harris, El Centro, California.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.)

None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is (This information is required from daily publications only.)

(SEAL) RANDALL HENDERSON
Sworn to and subscribed before me this 14th day of September, 1945.

EDNA M. MORRISON
(My commission expires March 10, 1946.)

Giant and Midget Poppies

By MARY BEAL

PRICKLY POPPY or Thistle Poppy is the largest of the desert poppies but if you are an old resident of the Southwest you may use its Mexican cognomen Chicalote. It can't rightly be labeled "Giant Poppy" because the Matilija Poppy has prior claim to that title. Its large white flowers are very similar but the herbage is quite different and its choice of location equally individual. In contrast to the smallest of the desert poppy clan, the inch-high Midget Poppy, its prickly cousin seems a veritable colossus.

It has superb beauty, this Prickly Poppy (*Argemone* to botanists) and a remarkable hardihood. It continues blooming long after other flowers have vanished. Out on the hot sandy flats of the Mojave desert it shows up magnificently, unlike its various plant associates. It makes an especially fine appearance in the sandy area about Mt. Pisgah. At the edge of the vast lava field surrounding the cinder cone are large recesses, garden-like with many splendid clumps of Prickly Poppy, attended by marigolds, evening primroses and sand verbenas. Within the outer zones of the rough jaggy expanse, gaps in the lava form nooks floored with sand, where the pale handsome herbage and diaphanous white blossoms of these imposing poppies stand out in bold relief against the encompassing black rock. The most extensive display is in the northern Mojave desert far from the well-traveled main highways.

Two species of *Argemone* frequent the desert, both stout spiny plants with usually several leafy, prickly stems 2 or 3 feet high, though sometimes there's only one loosely-branched stem, the herbage frosted with a "bloom," the flowers 2 or 3 inches (or even more) across, the broad crinkly petals encircling a bright yellow center of numerous stamens, accented in the middle by a purplish stigma.

Argemone intermedia var. *corymbosa*

This very leafy species may be identified by the oblong, coarsely-toothed or sinuate leaves 2 to 8 inches long, armed rather sparsely on the edge and along the veins with stout yellow spines; the flowers borne in flat-topped clusters; the 3 sepals spiny, with a spine-tipped horn or beak just below the apex; the spiny cylindrical capsule less than an inch long. You find them along both main highways crossing the Mojave desert, as well as off the beaten paths. Some luxuriant plants usually attract attention between Yermo and Cronese Lake on Highway 91, and from Mt. Pisgah to Ludlow on Highway 66. In central and southern Arizona they are likely to be found blooming at almost any season of the year. They also grow in northern Mexico.

Argemone platyceras

The leaves of this species are more deeply toothed and the whole plant may be more or less bristly-hairy in addition to its armament of spines. The flowers are somewhat larger, sometimes 4 inches across, and the sepals are densely spinose, their stout horns strongly spine-tipped and beset with finer spines



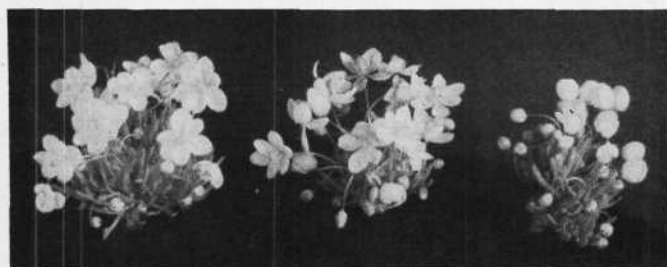
Blossom of Prickly or Thistle Poppy, Argemone intermedia var. corymbosa, usually is two or three inches across, its broad crinkly petals encircling a bright yellow center of numerous stamens.

along the sides. The narrow cylindrical capsule an inch or two long. It is this species that takes over those vast stretches in the northern Mojave desert. It also is found in the Death Valley area and east through Arizona as far as Texas, up to 8000 feet.

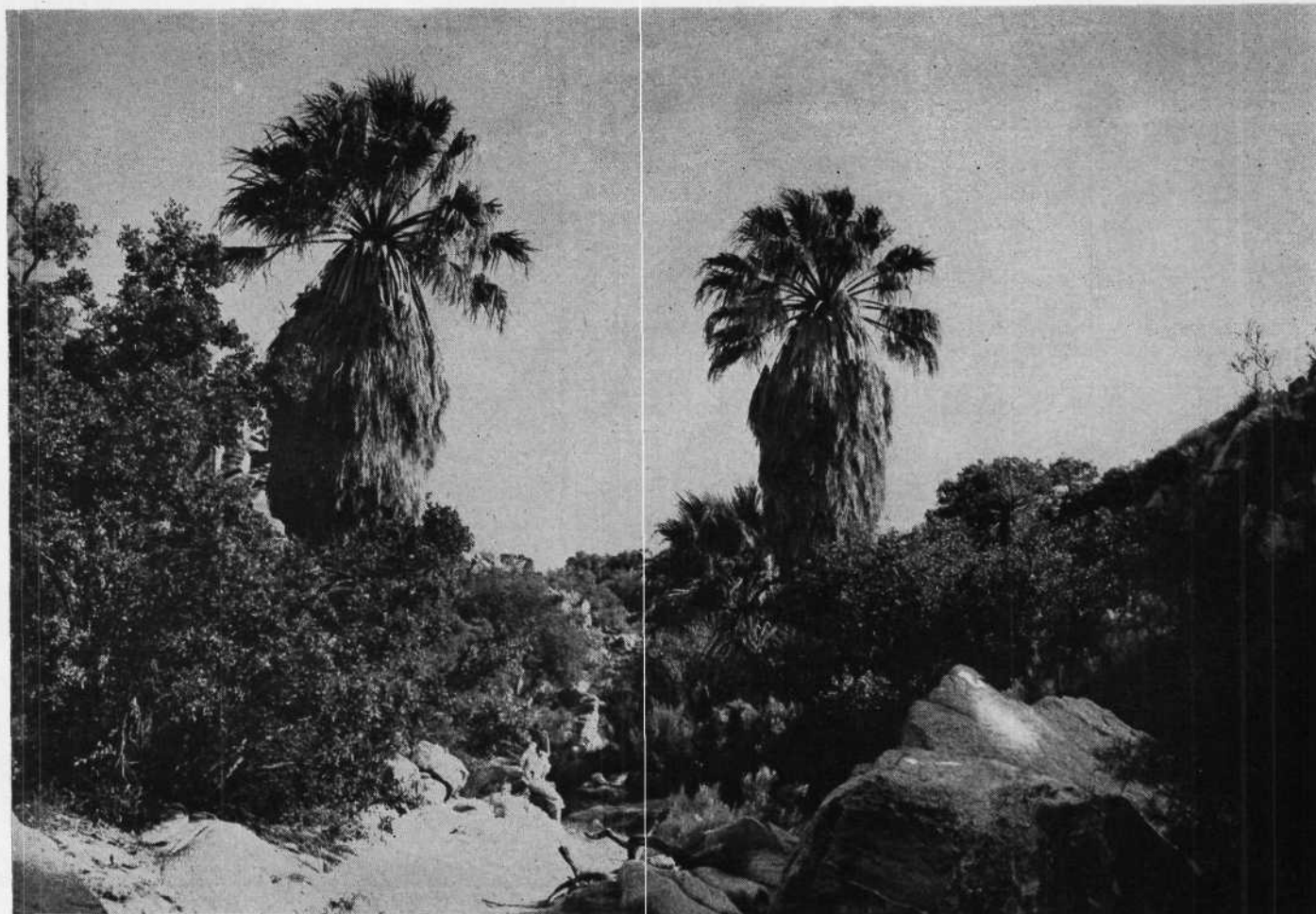
Canbya candida

This is the midget, as captivating as an elfin Hop-o'-my-thumb. This exquisite miniature poppy is so tiny it is overlooked by all but the keenest eyes. You might see it merely as a paler spot in the sand but if it once catches your eye you'll be delightfully surprised to discover what a gem of perfection is this amazing little midget, so clear-cut in its delicacy. The chances are it will be less than an inch high, its many fleshy linear leaves $\frac{1}{4}$ to $\frac{1}{3}$ inch long crowded into a basal tuft, from which rise numerous thread-like stems, each crowned by a single pearly-white flowerlet, the whole dainty plant like a miniature boutonniere, bewitching enough to have come from fairyland. The number of blossoms on one diminutive *Canbya* will make your eyes pop—and here are a few figures to prove it. One wee Lilliputian a half-inch tall had 21 flowers and buds; another more vigorous plant just under the 1 inch stature had 60 buds and blossoms. Such opulence of bloom occupied less than a square inch of space! The petals are persistent, closing over the globose or ovoid capsule as they wither.

These winsome posies are scattered about rather sparingly over sandy flats and washes of the western Mojave desert at 2000 to 4000 feet, from the southern borders to the mesas and plains northwest of Barstow. In April and May I never fail to find them between Hinkley and Kramer. It is quite appropriate that this bit of delicate perfection should be named in honor of William Canby, a widely-traveled Delaware botanist, recognized as a model of refinement by his botanical associates.



The pearly white flowerlets of this dainty inch-high plant are like a miniature boutonniere from fairyland. Photo of Canbya candida shows flowers about life size.



Between the two large palms at the head of Carrizo canyon—elevation 3500 feet—is a spring of cool mountain water. Piñon and juniper grow in the surrounding area.

Where Palm Meets Pine

THERE are two Dos Palmas oases on the Southern California desert. One is the widely-known waterhole east of Mecca on the historic old Bradshaw stage road where Herman Ehrenberg was killed in October, 1866. Its original two palms have now increased to 27.

The other Dos Palmas is not so well known. Located at the headwaters of Carrizo canyon far up on the north slope of the Santa Rosa mountains, this oasis until recently was believed to be the highest elevation at which the native *Washingtonia filifera* is to be found—3500 feet.

This story is about the Carrizo Dos Palmas oasis, and the rugged natural mountain park in which it is situated. Actually there are three palms at the spring today—lusty *Washingtonias* with a water supply that holds promise of an increasing number in future years.

The old-timers have never been able to throw much light either on the naming of the spring or its history. My guess is that

This is another in the series of the Southern California palm oases stories Randall Henderson is writing for Desert Magazine readers. There are not many palms in this oasis, but the spring is in a delightful setting, and very accessible to the motorist who does not care to go too far off the paved road.

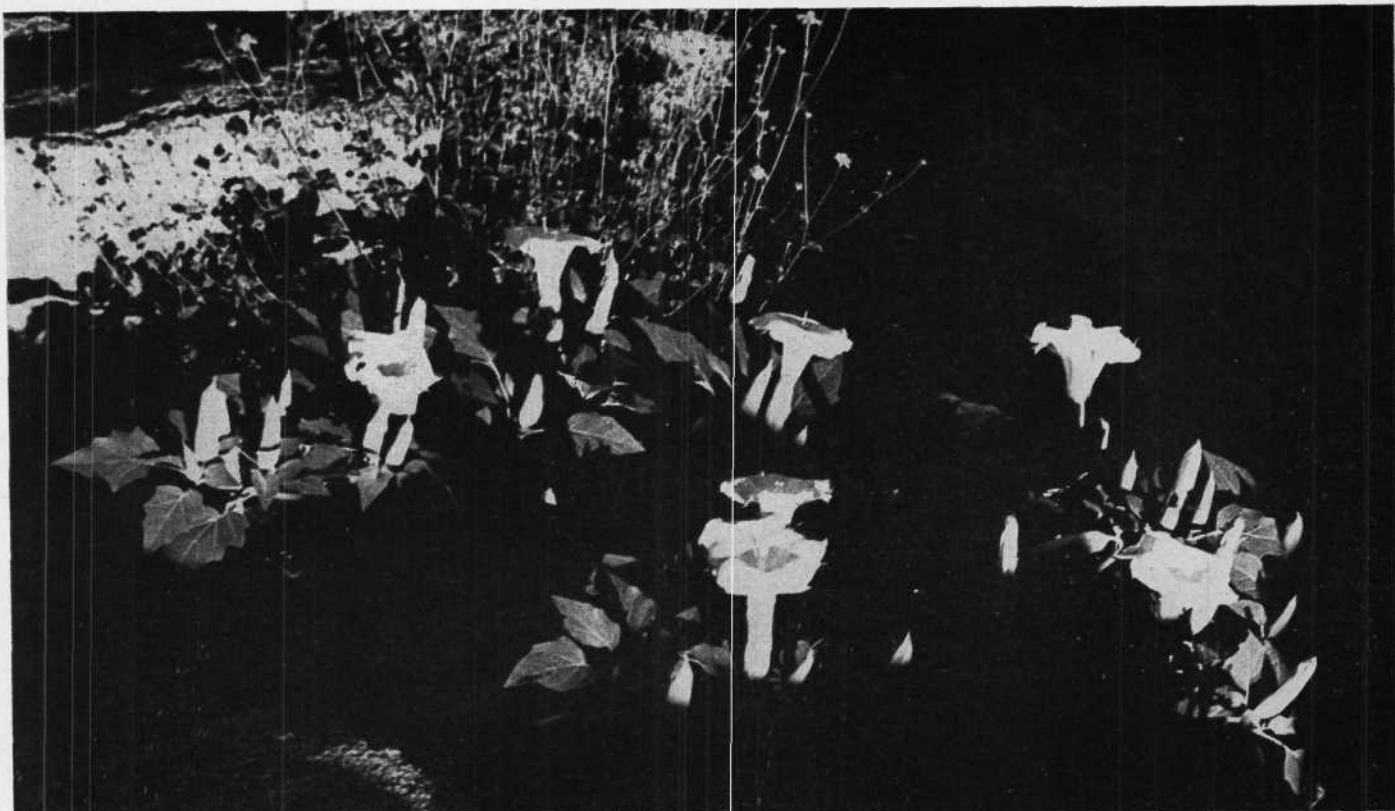
By RANDALL HENDERSON

the name dates back to one of the government surveys in this area. The oldest map I have found showing the spring by its present name is in the Indio quadrangle made in 1901.

For years I have wanted to follow Carrizo canyon from the spring down to the desert floor in Coachella valley, to see if there were more springs and palm trees. I had the opportunity in September this year

when friends agreed to transport me to the palm oasis and meet me with a car at the foot of the grade later in the day. It is eight miles from the spring to the point where Carrizo joins Dead Indian creek on the floor of the desert and there is no trail—and I did not fancy the idea of making a two-way trip at this season of the year.

Summer rains were plentiful in the Santa Rosa mountains during August this year, and the slopes along the Pines-to-Palms highway above the 3000-foot level were ablaze with flowers. *Pectis*, a little member of the sunflower family that seldom grows more than four inches in height, carpeted the gravel in many areas. A larger sunflower which I could not identify by species was crowned with great clusters of yellow blossom. There were white primrose, salmon mallow, purple four o'clock, yellow encelia, white datura and scarlet bugler, all in gorgeous array. It was a springtime flower parade—in autumn.



The author photographed this datura just after the morning sun had reached the blossoms—before they closed for the day.

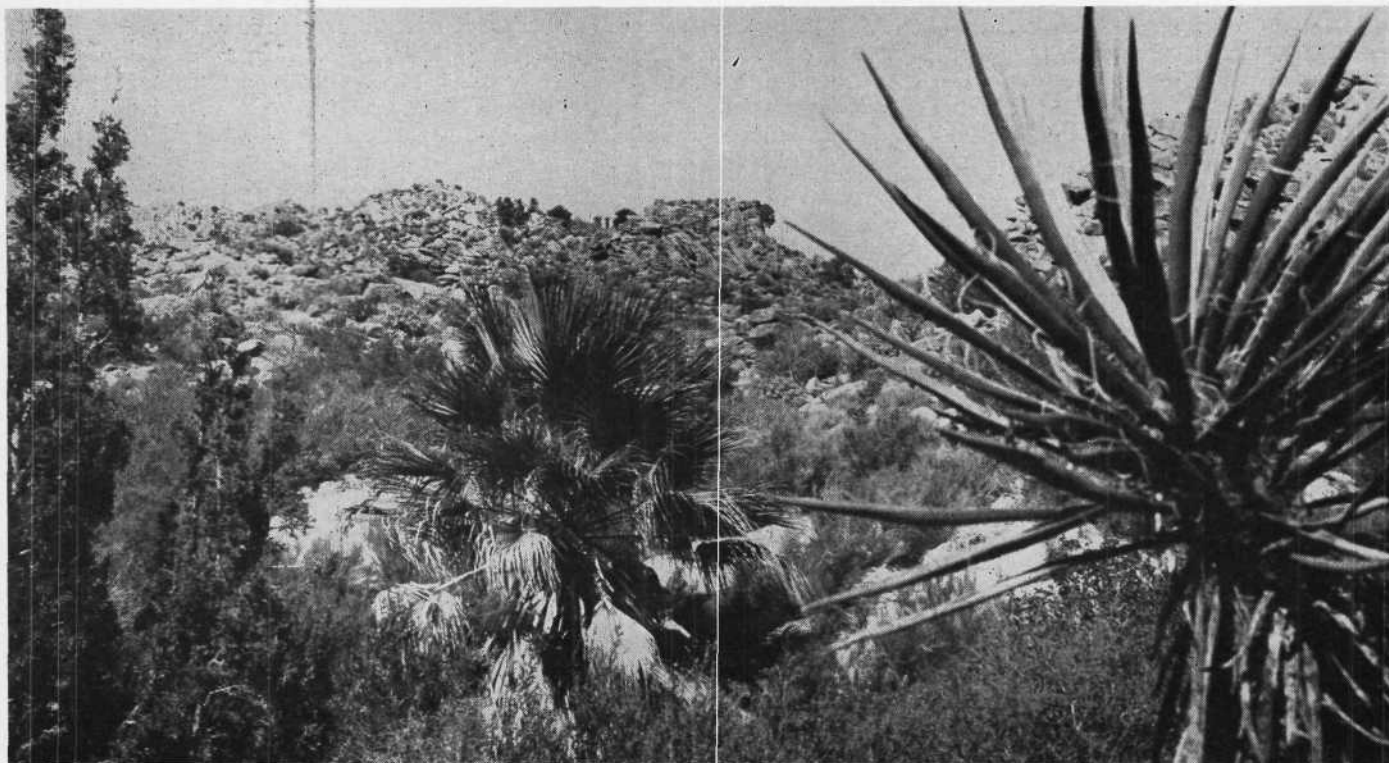
Dos Palmas is one of the most accessible of all the palm oases in Southern California, and one of the most refreshing picnic spots in the mountain rim of Coachella valley. To reach this clear cool spring from the floor of the desert, one takes the

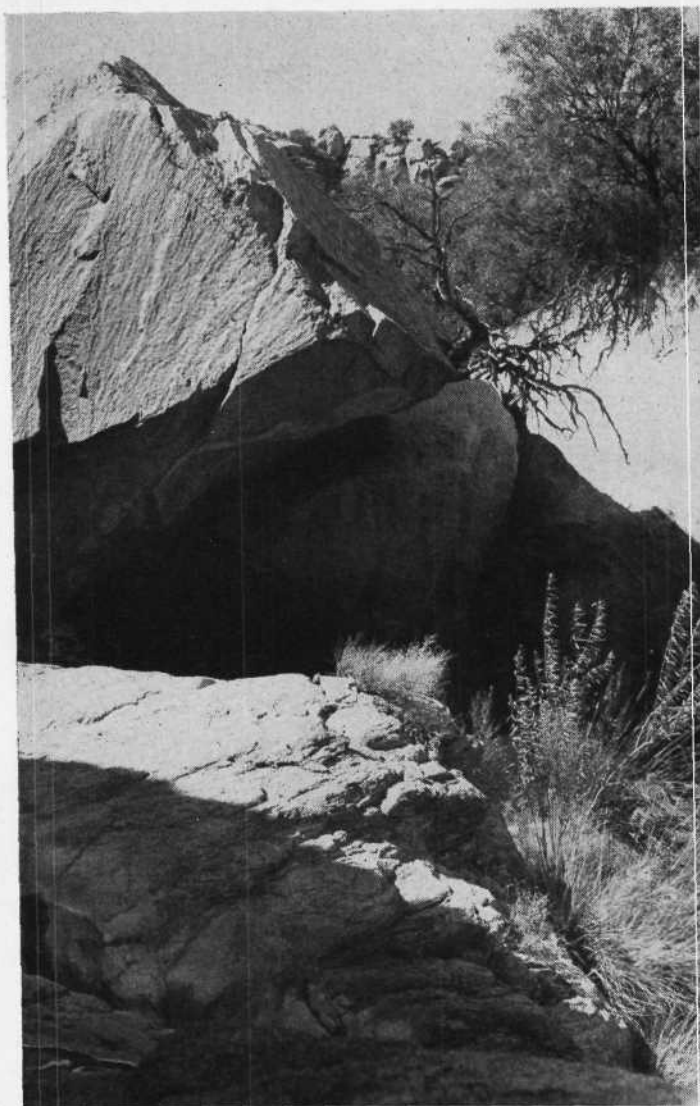
Pines-to-Palms road. The paved highway climbs sharply with well banked curves to the Pinyon Flats plateau. At a point 12.4 miles from the junction of Highway 111 with the Pines-to-Palms route a graded road of decomposed granite takes off to

the right. This turnoff is just 1.7 miles above the 3000-foot elevation marker which stands along the highway.

