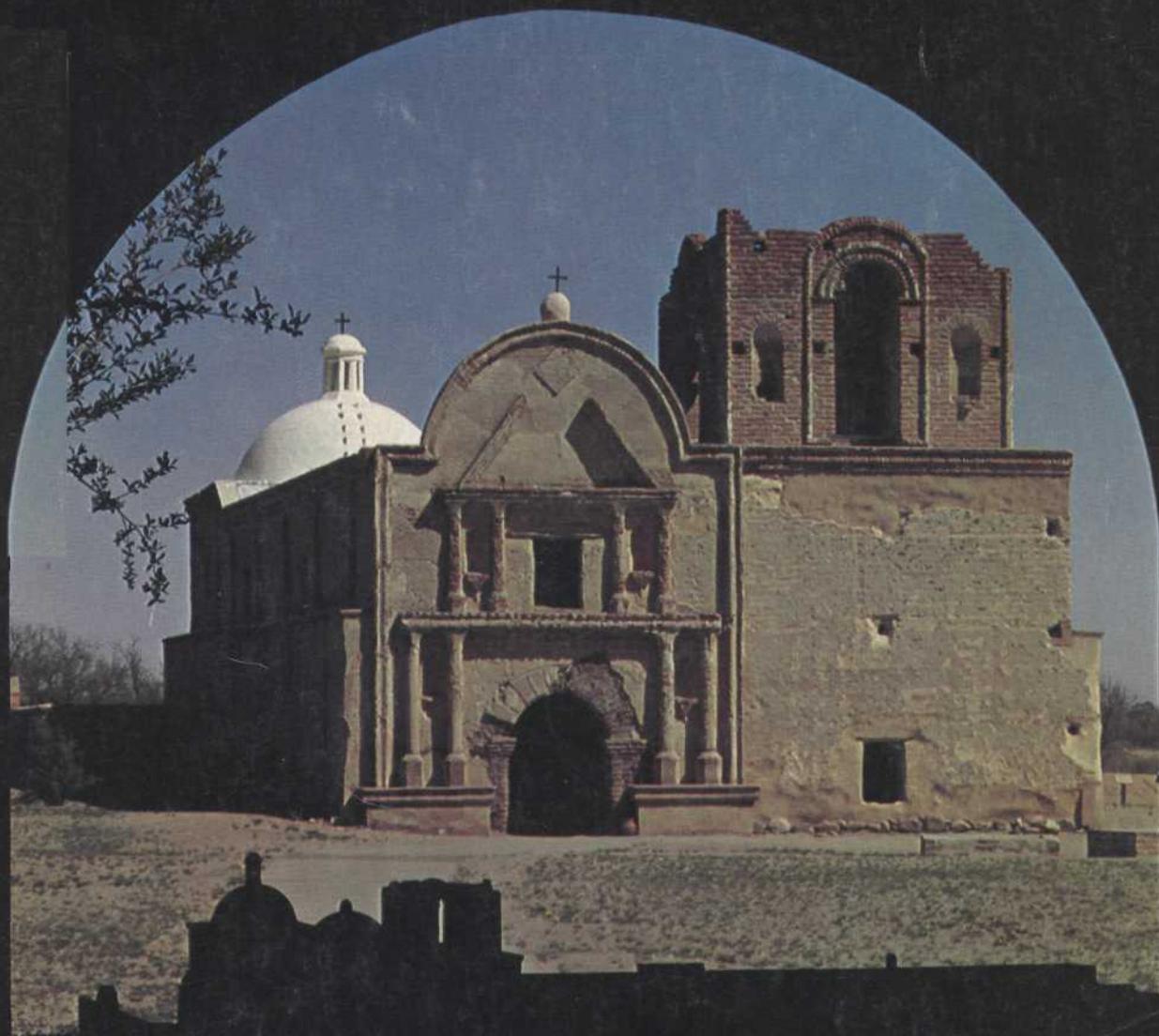


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Volume 37, Number 9

SEPTEMBER 1974

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THE COVER:
David Muench of Santa Barbara, Calif., frames the old mission at Tumacacori National Monument, in southern Arizona

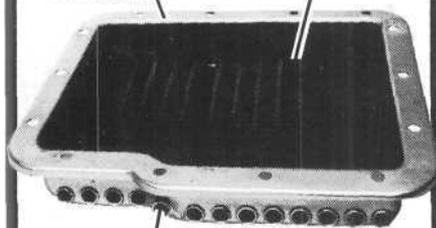
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**A Peek
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Publisher's
Poke**

THIS MONTH'S issue has a variety of articles and one that should be of great interest to most readers is the analysis of the Interim Desert Management Plan by Mary Frances Strong. She has logged tens of thousands of miles traveling through the deserts of the West, and is an acknowledged writer who has for 22 years been extolling the great outdoors through her field trips in both *Gems and Minerals Magazine* and *Desert Magazine*. It is an important issue, not only for the rockhound but other recreationists as well.

K. L. Boynton tells us about the shiny black Phainopepla and the relationship it has with the desert mistletoe. Helen Walker does a thorough job on petroglyphs in the Coso Range, and John Southworth gives us a new slant on the "Lost Adams Diggings."

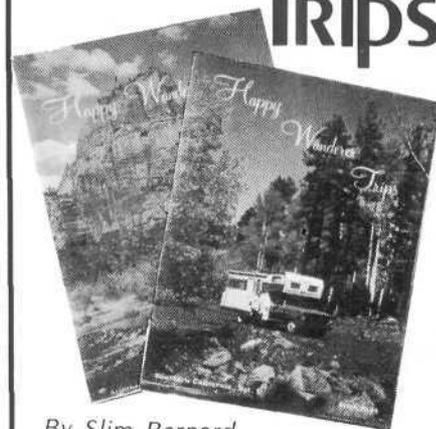
After an absence of several years, Roger Mitchell returns to *Desert* with a different trip to Sonora, Mexico, and Mary Frances Strong contributes a field trip for crystals in the White Mountains of California.

Two new authors are introduced with this issue. Larry Phillips does a nice job on Masonic, a little-visited mining camp, complete with a dramatic sunset photo. Clyde H. Smith, who has many, many credits on the East Coast, rounds out the month with his experiences of a flash flood.

I would like to note a minor proof-reading error in a photo caption that appeared in the July issue. On Page 23, the last line should have read "no vandals had apparently damaged the area since we photographed it in 1972!" This changes the meaning slightly.

William K... [Signature]

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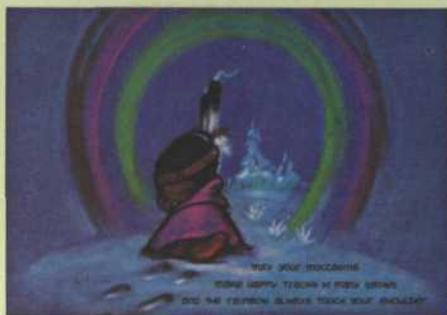
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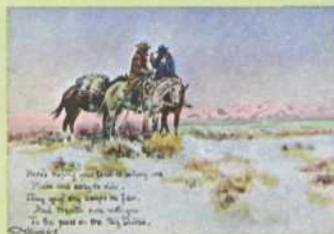


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AMERICAN INDIAN FOOD AND LORE By Carolyn Neithammer

DESERT feels this is one of the most interesting, unusual and necessary books of our time, and the answer to the queries of our readers who have written or dropped by our Book Shop desiring to become more knowledgeable of the original Indian plants used for foods, medicinal purposes, etc.

An excellent introduction is given of the Aboriginal Territories of the South-

western Indians, explaining why the Hopis, for instance, used almost every wild plant that grows on their mesas, while the Navajos, in contrast, use some, but not all, that grow in their areas, and why the Zunis have fully adopted their plants, considering them a part of themselves. The various customs of the Indian Tribes of gathering, harvesting, cooking, foods used for courtship and marriage, gifts and festivals are explicitly explained. The author states, "The land was the Indians' supermarket—supplying all their needs, groceries, medicines, eating utensils, clothing, tools, home-building materials and so on. Many of the plants were used in a number of ways. After the recipes of each plant, I have listed other uses of the plant, including medicinal purposes."

And, indeed, she has. Starting with the chapter on Cactus and Cactus-like Plants, Carolyn Neithammer gives the plant listed in alphabetical order under its most-often-used common name. Other common names and the scientific name for each plant is also given. Because of the importance of identifying the desired plants when out in the field, she has included a description of each plant used and, in addition, these descriptions have been supplemented by line drawings of Jenean Thomson which add an important visual dimension. Importance is stressed to learn the common poisonous plants to be found in your favorite hunting grounds.

There are recipes for the Agave, Barrel Cactus, Cholla, Ocotillo, Prickly Pear, Saguaro and Yucca Cactus, followed by chapters on Nuts and Seeds, Grapes, Berries and Cherries; Foods of Marsh and Mesa; Greens, and a most interesting chapter on Agriculture of their domesticated crops which include recipes for their beans, corn, chili, breads, squash, pumpkin and pumpkin seeds.

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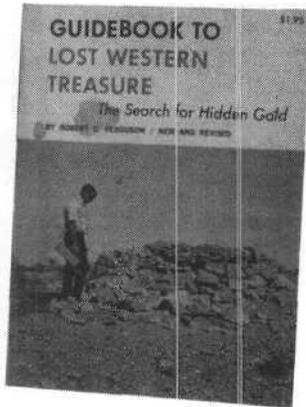
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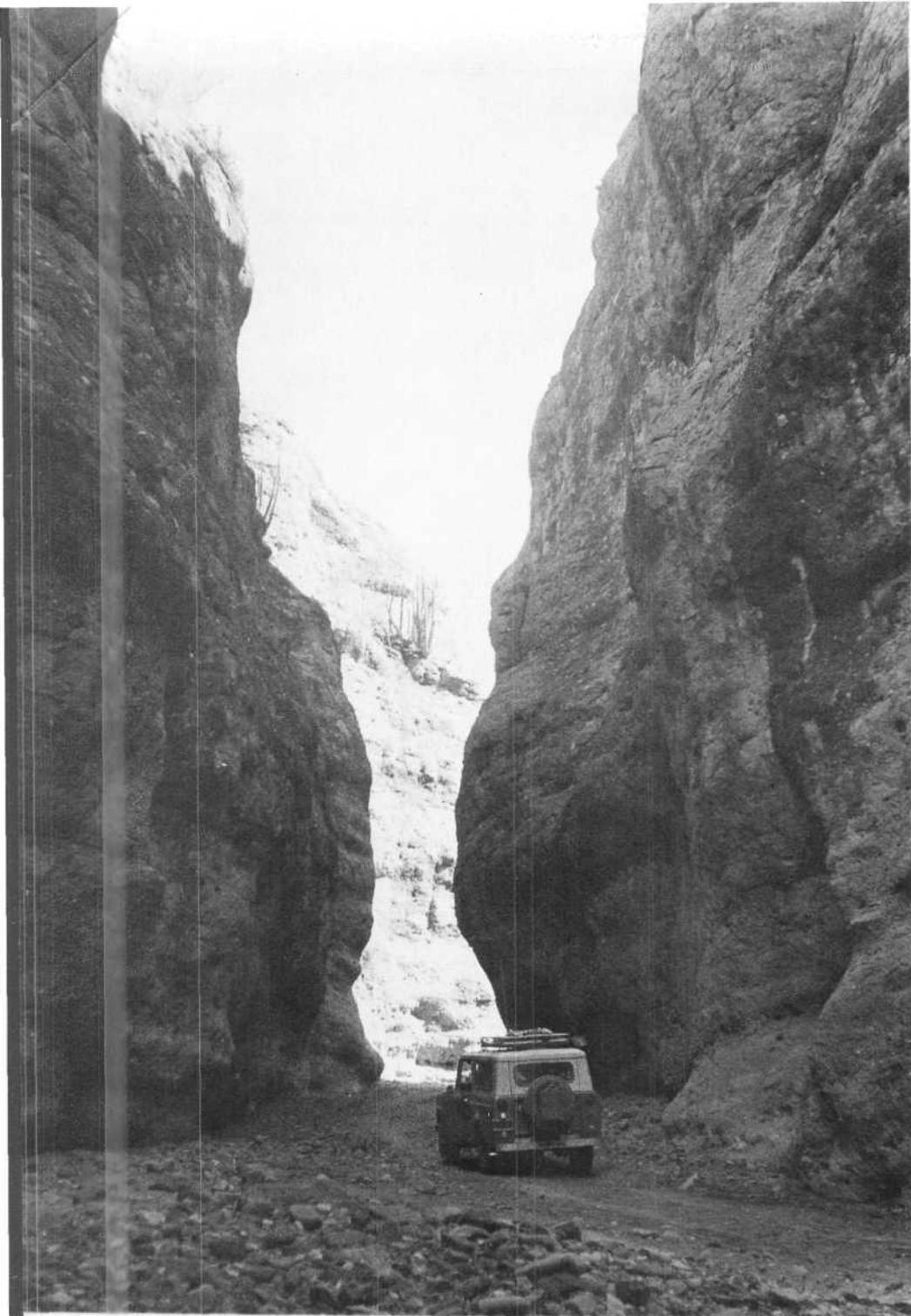
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Author of "Eastern Sierra Jeep Trails," "Inyo Mono Jeep Trails," "Exploring Joshua Tree" and "Western Nevada Jeep Trails," Roger Mitchell tells of a relatively unpublicized area of Sonora, Mexico.

ARE YOU AN *aficionado* of Mexico's back roads looking for an interesting trip not too far from the border? If so, the road to Arizpe has a little something to offer everyone. There is history, scenery, back road challenge and adventure all coupled with the decided flavor of a foreign country.

The road south to Arizpe starts at the copper mining town of Cananea just below the Arizona/Sonora border. Cananea is on Mexican Highway 2 some 50 miles west of Douglas-Agua Prieta, or 95 miles east of Nogales via Imuris. Cananea is a bustling mining town with an American-style motel and several good restaurants. Last-minute supplies can be picked up there. You should also top off your gas tank for it is 55 miles to the next gas station in Arizpe.

The road to Arizpe heads south from Cananea, but there is no easy way to describe how to find it. You are simply going to have to inquire locally. Ask for the road to Bacanuchi. In Spanish you would say, "*Donde esta el camino a Bacanuchi?*" Be careful not to confuse Bacanuchi with Bacoachi. The road to the latter heads east out of Cananea and you can return that way on the second half of this loop trip.

By Mexican dirt road standards, the road from Cananea to Bacanuchi isn't

ARIZPE ADVENTURE

by ROGER MITCHELL

Opposite page: Winding through eroded canyons adds to the interest of the trip to Arizpe.

Right: A stream is forded frequently and makes visiting the area dependent upon the seasonal rainfall.



too bad. It is wide enough for two trucks to pass and the dirt surface even sees a blade occasionally. You can travel much of it in high gear, although slower speeds and caution should be exercised on curves and when passing other vehicles. At a point 14.7 from the outskirts of Cananea the graded road forks. Keep left here. The right fork will take you back to Route 2 near the village of Cuicatana.

Bacanuchi, a rather nondescript and historically insignificant village, is 16.8 miles south of this fork. Pemex Super-Mex (80 octane gasoline) is usually available here, but I would not recommend using anything less than the "Gasolmex" (90 octane) if you can last another 24 miles until you reach Arizpe.