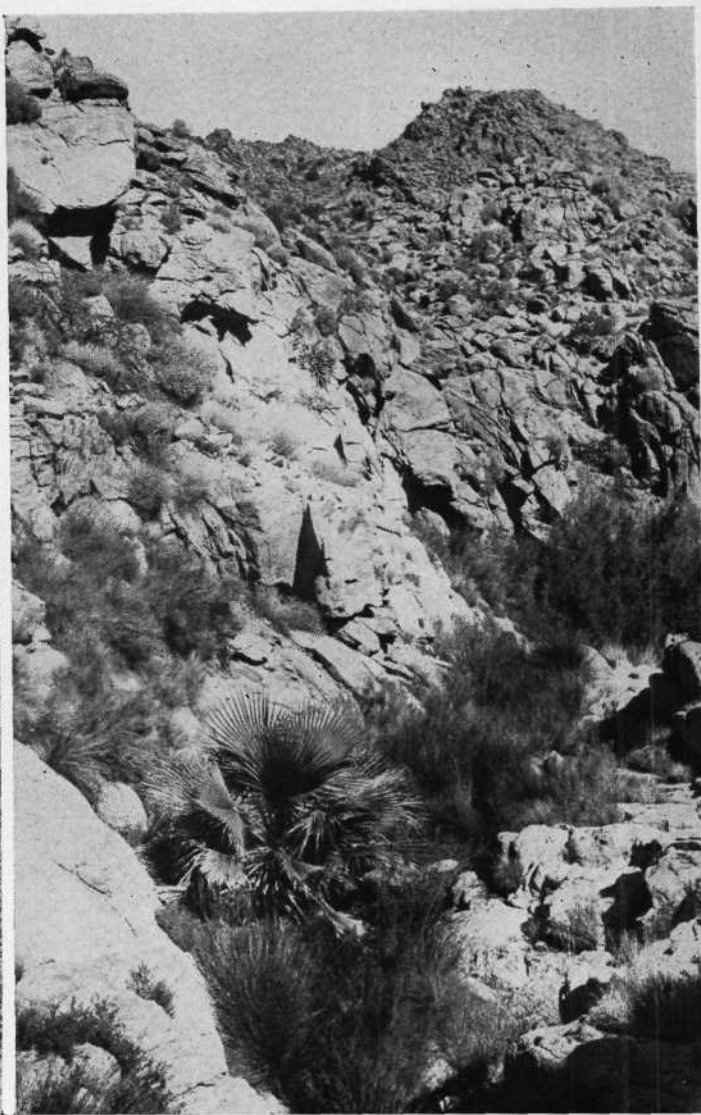
A half mile from the pavement the road forks, and a sign points to the spring a quarter of a mile away on a side road. There

Framed between a juniper and yucca, this is one of the smaller palms growing downstream from Dos Palmas spring.





This is one of several caves along Carrizo creek.



One of the young Washingtonias found by the writer.

is ample parking space at the end of the side-road, and the hike down a tributary ravine to the spring is about 100 yards.

There have been few visitors at Dos Palmas during the war period, partly due to restricted travel and partly to the fact that the highway sign marking the turn-off from the Pines-to-Palms road has been destroyed.

The spring is in a lovely setting of mountain shrubbery, palms, and granite boulders. A picnic table placed by the Forestry service beneath a glistening Sugar Berry (*Rhus ovata*) has not been used for months. It was up to its knees in grass.

This is one of the few canyons where native palms from the desert have gone up to meet the piñons of the higher altitudes. Wild palms growing in a setting of piñon and juniper and Upper Sonoran shrubbery creates a gorgeous picture.

I reached the spring at 7:30 in the morning. The shadows were still long and the mountain air delicious. The only sound was the music of the tiny stream below the spring, trickling over a miniature waterfall. I tried to photograph the hanging

nest of a palm oriole, swung on the underside of a palm frond. But the light was not right, and I gave it up. Then the silence was broken by the inimitable call, the "dropping song" of a canyon wren. There is no note, or series of notes, quite like the descending scale of a canyon wren.

I share the feeling of William Leon Dawson when he wrote: "Heard across the wastes of chaparral, or in the cool depths of some rugged ravine, this song of the canyon wren is at once the most stirring and imaginative, and the most delightful which the wilderness of California has to offer."

Even at this early morning hour the September sun was blistering the desert below. Up here at the head of Carrizo canyon the air was cool and invigorating. But there was a long hike ahead and I had to cut short my enjoyment of this pretty spot. The canyons of the Santa Rosas are full of surprises—of unexpected rock formations and wildlife—the things that occur where desert meets mountain, and I wanted to explore the full length of this rocky gorge.

A little way below the spring—perhaps 150 feet—the last trickle of water disappeared in the sand. But there were more springs. Within a quarter mile of Dos Palmas I passed three of them—places where a granite dike across the canyon had created underground water storage, with little seepages of water trickling through crevices in the rock.

Then the canyon was dry for another mile. Once I saw a spreading datura growing beside a huge boulder on the bank above the ravine. There were ten great white funnel-shaped blossoms, not yet closed by the sun. I sat on a rock and waited a few minutes for the sun to reach them, for a photograph.

Then, skirting the western base of Black mountain I came to more springs, a series of them in thickets of ironwood, willow, mesquite, catsclaw and arrowweed—and two young palm trees. No cloudburst torrent had scoured this canyon for many years, and in places I had difficulty forcing my way through the jungle of vegetation.

Once, to avoid these thickets, I climbed the canyon wall for a detour. On top, a few

hundred yards ahead, a deer dashed off through the boulders and wild apricot and jojoba and agave. Some distance ahead he turned and stopped behind a juniper to watch me. I had seen red-capped hunters in the distance earlier in the morning, and I edged around to shoo the deer in the opposite direction. Perhaps I did the red-caps a good turn. They were hunting in a game refuge.

At intervals of a quarter to a half mile I found springs all the way down the canyon—and two more young palm trees struggling with the encroaching shrubbery to keep their heads in the sunshine. I suspect that many of these springs were the result of the summer rains. Probably they remain dry for months at a time. This would explain the absence of more palms.

At one point I found a short span of recently constructed trail in the bottom of the canyon. It seemed to start from nowhere, and end without purpose. Perhaps prospectors had found a trace of some strategic mineral and had used it in prospecting their claim.

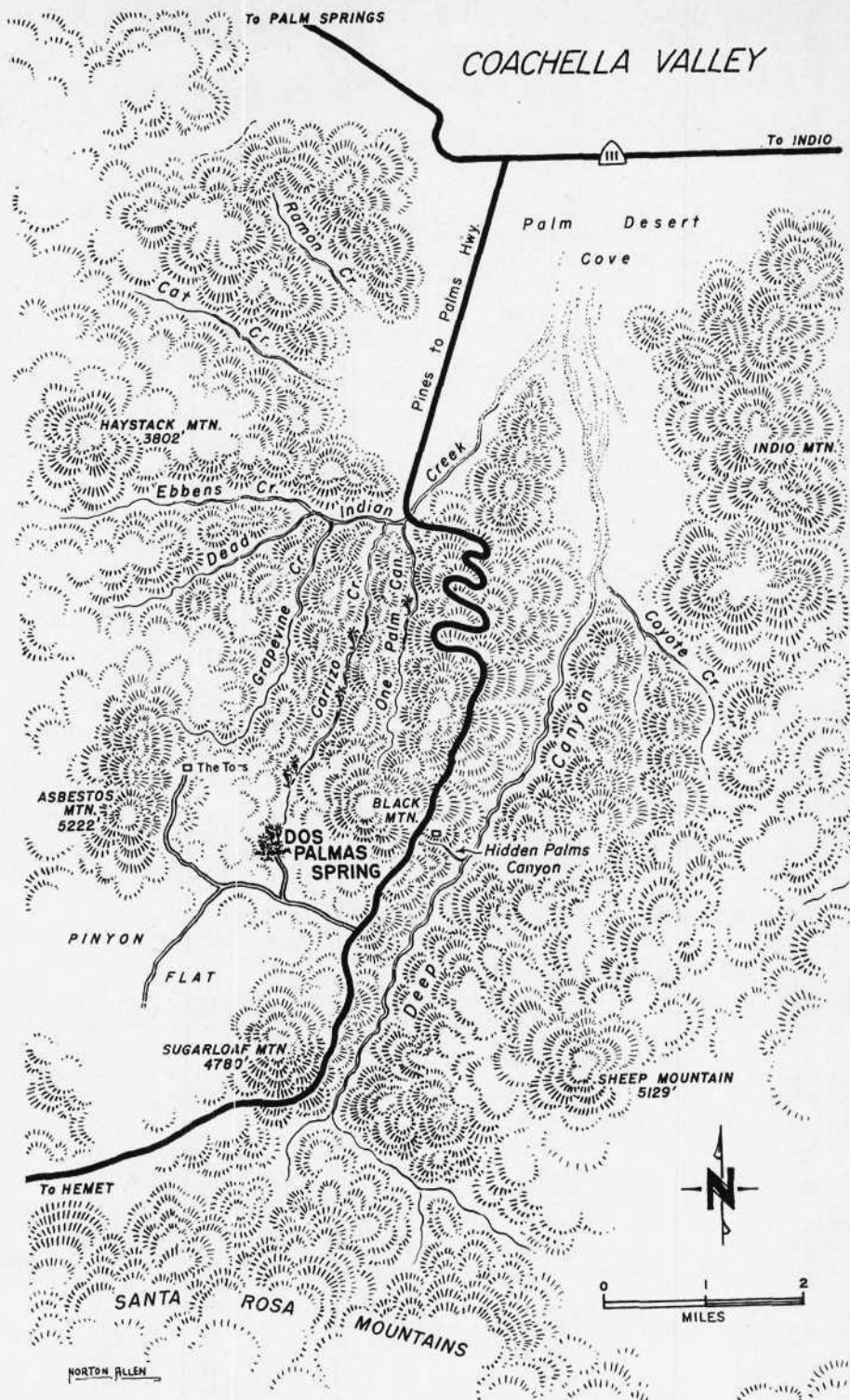
Below Black mountain the canyon drops off steeply to the desert, and the character of the vegetation began to change. Also, there was much less of it because the August rains had followed the range, and veered around the desert.

There were dry waterfalls that called for careful descent. In planning my desert trips I invariably under-estimate the pitch of these desert canyons—and carry my lunch and canteen and camera equipment swung from my shoulder in a big canvas musette bag, instead of a pack on my back. Then when I come to the steep drops that bag has a way of swinging around between me and the wall to which I am clinging. I hope other climbers are not so dumb. A backpack is proper equipment where there are rocks to climb.

I had told my friends to meet me at the foot of the grade at 12 o'clock—4½ hours seemed an ample allowance of time for an eight-mile down-canyon hike. At 11:30 I was within a mile of the end, and was confident I would make the schedule.

Then the canyon suddenly fell away a sheer 150 feet. The waterfall was dry, but almost vertical. I explored possible detours on both sides—and decided they were no go for a Class 2 climber with no rope.

The alternative was to work up over a ridge and down into a tributary canyon that would bring me back to the main gorge below. But there were also steep pitches in the tributary. Once I worked down over a double waterfall, perhaps 70 feet, and landed in a thicket of arrowweed and mesquite so dense it seemed impenetrable except from above. The arrowweed was 10 feet high, and thick as cornstalks. But ahead through the barrier of stalks I heard a trickle of water—and my canteen was empty. Thirst overcame the obstacle of that arrowweed jungle—but it required



45 minutes to work my way out of this little pocket in the canyon.

It all added up to a two-hour delay in my schedule—and it was very hot on the floor of the desert. But my friends were generous. They grinned as if they had enjoyed the two-hour wait with only a car top between them and a sweltering sun.

There is no dull moment in a downhill traverse of Carrizo canyon. I must have passed 30 springs along the way. And now I can record the fact that there are seven wild palms in Carrizo, including the three at Dos Palmas spring, and one in a tributary canyon. Probably there will be more in future years.

While the climb down Carrizo canyon is a field day only for those who are in condition for hiking, I can recommend Dos Palmas as a perfect setting for a picnic party, accessible, with shade and fine mountain water.

The U. S. Forestry service has placed a sign at the spring which reads: "Public Service site. This land is reserved as a Public Service site and is not subject to any appropriation under any of the public land laws."

That means Dos Palmas belongs to you and me—to enjoy when we have the opportunity, and to protect for those who will come later.

Mines and Mining . .

Searchlight, Nevada . . .

Ants have long been credited as very efficient miners of garnet in northern Arizona and other parts of the desert, but now comes Frank Fairfield, Searchlight prospector, with another score for the ant family. They helped him locate a perlite deposit. There were outcroppings of perlite in the district he was investigating, but he wanted to run a shaft into the lava body on a flat where there was an overburden of other material. He saw a large anthill—and the ants were mining perlite too, so he sunk his hole there, and soon encountered a fine body of light grey mineral, the kind he was seeking.

Pasadena, California . . .

Silver can be used to provide one of the least toxic and most potent of all germicides, according to Alexander Goetz, instructor in physics at California School of Technology. Dr. Goetz believes that there are many outlets which will provide a market for big tonnage of silver in the future, especially in chemistry and the electrical industries.

A WESTERN THRILL

"Courage," a remarkable oil painting 20x60 feet, the Covered Wagon Train crossing the desert in '68. Over a year in painting. On display (free) at Knott's Berry Place where the Boysenberry was introduced to the world and famous for fried chicken dinners with luscious Boysenberry pie.

You'll want (1) A 4-color picture of this huge painting suitable for framing. (2) A 36-page handsomely illustrated souvenir, pictures and original drawings, of Ghost Town Village and story of this roadside stand which grew to a \$600,000 annual business. (3) One year's subscription (6 numbers) to our illustrated bi-monthly magazine of the West. True tales of the days of gold, achievements of westerners today and courageous thoughts for days to come. Mention this paper and enclose one dollar for all three and get authentic western facts. Postpaid.

GHOST TOWN NEWS
BUENA PARK, CALIF.

San Francisco, California . . .

California's mineral production in 1944 was the largest on record according to figures compiled by State Mineralogist Walter W. Bradley. In value, petroleum headed the list of 62 mineral substances produced in the state. Gold ranked seventh on the list, being topped by oil, natural gas, stone, cement, borates and magnesium. There were 109 lode mines and 66 placers listed as active. Among the counties Kern was top producer with Los Angeles a close second, Fresno third and Orange fourth.

Twentynine Palms, California . . .

An organized effort to open the Joshua Tree national monument in Riverside and San Bernardino counties to mineral prospecting and operations, was launched in Riverside, California, during September when a Riverside county chamber of mines was formed with Elmer Dunn as chairman. Mining representatives present at the meeting asserted that rich deposits of iron, copper, gold and manganese remain undeveloped in the monument, and the organization plans to petition for the removal of present restrictions.

Reno, Nevada . . .

G. C. Staggs, Nevada prospector and discoverer of several important ore deposits in past years, is reported to have made a rich gold strike in the Adelaide district 12 miles south of Golconda. Called the Hoodoo group, Staggs stated that two samples assayed \$219 and \$171 a ton.

Death Valley, California . . .

Business is on the upgrade at the old mining camp of Darwin, according to prospectors who have been in the vicinity recently. During the war Darwin lost most of its surviving population and commerce, but it is reported now that the lead mines in the district are to be reopened, and the general activity has improved to the point that Bob Thorsen plans to reopen his general store.

Carson City, Nevada . . .

A postwar mining boom already is in its initial stages in Nevada, according to State Mine Inspector Matt Murphy. At Eureka, once a great lead-producing district, extensive development is underway. The Getchell mine, closed since May, has reopened. The Standard Cyaniding company near Lovelock is preparing to resume work. The Tonopah Milling company whose Mizpah shaft was destroyed by fire in June, has repaired the damage and large-scale operations are indicated. Other properties are being reopened in Searchlight and Eldorado canyon districts.

Goldfield, Nevada . . .

Plans are reported to be under way for the reopening of the Alberto, Shields and adjacent mines in the Goldfield mountain district. These properties were rich producers 80 years ago and are included within the group owned by Ludwig W. Flieger of Oakland, California. Some of the old-timers hold that the Williams-Insull property in this group is the legendary Breyfogle mine—discovered by John Breyfogle in 1865, and lost when the discoverer was killed by Indians.

Atomic-Uranium News . . .

According to Blair Burwell, vice-president of the U. S. Vanadium corporation 60 per cent of the uranium used in the production of the atomic bomb was supplied by his company.

Pending the decision as to which New Mexican lands are to be included in President Truman's order banning the sale of public lands containing radioactive minerals, the State of New Mexico, through its land commissioner, John E. Miles, has suspended the sale and leasing of state mineral lands in his jurisdiction.

For use in the development of the atomic bomb, the American Potash and Chemical company and the West End Chemical company of the Searles lake district supplied 3200 tons of soda ash.

Fred Sampson, Barstow photographer, reports that he had found radioactive minerals not far from Barstow and at Ludlow, California.

According to the announcement of the U. S. Treasury, 14,000 tons of metallic silver were withdrawn from federal stocks for use in the manufacture of the atomic bomb. Whether or not any of this is to be returned, was not stated.

Uranium, the basic material used in the production of atomic bombs, occurs in northeastern Arizona, Colorado, Utah and New Mexico, according to Dr. Bert S. Butler of the department of geology at the University of Arizona.



ESCHATOLOGY

THE SCIENCE OF LAST THINGS

MRS. LUCILLE C. HUGHES

Metaphysician and Teacher

Healing thru Teaching
and
Teaching thru Healing

1039 Cochran Avenue
LOS ANGELES 35, CALIFORNIA
YOrk 7093

The South family, still in exile while their Ghost Mountain home remains part of a bombing range, have new adventures in their temporary quarters. This month Marshal tells of their encounter with a hungry rattler, their experiment in deporting gophers from their garden, and his averting the Day of Resurrection at Bootless Hill.

Desert Refuge

By MARSHAL SOUTH

BREAKING a long run of years when thundershowers avoided Ghost Mountain, this summer has brought electric storms and rain in plenty. It is a little jest of Fate that this, the one summer when we would have been able to sit under our own roof, to listen to the trample of the driving rain and to oversee the white weltering rush of water down the eaves troughs and into the cisterns—instead of laboriously haul it—that we should be exiles from Yaquitepec. Only in imagination can we hear the storms gust and thunder about the little mountaintop house and see all their bounty of water running to waste into the greedy heat of the desert sun, and to the bees and to the wandering coyotes.

Here, with a spring that pours its crystal flow night and day beneath the shadow of alamo trees, we have no cause to worry over water. Still there is a deep, primitive fascination and joy in the streaking jets of silver that come slanting down from the driving cloud banks; there is a stirring, tempestuous thrill in the crash of thunder and the furious blasts of desert wind. To watch one of these summer tempests come driving in across the wastelands, fringed with flickering lances of electric fire and tossing a billow of dust and twigs and flying leaves from before the sheeting spume of a wall of roaring rain, is no small thing. It is then that one knows the thankfulness of having some shelter to draw back into for refuge. Even if it be but a cave or some screened hollow among the boulders.

The desert is especially beautiful during a summer of frequent rains. It is then that all the leagues of wasteland snatch out once more all the hidden finery of the past spring. And with improvements, as though each thorny desert plant and bush and tree had been thinking over, with regret, all the things it had meant to do in spring, and had forgotten to do. So now in joyous gladness they hasten to make the most of this new holiday. Out come new leaves and new blossoms. And if the supply of blooms cannot succeed in creating a second spring, the supply of leafy green more than makes up for their lack. The ever optimistic ocotillos deck themselves hastily in their coolest, brightest greens. The desert gourds race out wreaths of leafy runners. New leaves crowd thick upon the mesquites and the palo verdes. Across every dry lake and hollow spreads a tender emerald carpet of filaree and low growing clover. And miles and miles of sombre grey galleta grass bursts to glad life in myriad spears of sparkling green. Everywhere the bees hum and the lizards dart and the hummingbirds whirr amid the creosotes and the yuccas. Spring again! And beneath the glowing beat of the desert sun the moist, warm earth sends up a heady incense of praise to the turquoise sky. Even the stars look brighter and fresh washed.

Yesterday Rudyard discovered an exceptionally big rattlesnake dozing, comfortably coiled, in the shadow of a rock about



Tanya South among wind sculptured boulders on a rocky desert crest.

a dozen paces from the house. We all went out to take a look at it. But by the time we got there our visitor had decided that he had rested enough and it was time to hunt supper. He had unrolled himself and was trailing leisurely along beneath the cat-claw bushes, flowing over the hard earth in a steady motion that seemed effortless. The nine horn-shiny rattles of his tail were held high and clear of the ground with the grace of a house cat, and his slender tongue flickered and darted with a constancy and speed that suggested the illusive play of lightning. He saw us coming and checked an instant. But concluding that our intentions were peaceful he continued on his leisurely way, his sensitive nose and grim-looking triangular head searching this way and that for the easiest passage through the catclaw thicket.

There is a desert myth which says that the roadrunner, if it finds a sleeping rattlesnake, will gather joints of cholla cactus and build a fence around the slumbering reptile, which upon waking finds itself imprisoned behind a thorny barricade from which it is unable to escape. So it perishes miserably. It makes a nice story. But anyone who ever has watched a rattlesnake sliding easily and gracefully through, around and over all sorts of villainous spines, knows just how much the yarn is worth. It is on a par with the old "hair rope" fetish—which may bring peace of mind to the credulous who religiously stretch the hair riatas around their bed rolls.

We watched our roving rattler for a long while. He did not resent our presence unless we got too close. Then he would increase his speed slightly and sheer out of the way. Obviously he was looking for something to eat. And the way that he kept poking his nose into likely corners and crevices was strongly suggestive of a busy old farm lady peering into the barn hay for eggs. Victoria kept telling him that there were a lot of nice fat gophers in the garden. But he took no notice.

There are a lot of gophers in our present location, due to the presence of the water, which provides a certain amount of dainty and regular greenstuff. When we first arrived and laid out a hasty garden the resident gophers whooped with delight. They ran tunnels from all directions to the enchanted spot. They popped out of mysterious holes and nibbled the multiplier onions. They chewed down the beans. Driving ambitious galleries with devilish skill they devoured the roots and kernels of sprouting corn. They came out of caverns and devastated our tiny patch of alfalfa. It was a gopher holiday.

Something had to be done. And still the "peace" had to be kept. Finally deportation was decided upon. The offenders were to be captured and transported to new and distant diggings where they might continue to enjoy life without endangering any of our treasured greenstuff.

The scheme had one serious drawback. How do you catch a desert gopher to deport him? It looked like the old flaw in the ambitious plan to bell the cat.

But we did begin to catch and deport gophers. And the queer part of it was that the gophers themselves did most of the hard work.

It came about in this way. Our little garden is a slope of small terraces. And, to reach it, the little furry engineers have to drive their tunnels upward at a rather steep angle. Also the stream by which we irrigate is about the flow of an inch-and-a-half pipe—which just about matches the inside diameter of a gopher hole. These two facts work perfectly together. There is lots of water. And when we irrigate and the banked-up terraces get flooded the loosely plugged gopher holes give way. Down goes a Niagara of nice cold spring water into the steeply sloping retreat of Mr. Gopher. And, in nine cases out of ten, out he comes flustered and gasping, from some lower pop-hole. In this disorganized state he is easily picked up on a shovel and dumped into a wire cage, to be transported away down the gully to some far removed damp spot where he no more will trouble our lush green shoots of Argentine corn. Since we have put our plan into operation we have "exiled" a number of energetic little plunderers. And, strange as it may seem, the remainder now seem to recognize that the little garden spot is "forbidden ground."

At any rate the corn grows on unmolested. The onions are no longer nibbled. And the tiny patch of alfalfa—what is left of it—is quite gopherless. In addition we are the richer for a better knowledge and a closer acquaintance with these hard working, valourous little gnomes, who by their unwanted industry, draw down upon their heads the almost undiluted anathemas of every gardener.

For they really don't deserve it. They are a problem, it is true—to humans. But so are humans—to all other creatures. The gopher has many points to his credit. He has boundless energy and tremendous courage. For every bite he gets he works hard. He is as much entitled to existence upon this planet as is any other creature, two legged or four legged. And the work that he does in soil improvement is such that it entitles him to considerably more than the vengeance and curses which are his usual lot. Not often does the average person—especially if he be a gardener whose pet vegetables or plants have been spoiled—stop to consider the benefits which accrue to the soil through the gopher's indefatigable tunneling. But no less authorities than hard-headed scientific societies and agricultural departments of the U.S.A. have acknowledged his beneficial services. Like the earthworm he is a very necessary factor in soil preparation. He is part of the "balance"—just as much as the universally abused "house-fly" is part of the balance. It is approved sport to "swat the fly." But more good would be accomplished by removing the cause for the fly's existence.

The San Ignacio dam (the name is Rudyard's invention and the dam is Rider's) is now complete. Both the boys toiled mightily in its construction, lugging rocks down the hillside and grubbing with hoes and shovels in the bottom of the little draw. It now flashes a gleaming sheet of 20 or more square yards of water to the desert sun, and is highly thought of by the population of tadpoles that have taken up their residence therein. The water gurgling over the spillway makes soothing sounds, especially when you lie listening to it in the night. It provides, moreover, an incentive for all sorts of interesting experiments with waterwheels and such devices.

The miniature lake has begun to attract the attention of other

desert dwellers also. Some drawn doubtless by love of the artistic, and others from more practical motives. As I got out of bed the other morning I observed a heron departing hastily from the "lake" shore. Rudyard, who is sold on the decorative appearance of herons, is convinced that it came to admire the beauty of the water in the dawnlight, and perhaps to gaze at its own handsome reflection. Privately, however, I share with Rider the firm conviction that Rudyard's pet tadpoles had more to do with the heron's appreciative interest.

Nor is San Ignacio dam the only new feature of our present dwelling site. We have also a "Boot Hill"—or maybe it more correctly should be termed "Bootless Hill." This morning, hearing a sound of industrious hammering, I went around the corner of the house to investigate. There, in a shady patch beneath the cottonwoods, sat Victoria, squatting on her heels before a number of squares of white paper which, by the aid of a single-jack and a lot of four inch spikes, she was industriously nailing to the ground.

"Victoria!" I gasped. "My best nails. What are you doing?"

"I don't care," said Victoria defiantly. "I am just secowering down my gravestones. Rudyard is getting weedy to blow the Last Twump. An' I don't want all these things wising from the dead. So I'm nailing them down in their gwaves."

Startled, I peered closer. Staring up at me from the nearest square of paper, inscribed in wobbly pencil scrawl was the legend:

*Hennery Jonathan Small
Pinacate Bug
Buried Here August 3, 1945.
Died of Heart Trubble
May His sole rest in peace.*

There were others too: *Tom Jones Jackson Wasp—Died of Neuralgia. Bill Bee—Died of Wreumatics. Jones Moth—Died of working hard.* And several others. All had their paper "gravestones" securely spiked down over their graves. "I just won't have 'em wising an' wessurwecting," Victoria said definitely. "I've had too much trouble already burying 'em."

I went in search of Rudyard. He was discovered hiding in a corner, a large tin funnel—Gabriel's Horn, presumably—clutched menacingly in his hand.

"Rudyard," I said, "you shall not 'Trump.'"

"Aw, I was just teasing her," he defended. "She wouldn't help me wheel rocks. An' so—"

"Nevertheless," I said firmly, "Curfew—I mean Trump—shall not blow tonight. Give me that funnel."

I took it from him and went back to Victoria. "The Day of Resurrection has been, for the moment, averted," I announced. "You can now give me the singlejack and the rest of the nails."

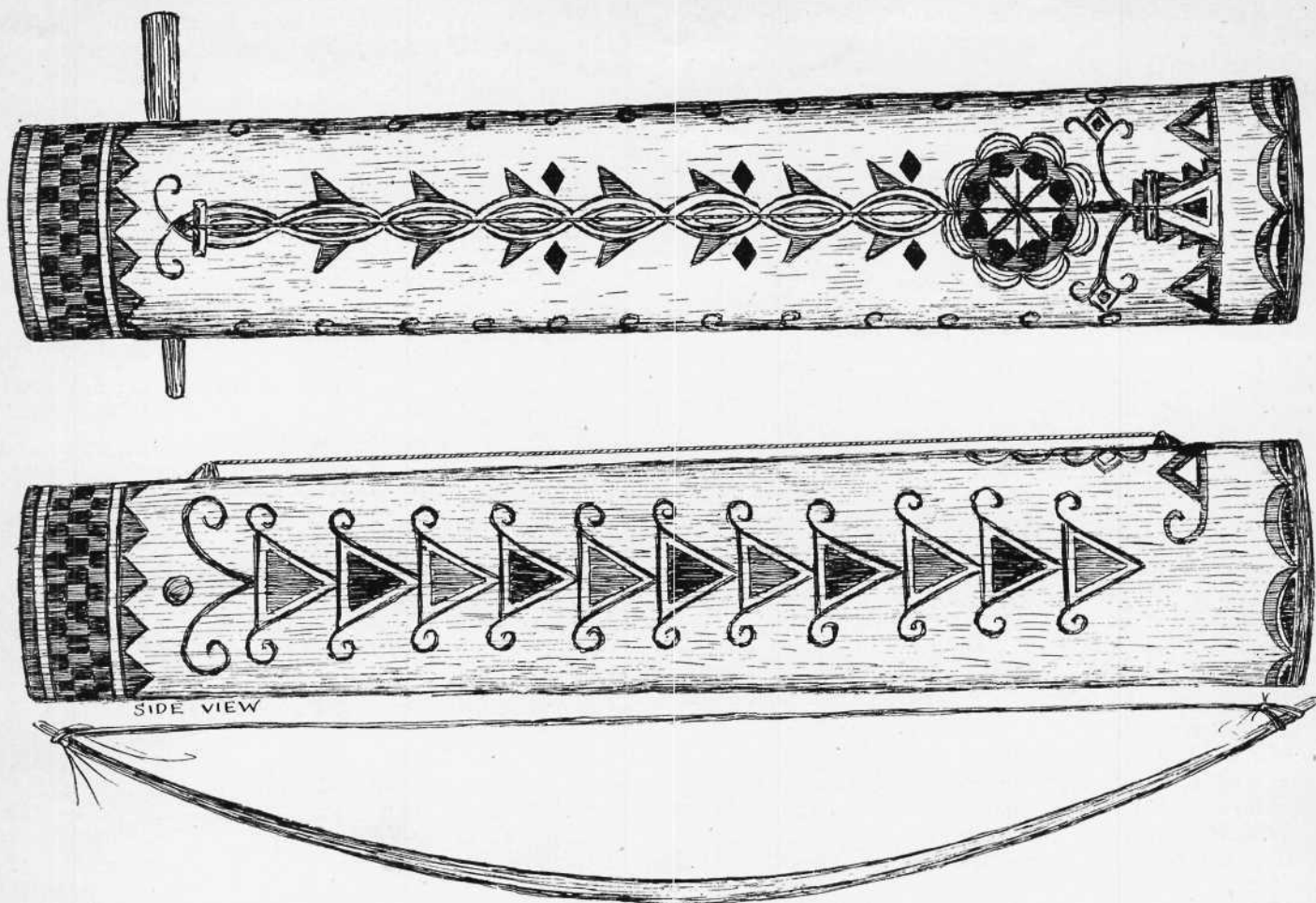
She handed them over obediently, dusted her hands and with a sigh of relief scrambled to her feet. "Thank you," she said, "for stopping him. You see I've had a lot of work burying them. And a lot more getting Rudyard to help me write the gravestones. I didn't want it all Trumped Up and ressurwected. It's such a happy cemetwery. Don't you think so?"

I said I thought it was. At any rate I had saved some of my nails.

ATONEMENT

*Waste not your time in vain regretting.
You've failed. You're sorry. Now, forgetting
The things you might or should have done,
Continue still to strive! — Strive on! —
And this mistake, in time, shall be
Atoned for to the last degree.*

—Tanya South



Large instrument of mescal stalk; six diamond shaped sound holes. The instrument is glued together and decorated with red, ultramarine blue, yellow, black and white commercial paint.

Nice job of the type frequently seen in Indian stores, length 18½ inches.

Apache fiddle in the author's collection.

'The Wood That Sings'

While the crude instruments made by savage hands do not always produce music pleasing to the white man's ear, nevertheless there is inherent in practically all primitive people the same potential for the production and appreciation of music as in so-called civilized humans. Here is the story of the making of one of the instruments used by American Indians—a one-stringed fiddle, the Apache Tzit-idoatl.

By JERRY LAUDERMILK
Drawing by the Author

BEFORE daylight one morning in the old Ellis hotel at Wickenburg, Arizona, I was awakened by the weirdest musical tones I had ever heard outside a Chinese theater. In fact, the wailing notes that came through the window reminded me somewhat of the music made by a Chinese Yee-yin, or two-stringed fiddle.

This happened many years ago. The Ellis then was a very cosmopolitan hotel, and a few days before the early morning concert two Apache Indians had registered

there. One was tall and evidently raw from the reservation. His companion was a short sophisticated individual from the Indian school. The tall one was old. In fact, he was so old that in some occult way he gave the impression of an ancient, wrinkled and sun-scorched boy. It is possible that some of this juvenile effect came from the gusto with which he ate his way through a bag of jelly-beans. Certainly part of it was due to the concern he showed for a badly wrapped wooden object about 20 inches

long, which, so far as could be seen, looked like a de-barked and carefully split stick of stove wood.

The old Indian was a busy person. All day he would squat at the shady end of the porch and whittle and scrape his pieces of wood. To the rest of us it was quite a mystery. But the short Indian was an elusive person who did not like to talk, and the old man could not even speak Spanish—so we made a few guesses, and let it go at that.

The carving went on for a week. Obviously the Ancient was an artist who liked his work since he had strung it out as long as possible. But finally the sticks had been worked down to neat, thin-walled troughs which when placed together made a cylinder about the size and shape of an old-fashioned rolling-pin without the handles. At this point Shorty came in for a consultation and evidently called for a few more touches with the knife and that direct descendant of flint tools, the broken glass scraper. After a final rubdown with sandpaper, the smooth, white wood was carefully decorated with paints applied from a box of cheap water colors. Whatever the

thing was, it was an attractive piece of primitive craftsmanship. But so far as I could see, since the old man had fastened the pieces together and bored holes near one end, it was absolutely useless. This simply showed how much I didn't know.

Then came the incident of the early morning serenade—and it all became quite clear. The old Apache had been making an Indian fiddle. But I like burlesque and I also like Chinese music as I do that of most so-called primitive people. So I was altogether *simpático* to this bizarre music which came tip-toeing through the night on squeaky melodic feet since just two notes, *eeek* and *urk*, made up the barbaric melody. It was outlandish and surprising but not funny. Beneath the squeaks at times could be heard a suggestion of the viola. Although I didn't know it then, this was my first experience with the Apache instrument called *Tzit-idoatl*, the "musical wood" or as Morris Opler translates it "The Wood that Sings."

There were but few basic types of Indian musical instruments. They had drums and flutes of many varieties. In Mexico they had the all-wooden drum or *teponaztli*, the ocarina and pottery trumpets. Rattles were innumerable from pebbles shaken in a gourd to the *Paticykopi* of the Hopi, a stick cut with a row of notches and scraped with a bone. Some New Mexican and California tribes had the musical bow, a peaceful modification of the weapon which, when twanged while resting upon a resonator became a kind of primitive harp. But you can look high and low among the tribes of North America and it is only with a single group and in a localized area that you find an actual fiddle played with a bow. This is among the Apaches of the San Carlos or White Mountain reservation.

Sometimes, almost lost among the more colorful and spectacular things such as Navajo blankets, Pima baskets and Hopi pottery for sale in western curio shops, you see small, unimpressive wooden cylinders which may be from less than a foot to 20 inches long and from an inch and a half to three inches through. These are nearly always decorated in bright colors with Indian symbols: a circle with serrated border for the sun, crescents for the moon, zigzag lines for water, crosses for the four compass directions and conventionalized animals and plants. The presence of a transverse tuning peg, bridges and a single string of sinew or horse hair shows that the thing is a musical instrument of some description. Hanging near by is usually a bow the length of the cylinder. The fact that the bow is too weak to shoot and has a loosely twisted horse hair string identifies the instrument as a fiddle. This is the typical Apache fiddle wherever you find it though it varies within broad limits.

The body of this fiddle is usually made from a section of dry wood soft enough to

be hollowed out without too much trouble. Willow and aspen are said to make good fiddles. A branch about the diameter desired and a little longer than the finished article, is peeled and carefully split lengthwise. Frequently, a well seasoned section of mescal stalk or yucca is used instead of the harder wood. After marking off a slight thickness, usually about half an inch to be left intact at the ends of each section, they are then carved and scraped into thin-walled half cylinders which when glued or tied together make something like a section of mailing tube with closed ends.

Generally, this is pierced with a sound hole of some sort, a triangular, diamond shaped or round hole or series of holes in one face of the instrument. There seems to be no established law as to where or what shape the sound holes are to be. A few inches down from one end, usually the narrower, a tuning peg, just a simple piece of smooth stick, passes through from side to side; this carries one end of the string. The free end may be attached to the body of the instrument in any one of several ways, a feature of much significance when the probable origin of this fiddle is considered. The commonest way is to have the string long enough to pass completely around the instrument from end to end. Sometimes the string reaches only to the bottom where it fastens to a peg driven in to the end, or the string may fasten to one end of a stick like an arrow shaft passing through the body from end to end. In a type frequently seen the string fastens to an ordinary tack driven into the wood at the bottom. Small bridges lift the string above the surface of the fiddle. The symbols with which the fiddles are decorated are said to be simply pictures and have no ceremonial significance, but are, as an Indian once told me "just to make it look nice."

Although the history of this fiddle is unknown it is almost certainly an Indian attempt to make a violin inspired by the American or Mexican instruments with which they have been in contact for more than one hundred years. At any rate, it is probably a new cultural object since so much freedom is allowed in details of its construction and decoration. Sometimes the ornamentation obviously imitates some non-Indian model. Roses, tulips or other floral shapes look as if the artist had his inspiration from a flower catalog seen at the trading post. The fact that it has but one string is nothing indicative of primitive origin since an early European instrument with Arabic beginnings, the rebec, was also played with a bow and at first had but one string.

Not long ago I was looking over a collection of Apache artifacts and came upon the specimen shown in the illustration. With the passing of two dozen years since my Arizona days I had forgotten an Apache fiddle long packed away with other me-

mentoes of those grand old times before too much progress had come to Arizona. Moths or silverfish had sabotaged the string, originally horse hair, but I restored it with one of regulation catgut. A little resin on the bow and a twist of the tuning peg brought the thing to life in answer to my touch. That evening I showed it to a friend who plays the violin. He assumed that dull look a musician puts on when he tunes an instrument. He twanged the string a few times and adjusted the tension, then he stroked it with the bow. In apparently broken English and staccato notes, the primitive old fiddle stuttered through a recently popular plea for more land and a protest against fences.

Sez Hard Rock Shorty of Death Valley

By HARRY OLIVER



A few ragged clouds drifted over the Panamint range from the west.