From Bacanuchi the road and countryside becomes more rugged and interesting. A half a mile beyond the village center the Rio Bacanuchi is forded. This stream crossing usually represents no problems to vehicles. Beyond the ford, however, the road deteriorates as it starts across the lava-covered plain to-

wards the distant hills. While four-wheel-drive is not required, high clearance vehicles such as pickup trucks are a must. I would not recommend this road for the low-slung passenger car of today.

Although a few ranches are passed, the signs of civilization become fewer and fewer as you go farther south. The road winds its way into the hills, and in the vicinity of the Km 250 signpost crosses a low pass. The road soon descends into a canyon which usually has a small stream in the bottom of it. For the next couple of miles, the road crisscrosses back and forth across the stream as it winds its way down the colorful arroyo eroded out of red rock. Again, the stream crossings usually present no particular problems for vehicles. The stream is the life-blood for a large and diverse arid country ecosystem. A great variety of wildlife depend on it. Dove and quail are often seen in great numbers around dusk. I once had the rare treat of watching a family of coatimundi here, frolicking in the water quite oblivious to my hiding place behind some nearby wil-

lows. For those looking for a wilderness campsite, this canyon would be a good choice for once you leave it you will soon be in Arizpe.

Finally, Arizpe is reached some 55 miles south of Cananea. Arizpe may not be the oldest community in Sonora, but it nevertheless has a respectable old history. Situated on the bank of the upper Rio Sonora, the area attracted the early Indians long before the arrival of the Spaniards in the New World. The first European in the area was probably a Franciscan missionary, Father Juan Suarez in 1642, although he did not stay. Suarez was followed by a Jesuit missionary, Geronimo de la Canal two years later. By 1650, Arizpe had its first resident priest, Father Felipe Esgrecho. With the padres came conversion to Catholicism and an agricultural-based lifestyle for the Indians. Adequately rich soil and a dependable source of water caused the community to grow and prosper over the years.

When Father Juan Zapata visited Arizpe in 1678, he reported finding 416



The old church in Arizpe where the body of explorer Juan Bautista de Anza is buried.

people living there, and they had built a large, beautiful, and well-equipped church. By 1778, a century later, the population of Arizpe had more than tripled to 1534 people, of whom 514 were of European origin, and the remaining 1020 were Indian. In the middle part of the 19th century, however, as many as 13,000 people may have lived in the area. The 1960 Mexican census shows 4108 people living in the Municipality of Arizpe which covers an area of some 2806 square kilometers around the town. The 1969 census recorded an increase of 1150 more people in the Municipality.

In 1776, Arizpe was made the capital of Provincias Internas De Occidente under Governor-General Teodoro de Croix. During this colonial period, Arizpe was the seat of government for an enormous area which stretched from the Gulf of Mexico to the Pacific Ocean and included

what is now the States of Baja California, California, Sonora, Chihuahua, Arizona, New Mexico and Texas. In later times, Arizpe served as the capital of Sonora. Arizpe is also noted as being the birthplace of three Mexican patriots, Pedro Garcia Conde (1806-1851), Ignacio Pesqueira (1818-1886) and Jesus Garcia Morales (1824-1883).

It is hard to believe this rich heritage when driving into this picturesque, but sleepy little village out in the middle of nowhere. Arizpe today has one foot in the 20th century and one foot in the past. With the paved road coming closer from the south every year, it seems only a matter of time until the nature of the community will be altered forever. Arizpe already has locally generated electricity and a Pemex gas station with two grades of gasoline. There is also a new government building and several mod-

ern homes. Like all traditional Mexican villages, however, the life of the community still centers around the neatly maintained plaza, or town square. Arizpe's plaza comes complete with bell-tower.

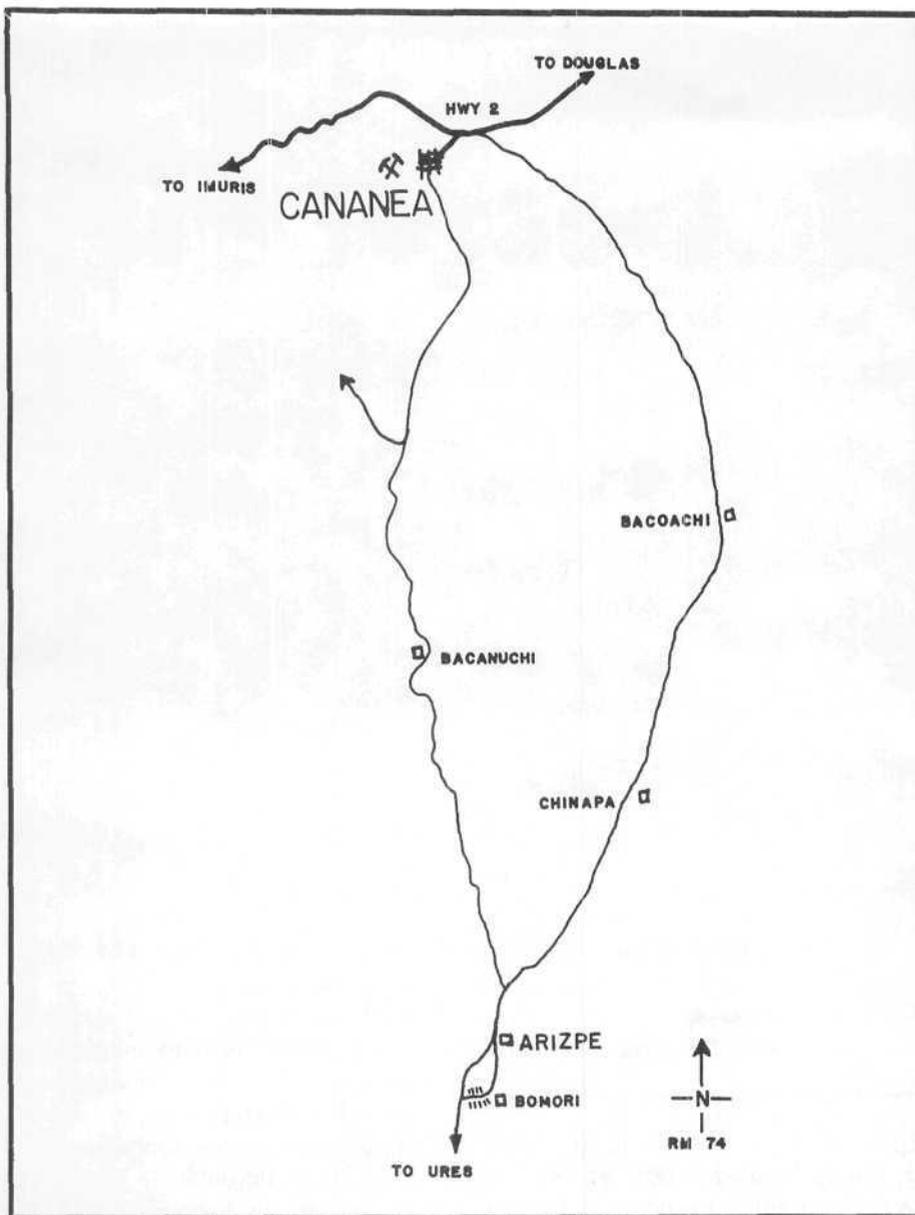
While Arizpe may be changing, it is not difficult to find the past. Only a block away from the plaza stands the enormous cathedral which dominates the town. The church was started in 1756 by Father Carlos Roja when the town of Arizpe was moved to its present location on higher ground away from the river. The church in Arizpe is the oldest Jesuit church still standing in Sonora, and certainly the most impressive. Visitors are welcome inside, but remember it is still a church in daily use.

The altars are richly decorated with enormous centuries-old paintings. But it is not the picturesque old bells, the gilded artwork, or the church's ancient library which makes the cathedral famous. Buried beneath the floor of the church lies the body of Juan Bautista de Anza, the renowned Spanish explorer of early California fame who first colonized San Francisco in 1775. De Anza died in Arizpe in December of 1788.

Famous persons are commonly buried in great cathedrals, so de Anza's final resting place is not particularly unique in itself. But what makes the church at Arizpe so unusual is that de Anza's grave has been opened and covered with glass. Today's visitor can look down into the casket at his grinning bones, still partially covered with the remnants of his uniform.

Those wishing to continue south down the Rio Sonora can do so, visiting the historic mission towns of Sinoquipe, Banamichi, Huepac, Aconchi, Baviacora and Ures. The road is dirt but in fair condition the 37 miles from Arizpe to Huepac where the pavement starts and continues all the way to Hermosillo. For those with limited time, I would recommend continuing south from Arizpe at least five miles. At a point 3.3 miles south of Arizpe, the village of Bomori is reached. Here the road leaves the Rio Sonora and for a mile or so winds its way through an incredibly eroded grotto. This side trip is worthwhile.

To return directly to the border by a different route, leave Arizpe on the same road you came in on. At a point 2.5 miles north of the plaza the road forks. Here a sign points the way right to Bacoachi and



Cananea, some 66 and 137 kilometers away respectively. Keep right. This route is 20 miles longer than the route you came in on, but the road is probably a little better. A shade short of halfway in the 36 miles between Arizpe and Bacoachi is the small but historic village of Chinapa. This community dates back to the Franciscan era around 1648.

The road north continues up the Rio Sonora and, in fact, is often in the Rio Sonora. Fortunately, there is no quicksand and the water is usually low enough to make fording possible.

Father Juan Suarez was in Bacoachi as early as 1642. There is no record of when the first church was built, but a well-decorated church was reported here in 1678. The foundations of this first church may rest under the impressive edifice found here today. Today's church was greatly remodeled after a disastrous

earthquake in 1887 nearly destroyed it.

Unlike its better protected sister city of Arizpe, Bacoachi did not have so many inhabitants and was subject to an occasional raid by the fierce Apache. For this reason, a detachment of Spanish troops was often garrisoned in Bacoachi to protect the town and outlying ranches.

From Bacoachi it is about 40 miles north to Cananea and the paved highway. The road is graded, however, and the trip can be made in less than two hours.

The best time to visit Arizpe is anytime except July, August and September when temperatures are at their highest and rainfall the greatest. The rainy season should be avoided because rising waters can often make the roads impassable. Whether you make this trip in a week or a weekend, it is one you will remember.

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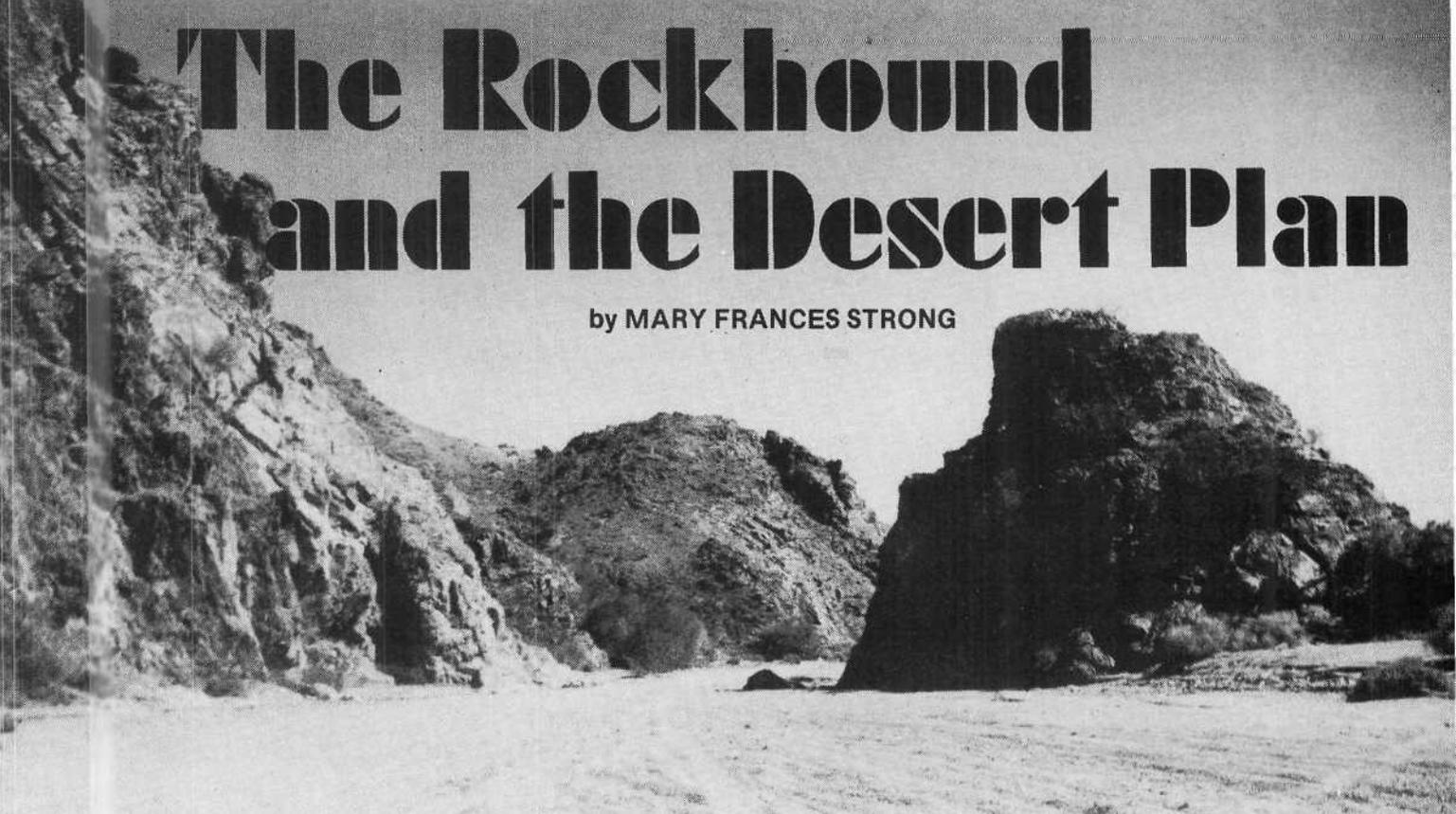
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The Rockhound and the Desert Plan

by MARY FRANCES STRONG



A LONG AND UNEASY wait for the "Interim Critical Management Program," to be used on the Mojave and Colorado Deserts, is over. The Bureau of Land Management (B.L.M.) has delineated 71 areas in California's vast desert region, the use of which will fall into one of five "designations"—Closed, Open, Special Design, Designated Roads and Trails and Existing Roads and Trails. This strict management program of our Public Lands went into effect November 1, 1973.

The first season of Federal Management of California's Desert Region has been concluded. The changes are many. On land we have roamed and camped at will, explored, enjoyed our hobbies and come to love, we are now merely visitors who must take heed and follow the rules laid down by the B.L.M. Where we can go, what we can do, where we can camp is being decided by a governmental agency. When people have heretofore enjoyed the freedom to use their Public Lands, restriction and loss of choice is a bitter pill to swallow.

The B.L.M. has made detailed maps available which show the boundaries of the 71 areas affected. Careful study and comparison with U.S.G.S. topographical maps indicate quite clearly what affect

The popular 4WD trail up scenic Salt Wash is in an "Open" designation. This is also the route used to reach a bloodstone site in the Orocofia Mountains.