"Do you suppose those clouds will bring some rain to this forsaken country?" asked the tourist who was waiting impatiently at the Inferno store while the camp handyman tried to find a clogged gas line in the shiny car.

Hardrock Shorty, seated in the shade of the lean-to porch in front of the store, eased his chair down on all four legs and folded up his jack-knife. He gave no heed to the question.

"I say, Mr. Hardrock," persisted the motorist, "do you think there will be rain? I wouldn't want to get caught in one of those terrible desert cloudbursts I have heard about."

Shorty squinted at the sky and then looked at the stranger.

"You ain't got nothing to be afeerd of," he said. "Why shucks, we ain't had a shower here for so long some of the natives has growed up without ever seein' rain. Take Blackie over at Dry Camp gulch fer instance. One day a big drop of rain from som'ers splashed Blackie's mug and they had to throw two buckets of sand in his face to bring 'im to."

LETTERS...

Those Desert Bombing Ranges . . .

Pasadena, California

Gentlemen:

My boy and I made a little weekend trip out on the desert east of Victorville. We observed a government sign which warned us to travel only on the main roads for the next 70 miles. It seems a lot of territory out there has been used as bombing range. I understand Uncle Sam puts up signs, but never removes any. My suggestion is this: Perhaps Desert Magazine could take the matter up with proper authorities and request the removal of the "keep out" signs on the desert, with the exception of course of those ranges to be kept active. We don't want to be bombed, but neither do we want to be kept out of a lot of interesting country if it isn't necessary.

We located a rather nice place among the rocks to make camp, but it was littered with empty tin cans and broken glass. We spent an hour each morning cleaning up the stuff and making the camp presentable. I would like to see Desert Magazine sponsor a campaign to keep these camping spots presentable. It wouldn't take much time and effort to bury the debris—and would soon bring a vast improvement. I am going to do it myself. Do I get some help?

KENNETH H. MUNROE

Report on Bombing Ranges . . .

Victorville Army Air Field
Victorville, California

Dear Sir:

In reply to your letter of September 18, 1945, regarding status of various bombing ranges in the desert area, the following information is submitted:

The Bombing area under the jurisdiction of Victorville Army Air Field, namely, the North Bombing Range and East Bombing Range, as plotted on current Regional and Sectional Aeronautical Charts, are still in active status. It is advised that these areas not be used by persons interested in camping, nature studies, etc. Areas will remain posted as long as they are on active status. At this time it is impossible to state at what date, or whether or not bombing ranges will become inactive.

This station does not have jurisdiction over any other danger areas within the Mojave desert region. Other danger areas within this area come under the jurisdiction of Muroc Army Air Field, Daggett Army Air Field, Mojave Marine Base, and Twentynine Palms Naval Base. If additional information is required it is suggested you contact these respective stations.

CHARLES R. WEISBRODT
1st Lt., Air Corps
Acting Adjutant

V-J Day in Tahquitz . . .

Memphis, Missouri

Dear Mr. Henderson:

I believe you will be interested in hearing how V-J day was celebrated in your vicinity by some young men of the Air Transport Command in training at Palm Springs. I quote from a letter from one of these young airmen:

"I do believe that five of us here celebrated the surrender as satisfactorily as anyone on Wednesday, August 15. We picked up sandwiches at the mess soon after breakfast and hiked up into nearby Tahquitz canyon. The better part of nine hours was spent in true Boy Scout fashion, climbing, swimming, hiking, snapshooting, etc.

"The mountain ravine at the bottom of the canyon forms some interesting and pretty sights. There are little waterfalls, pools, and cascades. In the cool caves under some falls are luxurious fern gardens, a marked contrast to the sun-baked desert below. We identified what we thought was the delicate maiden-hair fern but others were just as pretty."

This form of celebration seems to me so sensible and admirable in contrast to some of the civilian orgies I witnessed.

L. R. GRINSTEAD

Fremont's Rubber Boat . . .

Torrey, Utah

Dear Mr. Henderson:

Referring to the inquiry about Fremont's rubber boat:

Fremont had a rubber boat built for his expedition of 1842 and used it successfully on Platte river. It was made of rubberized fabric, with seams sewed and cemented, and was inflated with a bellows. His boat used in 1843 was similar, except that the seams were cemented only, and threatened to give way while on Great Salt Lake.

Rubberized fabric had been in use for some years in the form of raincoats and waterproof blankets, but so far as I can learn, Fremont was the first to use it for boats. It is true that Goodyear first learned to vulcanize rubber in 1851, but while this boat of 1843 was not vulcanized in the seams, it was still a rubber boat, and if it had been properly sewed as well as cemented, would have served its purpose as well as any modern rubber boat. I don't know what process was used to rubberize the fabric, but presume the rubber was heated and the fabric dipped in. Several of the early explorers mention having rubber coats and waterproof bags in their equipment. Perhaps the Goodyear research department could tell us what process was used before Goodyear's discovery.

CHARLES KELLY

The Champion Catsclaw . . .

Los Angeles, California

Dear Editor:

Referring to my letter in the October issue of Desert in which I described a huge Catsclaw tree near The Pipes north of Morongo valley—and you expressed skepticism—I am enclosing a twig and beanpod for your identification. I guessed wrong as to the height of the tree—it is not over 25 feet. But the other measurements are correct—the trunk 116 inches in circumference, and the branches at the crotch three feet up are 59 and 81 inches respectively.

GEO. M. GOODELL

Friend Goodell: You win. It is a catsclaw all right—and I believe it is the daddy of them all. I have never seen another that approached those measurements.—R.H.

Someone is Mistaken . . .

Baker, California

Dear Editor:

On page 19 of September issue it is stated that a C. E. Holcomb of Fullerton, is authority that the name "Coachella" was not originated by a typographical error. No evidence is cited nor is it stated why Mr. Holcomb is considered an authority.

I was present when the maps arrived in Indio giving the valley its new name. Must have been about 1898. Before that it had been called "Salton Sea Sink." I was a clerk in A. G. Tingman's store, one of the two (the other belonged to a Mr. Talent, also in Indio) that served railroad and desert people for over a hundred miles in all directions.

Where Coachella now stands there was a three-car spur siding where the Coahuilla Indians loaded mesquite stove wood into boxcars for delivery to Southern California towns. It was called "Wood Spur." Mecca was then called "Walters."

A United States department of the interior engineer (I think his name was Mendenhall), by government authority, had made a survey of the Salton Sea quadrangle and it was suggested that then was an auspicious time to give the valley a more appropriate name. Suggestions were asked for. The name "Conchilla," submitted by Mr. Tingman, was chosen by a vote of the few prospectors, homesteaders and railroaders present in the small gathering.

I well remember how badly put out Mr. Tingman was when the maps arrived and it was found that the engineer's longhand was so unreadable that the name had been interpreted "Coachella." "They have given our beautiful valley a bastard name without meaning in any language," he exclaimed. He never did become completely reconciled although others quickly recognized it as unique, distinctive and euphonious.

ELMO PROCTOR

There Seems to Be a Difference of Opinion . . .

Berkeley, California

Editor, Desert:

This is in answer to Mr. Bergman's humorous comments in regard to the review of my "fish traps" paper in the August issue of Desert Magazine. Mr. Bergman might well have consulted the original paper before jumping off the deep end, especially since the review he read gave only my conclusions and not the data upon which they were based. However, like Mr. Bergman, I am always open to new ideas and suggestions so if he will be so kind as to answer any one of the following points I will be most glad to acknowledge that we are dealing with fish traps of the first and highest order.

(1) What Mr. Bergman says relating to fish traps on the Gulf of California is quite true. I am acquainted with most of them both on the Sonoran and Baja California sides of the gulf, and if one cares to expand his scope of knowledge, he can find similar examples all over the world. However, the point I wish to make is that in all cases such type traps can only function where some sort of tide is involved. Now ancient Lake Cahuilla was an inland body of water connected to the Gulf of California only by the Colorado river, and to the best of scientific knowledge there was not and could not have been any daily fluctuation in the lake's surface save for an infinitesimally small amount caused by the tidal bore of the Colorado river. Now how could these depressions function as fish traps in a tideless sea?

(2) To make things worse these curious depressions were made after the lake was at a lower level. Rather hard on the fish I would say! To be more specific, the so-called fish traps occupy three distinct recessional terraces which were formed by ancient Lake Cahuilla. Now in order to form a terrace and leave it visible to the human eye the body of water has to recede. It is therefore obvious that the depressions were made only after the lake was at a lower level.

(3) Just by way of bolstering the last bit of evidence I might bring up the law of deposition. In any given area where conditions are similar the amount of deposition of mineral deposit from a body of water remains constant over like surfaces. In this case the deposit is travertine, and had Mr. Bergman made the observation that at the south end of the fish traps where the structures are enclosures and not pits, the amount of travertine deposit on like surfaces is not consistent, and in many cases is entirely absent. All this indicates the pits and enclosures were made in post-lake times.

I have presented only three of about 20 reasons why these depressions could not have functioned as fish traps. It is not that I disregard them as such, as Mr. Bergman

TRUE OR FALSE

Here's another brain-twister for the quiz fans. To make a perfect score in this test you have to know the history, geography, mineralogy, botany, literature and lore of the desert country. But you may still score high without knowing too much about all these subjects. They are not trick questions. The average person will know 10 correct answers. A desert rat should hit 15 bullseyes—and there are a few smart folks who should do better. The answers are on page 38.

- 1—Rattlesnakes will not cross a rope of woven horsehair. True..... False.....
- 2—Coniferous trees grow on the rim of Grand Canyon. True..... False.....
- 3—Stove Pipe Wells are located in Death Valley, California.
True..... False.....
- 4—The San Francisco peaks of Arizona may be seen from Tucson.
True..... False.....
- 5—The Santa Fe Trail was blazed by Coronado and his Spanish explorers.
True..... False.....
- 6—Herbert Bolton's *Rim of Christendom* is the story of the missionary padre Father Garcés. True..... False.....
- 7—Bisnaga cactus generally grows taller than Ocotillo. True..... False.....
- 8—Chrysocolla is a copper ore. True..... False.....
- 9—Natural Bridges national monument is in Utah. True..... False.....
- 10—Indians who formerly lived in Palm Springs and still own part of the townsite there are Hualpai. True..... False.....
- 11—The Salt River valley of Arizona is served by water from Elephant Butte dam.
True..... False.....
- 12—The smoke tree seldom if ever is found above the 3000-foot level.
True..... False.....
- 13—Nevada maintains no state inspection stations on the highways at its borders.
True..... False.....
- 14—In locating a mining claim it is necessary to place a location notice at only one of the corner monuments. True..... False.....
- 15—The Indians at Taos, New Mexico, live in wigwams of the Plains Indians.
True..... False.....
- 16—First known white explorer to see the Colorado river was Melchior Diaz.
True..... False.....
- 17—The famous "Bottle House" is located at Rhyolite, Nevada.
True..... False.....
- 18—The Chuckawalla lizard is a venomous reptile. True..... False.....
- 19—The stinger of a scorpion is in the end of its tail. True..... False.....
- 20—Highway 66 crosses the Colorado river at Topock. True..... False.....

states, but rather, the scientific evidence at hand does not permit me to accept such an idea. However, if Mr. Bergman still persists in clinging to the fish trap myth I would suggest he start out in search of some rather rugged land-going lung fish.

ADAN E. TREGANZA

What Makes a Desert Rat? . . .

San Gabriel, California

Dear Sir:

If you can drive all over the Mojave and Colorado deserts and are never out of sight of a place where you have camped once before, then your friends won't have to worry when they see you disappear in the heat waves of the desert.

Their comment will be, that fellow is a Desert Rat, he'll be back. If you can drive all over the Mojave and Colorado deserts without shooting the road signs full of holes because they tell you the truth about the next water hole, and try to save your life, that's a pretty good sign that you are fair raw material for a Desert Rat.

If you can drive all the way out to Death Valley and back without stopping a dozen

cars trying to replenish the quart of water you started out with, that's a sign you have taken somebody's advice and put 10 gallons of water in your car, and you are fair material for a Desert Rat. Because there will be plenty of tenderfeet waiting stalled by the side of the highway for you to fill their quart thermos bottle and their radiator.

And live up to the Golden Rule. I had an appointment to meet a friend at a certain prospect, I kept my appointment but he was unable to get there. Well, I made camp. The rats discovered my camp; they were all over my pickup truck, pounded on the empty water cans, tried to get into the grub box. It was bright moonlight.

I had an extra loaf of bread with me, and I decided to invoke the Golden Rule. I cut the loaf of bread in half, half for me and half for the rats. I cut the rats' half in small cubes and scattered them broadcast a distance away from my camp. I never saw or heard another rat that night.

If you have saved the life of one tenderfoot you are a Desert Rat.

A. FRED EADS

HERE AND THERE... on the Desert

ARIZONA

Mrs. John Wetherill Dies . . .

KAYENTA—High above the Kayenta trading post, overlooking the valley and mountain ranges of Navajo country, Louisa Wade Wetherill on September 21 was buried beside her husband John Wetherill, who died last December. She had died at a Prescott hospital a few days before. One of Arizona's outstanding pioneer women, she first saw Kayenta in 1879 at the age of two; she returned here in 1910 to make her home and to become one of the Navajo's closest friends. She was author, with Frances Gillmor, of *Traders to the Navajo*.

Bulletin for Date Growers . . .

TUCSON—University of Arizona has published a new bulletin, *Date Production in Arizona*, said to be the most complete publication on dates released by the university. It includes climate and soil requirements, recommended varieties, how to propagate dates, how to plant and care for offshoots, irrigation, cultivation, pollination, pruning, curing, and many other topics.

Arizona Herds to Be Reduced . . .

PHOENIX—It was announced August 29 that a drastic cut of from 30 to 50 per cent in number of cattle grazing on Arizona national forest ranges would be effected under a plan for gradual reduction of herds. Program already has been inaugurated in Tonto national forest. Hundreds of thousands of acres, it was said, have been so denuded that restoration of vegetation will be extremely difficult because rain runs off the bare ground so fast that reseed-ing is of little avail. Principal damage, according to the forest service, was done 25 or more years ago when there were 10 times as many cattle on forest ranges as at present. Reduction in herds will not result in corresponding reduction of beef production, it was said, for the cattle remaining will produce more pounds of meat per head.

. . .

Marvin Asa Holmes, 67, who had mining interests in the Yuma area, died August 31 at his Los Angeles home. He was the father of George and Kenneth Holmes, Yuma mining men.

Desert Lodge RANCHO BORREGO



In the restful Borrego Valley at the foot of the San Ysidro and Santa Rosa ranges, is preparing to open in November for its 8th season.

An informal American Plan guest ranch with the open hearted hospitality of early California days.

Reservations are being accepted for December and January.

Write

NOEL and RUTH CRICKMER

Borrego — Julian P. O. — California

NON-RATIONED . . .

**Basketball,
Bowling,
Baseball
SHOES**

VAN DEGRIFT'S

717 W. 7th Street

LOS ANGELES, CALIFORNIA

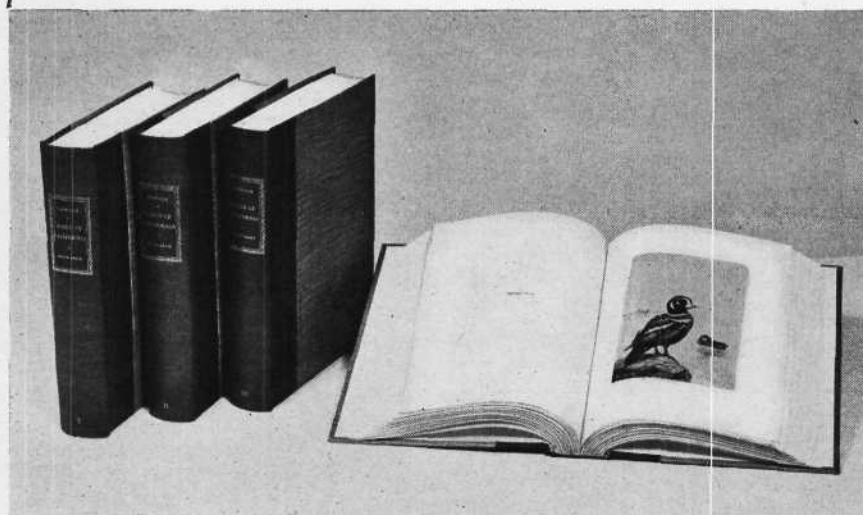
The Perfect Family Christmas Gift . . . Most Authoritative Work on Desert Birds . . .

THE BIRDS OF CALIFORNIA

By W. LEON DAWSON

A complete scientific and popular account of the 580 different species of birds found in the State of California. 2121 pages. Over 1400 illustrations including 110 full-page color plates of magnificent quality, by Major Allen Brooks. Printed on fine coated paper, each volume, size 12 $\frac{3}{4}$ x10 $\frac{1}{2}$ x2 $\frac{1}{4}$, is bound in two shades of top-grade library buckram, stamped in genuine gold. Completely indexed. Individually cased.

Color plates include such desert birds as: Scott's, Hooded and Bullock's orioles, Cooper's and Western Tanagers, Green-tailed and Desert Towhees, Cactus and Gila woodpeckers, Valley and Desert quail, Roadrunner, White-tailed kite, Band-tailed pigeon, Verdin, Phainopepla, Lazuli Bunting, Arizona grosbeak, and 92 others.



Originally priced at \$200 a set, a few remaining sets of the de-luxe edition, already a collector's item, are offered at \$60.00 postpaid to any part of the U.S.A. Satisfaction guaranteed. To order, fill in coupon below.

THE DEVIN-ADAIR CO., Dept. D.
23 East 26th St., New York 10, N. Y.

Please send me _____ sets of Dawson's
The Birds of California. Check enclosed.

NAME _____

STREET _____

CITY _____ STATE _____

Rancher Sights Pronghorns . . .

TOMBSTONE—While riding range west of here in September Mike Bakarich surprised two prong-horn deer. When Ed Schieffelin made his silver strike last century the entire San Pedro valley was well populated with antelope which furnished the main fare for Apaches. The last herd seen in this vicinity, it is said, was in the fall of 1903 and the pronghorns have been considered extinct in this area for many years. Mike thinks pronghorns are like Tombstone—"Too tough to die."

. . . .

Total destruction by fire of Log Cabin trading post, located on Highway 66 near Sanders, Arizona, was reported August 30. Loss was estimated by A. J. Berry, owner, at \$50,000.

. . . .

H. L. Reid became director of Arizona state game and fish department in September, succeeding Fred Merkle who resigned due to illness. Reid is said to be the first director to come up through the department's ranks.

CALIFORNIA

Indians Meet for Vote Right . . .

LOS ANGELES—Indian tribes met in this city September 14 to review their problems and plan future action. A committee of Hopi delegates from Polacca, Arizona, including the governor of Oraibi, attended, to devise means of laying before congress their plea for the right to vote. Among speakers were several widely known Indians including motion picture actors and an author and lecturer.

New Aqueduct Branch Started . . .

HEMET—More than 100 persons on September 12 witnessed breaking of ground which inaugurated construction of the \$17,500,000 San Diego branch of the Colorado river aqueduct. Ceremony was held in riverbed opposite west portal of the San Jacinto tunnel. Initial construction will be building of a 150 acre reservoir, to vary in depth from two to 14 feet. An aqueduct eventually will carry Colorado river water from the San Jacinto point to San Vicente dam, one of San Diego's newest back-country reservoirs.

Date Profits Increase . . .

INDIO—Nearly three-quarters of a million dollars were to be distributed to members of United Date Growers association, as final payments for 1944-45 crop marketed by the cooperative, it was announced September 21. Statement showed that net to grower has steadily increased during the past few years. In 1941-42 net returns amounted to 65.13 per cent of total gross sales; in 1942-43, 79.14 per cent; 1943-44, 83.68 per cent and this season's payments represent 85.76 per cent of gross. From the gross are deducted all expenses, including those of hydrating, packaging and handling. Operating costs amount to only 5.78 per cent compared with 16.75 per cent in 1941.