Although this article is directed primarily to rockhounds, all recreationists should study this Desert Plan report and its ramifications.

the Management Plan will have on the rock collector. The "Interim Critical Management Program," put in force last November, was one with which the rockhound could live. Unfortunately, the Plan is already undergoing radical changes.

While complete freedom is most desirable, we must expect and accept change. Tremendous population growth and rapidly increasing use of the desert as a recreational region has brought about the need for some control of land use and protection of antiquities. Most outdoor people are in agreement that scenic geological formations, rare and unusual flora and fauna, records left by prehistoric man and later desert dwellers be preserved. However, a sensible plan which will protect yet allow the multiple

use of desert land is desired by the majority of the people.

Man, living tightly-packed in cities of steel and cement, is in an unnatural environment. If he is to survive, he must have land on which to roam, to get away from constant noise and confusion, to refresh his soul and untangle taut nerves as he pursues his hobbies. Our Public Land must be used for "Man today, as well as saving it for tomorrow."

When the overall map was made public showing 16 "Closed" areas which included Amargosa Canyon, Turtle Mountains Interior, Clark Mountain, Orocofia and Whipple Mountains, rumors ran rampant concerning the loss of many fine collecting locales within these areas. Study of the detail maps and plotting of boundaries discloses only two collecting sites have been affected.

Causing the most consternation was the Closed Designation for the Turtle Mountains Interior (Area 34). Most thinking people will agree the closure was justifiable, since it would probably save a small band of fast-declining Desert Bighorn Sheep. According to the boundary lines given by B.L.M., only one minor collecting locale, near Coffin Spring, lies within the closure. (This site is Area "E" in Desert Gem Trails, page

69.) It is still possible to drive within one-half-mile of the site and then make a short hike up the wash. The remaining Turtle Mountains collecting locales come under "Designated Roads and Trails."

The boundary lines given for the Orocopia Mountains, (Area 51) Closure, indicate the bloodstone deposit (*Desert*, Feb. 1972) either lies about on the line or possibly one-tenth-of-a-mile within it. Should the latter be the case, it will only be a very short hike from the parking area.

More pertinent to the use of this locale was the inclusion of Sec. 2, T. 8 S., R. 11 E. in the Closure of Salt Creek (Area 54). Access to the bloodstone deposit is via the canal road which crosses the N.E. corner of Section 2. A phone call to Gordon Flint, B.L.M., Riverside, California revealed they would not be closing the road, since it is an easement. However, he said he had been told the roadway was posted "No Trespassing."

Since the canal and road are under the jurisdiction of the Coachella Valley County Water District, I talked with Kerby Hester, their Administrative Engineer.

"Rockhounds and Four-Wheelers have been using the county road for years. We have no objections. It is not posted—only the canal and its pertinent structures," Mr. Hester told me. This means there is still access to the deposit via the canal road and the 4WD trail up Salt Wash.

Closure of Amargosa Canyon (Area 17) does not include Sperry Wash Road leading to the wood area several miles south of Tecopa. Nor is the Copper World Mine within the Closure of Clark Mountain (Area 22).

Well over a hundred remaining collecting locales fall under a "Restricted" designation which has been subdivided into three categories—Special Design, Designated Roads and Trails, Existing Roads and Trails. It would seem that the rock collector had not fared too badly. However, it is the "Restricted Designation," appearing innocent on the surface, that is capable of bringing regulations the rock collector would find untenable. You might say, it is a bone thrown to pacify us temporarily.

Under the Restricted Designation, "Special Design" means a detailed plan has yet to be prepared in cooperation with other governmental agencies and



Long before the Desert Management Program began, steps were taken to protect precious antiquities such as the Cottonwood Charcoal Kilns. Weather is the greatest vandal here. Since this photograph was taken, a roof has reportedly been constructed over the kilns.

public interest groups to provide a variety of vehicle use together with related recreation facilities such as camping areas, use boundaries and access roads.

"Designated Roads and Trails" means recreation vehicle travel will be permitted only upon those roads and trails designated for use by B.L.M. These two categories are not yet in effect and the current plan states "until such plans and designation is completed and adopted, recreation vehicle use is permitted only on existing roads and trails."

In other words, *the majority of our collecting areas are not yet categorized.* The roads we may travel and where we will be allowed to collect have not been decided. Governmental agencies and public interest groups will make these important decisions. It is imperative that the rock collecting hobby be represented at future sessions dealing with the use of areas under the "Restricted" designations.

While our local B.L.M. offices have seemingly been sympathetic to the rock collector, we must remember they are a government agency and, like politicians, come under the influence of pressure groups and lobbyists. They must listen to the fanatical preservationists who seek to close the desert to all vehicular use, as well as their opposing counter-

parts who wish the desert region to be left entirely without control of its resources.

You will recall I stated earlier, "The Plan presented and put in force Nov. 1, 1973, is one with which the rockhound could live." Though in force less than four months, changes were being made which would seriously affect group and club field trips. Also, there is currently a bill before Congress which proposes to transfer two million acres of desert land containing at least two dozen prime collecting areas. It is not important now whether or not the Interim Management Plan is acceptable. These proposed changes are not!

Let us discuss them separately. In February, 1974, B.L.M.'s National Director, Curt Berklund, issued Instruction Memorandum 74-60, effective immediately. It directed all field officials to issue special land use permits on National Resources Land—this is the new name given to our Public Lands. Six months earlier, the local B.L.M. had assured rockhounds that, despite the wording in Executive Order 11644 for the control of off-road vehicles, permits and fees would not apply to rockhound field trips and similar activities!

The requirements for obtaining permits were absurd. You had to know 80 days in advance when you wished to



A Bill pending in Congress provides for the transfer of two million acres of desert land to the California Park System. It would not only close many prime collecting areas, but also restrict access to old mines and ghost towns such as Providence.

drive out into the desert to collect rocks with friends. A detailed application form was to be filled out, two topographical maps marked with the route to be taken, where you would meet and camp. A \$10.00 non-returnable filing fee was to be included.

IF, your permit was granted, a minimum \$10.00 land-rental fee was to be charged and certain conditions of usage be imposed such as *insurance requirements and a cash bond!* Though your party might be composed only of family and friends totaling 25 or more, the trip

would be subject to the above regulations. Such planned control and regimentation of our private lives is frightening!

Fortunately, this memorandum was rescinded due to the protests of recreationists. But, the question is, what next? This is the second time that the Washington office has sent out highly objectionable regulations concerning outdoor recreation. In February, 1973, a set of rules for off-road vehicles was issued which met so many objections that it was recalled for revision. It looks as though

Collecting in Turtle Mountain Basin is still permitted but is under "Designated Roads and Trails." This designation means very little since B.L.M. has yet to decide what roads and collecting locales its final plan will allow the rockhound to use. The "Closed Turtle Mountain Interior Boundary" runs along the base of the mountains in the background.



we are going to have to be constantly on guard to keep something from being slipped by us.

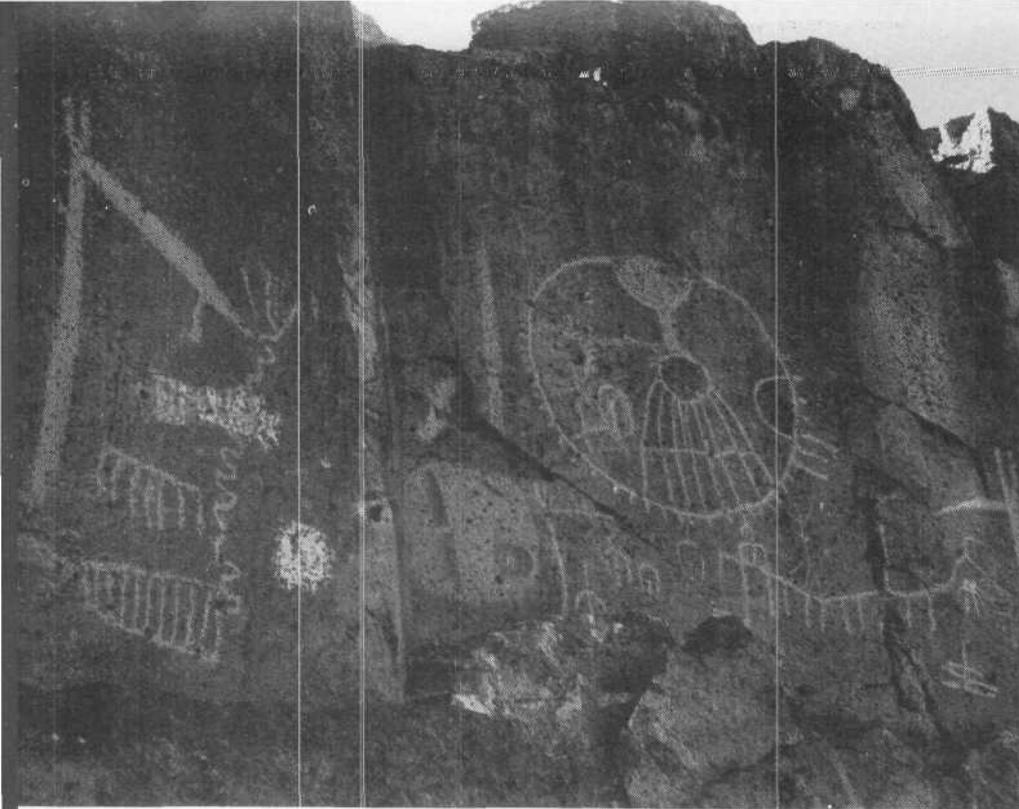
The seriousness of Instruction Memorandum 74-60 was not the requirement of permit and fee, but the way the rules were set up. Rockhound field trips are camping trips with family and friends, not competitive recreation events. While a club field trip chairman could possibly plan 80 days in advance, individual trips with friends are generally spontaneous and not planned very far ahead.

Group permits could lead to individual permits or no permits except for groups. The next step could be permits and reservations which would radically limit the number of people who would be allowed to use the desert land. Let's project a bit further into the future. Rangers would be needed to check permits and the next move could be to allow collecting in only a few designated locales. Next, the preservationist could cry "over-use" and have the land closed "to rest." These possibilities are not as far-fetched as you might think. It would seem that every means legally possible will be used to eventually stop vehicular use on desert land by recreationists — rockhounds included.

Dark clouds are hovering over two million acres of Mojave Desert land between Highways 15 and 40, extending from the Cady Mountains east to the Colorado River. Representative William M. Ketchum (R-Calif.) has introduced a bill, H.R. 14369, which, if passed, would transfer this land to the State of California for use as a State Park. This region contains over 20 of our finest rock collecting locales, which would be lost to us. Should the bill be passed, it could sound the death knell to rock collecting in California's Desert Region. Such success would be sure to quickly bring other bills and closures.

Another major change in the Interim Critical Management Plan is now in the offing. The B.L.M. is trying to draft a working definition of *Existing Roads and Trails*. Consider the importance of this matter. The recording of a few words will determine whether favorite collecting areas will be accessible or not.

Just what is an *Existing Road or Trail*? You can be sure that the definition submitted by a preservationist will differ from that of a recreationist. If an adverse definition is drafted, many of the roads



Inyo County has elected to share its beautiful Chalfant Valley Petroglyphs with visitors. The Bishop Chamber of Commerce provides free guide folders with maps and text of "Petroglyph Tour." Most of the damage to the glyphs was done before the self-guided tour was established.

and trails we have used for years could be declared non-existent and closed.

Rockhound groups and other recreational organizations have been asked to aid in the formulation of the definition. B.L.M. will receive suggestions from groups and individuals between August 15th and October 1st. For further information, contact your district B.L.M. office.

It is not a secret that a very active movement is underway to make the Desert Region a place where man may only walk. Preservationists are hard at work and using "no holds barred" schemes to take Public Land away from 97 percent of the people. Only through the personal commitment of every rock collector and recreationist can we insure the continued use of our Public Lands. We must all write letters of protest to our Senators, Congressmen and Chairman of Committees such as the Committee of Interior and Insular Affairs, National Parks and Recreation, Environment, etc., We must also advise our State Senators and Assemblymen of our desires.

If you value your hobby and your right to use Public Land, the changes in the Interim Critical Management Plan will not be acceptable. Though the future looks dark, we can save our recreational

lands by taking action at once. Representative William Ketchum, who introduced the bill for a two-million-acre desert land giveaway, is said to close his newsletter to constituents as follows: "No King ever wielded a sceptre more powerful than a 10 cent pencil in the hands of an American Citizen when he sits down to write his Representative." *How right he is!*

We cannot rely on the assurances and promises of the B.L.M. Though their intentions may be good, they fluctuate and yield under the influence of various pressures put upon them. Only the concerned recreationist can save our rightful heritage to use Public Lands.

The Interim Critical Management Plan can be compared to the tip of an iceberg. Submerged underneath and hidden from view, is a large mountain of restrictions and closures. Fellow rock collectors and other desert enthusiasts, you have been alerted. The future of your recreational hobby lies solely in your hands. It is hoped you will act quickly and wisely.

Note: If you do not know to whom to send your letters, just send a self-addressed, stamped envelope to: Desert Committee List, Rt. 1, Box 18, Valyermo, California 93563. □

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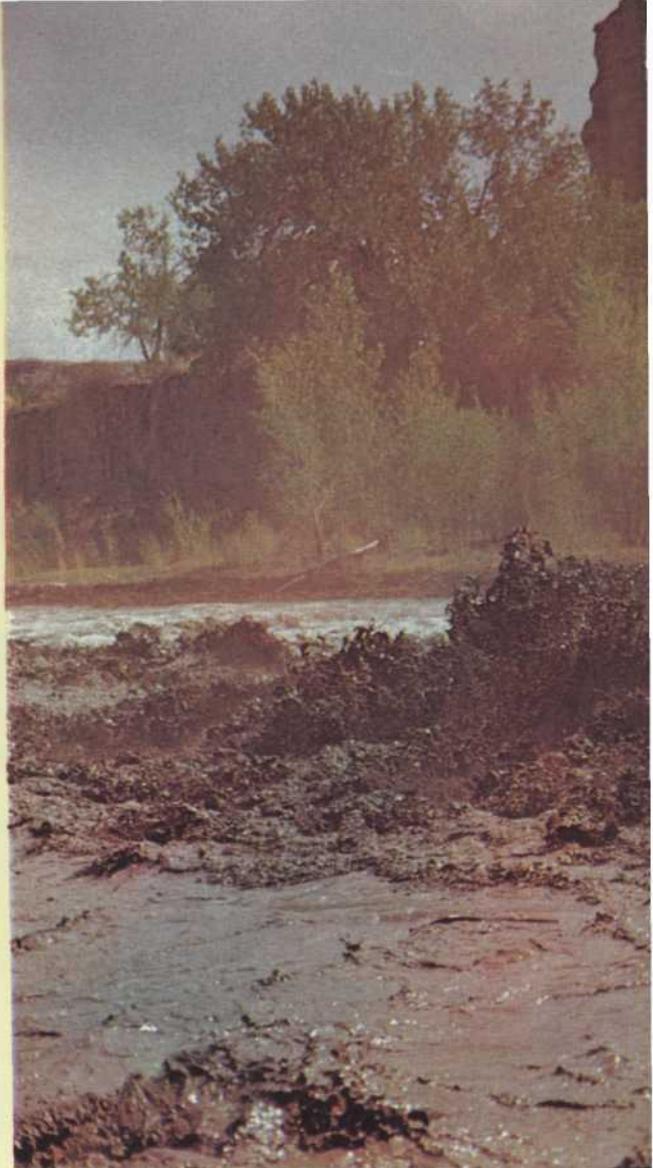
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Flash Flood!

by CLYDE H. SMITH



IT WAS MID-DAY in late August and unbearably hot. My companion, Dr. Homer Dodge, and I were exploring a sizzling dry wash east of Capitol Reef National Park, Utah, by Jeep. Homer is twice my senior at age 85 and a veteran of many excursions in these parts. He seems to enjoy the heat but my Eastern blood is too thick for the desert's 110 degrees—in the shade.