Tramway Board Members Named

PALM SPRINGS—Earl Coffman and John R. E. Chaffey were named by Palm Springs city council as appointees to Mt. San Jacinto Winter Park Authority in September. They are two of a seven-man committee (two to be named by county supervisors and three by the governor) to handle affairs of the Mt. San Jacinto tramway project, which was authorized this past summer.

NEVADA

Crowds Throng Boulder Area . . .

BOULDER CITY—For the first time since Pearl Harbor, wartime restrictions over travel were lifted September 2 at Boulder dam, top tourist attraction of all federally controlled areas. A near-record crowd of 1328 persons viewed the workings of the dam, thousands more drove over the dam, filled auto courts, camping areas and restaurants, saw first sight-seeing boat on Lake Mead and first airplanes skimming the lake since war's beginning. Bureau of Reclamation officers have set 9 a. m. to 4:15 p. m. daily as visiting hours at dam and power plant. They hope to extend the time by next summer.

The Desert Trading Post

Classified advertising in this section costs five cents a word, \$1.00 minimum per issue—
Actually about one-half cent per thousand readers.

MISCELLANEOUS

"MAKING AN INCOME OUTDOORS." 400 ways, 25c. 300 "Cash In" home ways, 35c. "125 Trapping Tips," 25c. All 80c. 12 fossils 25c. 3 Kentucky minerals 25c. Bryant, Rt. 2, Lawrenceburg, Ky.

WE ARE AGAIN RECEIVING real hand-hammered Indian jewelry from the reservation all made by top silversmiths. For our rock customers we have bought another collection of rock, making this one of the largest collections of rocks and minerals in this part of the country. Our collection of rugs, baskets and jewelry is still large despite the shortage. Come in and see us. Daniels Indian Trading Post, 401 W. Foothill Blvd., Fontana, Calif.

HAND CARVED, personal Leather Wallets. Top grade tan hide, decorative design and three initials. \$7.50 with order. Gwendolyn Davies, Box 93, Alamo, Calif.

\$25.00 REWARD for return of French Bulldog which left home in a storm September 2. Brindle, short nose and tail, white under neck, weight about 20-22 pounds. Route 2, Box 680B, El Cajon, California.

ARIZONA HIGHWAYS, Deserts, National Geographics, other magazines, bought, sold, traded. John Wesley Davis, 1611½ Donaldson St., Los Angeles 26, Calif.

WANTED: Engraver to do Silver work. Also to stamp dies of different designs. Looking for Mexican Opals and rings. Silverstate Gems, 1119 Wheeler, Reno, Nev.

MEET THE LEADERS in your field of interest through the pages of a SPECIALTY MAGAZINE. Free classified list—Hobbies, Homemaking, Outdoor Life, Farming, Livestock, etc. THE MAGAZINE RACK, Box 284-D, Northridge, Calif.

ANTIQUES and Desert Oddities. Desert Tea in natural form, large bundle \$1.00. Grail Fuller Ranch (Center of the Mojave), Daggett, Calif.

YOUR INNERMOST LONGINGS FULFILLED! Get "Spiritual Help For Your Everyday Problems"—25c. Booklists included. OUTSTANDING BOOK ASSOCIATION, Box 2501, Los Angeles.

GOLD PANNING for profit, healthy, fascinating, outdoor occupation. Beginners' big instruction book, blueprints, photograph—\$1.00. Desert Jim, 208 Delmar, Vallejo, Calif.

GIFT BOOKS of the Southwest. For outstanding titles on the desert country—Travel, History, Desert Plants and Animals, Gems and Minerals, Indians, Juvenile—write Desert Crafts Shop, 636 State St., El Centro, Calif. Free catalog.

LIVESTOCK

KARAKULS. Producers of Persian Lamb fur are easy to raise and adapted to the desert which is their native home. For further information write Addis Kelley, 4637 E. 52 Place, Maywood, California.

We sell Nationally Recognized Fur Producing Karakuls. Have permanent market for wool and furs. Attractive investment for rancher or city investor. James Yoakam, National Distributor, 1128 No. Hill Ave., Pasadena, California.

REAL ESTATE

For Imperial Valley Farms—

W. E. HANCOCK

"The Farm Land Man"

Since 1914

EL CENTRO — — — CALIFORNIA



Fire Damages Mining Town . . .

GOLDFIELD—A fire started by a defective cook stove swept through a residential block of this historic mining camp September 12, destroying the Masonic temple and six homes. This marked the third time the famous ghost town has been damaged by fire. In 1905 and 1923 fires ruined the town, destroying many of the historic landmarks.

Tooth Identifies Ancient Animal . . .

WINNEMUCCA—The relic which at first was believed to be the tooth of a prehistoric camel, and which was found by Stanley Gordon in a 40-foot mine shaft at his and Dr. Kurt L. Hartoch's gold property in Willow Creek canyon, 43 miles southwest of here has been identified by Museum of Paleontology, University of California at Berkeley, as the last upper molar from left maxillary of a musk-ox like animal. According to R. A. Stirton, who made the identification, the animal evidently is very closely related to *Eucera-therium collinum*. Stirton said these animals originally were described from remains in limestone caves in Shasta county, California. Although there are other records from California and some in Great Plains area, he believes this to be the first specimen from Nevada.

Packrat Solves Fuel Problem . . .

GOLDFIELD — This winter's fuel problem is all settled for Jack Clark, miner-pro prospector-butcher. Out at his lonely cabin in the Ellendale hills, a packrat for years kept him in kindling. Every morning when Jack went into the kitchen to start his breakfast fire, he would find a nice bundle of dry sagebrush and other sticks awaiting him at the back door—just enough to kindle a blaze. When he moved to town he figured his wood-carrier would abandon the habit—but he didn't. When Jack went out to the cabin recently he found almost two cords of kindling wood neatly stacked at the back door.

Prehistoric Pottery Study Made . . .

BOULDER CITY — American *Antiquity*, official publication of Society of American Archeology, recently published an article by Dr. Gordon Baldwin, national park archeologist, on prehistoric ceramic types found in southern Nevada. During his researches in the 2700 square mile area of Boulder Dam recreational area, Dr. Baldwin has made a special study of the Pueblo gray ware and Patayan brown and gray ware. He has concluded that Pueblo gray ware is the same as the Washington gray ware previously discovered and reported from the Virgin river area of southern Utah. The difference between them is the tempering material used. The Utah ware was tempered with sand while the Boulder area ware was tempered with sand plus olivine and garnet crystals.

Start Anglers' Paradise . . .

LAS VEGAS—Planting of 100,000 inch-long rainbow trout in a specially designed pond in the Colorado river at Nelson September 5 is the first step in a long-range program to provide a continuous supply of trout to stock the river below Boulder dam, which is becoming known as one of the finest fishing spots in the Southwest. The trout, brought in special tanks from the Washoe hatchery, will remain at the Nelson pond 90 to 120 days, until they are six or seven inches long. They then will be released directly into the river.

Booklet Describes State Trees . . .

RENO—A booklet on Nevada trees, first of its kind ever issued, recently was published by University of Nevada agricultural extension service. It was written by Dr. W. D. Billings, University of Nevada biology department, to increase appreciation of the state's trees. It includes information about 177 species and varieties, 75 of them native and 102 introduced. The illustrated booklet of more than 100 pages is available to citizens of the state without charge upon application to extension service offices in the various counties.



Over half-way across the nation . . . from the Pacific to the Great Lakes! Sure, Santa Fe Trailways is big . . . it has to be big to serve such a healthy slice of America.

But, in this great and neighborly West, size isn't everything. More important is the fact that Santa Fe Trailways is a useful, dependable, friendly part of every community it serves.

Next time you have to take a trip, call your neighbor and fellow citizen, the Santa Fe Trailways bus agent.

SANTA FE TRAILWAYS

Consult Classified Telephone Directory for Local Depot



ONE MILLION ANSWERS

An interesting, interrogational booklet was mailed to 100,000 motorists here in the West.

And 20,000 answers to the 50 basic questions returned! Spread out on the multiplication table, that gives us *one million answers*.

This unusual quiz program was conducted for the sole purpose of transposing a couple of little words in a short but significant sentence.

The sentence was: "What do *you* like?" The answers changed it to: "What *you do* like."



Respondents told, in no uncertain terminology, *who* wants *what* in his favorite service station—also *when*, *where* and *why*.

Anyone in the service station business who has a million answers covering those important 5 W's is in a pretty good position to take care of his trade.

Each Shell Service Station Man and Shell Dealer is in full possession of the findings of this Motorists' Court of Public Opinion.

He knows that car owners prefer to patronize stations which render those free services that make driving easier.

He knows that the vast majority of his customers welcome the tip, in a friendly way, that oil and/or lubrication is needed.

He also knows that the average motorist appreciates being warned of impending trouble—such as, for instance, conditions that are likely to turn the radiator into a central heating plant.



Well, to make a short story a paragraph longer, your Shellman has all the answers. You know now you can deal with confidence at the *Sign of the Shell*.

—BUD LANDIS



NEW MEXICO

Museum Given Art Collections . . .

SANTA FE—Three valuable collections of Dr. Sylvanus G. Morley, Carnegie Institution archeologist, recently were presented to the Museum of New Mexico and formally accepted by Governor Dempsey on behalf of the museum regents and the people of New Mexico. They were Dr. Morley's collection of Spanish-Colonial Ecclesiastical Arts, Spanish-Colonial silver and his Hispanic-American library on archeology and history.

Santa Fe Spends Million . . .

GALLUP—New track work involving outlay of about \$1,000,000 was started recently by Santa Fe railway between here and Houck, Arizona. New steel rails of 131 pound weight, heaviest in general use on Santa Fe lines, are being used.

Colorful Lawman Dies . . .

ALBUQUERQUE—Elfego Baca, one of New Mexico's most colorful figures, attorney and former sheriff of Socorro county, died August 27 at his home here, aged 80. Among the highlights of his life were his kidnapping by Indians when a child, meeting with Billy the Kid, his 33-hour siege by 80 cowboys in Frisco (now Reserve), his prosecuting and defending of many alleged murderers, his experiences as representative of Gen. Victoriano Huerta, who was leading his ill-fated Mexican revolution. He was county clerk, mayor, district attorney, sheriff and school superintendent of Socorro, attorney and mining promoter and once candidate for governor of New Mexico.

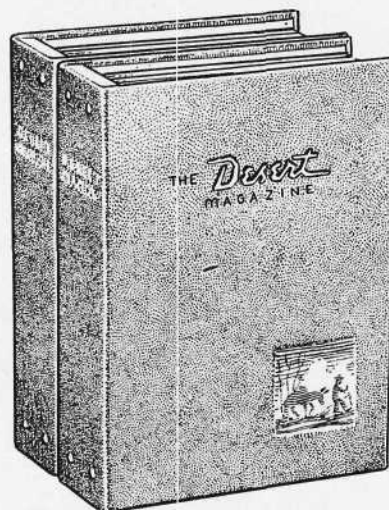
University Moves to Expand Secret Research Area . . .

ALBUQUERQUE — Condemnation proceedings to acquire 4728 additional acres on east slope of Manzano mountains for the University's secret war research project were filed late in August by regents of University of New Mexico. It was reported the land involved consists of relatively small tracts interspersed among land already controlled by the University, which now controls either by ownership or lease, over 30,000 acres. University has been engaged in secret project, under direction of government scientists, and still cannot make public any information concerning the work.

• • •

Admission fees to Carlsbad Caverns national monument were reduced this season from \$2.05 for adults to \$1.50, and to 50 cents for children 12 to 16. Servicemen in uniform and children under 12 accompanied by parents are admitted free.

Christmas Suggestion!



KEEP YOUR . . . DESERT MAGAZINES

Those Desert Magazines you are getting every month contain maps, travel information, mineral locations, history, lost mine legends and a wide field of other data you will want to keep permanently in your book shelf.

It takes just a few seconds to insert your magazines in those handsome gold-embossed loose-leaf binders the Desert Magazine office sends well-packed and postpaid.

The binder opens flat, and at the end of each volume—the October issue—is a complete alphabetical index for finding any item that appeared during the year.

CHRISTMAS GIFT CARD

will be sent with every order if you request it.

\$1.25

includes packing, postage and tax.

DESERT MAGAZINE
El Centro, California

ANSWERS TO TRUE OR FALSE

Questions on page 34

- 1—False.
- 2—True.
- 3—True.
- 4—False. The San Francisco peaks are near Flagstaff.
- 5—False. The Santa Fe trail was first used by buffalo hunters, trappers, traders and prospectors from the states east of the Missouri river.
- 6—False. *Rim of Christendom* is the story of Father Kino.
- 7—False. Ocotillo normally is the taller.
- 8—True.
- 9—True.
- 10—False. The Palm Springs Indians are Cahuillas.
- 11—False. Salt River valley is served by Roosevelt dam.
- 12—True. 13—True. 14—True.
- 15—False. The Taos Indians live in pueblos.
- 16—True. 17—True.
- 18—False. The Chuckawalla is harmless.
- 19—True.
- 20—True.

Beautiful Pictorial Guides

These picture-filled books will add enjoyment to your trip into the enchanting corners of the Southwest. They will help you explore ancient cultures and give you the "feel" of the beauty and drama of old civilizations . . . And what gift could your friends appreciate more?

SANTA FE, Ernest Knee. Series of rare portraits of Santa Fe against a background of old cultures and New Mexican setting. People, architecture, arts and crafts, and landscapes captured in photographs **\$2.00**

MISSION SAN XAVIER DEL BAC, American Guide Series. Architecture of beautiful San Xavier mission, illustrated in detail by 32 full page photographs in soft gravure. Text relates story from founding in 1700 to present day. **\$1.00**

THE PUEBLOS: A Camera Chronicle, Laura Gilpin. Ancient Pueblo civilizations and modern Indians. Over 70 photographs in sepia, 124 pages of text resulting from 20 years' research and study in Arizona, New Mexico and Colorado. Bound in blue cloth, decorated in silver. Map **\$3.00**

DESERT CRAFTS SHOP

636 State St. El Centro, California

UTAH

Wild Horses Rounded Up . . .

SALT LAKE CITY—It was reported here in September that 700 wild horses were cleared from cattle and sheep ranges in the Great Red desert area of southern Wyoming during the summer, under auspices of U. S. grazing service. They were "hazed" into widespread corral wings by an airplane which had driven them at least 25 miles, then driven into corrals by cowboys. Prize catch was a dark gold stallion. About 60 horses were kept, the rest being shipped for slaughter.

Airborne Fire Fighters . . .

SALT LAKE CITY—Southwest states greeted with enthusiasm recent announcement of forest service's postwar plan to use helicopters for fire fighting. Project would include construction of 4800 landing spots in forest regions, with 376 landing strips, for fleet of 200-300 helicopters. "Men simply climb down a rope ladder, put out a fire and then climb back up the ladder again." Work would be included in a \$1,302,375,500 program of "urgent and necessary" projects. Of this amount, however, highways and trails would be largest item in the forest service program.

Francis M. Coe, research associate professor of horticulture at Utah State Agricultural college, has been granted leave of absence to teach at US army university at Biarritz, France.

For Nice Things . . .

- INFANTS' AND CHILDREN'S WEAR
- LADIES' READY-TO-WEAR
- MEN'S FURNISHINGS
- FINE LINENS

CUSTER'S

206 W. TENTH STREET PHONE 246
LANCASTER, CALIFORNIA
THE HEART OF ANTELOPE VALLEY
'RILLA CUSTER GALEN CUSTER

Electric Generating Sets

350 Watt to 90,000 Watt
"Caterpillar" Diesel
or Gasoline Powered

Some of the smaller models are now available for shipment from stock.

We will be glad to help you estimate your light and power costs.

JOHNSON TRACTOR CO.

Box 351
RIVERSIDE, CALIFORNIA

Imperial Irrigation District Power . . .

\$2,128,466

THAT IS THE TOTAL OF REVENUE FROM THE DISTRICT'S POWER SALES IN 1944 ALONE

THAT IS WHY THE DISTRICT'S POWER SYSTEM IS PAYING FOR ITSELF AND WILL PAY FOR THE ALL AMERICAN CANAL.

In nine years, power sales revenue has increased from \$52,296 to \$2,128,466.

Net income has increased from \$9,848 to \$626,575.

Power cost to the consumer has been reduced 30 per cent.

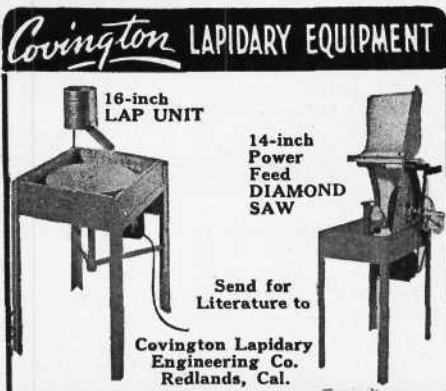
The Power System has caused no taxation. Demand has exceeded all expectations.

IT'S GOOD BUSINESS WHEN YOU CAN BUY A BUSINESS AND LET IT PAY FOR ITSELF

Imperial Irrigation District



Covington LAPIDARY EQUIPMENT



16-inch LAP UNIT

14-inch Power Feed DIAMOND SAW

Send for Literature to

Covington Lapidary Engineering Co. Redlands, Cal.

AMATEUR GEM CUTTER

This page of Desert Magazine is for those who have, or aspire to have, their own gem cutting

and polishing equipment. Leland Quick, who conducts this department, is former president of Los Angeles Lapidary society. He will be glad to answer questions in connection with your lapidary work. Queries should be addressed to Desert Magazine, El Centro, Calif.

By LELANDE QUICK

Scarcely had I written the following words for last month's Desert Magazine when I received interesting correspondence from Edward Lang who has had great success in teaching Boy Scouts lapidary procedure in the Venice, California, area. I said, "You don't need a shopful of machinery to cut good gems. You can pump up a tire by hand but compressed air at a service station is easier on the back." Mr. Lang wrote: "So many people tell me that when they read what is necessary in machinery they give up the idea of beginning lapidary work. Tell them how little is actually necessary. People come to my house and want to see my shop. I take them to the garage and get the biggest kick watching the expression on their faces and see them open their mouths in astonishment for I have nothing in the shop worth mentioning. My equipment is a 12 inch lap and a grinding and polishing arbor."

Mr. Lang also said he never uses dop sticks. He claims people should throw them away and use their fingers. You can get by with this procedure all right but it's just like pumping the tire by hand. The time that it takes to dop a stone can hardly compare with the saving in grinding time when dop sticks are used and the workmanship is usually much better. It's too easy to drop and ruin stones when you use only your fingers.

At no time has this column ever given advice as to what should constitute the complete lapidary shop. An efficient time-saving shop that eliminated much of the drudgery would cost a lot of money. Many inquiries have been answered personally by references to the books on the subject so that people can determine for themselves how much they want to spend. My own shop is about as simple as Mr. Lang's and I find that even complete shops do not impress people who know nothing about lapidary procedure. Somehow they always expect that the machinery involved is something highly complex and that the rough material is put in a hopper and comes out somewhere all finished. Such machinery has not been developed—yet. However, so many advances have been made in the last five years, principally from ideas garnered from amateurs, that a comparison with present day methods and five-year-old methods is so startling it would seem that gems are almost produced that way.

People do not have to have all the modern developments. They can use a mud saw which they can build themselves for almost no money at all or they can buy a modern diamond saw and cut through a rock in five minutes instead of five hours. They can do without dop sticks and do one cabochon while someone else grinds three or four by using dop sticks. But time is money too and dop sticks cost nothing. To adequately outfit a shop for cabochon cutting a person should spend about \$150. This will buy an arbor for grinding and polishing plus grinding wheels, sanders, buffers and motors. It would include a small diamond saw for slabbing. A good mechanic can easily assemble his own shop and build everything but the motors. The more elaborate shops should have a larger diamond saw, a trim-off saw and a lap outfit. Only the advanced lapidary should have a faceting head and silver-smithing equipment.

Lang makes two good suggestions for rock hunters. Clean the oil from sawed slabs with cleaning solvent and take the lap plate along to the desert for a stove. I wouldn't want to have any 600 grit in my fried spuds or pancakes, however.

For those who do get oil stains on their specimens, R. N. Milligan, of Lawrenceville, Illinois, makes a suggestion that is effective on monumental granite. He removes such stains with a mixture of benzine and plaster of Paris. The paste is applied to the stain and when the benzine evaporates the plaster is powder. Brush it off and the stain has disappeared. If any one tries this method on gem materials I wish they would let me know the result.