Somewhere to the west, about 20 miles or so, a violent storm was battering Capitol Reef's craggy Waterpocket Fold. From down in the wash we caught an occasional glimpse of black thunderheads and jagged streaks of lightning—followed by long continuous rumbles that resembled an artillery duel. Half-heartedly, I wished some of the clouds and rain would come our way and cool us, but it seemed highly unlikely since the storm had remained stationary all morning.

"Better have a look at that soft area just ahead," cautioned Homer, "we

don't want to get stuck out here!" I stopped the Jeep and stepped down to the ground. It was like landing on hot coals as the scorching sand penetrated my sneakers. Nearby, a tiny trickle of super-heated water was the only semblance of "Big Muddy"—which was the name designated on the USGS map for our present location.

"Homer, I think you're right," I said, "this stuff looks unstable and we'd have a heck of a time getting out of here if we ever stalled." I scanned the far side for some way to detour up the bank. It looked rather steep and much too soft and I was about to suggest we turn around when a faint noise from somewhere up the wash caught my attention. At first it was muffled and hard to distinguish from the distant thunder, but its volume increased measurably within moments.

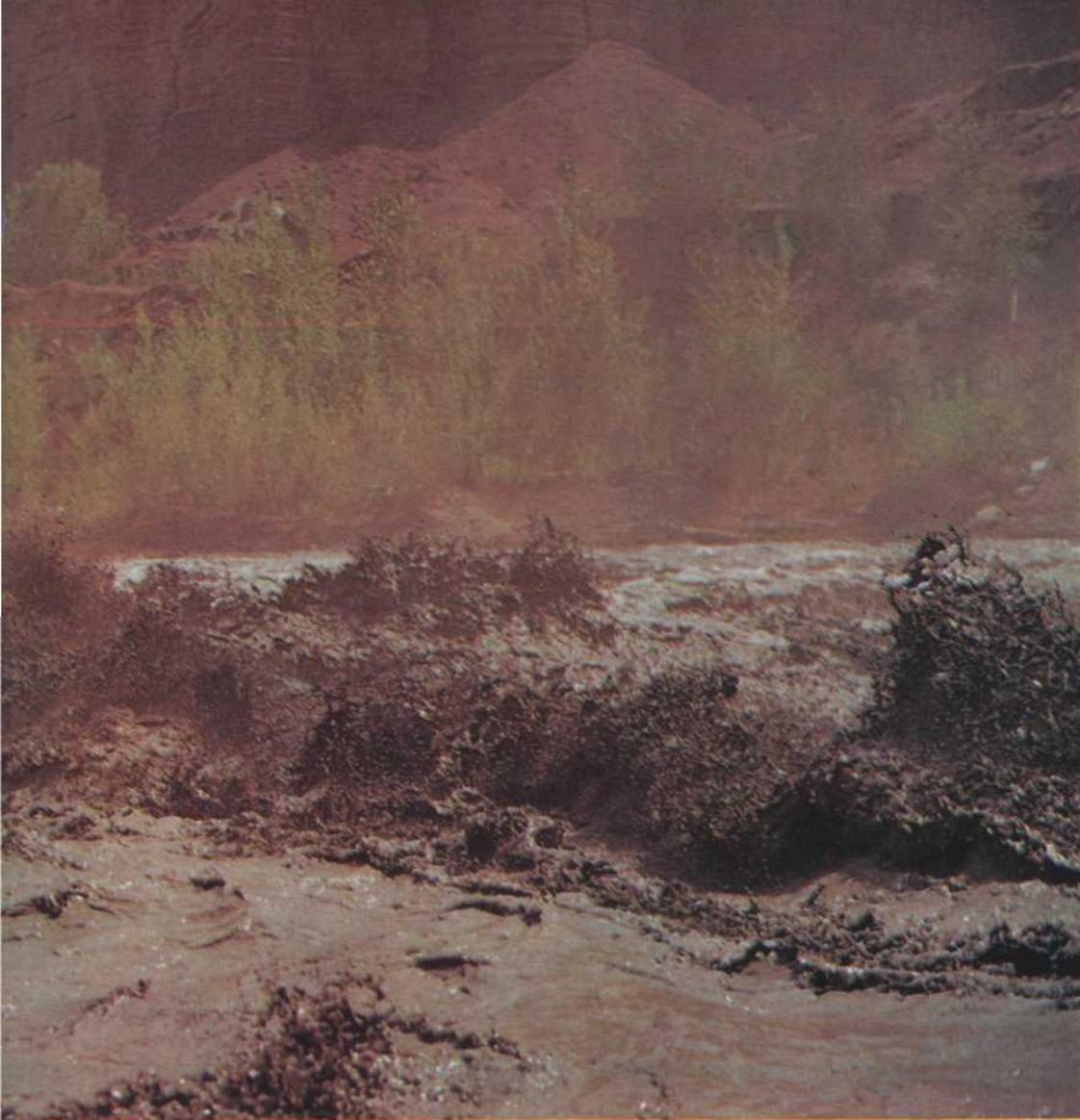
Licking my parched lips, I squinted into the shimmering heat. Suddenly, a strange, spiny object appeared around a

bend in the wash, looking for all the world like a giant porcupine—something reborn from a prehistoric age. It bounded along at a frightening speed . . . hissing and grinding . . . right toward us!

Homer leaned out the window and yelled, "Let's get out of here, that thing's a FLASH FLOOD!"

For a split-second my feet felt as though they were anchored to the desert floor. I thought the sand's fiery flames surely must have fused my sneakers to the ground. Then Homer bellowed again, "Let's go! FLASH FLOOD!"

In two giant leaps I reached the Jeep and floored the accelerator as I landed in the seat. As we sped toward the far bank, I could see from the corner of my eye what I had imagined as a giant porky was actually the leading edge of the flood—a wall of dirty water bristling with sticks, brush, trees and debris. In its wild plunge, it threatened to engulf us,



This is an account of an Easterner's first experience with one of the desert's most treacherous phenomena. Much publicized for its arid, barren wastelands, where the importance of a supply of water is paramount, the desert can turn things around suddenly and create a devastating threat to life and limb!

vehicle and all!

"Give 'er gas," cried Homer, "that thing will overturn us and grind us to pieces!" All four wheels were screaming at full tilt as we reached the bank and charged up the dizzy angle of loose sand. Dirt flew in all directions and the roar of the flood was now like an express train bearing down upon us.

The front wheels reached the top of the bank and for a few agonizing moments we seemed to hang there, suspended, while our rear wheels dug helplessly in the sliding sand. So close and yet so far—perhaps a whisker from oblivion—then the wildly clawing front wheels found solid ground and in one shuddering lunge pulled us from certain doom! Glancing out my open window, I could see the flood pouring below like chocolate syrup! It was "Big Muddy" all in one instant—a mighty river of frothing brown waves.

Following the leading wave was an im-

mense volume of water, rising at an incredible rate. Parts of the bank began to crumble as the churning current raced along tearing at everything. We moved to a higher level where we could look back on the surging monster below.

Upon reaching the rim above the wash, we were faced with a new threat. The vicious storm which had been around Capitol Reef all morning was now barreling toward us with all the fury of a tornado! An ugly column of swirling dirt preceded a billowing black thunderhead, raked by streamers of rain and hail. Fierce forks of lightning zig-zagged in all directions like the lashing head of a serpent.

"We'll never make it to the highway," advised Homer. "Every little wash will be a roaring torrent within minutes."

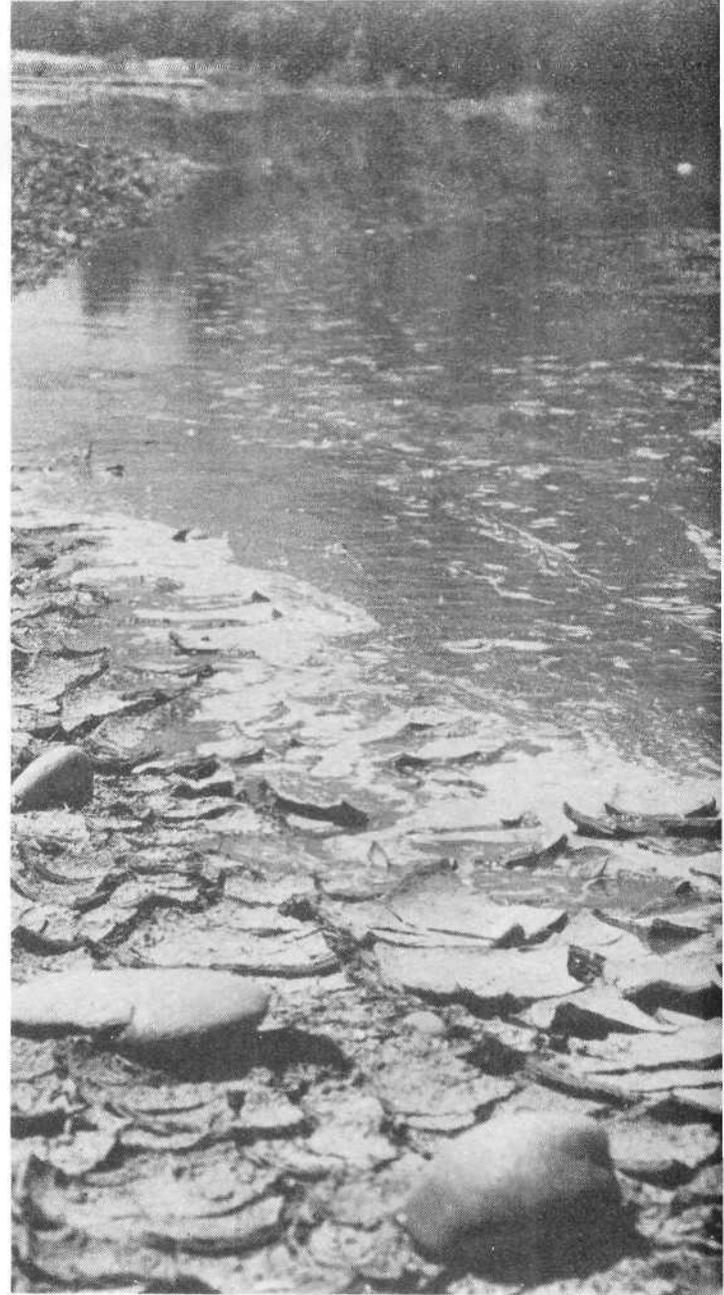
Wind began to buffet us as the leading edge of the storm swooped in upon us. "Let's make a try for the highway," I said to Homer. "Sure doesn't seem like

anything could be worse than what we've just come through."

In a few moments, the full force of the scouring dirt cloud hit us with all its fury. We could feel the Jeep lifted off the ground at times as we inched along on our blind course. How ironic, I thought, to have just escaped from drowning and now to be blown away in the wind, or perhaps smothered in sand!

My mind wandered back over the events that had led us to our present predicament. We were both Easterners, but Homer's first love seemed to be the West where he had trekked for many years through its canyons and deserts. But above all else, he enjoyed canoeing most and included among his accomplishments was a trip in which he retraced all of John Wesley Powell's original route down the Green and Colorado Rivers—in an open canoe!

Enticed by Homer's tales of adven-



The birth of a flash flood showing the suddenness of its fury. Sun-dried desert topsoil, with its hard-baked surface, cannot absorb the volume of water that occurs during heavy rains. This water builds up with amazing swiftness and within minutes a quiet desert wash can become a roaring wall of water and debris. This photo sequence [l to r] was taken at five-second intervals.

ture, I was persuaded to join him for a month in Canyonlands and Arches National Park, Utah, where we penetrated some of the most fascinating country I had ever seen by Jeep. The maze of monumental formations, deep canyons and natural stone sculptures were far removed from anything I'd seen in a New England landscape.

Day after day we watched enormous thunderstorms build around us, but none ever came our way. A few times dark clouds collected over our heads and I could see streamers of rain reaching downward—but none ever touched the ground—it evaporated in the heat long before it got to us! Jokingly, I kept wishing for a rain storm—anything to cool the desert's melting furnace. But we'd gone through a whole month without so much as a drop, and so it was

on our very last day before returning East that we decided to make a short run up "Big Muddy" wash. It was almost dry as a bone, and after all, the storm was miles away—but it just shows, one must never underestimate the desert. Evidently the cloudburst at Capitol Reef had built into gigantic proportions, forcing virtual tidal waves down all the washes in the immediate areas.

"Looks like we're finally going to get some rain." Homer's remarks jolted me back to reality as big splotches began hitting the windshield. The sand storm had diminished and now sheets of rain were driving toward us. The drops were a combination of dirt and water and landed on the Jeep like tiny mud bombs. For some reason, the Jeep started to slide around like it was on a greased platter—and the wheels felt funny.



I stopped and got out in the driving rain. Huge flaps of mud clung to the tires—and everywhere I stepped, great clods stuck to my sneakers. It was like growing snowshoes! We were crossing a section of soil that had just enough clay in it which, when mixed with water, turned to gumbo mud! Cautiously, I oozed the Jeep along on lumpy tires through the torrential rain, slipping and sliding while flaps of mud flew off like jettisoned re-treads. Hail the size of moth balls began coming down—its deafening clatter sounded like a million hammers going all at once. Visibility was cut to zero, so we came to a grinding halt!

Then, quite suddenly, it was all over. It was almost as if someone had turned off a faucet—everything opened before us while the wall of rain and hail moved east. Within minutes, a brilliant burst of

sunlight followed, turning the desert into an eerie sea of swirling mist as the rapidly diminishing runoff evaporated from its surface.

I decided to walk ahead a little ways to check the ground. I had gone only a few dozen yards when I came to the lip of a bluff—and there, almost 300 feet straight down was the Fremont Valley! The main highway was directly below, while paralleling it in a gigantic serpentine course, was the awesome Fremont River—normally a tiny placid stream—now swollen to enormous flood proportions.

Off to one side we found a nice easy grade leading from the bluff, and in a short time we were safely back on the highway—two Easterners who would take home wonderful memories of the West—and a flash flood!

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A Bird and a Berry

by K. L. BOYNTON

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VERY MUCH at home in the driest and hottest of desert scrub and foothills is a dapper little black bird with a big Greek name which fits him so well it has become the one by which he is known to one and all. This is none other than the *phainopepla nitens* ('black shining robe') or the Phainopepla for short. Arayed in his glossy black plumage, he is a very good looking bird, what with his high head crest and bright red eyes, and those classy white wing patches that flash out when he flies. He is also a bird of parts, being an accomplished nest builder, a good provider and an exceedingly vigilant sentinel.