Only one reader has come forward with a method of drilling material to be used as cigarette holders. Hugh Brown of the Washington State Chamber of Mines writes: "Take a brass tube of the desired diameter and notch it. Into the notches roll 20 to 40 mesh bort and lightly peen the notches closed. Set the tube in a drill press with the jade clamped in position and drill with an oil pool around the material. Cut a hole in a block of wood the same diameter as the stem piece and cut the block in half lengthwise. Put the stem into the drilled hole and vise it between the two pieces of wood. The second hole is cut by the same method using a smaller tube of the diameter desired." That seems a very good method, Mr. Brown, but it would not produce a tapering and shapely cigarette holder; it would only produce a tube. Are there further suggestions to this puzzling problem?

F. H. Fischer of Cincinnati, Ohio, very generously sent me a diamond wheel such as has been used in industry for sharpening tungsten carbide tools. These wheels cost about \$100 each when new and it is Mr. Fischer's idea that when they are discarded as of no further use in industry that they are still ideal for faceting gems. I am having the wheel he sent me tried by an expert facator. These wheels usually can be had for the asking if you inquire among your industrial friends. Fischer writes: "I have been using them for several years and I have cut hundreds of stones. They are ideal because they eliminate all the muss of silicon carbide and the constant danger of getting grit in the faceting device. It is necessary to keep them wet and they can be run at any speed up to 5000 RPM. They cut very fast at 500 RPM, the only danger being in over-cutting. They last indefinitely and they do not groove but cut flat and smooth all the time. If the wheel gets choked, use an emery stick freely. The commercial cutters in New York are using these wheels for cutting synthetic sapphire and ruby." What an advance this promises to be. It should save hours in faceting a gem and eliminate many of the trying hazards.

Guilds, the magazine of the gemological profession, has initiated a discussion regarding a better term to replace "precious" and "semi-precious." George Marcher, prominent Los Angeles certified gemologist, presents sound arguments for the use of the word "gemstone" (with no hyphen) to designate all gem stones of whatever grade. Another gemologist suggests the word "precious" for all gem stones as distinguished from building materials and the rocks of the field. Hardly any two authorities agree on a list of precious stones as distinguished from semi-precious stones. I incline to the word gemstones as Marcher suggests. I certainly wouldn't want to call obsidian or Petoskey "agate" precious stones and yet they are gem materials. Could we have a reader postal vote and perhaps some pertinent ideas?

Before you buy any lapidary equipment—

Send for our NEW CATALOG

THE NEW COMPACT 3V
LAPIDARY UNIT
it does everything!

SAWING • POLISHING
LAPPING • FACETING
SANDING • GRINDING
SPHERE CUTTING

● THE LATEST in lapidary equipment, with many exclusive features found in no other machines. More than 1000 in use. Standard Unit, \$88.00 f.o.b. factory (less motor and stand). Price includes diamond saw, grinding wheels, sanding wheels, polishing buff and everything necessary to make cabochons and specimens up to capacity of the 8" saw. Saws up to 10" can be used on this machine.



AVAILABLE WITHOUT PRIORITY

FACETING ATTACHMENT

● A FINE precision tool that greatly simplifies the cutting of any faceted gem. Can be used with any horizontal lap thru the use of a simple adaptor socket. \$28 f.o.b. factory. Adaptor socket, \$1.50. No priority.



New Model H-16V DIAMOND SAW UNIT

● HANDLES from a 10" to 16" blade. Safe clamp hold quickly adjusted to any size stone. Cross feed permits several parallel cuts without reclamping stone. Internal Pressure grease lubrication... adjustable oil sump. Splash proof, yet work is visible at all times. \$74.00 f.o.b. factory less blade and motor.



LOOK AT THESE LOW PRICES

NEW RECHARGES	NEW RECHARGES
6".....\$4.00	\$3.25
7".....4.50	3.60
8".....5.25	4.25
10".....6.75	5.75
12".....8.25	7.00
14".....10.00	8.25
16".....11.75	9.75

WE PAY POSTAGE

Cuts faster! Lasts longer!

PRECISION MACHINE MADE

DIAMOND SAW

● USERS say our Hillquist SuperSpeed Diamond Saws cut faster and outlast many saws that sell for twice the money. If you need a new saw or the old one needs recharging, try a SuperSpeed—you'll swear by it, and not at it. Be sure to state size of arbor hole.

ORDER TODAY FROM

Lapidary EQUIPMENT COMPANY/INC.

2020 WESTLAKE • SEATTLE 1, WASH.

GEMS AND MINERALS

ARTHUR L. EATON, Editor

BARSTOW GROUP RESUMES WITH ACTIVE FALL PROGRAM

Mojave Desert Gem and Mineral society, organized in January, 1940, sponsor of two annual mineral shows which attracted thousands to Barstow to view desert rocks and minerals, has again resumed active status, after suspension since Pearl Harbor.

President George Fink has outlined a definite, progressive, educational program for the advancement in geological lapidary, silversmithing and mineralogical studies, to be conducted by members and supplemented by guest speakers each month.

Immediate plans include incorporation and field trips. For those interested, road conditions will be logged and records kept of government abandonments of property known to contain minerals of interest to collectors and students. Invitation is extended to all rockhounds to write the secretary for field trip information about Barstow, Daggett and Yermo areas. Address Secretary Cecil E. Goar, Box 133, Barstow, California.

VACATION SPECIAL STARTS EAST BAY'S NEW SEASON

East Bay mineral society, Oakland, California, begins the winter season in October with a "vacation special." Members give brief talks on their vacation trips, telling where they went, what they saw, and new locations, if any. They also share surplus material. The regular meeting place is the auditorium of Lincoln school, Eleventh and Jackson streets, 8:00 p. m. Visitors always welcome.

Richard J. Paulisich was scheduled to speak at October 18th meeting on, "From apprentice to professional lapidist." He planned to show some of the equipment used in the profession and to display examples of his work in different materials and different stages of progress. Julian Smith, chairman of the display committee, arranged displays for both October meetings.

DANA CLUBS HEAR ABOUT BRAZIL'S GEMSTONES

Dana clubs of Los Angeles met at Manning's coffee shop September 13. Catherine Schroder spoke on gems and precious stones of Brazil. She exhibited three fine watercolor studies of Rio de Janeiro harbor and Sugar Loaf mountain. She described the sapphires and rubies of Bahia, nickel mines of Goyaz, golden beryl, diamonds and topaz of Minas Geraes, and the tourmalines of Sao Paulo.

She added that before the war, German agents bought up rough stones and took them to Germany for cutting, but that now most of these stones are coming to U.S.A. Generous American prices have boosted the living standards of the natives; and local merchants have learned to buy up and hold rough stones for the market already developing in America.

NEW BONITA STONE IS CLASSED AS CHALCEDONY

Bonita, so-named by Kenneth J. Hines, owner of the deposit, is found in an extremely hard matrix that lies on top of the serpentine dikes in San Benito county, California, close to the Benitoite, Neptunite and Joaquinite gem mine. Authorities are at variance as to its classification. The patterns, figures and coloring, hardness and beauty make it an attractive stone when cut and polished.

It is expensive to mine, and usually more transparent gems come in the harder matrix and the break-out is large, entailing expensive waste cutting to extract the fine materials.

The discoverers believe that only a small amount of the superior grades ever will reach the market, due to the above facts. They have placed the stone under the category of chalcedony and authorities who formerly classed it as prase, plasma, bloodstone, St. Stephens, jade, etc., agree that this classification well covers the find.

The all transparent chrysoprase never comes over 1½ inches in size. The predominating color is blue-green and from a jade green down to a deep, clear emerald color. Pieces often will have either blood drops or streaked carnelian; the Indian flash or cinnebar crystal. The unusual occurrence is when white opaque crystals of chalcedony intermingle herein on a background from baby to deep blue, jade to seaweed green, melting snow, a flash of brilliant yellow.

In this same strike is a very fine carnelian striped silica onyx, that polishes beautifully and is very translucent. There is a soft jadeite, about four in hardness, with another material of about six in hardness, running in all known colors. As these will cut and polish cheaply and easily, a use for them no doubt will be found.



HERE ARE THE GIFTS YOU'VE BEEN LOOKING FOR!

Rings, \$4.00 and Up Necklaces, \$5.00 and Up
Brooches, \$5.00 and Up
Bracelet and Ring Sets, \$15 and Up
Plus 20% Excise Tax and 2½% Sales Tax

Petrified Picture Wood and Moss Agate — Jewelry
Hand Made in Sterling Silver Mountings

RINGS — BRACELETS — NECKLACES
BROOCHES — TIE SLIDES, ETC.

Mail Orders Filled Anywhere in U. S. A.

ELLIOTT'S GEM SHOP

26 Jergins Arcade Village Long Beach 2, Calif.
Entrance Subway at Ocean and Pine
Open 10 A.M. to 10 P.M. Daily

RX—the complete
lapidary shop in
one small machine
\$85.00
Circulars Out Soon
W. A. FELKER 1527 Post Ave., Torrance, California

POLISHED TURQUOISE--

Wholesale Lots or Small Orders
of Matched Sets

H. & B. TRADING CO.
37 Globe St. Miami, Ariz.

Felker Di-Met Rimlock Diamond Blades

Available for immediate
Delivery from
Warner and Grieger

Diameter	Net Price Each
6"	4.60
8"	6.65
10"	8.70
12"	10.75
14"	14.80
16"	16.85
18"	20.90
20"	22.95
22"	25.50
24"	29.60

WARNER & GRIEGER

405 Ninita Parkway, Pasadena 4, Calif.
Phone Sy. 6-6423

GEM MART

ADVERTISING RATE
5c a Word -- Minimum \$1.00

ARIZONA AGATES, JASPER, PETRIFIED WOOD. We are now mining beautiful Arizona agates and jaspers. These have moss ferns, flowers and pictures and are of many colors. This is new gem material coming from desert deposits. Choice gem material 5 lbs. \$12.50. 10 lbs. \$22.00. As it comes 25 lbs. \$15.00. Low grade but lots of good cutting material 35 lbs. \$15.00. Number one Arizona petrified wood 2 lbs. \$6.50. 5 lbs. \$12.50. 10 lbs. \$23.00. 25 lbs. \$52.00. Limited supply. Gem and specimen petrified wood mixed 30 lbs. \$12.50. Satisfaction guaranteed. Postage extra. Chas. E. Hill, 2205 N. 8th St., Phoenix, Arizona.

6 COLORADO BEAUTIES, cabinet size. 1 Geode, 1 sheet Selenite, 1 Garnets in Quartz, 1 Peacock Copper, 1 Serpentine, 1 Lead and Silver, all for \$6.00. 2 smaller type specimens free with each order. Jack the Rockhound, P. O. Box 86, Carbondale, Colo.

CHOICE BRAZILIAN AGATE—Beautifully banded—sliced for cabochons—30c per sq. inch. Money refunded if not satisfied when material is returned. Mail orders only. Gas-kill, 400 No. Muscatel, San Gabriel, Calif.

ANNOUNCING the reopening of the Mint Canyon Rock Shop, Highway U. S. 6, ten miles east of junction U. S. 99. Dad and Mother Smith are ready to greet and serve old friends the first and third Sunday each month.

SLABS ON APPROVAL, against deposit or satisfactory reference, will submit large selection. Cabochon slabs or large sections for cabinet display. Rough or polished. Large variety of fine material. See our display when you pass this way. A. E. Davies, Stone Valley Road, Alamo, Calif.

MINERAL SPECIMENS, a 6 lb. box assorted, 2x2 1/2 in. \$6.00. Real nice. Jack the Rockhound, P. O. Box 86, Carbondale, Colo.

GEO. W. HILTON, proprietor of "Desert Gems" formerly of Coachella, Banning and El Monte, has now moved into his own new building, 4 1/2 miles east of Hemet, Calif., on the Idyllwild road, across the street from the Valle Vista store, where he is now ready to welcome his friends, old and new. He invites you to come in, inspect and investigate the very best in Mineral Specimens, Sliced Cutting Material and polished stones.

MONTANA MOSS AGATE, Oregon Moss Agate, Red, Brown, Ribbon, Green, Select, Fancy, Scenic, Sagenite. Best quality, priced reasonably, satisfaction guaranteed or money refunded. Buses Agate Shop, Yachats, Oregon.

BRAZILIAN TOPAZ, and fine small Montana Sapphires, Green Brazil Tourmaline and Chrysoberyl, Brazil Carnelian, slab Chrysocolla, Ceylon Sapphire. Mexican gem amethyst, Baddeleyite pebbles, Zirconian. Money back if not satisfied. The Desert Rat's Nest, 2667 E. Colorado St., E. Pasadena 8, Calif.

MONTANA MOSS AGATES in the rough for gem cutting, \$1.00 per lb. plus postage. Elliott's Gem Shop, 26 Jergins Arcade, Long Beach 2, California.

MINERALS, GEMS, COINS, Bills, Old Glass, Books, Stamps, Fossils, Buttons, Dolls, Weapons, Miniatures, Indian Silver Rings and Bracelets. Also Mexican. Catalogue 5c. Cowboy Lemley, Las Cruces, New Mexico.

PREFORM CABOCHONS: Ready to sand and polish, Australian Opals, \$1.50 to \$10.00. Red and yellow Tigerite, Africa, Bloodstone, India, grey blue Agate, Moss Agate, red and brown, pink petrified wood, Texas, Brazilian Agates, Turretella and Algae, Wyoming, 75c to \$2.00. Many other preforms in stock. Luxury tax included in price, residents of California should add 2 1/2% state sales tax. A. L. Jarvis, Rt. 2, Box 350, Watsonville, Calif. 3 miles south on State Highway No. 1.

SEND ME YOUR FAVORITE CABOCHON MOUNTED IN EITHER STERLING OR 10 K GOLD. Each piece designed to bring out the beauty of your stone. Ladies Sterling rings from \$3.00, 10K gold from \$7.50. Pins, Brooches, Bracelets, etc., reasonable. Satisfaction guaranteed. Send for descriptive list of fine ladies and mens rings now in stock. Your correspondence invited. K. K. Brown, Star Route, Castle Rock, Washington.

REMARKABLE SLAG. Rare earths cause orange, pink and bluish fluorescence. Phosphorescent. Thermoluminescent. Cold quartz lamps. 3 in. 75c, 4 in. \$1.50. Postpaid. Sold exclusively by THOMPSON'S STUDIO, 385 West Second Street, Pomona, Calif.

FRANKLIN, N. J., COLLECTION. 10 excellent specimens, several highly fluorescent. Polyadelphite, Willemite, Rhodonite, Rhodochrosite, Norbergite, Mangan Calcite, Salmon Colored Calcite, Franklinite, Zincite, Graphite in Limestone, etc. About 2x2 in.—\$4.00 postpaid. H. STILLWELL & SON, Rockville Centre, N. Y.

AGATES: A new find, not nodules. You have seen nothing like these, I am sure. Very high grade, bright colored Plume, Flower and Moss in shades of red, yellow, green, black, etc. Pieces will make striking, charming jewelry. Will sell slices excellent for gem cutting. Plume \$5.00 to \$25.00, Flower and Moss, \$1.50 to \$10.00 plus tax, postpaid. Send or come for your order now. Money back if not entirely satisfied. Mae Duquette, 407 No. Muscatel, San Gabriel, Calif.

RARE BEAUTY IN STILBITES, CALCITES, ARAGONITES, and ANKERITES. 3 in. to 4 in. \$1.50. Postpaid and guaranteed. THOMPSON'S STUDIO, 385 West Second Street, Pomona, Calif.

INDIAN RELICS, Curios, Coins, Minerals, Books, Old Buttons, Old Glass, Old West Photos, Weapons, Catalogue 5c. Lemley Antique Store, Osborne, Kansas.

AGATE JEWELRY AND OREGON AGATES—Ladies 10k gold rings, pointed or oval type, \$14.40 including excise tax. We make pendant necklaces, brooches, rings of several types. Sell plume and other agate by the slab. We guarantee satisfaction or will refund your money upon receipt of our merchandise. See that funds accompany your order. E. Lee Sigfrid, 211 Congress, Bend, Oregon.

\$2.50 brings you prepaid six rare and beautiful crystallized Arizona minerals. Vanadinite, Diopside, Wulfenite, Willemite, Chrysocolla, Azurite. Specimens 1 1/2 x 2 or larger. Wiener Mineral Co., Box 509, Tucson, Arizona.

THOMPSON'S wish to buy at wholesale, outstandingly choice, rare, and beautiful gems and minerals. THOMPSON'S STUDIO, 385 West Second Street, Pomona, Calif.

FLUORITE CLEAVAGE OCTAHEDRONS.

Very attractive and most of them fluoresce under Wonderlite bulb. 6 specimens 1/2 in. to 1 in. tip to tip in various colors yellow, green, blue, purple, colorless, etc., \$1.60 postpaid. 12 extra selected specimens 1/2 in. to 1 1/2 in. tip to tip \$4.25 postpaid. A very few larger specimens up to 2 1/2 in. at special prices. H. STILLWELL & SON, Rockville Centre, N.Y.

I WILL SELL or trade "Flowering Obsidian" for crystallized minerals from other localities, write for particulars. W. T. Rogers, 1230 Parkway Ave., Salt Lake City 5, Utah.

THE PERFECT GIFT for that boy or girl. The present that will be remembered always. A MINERAL SET containing 24 beautiful and brilliant minerals, all labeled and housed in an attractive sturdy box. Each in 1x1 in. compartments. \$3.50, order No. SO1. CABOCHON CUTTER—GRAB BAG includes many pieces of fine GEM MATERIAL in ready to be worked sizes. A double buy. 1 lb. bag \$1.00, order No. 101. Rare FLUORESCENT MIXTURE a colorful surprise in the dark. 1 lb. \$1.00, order No. FO1. All orders postpaid anywhere in U.S.A. or Canada. Mineral Miracles, 12103 Louise Ave., Compton, Calif. 6 Blks. East of 12100 Blk. Atlantic Avenue.

WANTED: TO BUY, sell and exchange specimens outstandingly rare and beautiful. Sam Parker, 2160 East Van Buren, Phoenix, Ariz.

MINERAL SETS—24 Colorful Minerals (identified) in 1x1 compartments—Postage paid, \$3.50. Prospector's Set of 50 Minerals (identified) in 1x1 compartments in cloth reinforced sturdy cartons, Postage paid \$5.75. Elliott's Gem Shop, 26 Jergins Arcade, Long Beach 2, Calif.

GOOD CUTTING MATERIAL, Petrified Wood, Agate, Jasper, \$1.00 per lb. Special mixed lots \$4.00 for 5 lbs. Variscite specimen material \$1.00 per lb. and up. Geodes and Ribbon Rock, 5 lbs. for \$2.00. Please include postage. John L. James, Tonopah, Nevada.

EXPERIENCED TURQUOISE cutters wanted. Rate 2 cents per carat for 40 hours work, 3 cents per carat for cutting after 40 hours in one week. Can cut up to 53 hours per week. List references and experience in first reply. Maisel's Indian Trading Post, P. O. Box 1333, Albuquerque, N. M.

COLORADO PLUME AGATE, sawed slabs, \$1 to \$30. All on approval. This is a new find, none better. Priced according to size and beauty. The Colorado Gem Co., Bayfield, Colo.

FINE KENTUCKY FOSSILS. Nine 3x4 specimens \$4.00. Unbroken Kentucky geodes, some possibly contain quartz xls in zeolite formation, \$4.75 for 10 pounds. Postpaid. Free list. George Bryant, R. 2, Lawrenceburg, Kentucky.

NEW WONDERLITE U. V. BULB. Fits any standard electric socket, 50 hour, 300 watt, 105-120 volts, A.C. or D.C. Can be used continuously if desired. An excellent bulb giving beautiful results. Price \$2.60 tax and insured post included. H. STILLWELL & SON, Rockville Centre, N. Y.

YOUNG PROSPECTOR'S SETS—Just a few of these boxed sets remaining. Includes 18 gem and mineral specimens, directory giving location, use, hardness and specific gravity for these and many other minerals, \$1.00 each, postpaid. Desert Crafts Shop, 636 State street, El Centro, California.