He is, furthermore, a bird of more than passing interest to scientists, flourishing as he does under adverse desert conditions. Investigations into how he does it have turned up some interesting sidelights on this bird and his affairs, and even more importantly, it has produced some new facts about plant-animal relationships—in this case a balance in nature that makes year around survival in the desert possible for him.

The *Phainopepla*, being a flycatcher by trade, captures insects in the air, a feat requiring complicated wing work—a flight style marked by bursts of speed, quick turns, sudden brakes to slow wing beats—all useful in the pursuit of dodging insects. Like many a flycatcher, the *Phainopepla* also has a faceful of bristles around his bill. Sticking out in all directions when he opens his mouth, they greatly increase its trap-area, thus making the catching of larger insects a cinch. They also act as a net for scooping up billfuls of those swarming insects too tiny to be grabbed individually.

Naturally enough, such high protein groceries as insects are not available in sufficient quantities in the desert during the winter months, so the *Phainopepla* shifts over to berries for his staple food, mainly those of the mistletoe. And here in lies a tale of plant-animal partnership where both mutually profit.

Mistletoe, as all desert hands know, is to be found in clumps and clusters in the branches of tall shrubs and trees. Long adapted to killing heat and arid living, the desert species of mistletoe has only scale-like leaves, but its stems are green. Since they contain chlorophyll, the plant can manufacture part of its own food. It is, however, dependent on its host tree for water and soil minerals, and hence while it is not completely a parasite, it is partially so. Its white berries are plump and full of sticky juice, and while NOT for human consumption, are free from the usual bitter or pungent repellents usually found in desert plants. Inside are many very hard seeds.

What happens is that the *Phainopepla*, after stuffing himself on berries, flies to a favorite tree perch. As he cleans his bill along the limb, some seeds caught in his mouth adhere to the limb with their sticky coating. But this is not all, for the bird sits quietly digesting his meal and in due time his feces drops onto limbs below with more of the hard seeds which have made the long journey through his insides intact. Once on the host tree, the seeds in time germinate, thrusting root-like extensions through the bark to connect with the tree's vascular tissue and the water and minerals carried there. Now the mistletoe is all set to go on growing—planted, as it were, by the *Phainopepla*.

In turn, the mistletoe's fruiting schedule is timed nicely, taking care of the in-



*This ironwood tree shows masses of desert mistletoe that owes so much of their existence to the *Phainopepla*.*

sect-lean months for the desert birds. Not all maturing at once, mistletoe's berries are to be found somewhere in the desert six months of the year—November to April—a remarkable long fruiting season—and it is upon these berries that wandering bands of *Phainopeplas* live, and upon which, at family raising time, much of their domestic economy is based. This is a matter of importance since the *Phainopeplas*, with a way of their own when it comes to affairs of the heart, further complicate matters in local populations by apparent differences of opinion on exact protocol. Around the Tucson desert region, for instance, the team of ornithologists A. L. Rand and R. M. Rand, found it went like this:

By the end of February, gentlemen *Phainopeplas* have staked out their territories and are ready for love. But do they sit around singing while awaiting the arrival of ladies also in the same frame of mind? They do not. They get right at their nest building, with the main push well underway by the middle of March.

One energetic builder observed by the Rands seized a twig fragment, and making a high circular flight to the mesquite he selected, installed the twig on a limb. Then, with much showy flying, he returned with a wisp of tent caterpillar web to bind it into place. Work proceeded apace, each piece being brought via a showy flight detour. A cup was well on the way to being formed, when a female (dressed demurely in a dark grey with white edgings) came into view. The nest work ceased abruptly. By dint of fast wing work, the gentleman caught up with her and, flying in a pattern of circles over his territory, invited her to join in a courtship flight. No sale. The lady continued on her way, and the gentleman went back to his nest building.

But not for too long. Catching sight of another traveling lady, he shot off on his circular flight again, and this one not only flew his circle with him, but came and inspected his nest. She also stayed for lunch, dining on four mistletoe berries he picked and fed her. Things looked very good, indeed. But, at this point—



A female Phainopepla. Photo by Jim Cornett.

obviously rested and refreshed, she suddenly took wing—and kept right on going.

Nest No. 1, with its cup formed of bark and twig fragments bound so neatly with cobweb, was all completed, and Nest No. 2 well underway before another candidate showed up. Dropping everything, the gentleman went into his courtship flight pattern, and this time proved that, indeed, advertising by flying and diligent nest building does pay off. This lady indicated that she was seriously interested in setting up housekeeping.

So he went back to his nest building.

Tearing down Nest Nos. 1 and 2, he set about building a brand new one in a location that pleased the lady, she, meanwhile, sitting in the shade eating mistletoe berries which he stopped work to feed her.

As *Phainopepla* romances go, this was a whirlwind affair. One bird, with a patch of dull feathers on his flank, built three nests in March. No success. He finally started singing as an added attraction. Another, although showing he could make better than 30 trips per hour

with building materials, paused often in the midst of his labors and sat for long periods just looking far, far off into space. Was he pondering the percentages, and wondering how in hades this whole thing got started?

Despite the apparent meditations of this non-conformer, *Phainopepla* courtship etiquette produces results, with so many households set up that the working nests may only be about 75 feet apart. The normal clutch size is two, the eggs being rather pretty, grayish or greenish-white with spots of brown, black or even lilac. Incubation starts with the first one, with both parents sharing the sitting detail. The thing is done in style, with changes of the guard taking place at intervals of 7 to 20 minutes, the sitter calling KUK-KUK for a shift end, and both CRU-EEing politely as they change places.

Fourteen to 17 days later, the youngsters make their debut, and as it is now spring, insects are becoming more abundant, so the proper protein is on hand for chick-stuffing, supplemented by the waning supply of succulent and highly

nutritious mistletoe berries. After some 19 days in the nest, the young birds are ready for their first flight, and parental chores begin to taper off.

When not nesting, the *Phainopeplas* are a gregarious lot, traveling in small flocks, their wanderings during the winter dictated by the availability of mistletoe berries. As biologist James Crouch's fine work showed, they do little else during this time but gorge themselves on berries and then go perch and digest them. What with such assured seed dispersal thus going on, it would seem that the desert would be overgrown with mistletoe, particularly since bluebirds, robins, quail, linnets, mocking birds, thrashers and some warblers also dine on them from time to time. Since most of these are perchers and digesters too, they also add to the planting brigade.

Botanist R. B. Cowles got interested in this seed dispersal situation and wondered, since it seemed so sure-shot, why the plant had to produce so many seeds unless the survival rate must be low. Checking only deepened the mystery, for he found that most of the big crop of

seeds was indeed fertile, and thanks mainly to the Phainopeplas, enormous numbers of these seeds were successfully placed on host plants and put forth that bright brownish red root-like radicle for attachment. So why didn't more of them go on and grow to be adult parasitic plants?

After more Sherlocking, Cowles decided that one of the biggest mistletoe losses occurs because the Phainopepla, the self-advertiser, dearly loves to sit on the topmost branches of a tree. In the desert region, this may be a dead twig, life being rough on growing things as it is, and in fact may be located over masses of dead twigs killed perhaps by previous heavy mistletoe growth. So, when the seed lands, it may indeed fall on dead wood. This, of course, is bad news to the seed, for while it goes ahead and germinates and puts out its radicle, it finds no living plant tissue to fasten to, no free supply of water and minerals. So, of course, it withers and dies.

It also seems that while trees weakened from temperature-aridity, or insect attack, fall easier victims to the mistletoe, certain species put up an active defense. The desert ironwood, for instance, is not one to take the mistletoe onslaught lying down. The seed indeed may land, compliments of a perching Phainopepla, and put out its radicle and pierce the bark. But, at this point, the ironwood begins exuding a gum and pushing the seed away. More and more gum comes out and hardens until it eventually breaks the mistletoe's connection, and the hard gum wad and seed simply fall off. The tree shuts off the gum flow and business goes on as usual. Cowles also found that certain desert rodents, not interested in the mistletoe berries, climb the ironwood for its seeds and pods, and scrambling about dislodge and knock off geminating seeds, a fine assistance to the tree.

Like everything else, however, enough mistletoe makes it on mesquites and cottonwoods and palo verdes to stock the Phainopepla's winter larder. Their succulent berries, plus the summer diet of insects provide the bird with all the moisture he needs, freeing him to live the year around in the desert—provided he goes on with the "planting" as scheduled. And being a Phainopepla—old berry bird that he is—that is exactly what he is going to do. □

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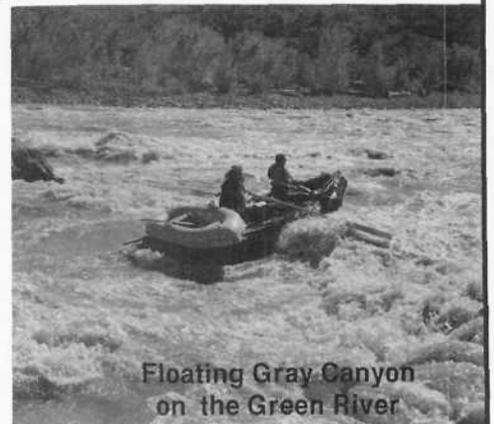
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Lonely

THE LONELY SOLITUDE of the aging headframe, an obvious intruder on nature left by man from a by-gone era, stood boldly outlined against the distant snow-capped Sierra Nevadas, highlighted by the deep blue springtime sky. Beneath the headframe, the yawning chasm of the still-open vertical mine-shaft, with its crumbling timbers, beckoned to the unwary adventurer.

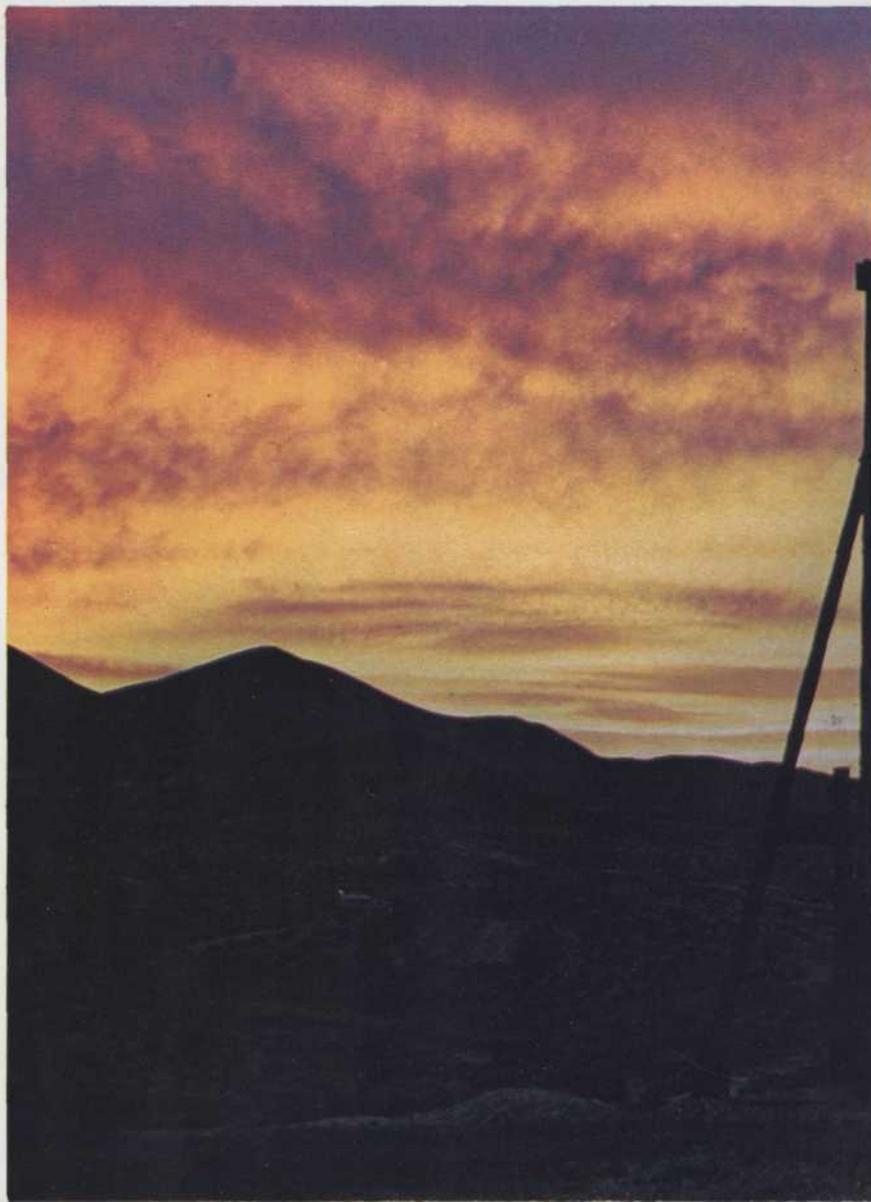
A short distance away, an old weathered miner's shack, showing effects of the relentless onslaught by Mother Nature in her attempt to remove the intruder, still managed to maintain a semblance of its former self.

In sharp contrast to these abandoned remains, the natural surrounding of green bunch grass and colorful wildflowers springing from the red earth add to the serene setting a feeling of warmth and involvement, a mood constantly changing with the late afternoon hour. The quietness, as deafening as the unexpected clap of nearby thunder, supplies the catalyst which triggers the imagination.

As the sun sets and the gentle breeze settles to the valley far below, one cannot help but visualize, while gazing upon these ghostly remnants, the miners of the past as they slowly trudged from the mine toward the shack where a lone window emitted a warm yellow glow from the lantern within, a welcome relief after a long day deep in the bowels of the earth beneath.

Who were these men? Where had they come from? What were their dreams, their ideals? What successes did they find here or was it agonies of defeat and frustration? One can only speculate. These men were among the last of a dying breed of miners. The boom towns of the West were rapidly dwindling away.

We were high in the mountains east of Bridgeport, California, a hub of outdoor recreation, enroute to the relatively little-known and seldom-visited ghost town of Masonic. Due to its lack of modern day popularity, considerable remnants



remain untouched except by the erosion processes of nature.

Masonic enjoyed two separate short-lived eras. Originally springing to existence just after the turn of the century with the discovery of gold, it was never highly profitable. The ten-stamp mill was shut down around 1910. There, all but forgotten, Masonic lay in a state of dormancy. In the depression years of the Thirties, it once again attracted hardy

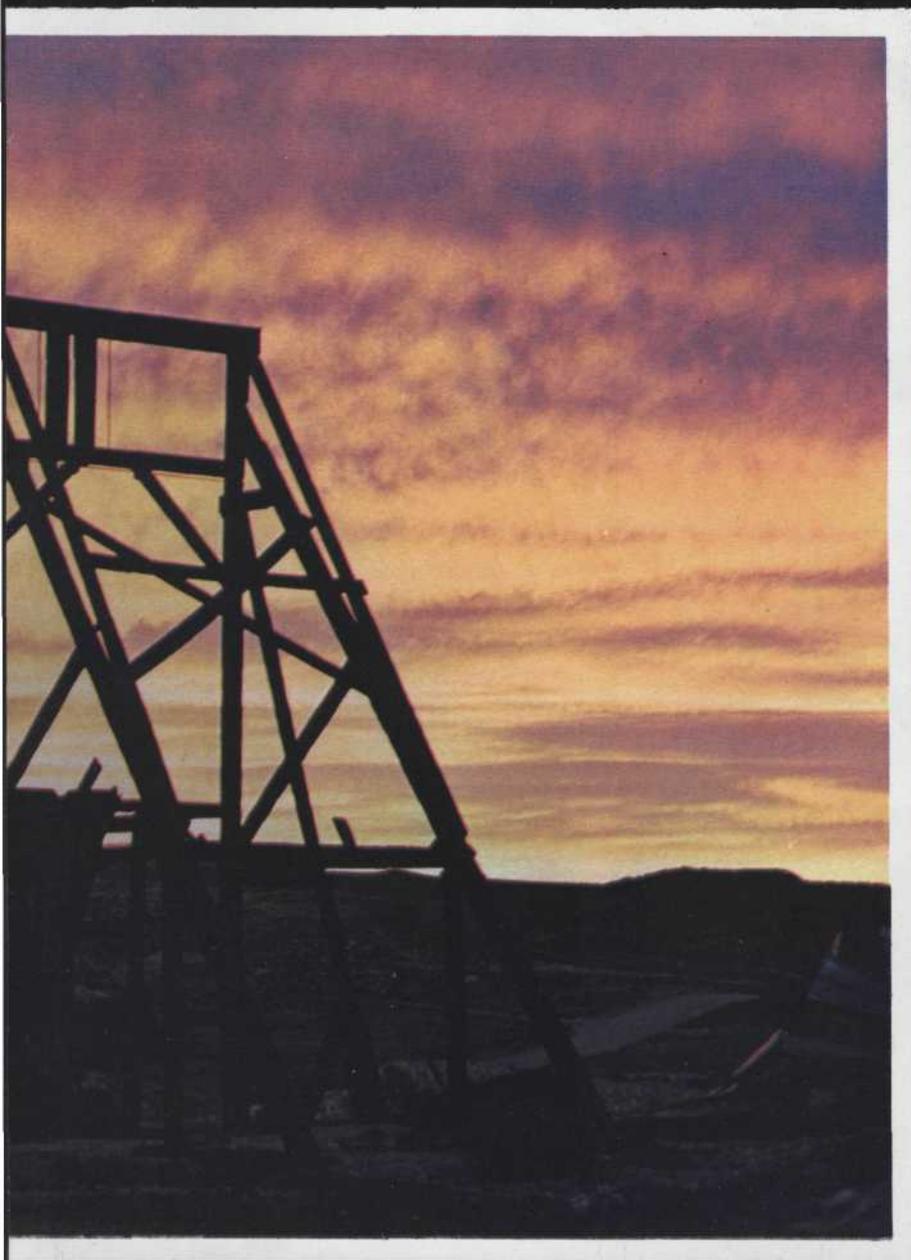
souls in their quest for survival and ultimate hopes of making the big strike while the rest of America was entrenched in the grips of economic chaos.

In 1938, the last of Masonic hopefuls rejoined the outside world, leaving their meager source of life behind. Little did they realize their leavings would become treasures in themselves for present-day adventurers and historians.

Remnants of Masonic are concentrat-

Masonic

by LARRY PHILLIPS



ed in three settlements, as was the case originally: Uppertown, middletown and the mill area. From any one of these sites, heavy mining activities of the past are still much in evidence on the surrounding hillsides with an occasional miner's shack still standing near the tailings in sheltered areas and groves of aspen.

The hardships these men and women must have endured during the severe

winters at this high altitude settlement are easily envisioned as you stand among the decaying remnants of their cabins and crude shelters.

The excursion to Masonic can be a very memorable affair for the entire family. One could spend days exploring and not cover the entire area. The upper canyon floor offers good unimproved camping sites withing short walking distances of numerous mining activities. This is in

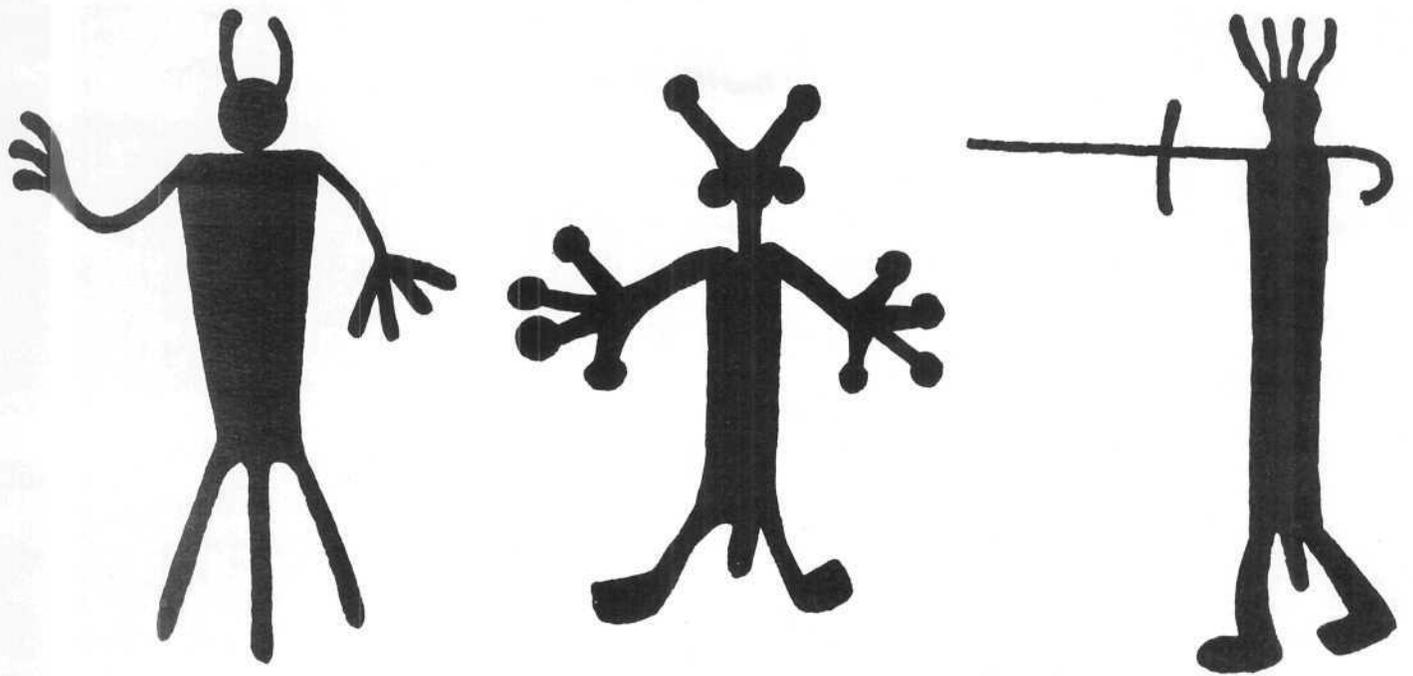
the area of uppertown. Extreme caution must be exercised while exploring due to the still-open mining shafts with their rotting support timbers and not to mention, of course, the oft-present rattlesnake.

Because of the high altitude, trips to Masonic are best confined to late spring and summer after the snow melts and boggy roads dry out. Roads are normally readily passable for pickups and campers or other high-clearance vehicles. While not necessary, a 4WD vehicle would make available additional side excursions to surrounding areas.

Located near the Nevada border, Masonic lies approximately 15 miles north of the famous ghost town of Bodie via a dirt mountain road. It is, however, most easily reached from Bridgeport. From Bridgeport, take Highway 22 north for approximately four miles. Watching carefully you will see a small road sign marked "Masonic Mountain Road." Turning east on this normally well-maintained dirt road for about seven miles will find you dropping into a large canyon basin on the other side of the mountain. Continuing to the bottom, at the point where the road forks, will bring you to the old site of "uppertown" as evidenced by a few remaining shacks. Take the turn to the left marked by a Forest Service sign "Masonic Spring—4 miles," and this will take you to middletown and the mill area.

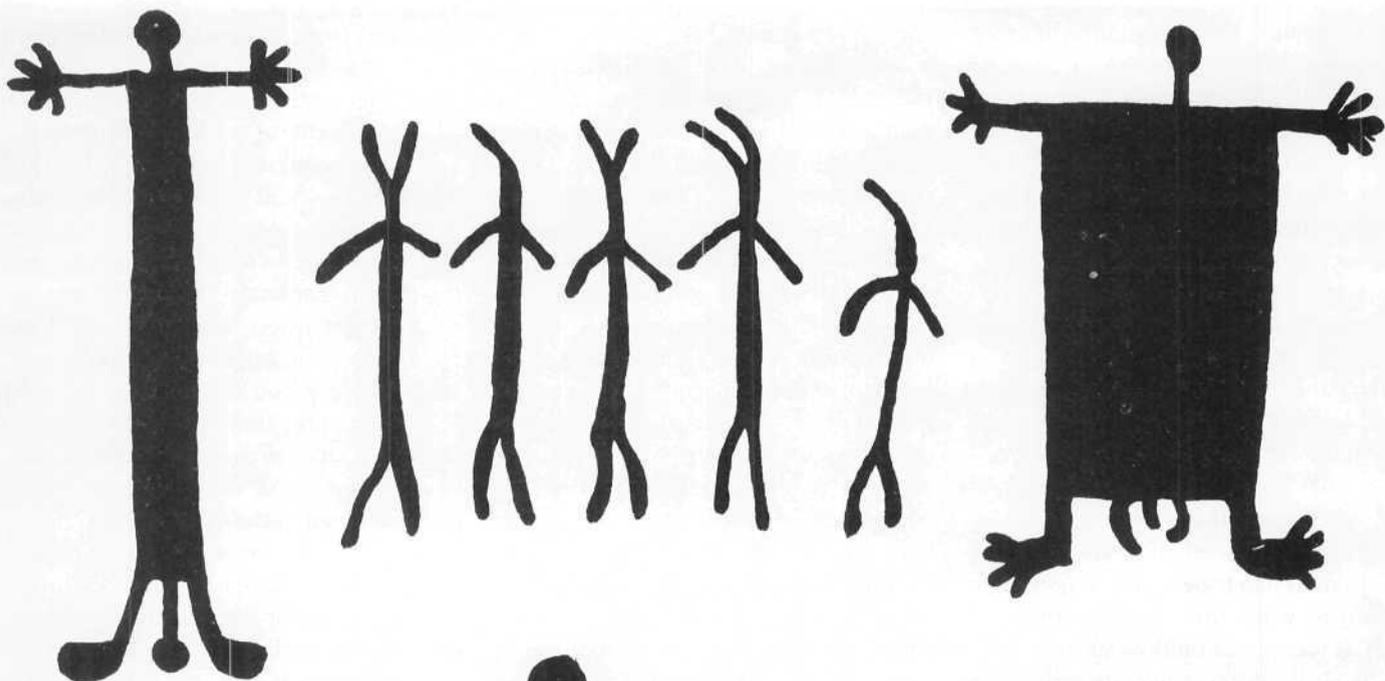
Prior to your arrival at the uppertown junction, numerous mines, cabins and other early remnants will be visible along the road for the last few miles. Distance from the turn-off on Highway 22 to the forks at uppertown is about eight miles.

It is best to check with residents of Bridgeport as to current road conditions. Don't be discouraged if you find it necessary to make several inquiries before finding someone familiar with the way to Masonic. As mentioned earlier, it is not widely known or visited, even by local Bridgeport residents. □

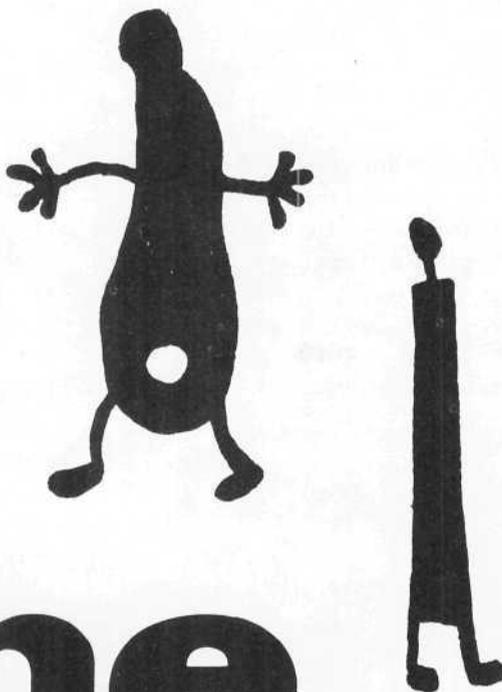


Rock Art





of the COSO



by HELEN WALKER

The solid body anthropomorphs and a group of stickmen across the upper pages are from "Rock Drawings of the Coso Range" by Grant-Baird-Pringle. Opposite page: Photo by Jack Walker shows an assortment of sheep, medicine bags and shields.

GEOGRAPHICALLY SPEAKING, California's Coso Range lies west of Death Valley, and east of the Sierra Nevada Mountains. Its arid climate of today is in sharp contrast to the weather patterns of past historic eras.

A great pluvial, or rainy season, extended into this area after the last Ice Age, some 10,000 years ago. The rain filled the natural depressions in the land, forming a series of great lakes known as the Pliocene Lakes. When Owens Lake reached capacity, water overflowed into a stream at the southern end, sending water into the Searles and China Lake basins. Years of drought followed the pluvial periods, and today these overflow lakes are marked by glistening salt playas and dry mosaic lake beds.

The sun-parched land was once again relieved by a smaller pluvial period as recently as 5,000 years ago. Water again flowed in the stream beds, vegetation flourished, game again roamed the land and man migrated to the area. The actual dates that man first occupied the Coso Range is still a matter of theorization, but from the dating of the artifacts he left behind, we hope someday to have the answers we seek.

The discovery of early man's residence in the Coso Range is accredited to a sheep rancher by the name of John Carricut. In the early 1920s, Carricut and his flock weathered a two-day blizzard in a narrow gorge that we know today as Petroglyph Canyon. When the storm cleared, Carricut discovered the rock walls above his flock were covered with

rock drawings. He marveled at it, then forgot it for the moment. Years later, he showed his discovery to Vernon Smith, who wrote of the rock drawings for *Desert Magazine*, in March of 1944.

Interest in the drawings, and the people who made them, has been escalated in recent years. Under supervised research, the drawings have been indexed at more than 14,000, and are thought to be the largest display of rock art in North America. They offer a key to early occupation of the Coso Range, and are our window to the lives of the early residents that migrated to the area.

It is believed that early residents of this range were people of the Western Shoshoni Indian tribes. They migrated to the Cosos when their homeland in central California and southwestern Nevada no longer produced adequate vegetation to support their families. They brought with them only meager belongings and an instinct to find land upon which they could survive.

In their new land, they were quick to take advantage of the natural resources—making camp near the running streams of the narrow gorges, and near the hot springs that bubbled their vapors

above the surface. No evidence of permanent villages have been located, but rock rings support the fact that pit houses were built as protection against winter cold. The name "Coso" was given to the land by these Shoshoni people—it is a word in their language meaning hot, and it is thought to have been an association with the natural hot springs.