AMONG THE ROCK HUNTERS

Officers of the newly organized Monterey Bay mineral society for the coming year are: William O. Eddy, Salinas, president; T. G. Emmons, Salinas, vice-president; Mrs. A. W. Flippin, Salinas, secretary-treasurer; A. W. Flippin, Salinas, exhibits and displays; Dr. K. W. Blaylock, Salinas, program chairman; Mrs. A. H. M. Samuelson, Salinas, and Mrs. J. P. Tripp, Salinas, refreshments; Mrs. A. L. Jarvis, Watsonville, Miss Alice R. Everett, Santa Cruz, V. E. Schoonover, Monterey, Willard Farr, Salinas, R. L. Day, Salinas, and A. H. M. Samuelson, Salinas, reception committee. The club is to meet on the second Monday of each month at the Salinas Y.M.C.A., corner of Clay and Church streets.

Current officers of the state mineral society of Texas are: A. E. Curry, president, San Angelo, Texas; L. E. Bridwell, vice-president, Forestburg, Texas; Viola Block, secretary-treasurer, 829 W. Jefferson, Dallas 8, Texas; Edith Owens, historian, Honey Grove, Texas.

New officers of Mineralogical Society of Southern California are Jack G. Streeter, president; H. G. Kirkpatrick, vice-president; Lillie M. Rhorer, secretary; L. W. Vance, treasurer; Jack Rodekohr, Stanton Hill, P. E. Linville, Ralph Dietz, Willard Perkin, Ben Mayben and L. W. Giddings, directors.

H. Stanton Hill started a course in mineralogy September 12, at Pasadena junior college. First half of the evening is spent in study of selected mineral groups and localities, second half in the laboratory on chemical identification of minerals.

August 24 meeting of Sacramento mineral society was given over to sale and auction of mineral specimens. G. R. MacClanahan, chairman of the minerals committee, was auctioneer. Martin Colony was delivery boy and collector and Mrs. Colony was treasurer for the occasion. Some 100 specimens were brought to the meeting by members, and every one was sold at a good price.

E. G. Conrad, member of board of directors of New Jersey mineralogical society, on September 4 invited other members to attend a special lapidary meeting at his home, 151 N. Euclid avenue, Westfield, New Jersey. He gave a demonstration of lapidary methods. Each member was invited to bring a small piece of mineral to be cut and polished with the assistance of Conrad.

Sequoia mineral society held its September 4 meeting at the barbecue pit in Selma park, Selma, California. Mr. Lehfeldt, Selma high school teacher, spoke on the atom and atomic bomb.

Ed Smith, president of Gila mineral society, Miami, Arizona, announced that B. H. McLeod would discuss the atomic theory at the September 13 meeting of the society. Among exhibits were to be several specimens of Uranium 235, the metal reputed to be used in the manufacture of the bombs.

San Diego mineralogical society has invited Callexico rockhounds to exhibit their work at their semi-annual show in the San Diego Y.M.C.A., Sunday, October 14. Purpose is to secure a large variety of Imperial county minerals, cut and polished slabs, geodes, cabochons and faceted stones. Harold W. B. Baker, 3852 Wellborn street, San Diego 3, is in charge.

"Dad and Mother" Smith have reopened their Mint Canyon Rock Shop on U. S. highway 6, 10 miles east of the junction with U. S. 99. For the present they will be open only on the first and third Sundays each month.

September meeting of Searles Lake gem and mineral society was held September 19, at Trona. Clark Mills, deputy district governor, desert region, of the Lions club, spoke on "mineral collecting in your own back yard." Mills was a charter member of Searles Lake club, and has one of the finest collections of minerals in the whole district.

BONITA!

A superior quality of chalcedony, in the most unusual patterns, figures and colors. No blanks will be sent out without some transparency.

For the time being, with each blank we are going to include two other lesser-sized pieces, in order that some idea may be had of the wide range of colors obtainable. With care these pieces will make nice cabochons.

We are earnestly trying properly to classify Bonita as to quality, hence, opaqueness, translucency, and transparency will govern the price. As they are sold on a money back basis, we are confident everyone will be pleased.

1 in. or larger opaque blank.....	\$ 3.00
1 in. or larger translucent blank.....	5.00
1 in. or larger transparent blank.....	10.00
1 large cut and polished cabochon of 1 in. or larger, selected for quality.....	15.00

Please state color preference.
Prices include postage and tax.

GEM MINES

P. O. Box 441 Puente, Calif.

SIX SPECIMEN COMBINATION . . .

Serpentine, Satin Spar, Pudding Stone, Peacock Copper in Calcite, Garnets in Quartz, Sheet Selenite.

\$2.00 each or all six for \$9.00

JACK THE ROCKHOUND

P. O. Box 86 Carbondale, Colo.

CHOICE DESERT SPECIMENS . . .

The fine specimens advertised below come from our Calcite Mines which are described in the August issue of the Mineralogist and the Desert Magazine.

CALCITE in superb crystal groups.

2x2 in.—\$2.00 to 4x5 in.—\$7.50

CLEAR CALCITE RHOMBS (Iceland Spar)—Fluoresces a beautiful red under the Mineralight. 35c to \$1.00 according to size and quality.

SPECIAL—Optical Basal Plates from which the secret gun sights were made. Never before advertised. These fluoresce a nice red. 2x2 in.—\$1.00 to 5x7 in.—\$12.00.

ALSO—Mixed Mojave desert cutting material: Agates, Jaspers—5 pounds \$2.50.

HOLLOW GEODES—Chocolate mountains. Sparkling Quartz Xls and beautiful Calcite Xls interior. 50c to \$4.00.

SATISFACTION GUARANTEED

Please Include Postage with Remittance

FROST & DYE MINING COMPANY

59 E. Hoffer Street Banning, California

SPECIALS . . .

MINIATURE SETS, Ass'd per doz.	\$6.00
50 RING STONES, including genuine and synthetic	\$7.50
SYNTHETIC RUBIES or GENUINE GARNETS, per carat	\$1.25
CAMEOS or OPALS—Genuine—12 for	\$3.75
100 JEWELRY STONES removed from rings, etc., \$2.40; 50 large ones	\$2.40
12 ARTICLES ANTIQUE JEWELRY, rings, pins, etc.	\$3.00
500 COSTUME JEWELRY STONES	\$2.00

B. LOWE, Holland Bldg., St. Louis 1, Mo.

Ureco

LAPIDARY SUPPLIES



VRECO Lapidary Equipment will again be available just as soon as our facilities can be converted and our NEW line of equipment put into production. Watch for announcements. In the meantime, let us serve you with these highest quality VRECO supplies:

VRECO DIAMOND SAWS . . . give you better performance . . . longer life . . . faster cutting.

6-inch.....	\$4.50	12-inch.....	\$ 8.75
8-inch.....	5.50	14-inch.....	11.00
10-inch.....	6.80	16-inch.....	13.75

Be sure to specify arbor hole size required. Postpaid.

VRECO GRINDING WHEELS are made expressly for gem stone grinding.

	100 Grain	220 Grit
6" 100 & 180		
6 x 3/4-inch.....	\$ 2.10	\$ 2.25
6 x 1 -inch.....	2.40	2.60
8 x 1 -inch.....	3.60	3.90
10 x 1 -inch.....	5.00	5.30
10 x 1 1/2-inch.....	7.00	7.50
12 x 1 -inch.....	6.90	7.50
12 x 1 1/2-inch.....	9.60	10.40
12 x 2 -inch.....	12.30	13.30

Be sure to specify arbor hole size. Postage extra.

VRECO DRESSING BRICKS are an indispensable aid to keeping wheels trued.

8" x 2" x 1" Dressing Brick..... \$.85

ABRASIVE GRAIN . . . Silicon-carbide grains in grit sizes 60, 80, 100, 120, 150, 180, 220, also F (240), FF (300), and FFF (400).

50c per lb. in single lb. lots

35c per lb. in 2 to 5 lb. lots

30c per lb. in 6 to 99 lb. lots

23c per lb. in 100 lb. lots or more

(Postage extra)

POLISH POWDER . . . Tripoli Polishing Powder, 2 lbs. \$.85

FELT POLISH WHEELS—Spanish White Felt . . . made expressly for us by Byfield Felting Co. These wheels are the proper hardness for polishing gem stones and flat specimens.

6 x 1-in.	\$4.25	10 x 1 -in.	\$11.00
8 x 1-in.	7.25	10 x 1 1/2-in.	14.90
10 x 2-in.	\$19.00		

Arbor hole sizes: 1/2", 5/8", 3/4", 7/8", 1".
Felt prices are postpaid.

SANDING CLOTH . . . CARBORUNDUM BRAND Silicon-carbide cloth for disc or drum type sanders. Grit sizes, 120, 220, 320.

Width	Price per Ft.	No. Ft. per \$	Price per 150 ft. Roll	Roll Ship. Weight
2"	5c	24 ft.	\$ 4.70	3 lbs.
3"	7c	15 ft.	6.90	5 lbs.
8"	17c	7 ft.	18.00	12 lbs.
10"	22c	6 ft.	22.00	15 lbs.
12"	25c	5 ft.	26.50	20 lbs.

VRELAND MFG. CO.

2026 S. W. Jefferson St. Portland 1, Oregon

EMERGENCY KIT SUGGESTED FOR VACATIONERS, ROCKHOUNDS

Stevens T. Norvell, chairman of Marquette Geologists association of Chicago, has found during his many years of hunting, fishing and "prospecting" for minerals and fossils that often situations arise which require more than the ordinary first-aid supplies. He has assembled an "emergency kit," in a light metal box roughly two by four by six inches, containing various items which add to both comfort and safety. Here are a few of his suggestions for others who may be in the mountains or forests or deserts:

There is nothing like a flashlight to brighten things up if you find yourself away from camp after dark. You may have left your big flash at camp because you intended to be back two hours before dark but something happens—you follow the wrong trail or miss it altogether, or your watch stops, or the fish just start biting, or you've just struck the most promising geode field. But wait—in the emergency kit is a pencil-type flashlight. That is fine. And we don't have to worry about the batteries because there is an extra set, and another bulb, in the kit.

An extra pair of bifocals is there, too, made of safety glass, in case you get hit with a stone fragment from your mineralogist's pick.

Some day you may find that you have lost that fancy floating-dial job with its radium markings. Boy oh boy! Are you glad to have that tiny spare compass along—it weighs less than an ounce and you can carry it in the emergency kit without knowing it's there.

Did you ever try to build a fire in the rain? You do everything "the book says" about gathering your wood, but your matches are soaked, and the cigarette lighter chooses that moment to balk. But just open your emergency kit and there is a small waterproof container with 12 matches, wrapped in sandpaper for easy striking. But the wood is damp and striking all 12 matches won't help. Reach in the kit again and pull out an ordinary two cent candle. With one match light the candle, drip a little paraffin onto the kindling, then light that with the candle. Making fire with a candle isn't as spectacular as rubbing sticks or striking steel on flint, but it makes a fire just as warm and does it much quicker. Besides, that candle can be used to save the tiny flashlight for some real emergency.

In a small unbreakable container such as a pill box, you might add a couple of baking-soda tablets in case of indigestion. Also a couple of ounces of malted milk tablets. They won't take the place of a meal but they are a whale-of-a-lot better than nothing if you are going to be several hours late for campfire supper.

Small, but good, tweezers are a great help in removing splinters, thorns and cactus spines.

Short piece of soft brass wire will mend all sorts of things from fly-rod to rawhide shoe lace; so will adhesive tape from your first-aid section. It's a good idea to have a small pair of pliers (2 ounces), pointed nose and side cutter. They are useful in tightening wire around a broken piece of equipment and are necessary if you have to remove a fish-hook deeply embedded in some part of your anatomy.

Your first-aid kit may contain a snake bite section. Although there is some question as to the efficacy of the serum treatment, often the fact that something is being done has a beneficial psychological effect. At any rate, carry a sterilized safety razor blade with which to open the bite and induce copious bleeding. To sterilize the blade, wrap it in eight or ten thicknesses of gauze or muslin and sew tightly. Place in oven and bake at 350 degrees for an hour or more, then wrap in wax paper.

R. O. Deidrick's class in mineral identification opened at Technical high school, Oakland, California, September 17. Deidrick is president of East Bay mineral society, inc.

Cogitations . . .

Of a Rockhound

By LOUISE EATON

Sum unrockhouns is ignoranter, or at least less informed, than seems possible to eny rockhoun. Uv course th usual first question when th uninitiated is shown a rock is, "Has it any gold in it?" It makes no matter what kind uv a lookin rock it is. But when a unrockhoun views a gorgeous polished opal an' sez, "That's what they makes gold outta, ain't it?"—yu begins to wunder if maybe therz sum-thing rong with our educashunal system.

Furst time sum folkes seez th desert they sez it's th most god forsaken place in th wurld. Uthers scornfully remarks that they guesses th Almighty used this spot as a dumpin groun f'r waste material when He created heaven an' earth. But it's these very same peepul who later bec-ums enthusiastic desert lovers an' feels closest to th Infinite there. Yu gotta know the desert to love it. Just as with folks: Yu generally likes um when yu knows um. Nacherally there's sum yu don't like—an that's true about the desert too. Wunst in a while yu finds a person who doesn't grow to luv th desert. But not often.

Southern California academy of sciences recently put out a program for 1945-1946. Detailed information can be secured from Dr. John A. Comstock, Los Angeles 7, care Los Angeles county museum, Exposition park. Section of Zoological sciences held the first meeting, September 21. Others to meet are: section of Medical sciences, October 19; Earth sciences, November 16; Marine life, December 21; Archeology, January 18, 1946; Agricultural science, February 15; Junior science, March 15; Botanical science, April 19; annual meeting, May 3, 1946.

The new Monterey Bay mineral society at its second meeting, August 13, heard Lt. E. D. Spaulding speak on the history of gold mining in the Philippines, and showed rich specimens from that region. At the third meeting, September 10, Clarence Miller, chemist at the Natividad plant, showed an excellent colored sound film, "Permanent magnesium, the magic metal for war and peace."

Mineralogical Society of Southern California held its regular monthly meeting in the Pasadena public library September 10. A large crowd was present to hear President Jack Streeter's talk on Brazilian gems and minerals. Streeter has made several trips to Brazil and up the west coast of South America, and knows its gems and minerals and the hospitable people, as well as the bad roads and the undeveloped mining industry.

Marquette geologists association, Chicago, Illinois, resumed meetings September 8. The speaker, Mr. Sumi, talked on meteorological research, and the instruments used, illustrating with slides. He had with him one of the instruments of the type sent up in balloons. Dr. Ball continued his geology lessons. Meetings are held in the Chicago Academy of Sciences, in Lincoln Park, at Clark and Armitage streets. Visitors are cordially invited. September bulletin of the society carries an interesting article on fossils by Arthur Sanger.

Los Angeles mineralogical society observed past president's night and a birthday party September 20 at Boos Bros. cafeteria. Each past president spoke on "My most memorable field trip." Past presidents of the society are: Dr. Thomas Clements, 1932-33-34; Dr. Howard R. Hill, 1935; Mrs. Gertrude McMullen, 1936-37; Dr. John A. Herman, 1938; O. C. Smith, 1939; M. Ernest Peterson, 1940; James C. Arnold, 1941; B. Gordon Funk, 1942. Present president is Richard F. Lehman. A birthday cake large enough to serve all present completed the party.

A field trip over Labor day weekend took 30 members of Los Angeles mineralogical society to Mt. Pinos campground. They collected colemanite and gypsum crystals at the Stauffer mine, but failed to find an unscouted stibnite location. A one day trip was planned for October 7 to San Francisco canyon.

Our sympathy to Helyn Lehman, of Los Angeles, whose father, William H. Carter, passed away September 3.

Mrs. A. Wade, secretary Orange Belt mineralogical society reports September meeting at home of Mr. and Mrs. Elles in Norco. 43 members and friends enjoyed a covered dish dinner and business session. Elles and Wilson displayed polished material. October meeting was scheduled to be held in San Bernardino junior college.

Mineralogical Society of Arizona lists the following officers for the coming season: Arthur L. Flagg, president; George G. McKhann, vice-president; Humphrey S. Keithley, secretary; Herbert B. Holloway, treasurer. Meetings are held first and third Thursdays October through May 8:00 p. m. in Arizona museum, West Van Buren street and Tenth avenue, Phoenix, Arizona. 47 members joined the society during 1944-45 season making a total of 264. All members in the armed services are reported safe.

Desert gem and mineral society, Blythe, California, held its first meeting of the season at the home of its president, Norman Brooks. A field trip to Chuckawalla springs is planned for the near future. The second Monday of each month is their regular meeting date.

Seattle gem collectors club, inc., met September 18 at chamber of commerce building. Dinner was served to 85 members. Various committees reported and Mrs. Lloyd Roberson gave a resume of trips taken by members since the end of gas rationing. R. J. Fields showed colored stills of Mount Ranier flowers and wildlife. He also used his projector to show mounted rock specimens.

Cora Hamer, publicity chairman of San Fernando valley mineral and gem society, reports that the group is back on peace time schedule. The first field trip in three years was held September 23 at Gem Hill, where the members found petrified wood, rhyolite and several varieties of jasper.

Alvin A. Hanson explained the method of assembling micromounts at August meeting of Yavapai gem and mineral society, Prescott, Arizona, and exhibited his unique collection of them. There was a full house and two tables of exhibits. Betty Rye won the door prize and E. C. Gorman the quiz prize. The society took their first field trip Sunday, August 23, to the agate beds near Hell's canyon. Incidentally this was Prescott's first rockhound caravan to go sleuthing for "just rocks," after almost a century of prospecting and mining for gold, silver and other precious metals. Polished cabochons of the agate will be exhibited at the September meeting.

Near Guadalupe, not far from Mexico City, is being established a large asbestos factory. Already in use are several large plants for production of plaster, cement and other products from gypsum, lime, etc., in different parts of the country.

Mining Publications Announced . . .


Of interest to miners and prospectors are three publications just announced. *Geologic Literature of Nevada* is a manuscript by V. P. Gianella, professor of geology in Mackay School of Mines, University of Nevada, which combines geologic references given in *Mining Districts and Mineral Resources of Nevada* by Lincoln, published in 1923, and *Stoddard's Metal and Nonmetal Occurrences in Nevada* (1932), with corrections and additional references through 1941. Manuscript is on open file at state bureau of mines, Reno.

Walter W. Bradley, California state mineralogist, announces that revised mimeographed papers on following minerals are now available: Chromite, Manganese, Quartz, Quicksilver, Tin and Tungsten. These papers contain up to date information concerning occurrence, preparation, uses, tests, markets and possible buyers of these ore minerals. These papers replace earlier ones on the subjects in Bulletin No. 124 (*Commercial Minerals of California*). The Bulletin, loose-leaf in form to permit revision and expansion includes information on many other minerals from Aluminum to Zirconium. Price is \$1.00 or \$1.30 including binder, plus 3 cents tax to California residents. Address State Division of Mines, Ferry Building, San Francisco 11; State Office Building, Sacramento 14, or State Building, 217 West First Street, Los Angeles 12.

Economic Mineral Resources and Production of California is title of Bulletin 130 just released by California state mining bureau. It reviews the 60 or more mineral substances commercially produced in the state and estimates reserves and potentialities for their utilization, with special reference to postwar needs. Copies may be obtained from any of the above listed offices, at cost of \$2.00, plus 5 cents tax for California residents.

A preliminary report *Outlook of the Geology of the Comstock Lode District*, was released in July by U. S. Geological Survey. It consists of a geologic map of the district (also known as the Washoe mining district), on a scale of 2000 feet to 1 inch, with mimeographed 35-page explanatory text. Nineteen formations or rock types are distinguished, and the faults of the district are shown on map. Text describes rocks in considerable detail. The district has yielded some \$400,000,000 about evenly divided between silver and gold. Copies of map and text may be obtained from: Director, Geological Survey, Washington 25 D. C., for 75 cents.

September Arkansas mineral bulletin, official organ of the Arkansas mineralogical society is largely devoted to an article by Woodland G. Shockley on six years of collecting in Magnet Cove. The Cove is located in southwest-central Arkansas, on highway 270, about midway between Hot Springs and Malvern. It is roughly elliptical in shape, about two by three miles. It is one of the world's most famous mineral localities, which produces many different and quite rare specimens.