Even in this new land of their choosing, life was not easy, and food was not plentiful. Seasonal trips were made to gather nuts and seeds, and trapping game was a daily chore. In mid-summer, groups traveled to Death Valley to collect mesquite seeds which were ground into flour. Late summer was the time to climb the higher elevations of the Coso mountains to collect pinyon nuts. Seeds of various other plants were harvested as seasonal crops became available. Fresh game was taken where and when it was available. Owens Lake provided ducks and water fowl in the early fall. Rabbits were plentiful and easily trapped or snagged on demand. Large game, it is believed, were taken chiefly by organized hunts—perhaps the only communal effort that was participated in.

When families had returned from seed

collecting trips, women and children prepared the food for storage, and the men's thoughts turned to the big sheep hunt. A director of the hunt was chosen, or self-appointed, and work begun. Blinds were built on cliffs above the gorges, and at one end of the gorge a fence was erected to prevent escape of the captured animals. Rocks were stacked at points where shadows would silhouette dummy hunters—a supplement to a limited group of huntsmen.

When all preparations were complete, some tribesmen drove the sheep into the narrow confines of the gorge, while the men stationed in the blinds attacked the animals from above with their weapons. Their method was successful, as there was no escape for the animals once they entered the confines of the trap.

Perhaps to create a magic that would assure a successful sheep hunt, or perhaps in gratitude of a hunt just completed, the first drawing was placed on the wall of the narrow gorge. Whatever the reason, the dark-surfaced, basaltic walls of the gorge became the blackboard upon which these early people communicated their impressions of life and environment. The art work became a tradition, and in the centuries that followed, the art work became a mural of life style of the early Coso Range people.

Through research, the display of rock has been classified into three styles. The naturalistic art, which is representative or realistic of the subject; stylized, a simplified or conventionalized drawing, still recognizable; and abstract, a decorative pattern, having no reference to an object of nature.

A time factor places the drawings into three phases, also. The Early Period, being the time when the first drawings were made. In this category we find many sheep, for the most part, poorly drawn. The horns were drawn from a side view, and only a few showed the detail of hoofs. The atlatl, which was the weapon of that period, appeared with the hook end up, and an exaggerated size of stone weight at the bottom. A few square-bodied anthropomorph figures appeared, but were not placed in any association to the sheep or atlatls. Abstract designs were scattered, again with no association with other art work,

The second, or Transitional Period, was marked by the introduction of a new weapon—the bow and arrow. This new

Decorative dress of the anthropomorphs. Photos by Jack Walker.



weapon appeared in the hands of highly stylized stick men. One artist expressed an incident by placing two stick men facing one another with bows drawn—one can only ponder the reason, and the outcome of that particular event! The Transitional Period was also marked by a new concept of sheep horns—they now began to appear in a head-on view. This view was to replace the Early Period side view in all future drawn sheep.

Another new design of this period was a sack, complete with handle and fringe—thought to be a medicine bag. Anthropomorphs appeared with square, patterned bodies, and clothed in dresses—the beginning of the more elaborate art of the Late Period. Imagination in design began to enter into the artwork, this being noted by a scattering of elaborate abstract drawings. A shield, about a foot square, with a circular or oval design inside the incised outline, was placed aimlessly among other drawings. These first shields were simple, and poorly done, in comparison with the work of the next and last period.

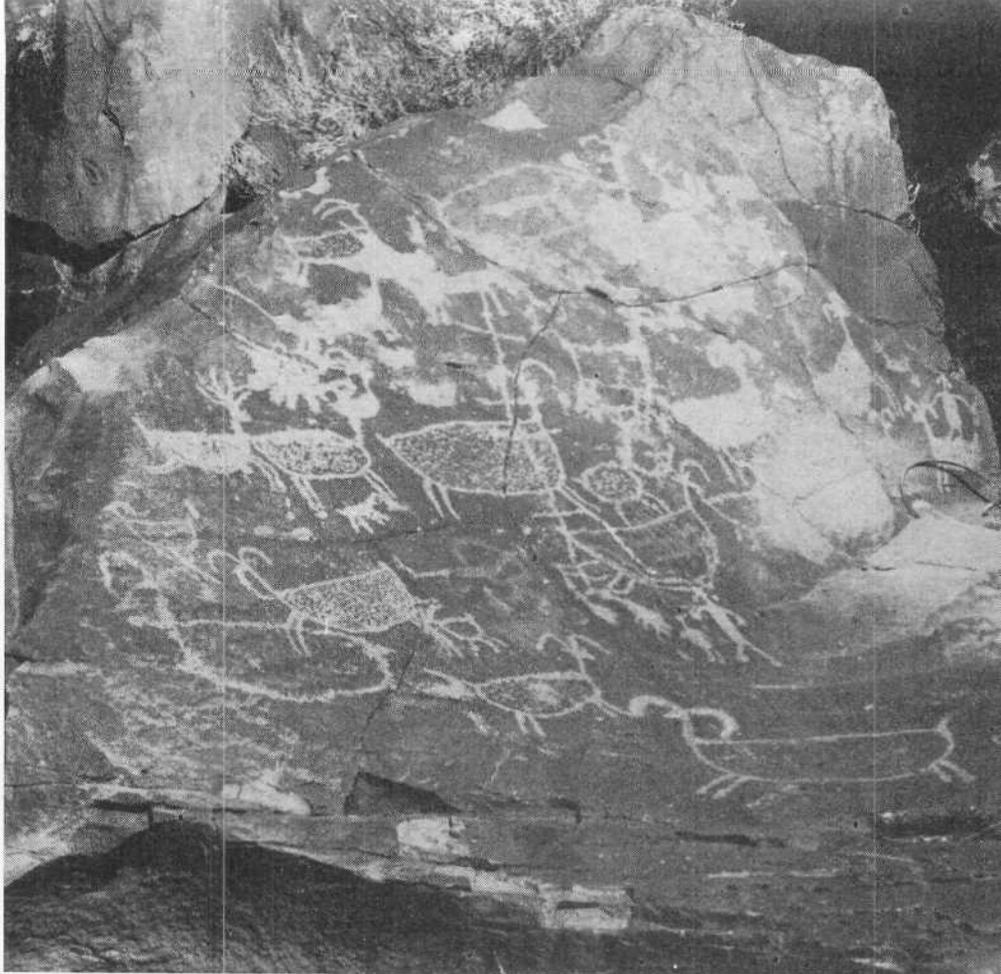
The drawings of this last time sequence, the Late Period, showed a much higher level of execution, and a trend toward more stylization of figures. Sheep often appeared life-size, and often in association with the hunt. Some were drawn with spears or shafts sticking in their backs, others in direct line of stick men with drawn bows.

Animals other than sheep were introduced. A small dog with a long tail bent over its back is seen at the heels of the sheep.

Stick people were drawn in groups, depicting more social life. The anthropomorphs were drawn two and three feet in length, and had detailed dress, earrings, and very elaborate headdress.

Shields were the only abstract patterns seen in the Late Period. They were developed into the most technical artwork, and were by far the most detailed work of the group.

The Late Period was terminated when the Shoshonean people left the Coso Range and migrated to the north and northeast. The reason for their migration is thought to have been the disappearance of the big horn sheep. No one can say for sure if the sheep left to avoid harassment by hunters, or of their number were diminished by killings with the new and more effective weapon—the



Early Period sheep, and some Late Period, showing small dog at heels of the sheep.

bow and arrow. This final migration took place about 1000 A.D.

The rock art these people left behind represented many man-hours, and much patience on the part of the artist. He used a sharp-pointed implement, and struck it with a hammer-like tool. Each strike broke through the chocolate-colored cover of the basaltic granite blocks, fracturing the tiny crystals and allowing the opaque effect to stand out in relief. Sometimes, for effect, the area inside the pecked outline was scraped or abraded, exposing a larger area of contrast.

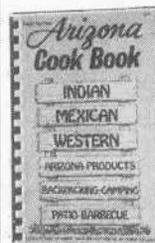
Dating of the drawings in the Coso Range is only approximate, and is arrived at by two methods. The patina, or desert varnish that forms the dark coating on the grey granite rock, is thought to have started formation after the little pluvial period, at a time when the climate turned hot and dry. This would give us a clue that the drawings were first made approximately 3000 years ago.

Dating by subject matter focuses on the Transitional Period, when the bow and arrow replaced the atlatl. The introduction and use of this new weapon

occurred about 200 B.C.

Fortunately for those involved in the research of the Coso Range, the area is protected from vandals. All of the caves and sites of rock art are confined within the boundaries of the Naval Weapons Center. Guided tours are extended to interested groups, and information may be had by writing to the Maturango Museum at China Lake. □

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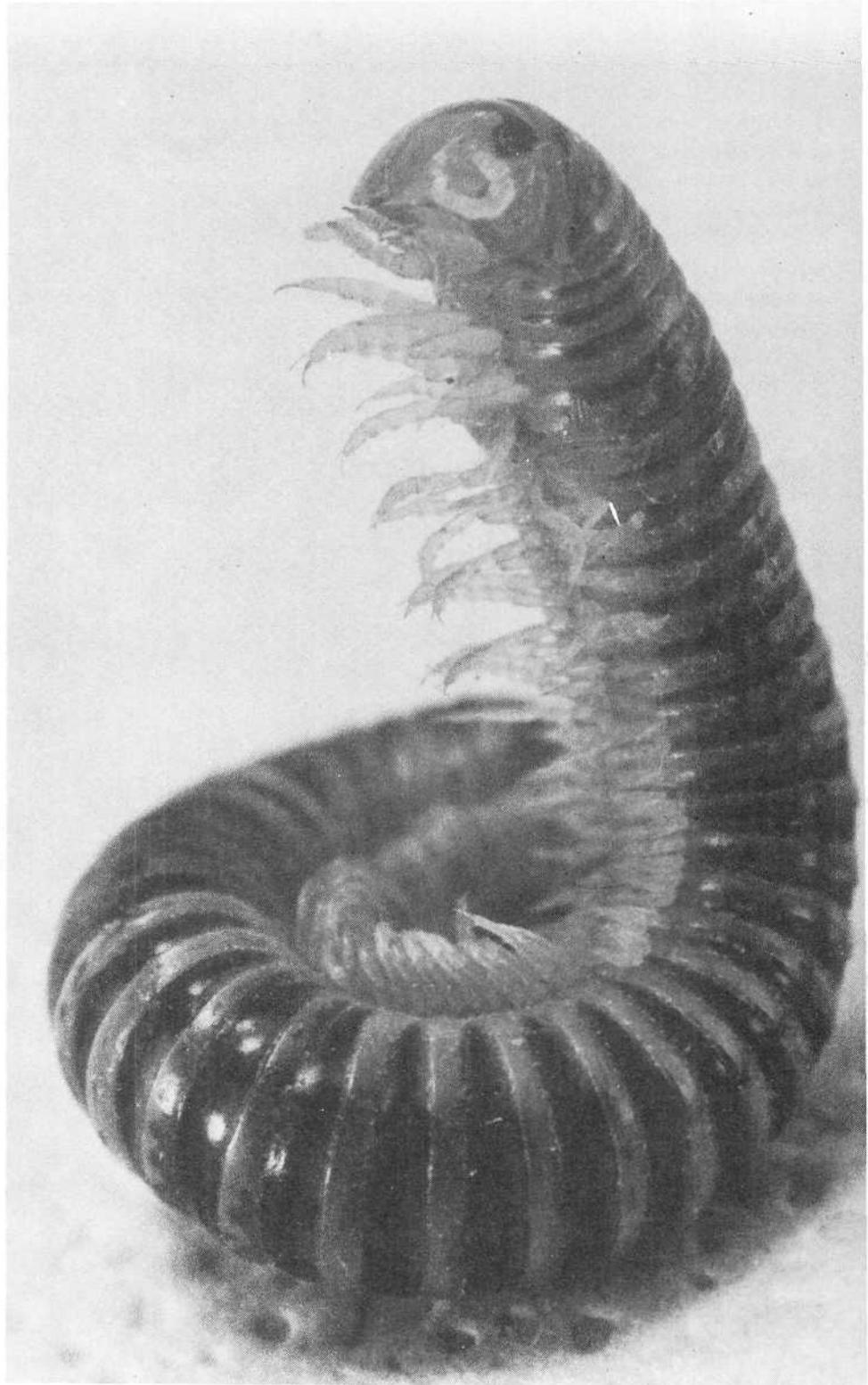
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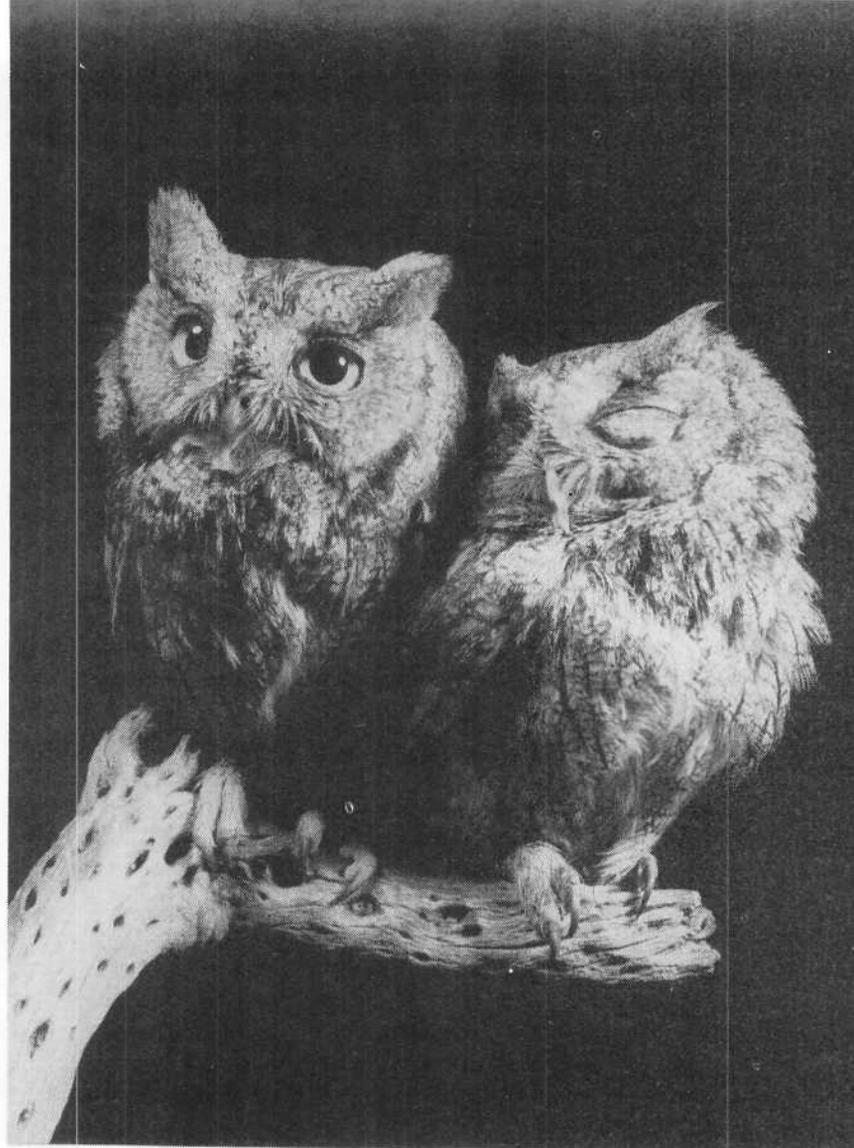
by DR. HANS BAERWALD