MINERAL IDENTIFICATION SIMPLIFIED
By O. C. Smith, A.B., A.M.
2nd Revised Edition
Price \$3.50
Plus Tax in California

Order from — **O. C. SMITH - Dept. D**
5157 Santa Ana St. — Bell, California

Prospecting Experiences — Desert Lore
How to pan gold. Combine your rock hobby with prospecting. "Gold In Placer" a new book, 160 pages of instructions for the beginner prospector. The book and three large blueprints on small concentrators you can build \$3.00. Sent C.O.D. if requested. Free literature. **Old Prospector, Box 21-S-60, Dutch Flat, California.**

CUT STONES
from **de Marianne and Charles**
PALE CABOCHON EMERALDS,
from 5 to 27 carats \$2.00 per carat
MEXICAN FIRE OPALS,
four stone selection, approx. 5 carats, \$2.50
ORIENTAL MOONSTONES,
from 2 to 5 carats, 15 cents per carat
STAR SAPPHIRES,
from 2½ to 8 carats, \$2.50 per carat
FACETED ORIENTAL RUBIES,
approx. 1/5 carat, \$1.50 each
ROUGH CITRINE QUARTZ, \$2.00 per ounce
STERLING SILVER EAREING BACKS, \$3.00 per dozen

All merchandise is guaranteed to be as represented and may be returned within 10 days if not satisfactory. Please include 20% Federal Tax with your remittance. Residents of California add 2½% State Sales Tax.


DE MARRIONNE AND CHARLES
420 N. La Cienega Blvd. CRestview 6-7931
Los Angeles 36, California

Beautiful Colorado Mineral Specimens
Peacock Copper, full of color.
\$1.00, \$2.00, \$5.00, \$8.00, depends on size.
JACK THE ROCKHOUND
P. O. Box 86 Carbondale, Colo.

Fluorescent Hyalite & Opalite . . .
Fluoresces brilliant green to yellowish green under Ultra Violet Quartz Lamp.
5 lbs. — \$3.00 Postpaid
Satisfaction Guaranteed
Also a few large show pieces.
BLACK LIGHT MINE
Box 364 Twentynine Palms, California

Owing to the severe illness of Mrs. Kathleen Kitchell we will have to suspend all retail sales until such time as we can catch up with orders on hand. Mrs. Kitchell is at present much improved and we hope it will not be long before we are able to take care of new orders once more.

FRANK DUNCAN AND DAUGHTER
P. O. Box 63 Terlingua, Texas



HUBBELL'S INDIAN TRADING POST

NAVAJO INDIAN RUGS & JEWELRY
Tom S. Hubbell, 2331 Pico Blvd.
Santa Monica, California

Highland Park Lapidary Supply
1009 Mission St., South Pasadena, Calif.



1 in. ARBOR 31 in. LONG
2 3x8 DRUM SANDERS

Write for our Catalogue

GEMS . . .

This month we are offering a selection of beautiful matched gems for ear rings. Each of these gems will be hand picked for matching color, size, and beauty. Solve your XMAS problems. Give perfect matched ear ring gems for XMAS.

Tiger eye, blue, 7Mm rounds, per pr.	\$ 1.20
Tiger eye, red, 12x5 Mm ovals, per pr.	1.40
Tiger eye, green, 10x5 Mm ovals, per pr.	1.20
Moss agate, green, 10 Mm rounds, per pr.	1.40
Amazonite, 8 Mm rounds, per pr.	1.20
Sapphires, golden, green, or orchid, per pr.	10.00

KRUEGER LAPIDARIES
(Mail Orders Only)
106 W. Third St., Dept C, Los Angeles 13, Cal.
Residents of Calif. Add 2½% Sales Tax

'COLORADO MINERALS'
Crystals
Cabinet and Fluorescent Specimens
Gems Native to Four-Corner-States
MARVIN'S ROCK SHOP
U. S. Hiways 160 & 550, Durango, Colo.

Miners and Prospectors
INSTANTLY IDENTIFY
URANIUM
MERCURY
SHEELITE
WILLEMITE
and other valuable ores with

MINERALIGHT
Find Hidden Values

FREE
A four-color **MINERALIGHT** Catalogue . . .
WRITE DEPT. T TODAY!



MINERALIGHT DETECTS URANIUM

"The available methods for detecting uranium lacked one or more of the desired characteristics. Eventually, however, a method was worked out that is probably more specific and sensitive than the usual qualitative methods for uranium. Since uranium is most susceptible to short-wave ultra-violet light, the lamp used in this work was the MINERALIGHT V-41 . . . which emits short-wave ultra-violet rays at 2,537 Angstrom units."

INFORMATION CIRCULAR 7337
U. S. DEPARTMENT OF THE INTERIOR
Copies of the full report, "Fluorescence Test for Uranium," are available from the Bureau of Mines, Office of Mineral Reports, Washington, D. C.

ULTRA-VIOLET PRODUCTS, INC.
5205 Santa Monica Blvd. • Los Angeles, California, U.S.A.



By RANDALL HENDERSON

THOSE interested in Indian crafts will be gratified to know that the U. S. Indian Service has no intention of surrendering the market for tribal handiwork to the manufacturers of imitation products without a contest. Word comes from Chicago, where the Indian offices are now located, that an aggressive program is being formulated to stimulate the production and sale of Indian handiwork in the postwar period.

In the final analysis neither the Indian department nor the makers of imitation goods will settle the question. The buying public—that is you and me—will decide whether one or both or neither of the competing industries is to survive. But it is good to know that Uncle Sam is to be aggressively on the side of the tribesmen. The Indian is a good craftsman, but he isn't much of a salesman according to high pressure American standards—and he is going to need all the support that you and I and the federal government can give him.

* * *

I have been re-reading Dr. Alexis Carrel's *Man the Unknown*. It is a stimulating book. Dr. Carrel discusses a factor in human happiness generally overlooked in the school curricula. Discussing the adaptive functions, he writes:

"The exercise of the adaptive functions appears to be indispensable to the optimum development of man . . . Man attains his highest development when he is exposed to the rigors of the seasons, when he sometimes goes without sleep and sometimes sleeps for long hours, when his meals are sometimes abundant and sometimes scanty, when he conquers food and shelter at the price of strenuous efforts. He has also to train his muscles, to tire himself and rest, to fight, to suffer, to love and to hate. His will needs alternately to strain and to relax. He must strive against his fellow men or against himself. He is made for such an existence, just as the stomach is made for digesting food. When his adaptive processes work most intensely, he develops his virility to the fullest extent. It is a primary datum of observation that hardships make for nervous resistance and health. We know how strong physically and morally are those who, since childhood, have been submitted to intelligent discipline, who have endured some privations and adapted themselves to adverse conditions."

Having read that paragraph you will better understand why Desert Magazine is an exponent of rugged outdoor recreational pursuits—camping in the desert wilderness, sleeping on the ground, climbing mountains and exploring canyons, hunting gem stones and rare botanical specimens, pursuing hobbies that require skill of the hands or exercise of the muscles. For these are the pastimes which keep one out of the rut of soft living toward which we drift.

At a previous stage in human history—the period when men walked to work, shined their own shoes, pumped water from the well in the backyard, chopped the winter's wood supply, sawed ice from the pond in winter to keep the butter from melting in

summer—when humans did these and a thousand other personal chores with their own hands, the adaptive functions took care of themselves. But it isn't true in an age when science has provided tools for nearly every human need except thinking, and even helps him with that.

Don't misunderstand me. I am not one of those who would return to the "good old days." The glory of the modern world is that it has released us from the everlasting round of necessary chores and given us the freedom to choose our own adaptive exercises. But it has not released us from the obligation of doing those exercises—of imposing self-discipline and of subjecting ourselves to hard tasks and adverse conditions. It is sometimes a virtue to do things the hard way.

* * *

We've reached another milestone in the life of Desert. This issue begins our 9th year. We are looking forward eagerly to the new year—to a year when we can resume our operations on a peace-time basis. Restrictions already have been removed on our use of paper—but the paper supply is still very limited.

In the meantime, we are storing up plans and ideas for future months—more mapped travelogs, more mineral field trips, photographic contests, desert home and garden features, and before many months we'll be giving you glimpses of the gorgeous desert vistas to be found south of the border in Sonora and Lower California where endless ranges and llanos await the exploration of the jalopy fraternity of campers and rockhounds and mountain-climbers and botanists and photographers.

The past month Desert reached its first goal of 100,000 readers—based on a circulation of 21,000 magazines—an average of nearly five readers to every magazine. By holding our advertising within rigid limits during the war and using the paper thus saved for circulation, and by cutting down on the newsstands, we've been able to take care of most of the applicants for new subscriptions. From now on there will be enough for all—including the newsstands.

We are grateful for the loyalty of the big Desert family during these war years—and we are grateful that the war years are ended.

* * *

According to Regional Park Director M. R. Tillotson of Santa Fe, New Mexico, travel to the Southwestern parks and monuments has more than doubled since the ration restrictions were lifted from gasoline.

Returning servicemen who have been away for three or four years will have to readjust themselves to some disturbing changes in the world they left—that is, the artificial world of man's making. But not in the parks. For it is Park Service policy to preserve the beauty of the landscape as Nature created it—a sanctuary for troubled hearts and confused minds—and there the returned veteran and you and I may go and find an orderly and peaceful world and regain our faith in the ultimate survival of that which is true and beautiful.

Navajo Maiden

By MRS. D. RAY CAMPBELL
Riverside, California

I met her one day as I strolled o'er the mesa—
Her full skirts flip-flopped as she hurried on by.
The coins on her moccasins pleasantly tinkled
And shyly she looked from the tail of her eye.

Unrivalled by raven, the hue of her tresses;
The red of the cherry her lips would disgrace;
The flash of her teeth as she smiled was
enchantment;
No flower of my ken could e'er equal her grace.

Her velveteen jacket embraced her soft body
Revealing a charm and a grace all her own;
A beauteous flower she seemed to my fancy
Just bursting to bloom on the desert alone.

I sighed as she passed from the range of my
vision
For sight of her stirred something deep in my
heart,
And I prayed that no ruthless hand e'er would
discover
This flower of the desert to crush and depart.

NO REMEMBERED LAUGHTER

By RUBY LYTLE
Montrose, California

All night I lie awake, while others sleep,
And hear the desert wind go singing through
The empty canyons to a rendezvous
Among the laurel that I can not keep.
O wind of purple sagebrush! I, who weep
For tender warmth of kisses that I knew,
Am envious of trees you nightly woo
Tempestuously with sudden fragrant sweep.

Tall grasses quiver on the starry height;
And yucca bells, responsive to your voice,
Dispel the silence with their rustling tone.
But no remembered laughter floods with light
My heart's bleak sorrow. I, who have no choice,
Must listen from this prison room—alone.

THE SAVAGE WIND

By DONALD G. INGALLS
Los Angeles, California

The crouching shadows that are the trees,
Cringe low in helpless fear,
For the savage breath of hell's own wind
Tonight is raging here.

His voice is loud, his strength immense.
The weak fall at his breath.
He mutilates their corpses,
Then leaves them limp in death.

He clouds all sight with blinding dust,
Crowds out the pale moonlight.
Then suddenly the air is still,
He's flown on wings of night.

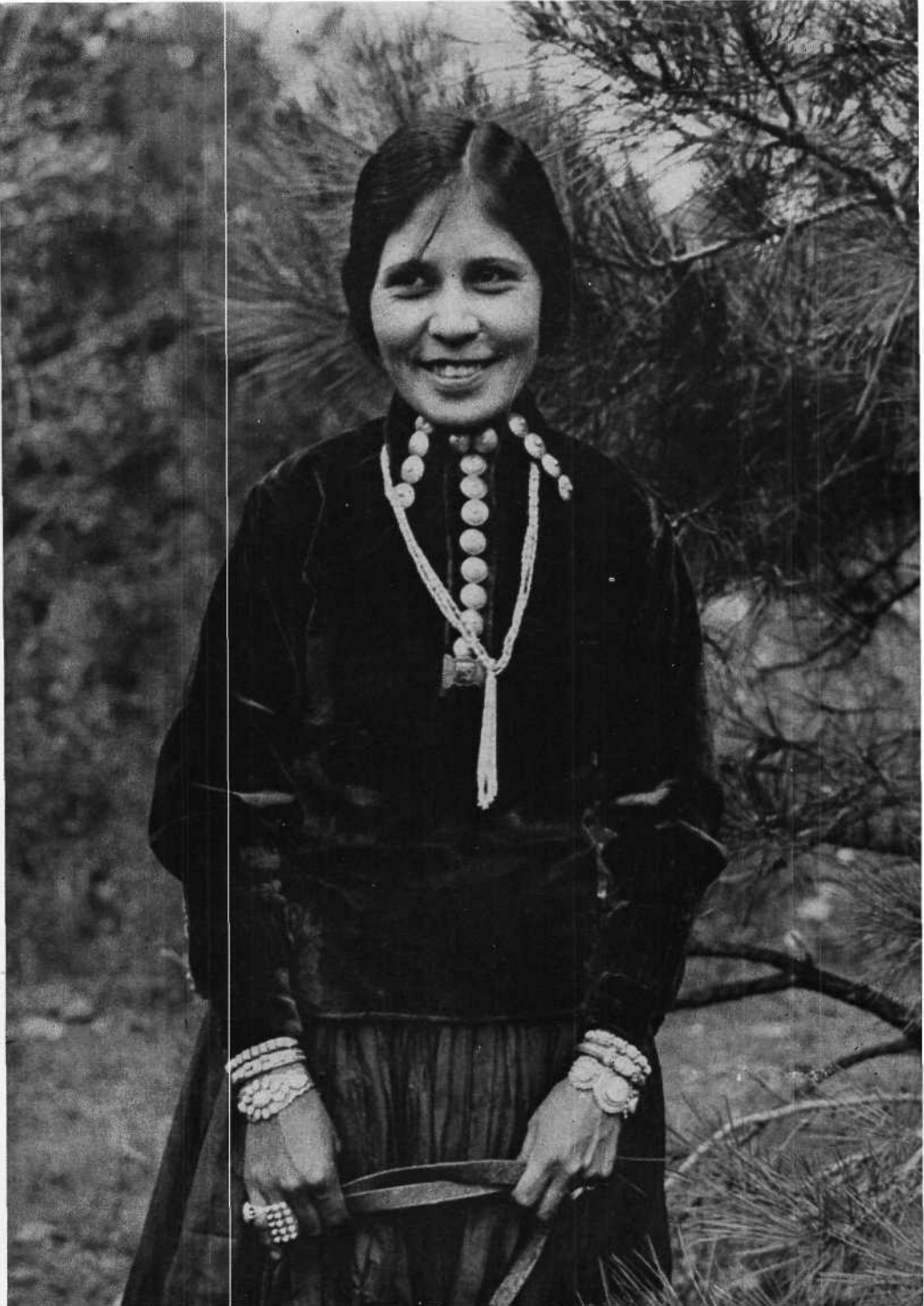
DESERT SOJOURN

By EVELYN B. COMAN
Las Vegas, Nevada

I will remember, all my days, this desert—
The mountains lifting austere peaks and dark;
The blue and cloudless canopy of the sky, so
tautly
Sealing the wasteland vastness in its arc.

I will remember sunsets bold—and mornings
Like jewels, incredible with light!
Twilights of velvet, hushing every wind sweep,
Stars leaning low upon the desert night.

You who are claimed for war's black crime, and
longing
To clasp the treasures of God's truth apart
From strife, reach to the silence of the desert—
Peace in full measure, waiting, for your heart.



Josephine Jane of the Navajo. Photo by Oren Arnold.

STARS FOR COMPENSATION

By CECILE J. FANSOME
Banning, California

Morning crowned the dunes with gold
That swiftly faded from my view
As noonday sunlight, warm and bold,
Dyed every slope a sapphire hue;
Evening brought those colors back
And added flaming crimson bars.
Then night, to compensate her lack
Of rainbows, filled the sky with stars
That swung so low above the sand,
I almost caught one in my hand.

CREED OF THE DESERT

By JUNE LEMERT PAXTON
Yucca Valley, California

When primrose dons her gown of white,
No frowns her features mar;
For primrose tries to look her best
To woo the evening star.

THE DESERT

By MYRTLE M. PEPPER
Los Angeles, California

Man roughly treads this crusted sand,
This gritty, hot, and thirsty earth,
This sun-browned mother giving birth
To plants resembling octopi
With rare exotic blooms that rise
Toward carnelian-tinted skies.

MOONLIT GOLD

By LELA M. WILLHITE
Salinas, California

It could not be the immeasurable space
That the desert has used to bind me here:
Nor the lure of a sky transparent and clear,
Nor the western wind in a ceaseless race
Across the smooth and undulating waste—
It could not be the silence, so calm and chaste,
With invisible bonds that clasp and hold
My soul within this tight embrace;
But my heart leaps up at the shining grace
Of a desert that is gilt with moonlit gold.



DESERT TREASURE GIFT PACK \$10⁷⁵
Delivered Prepaid



DE LUXE GIFT PACK . . .
1 lb. \$1.25 3 lbs. \$3.50
5 lbs. 5.50 All Delivered Prepaid



Gift Suggestions--

Delicious . . .

Healthful! . . .

Any of these packages will bring to your friend the rich flavor of Desert Goodness, plus the added flavor of your Generous Thought in sending.

We mail direct enclosing your gift card.

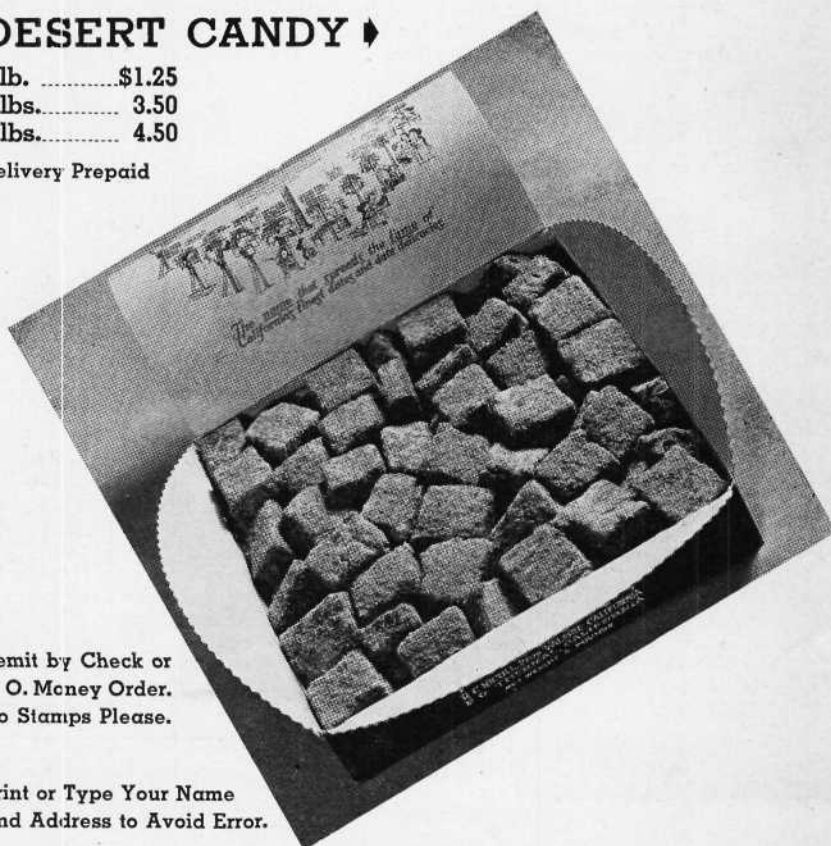
Valerie Jean Date Shop

THERMAL . . . CALIFORNIA

DESERT CANDY ▶

1 lb. \$1.25
3 lbs. 3.50
5 lbs. 4.50

Delivery Prepaid



Remit by Check or
P. O. Money Order.
No Stamps Please.

Print or Type Your Name
and Address to Avoid Error.

◀ DEGLET NOOR DATES . . .

3 lbs. \$3.00 5 lbs. \$4.50 Delivered Prepaid