Desert Life

The millipede is a common little
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mean-looking they are harmless
and do not bite. Varying in size
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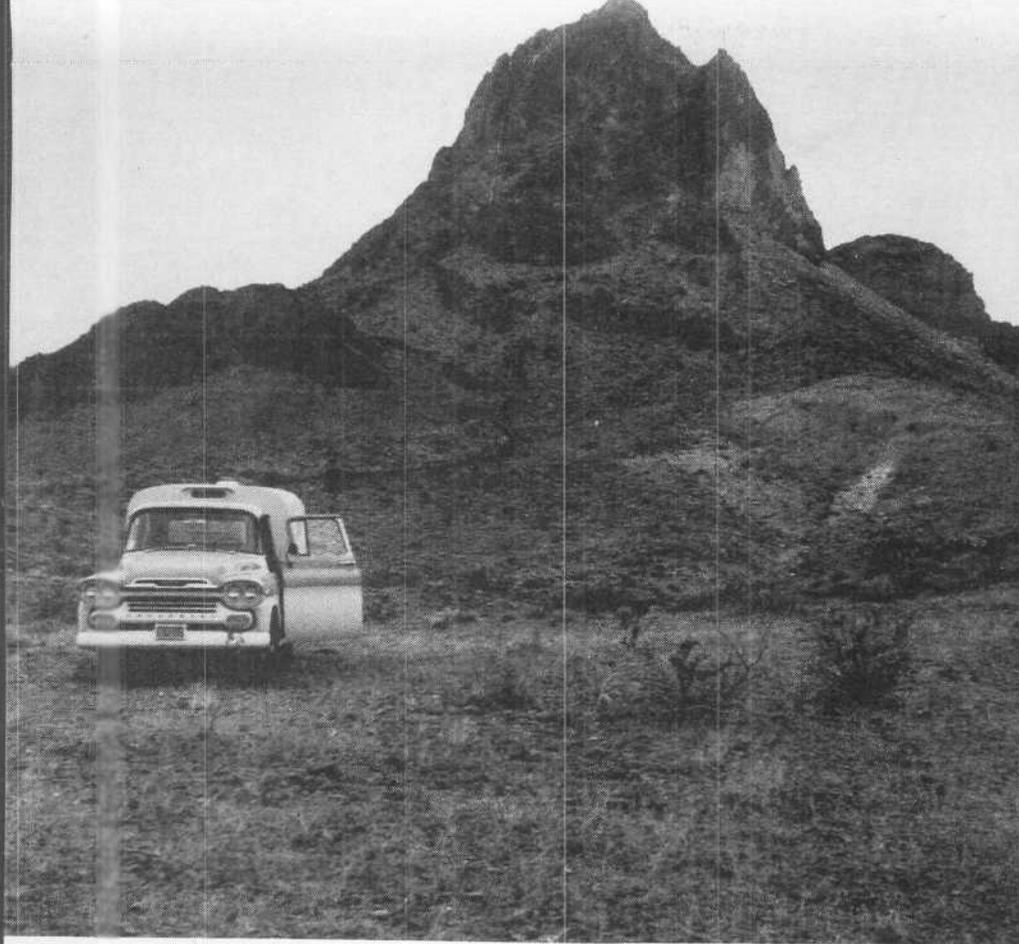
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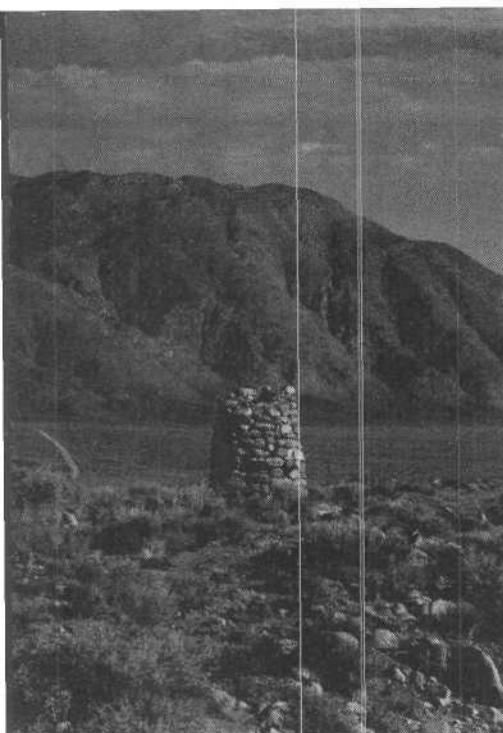
Above: Three miles southwest of the ghost town of White Mountain City, Crystal Hill provides good quartz crystal collecting for rockhounds. The "light spots" on the hillside are part of several diggings. Below: Beginning with prehistoric Indian, Deep Springs Valley has played host to man down through time. The earliest residents left a record of their presence on stone in many places throughout the region.

DEEP

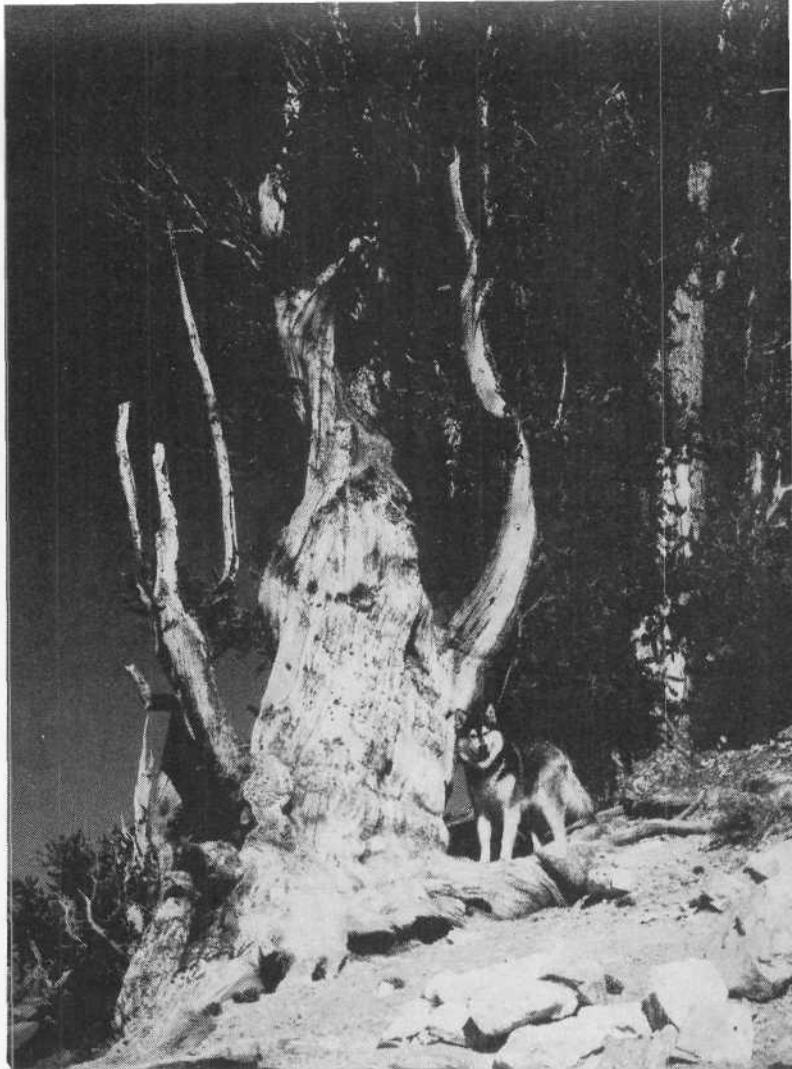
by **MARY FRANCES STRONG**
photos by **JERRY STRONG**

RESEMBLING AN ELONGATED, oval-shaped bowl with a scalloped rim composed of mountain peaks, Deep Springs Valley nestles snugly at 6000 feet in California's White Mountains. Though traversed by a paved road following the toll route along the earlier Midland Trail, this beautiful, high desert valley has somehow managed to escape so-called civilized development. Only a highway maintenance station, a large ranch and, more recently, a trailer at what is reportedly a mining venture, accommodates the valley's small population.

Few of the many visitors to the Bristlecone Pine Area, 15 miles west, elect to travel the "pass climbing" back road into Nevada via Deep Springs Valley. Happily, the absence of traffic and people make this scenic and historical region a tranquil retreat for those who prefer to enjoy the great outdoors in a pristine set-



White Mountain City occupied this broad, rocky alluvial fan on the north side of Wyman Creek. Nearly a dozen stone ruins and a small rock furnace mark the site. This is a good camping area.



Above: This is Pinus Alpha, the first Bristlecone Pine discovered to be over 4,000 years old—actually, it is 4,300 years of age. If you have not visited the Bristlecone Pine Area, you will enjoy making this side trip during your stay in Deep Springs Valley. Below: The little furnace is beautifully crafted without the use of mortar. Excellent workmanship has defied time and elements.

SPRINGS VALLEY

ting. Combining the best in mountain and desert habitat, visitors will find trails to hike, old mines to explore, rocks to collect, challenging 4WD routes to follow, plus a streamside campsite located among the ruins of an old ghost town.

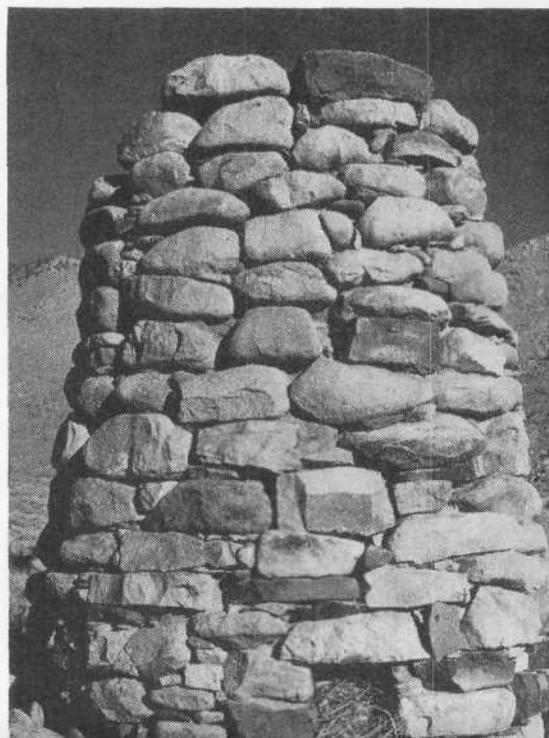
Usage of Deep Springs Valley dates back to prehistoric time when early Indians camped, hunted, gathered pine nuts and patiently recorded their activities on stone. Several fine petroglyph sites and chipping grounds are located within the region. Recent Indian tenancy dates back several hundred years. As late as 1861, Piute Chief Joe Bowers had an established camp at Antelope Springs.

Probably the first white men to visit the valley were prospectors who left the Mother Lode to try their luck elsewhere. Rumors concerning placer gold discoveries in the White Mountains eventually

reached crowded mining camps. The fall of 1861 found a party of men, including Dan Wyman whose name would be given to the main creek entering the valley, coming to locate placer ground. Finding a promising area, they wintered along Cottonwood Creek. Many other miners were working claims in the general area.

Wyman Creek spills out of the mountains at the northwestern corner of Deep Springs Valley. Rushing toward a playa at the southeastern end, it completes an 18-mile journey from its headwaters, over 10,000 feet high, in the White Mountains. The mouth of the canyon opens into a broad, creek-cut alluvial fan, which was ready-made for a settlement; and, in 1861, a number of prospectors called "White Mountain City" home.

The "City" is remembered in historical annals for the part it played in an





"Hard rock mining" is required to obtain the crystals. Following a quartz vein will often lead to vugs of clear, smoky-tipped and smoky specimens.

election fraud. Even in those days, there was hanky-panky in politics! A request for a polling place at Deep Springs Valley led to the establishment of Big Springs Precinct in August, 1861—just in time for September elections. When the new precinct cast 521 votes for Governor, Senator and Assemblyman, one defeated candidate became suspicious. He paid a visit to White Mountain City and found less than 50 men in the entire district! Lengthy hearings disclosed the ballots and poll lists were "lost." Fraud was proven and, eventually, two defeated candidates were seated.

Spring of 1862 brought Indian problems. Piute Chief Joe Bowers, residing in the valley, was friendly to white men, but many other Indians did not share his feeling. When an irate group ordered the prospectors along Cottonwood Creek to leave, Chief Joe came to their assistance. Declaring the men were in his territory, he temporarily halted the trouble. However, he advised them to move out as his delaying tactics appeared to have only deterred the hostile Indians momentarily. Taking the Chief's advice, the men cached their mining equipment and left the diggings. Many others followed suit.

If this can be called a "skirmish," it was the first of many that occurred during the next six years. Early settlers in the Owens Valley region bore the brunt of the Indians' wrath and a number of people, both Indian and white, were killed.

Prospectors were often the target of an attack and one frightening encounter took place at Deep Springs Valley in November, 1864. Thinking the hostilities were over, three miners—Mathew, Crow and Byrnes—were working a claim four miles north of the Gilbert Ranch (now Deep Springs Ranch). Mathew was preparing dinner when an Indian and his squaw came into camp seeking food. Caught off guard as he responded to their request, Mathew was shot in the jaw. Simultaneously, another shot ended Crow's life as he was working the mine windlass.

Byrnes was trapped at the bottom of a 60-foot shaft into which the Indians dropped large boulders in an attempt to kill him. Though seriously wounded and believed dead by the Indians, Mathew managed to reach his gun and opened fire. His shots missed their mark, but the Indians hastily departed. Thinking his partners were both dead, Mathew headed for the Owens Valley. He was found by a rancher and eventually recovered from his wound.

At the bottom of the shaft, Byrnes had been able to evade the rocks. However, the Indians had taken the windlass rope and he was trapped in the shaft. Luckily, Chief Joe came to the claim. Though unable to pull Byrnes out, he managed to supply him with water before heading to Owens Valley for help. A party of 30 men went to Byrnes' rescue. He was hauled out of the shaft after five days imprisonment, none the worse for wear.

The ironic ending to this story clearly illustrates man's long record of inhumanity to his fellow man. Several years later, Byrnes decided he wanted Antelope Springs for his own use and forced Chief Joe to give up his camp. Again, Chief Joe went to his white friends in Owens Valley for help. They quickly formed a posse and forced Byrnes to vacate.

Mining has been intermittent in the Deep Springs Region for over a hundred years. Probably the more notable mines include the Lincoln (Silver Dome)—silver; Pine Mountain Group—gold; Gold Wedge—gold; Westgard (Chalmers)—lead and silver; Bull Domingo—lead and silver; Wilkerson—gold plus the Cottonwood and Crooked Creek Placers. Tungsten occurs at the Emergency Group of Claims and the Deep Springs Valley Deposits contain molybdenum. The Inyo Chemical Company attempted to extract potash from Deep Springs Playa in the 1920s. Evidently, the deposits were not extensive enough for commercial operations, as no production has been reported.

Today, Deep Springs Valley remains much as it always has—a quiet retreat for man. The site of White Mountain City is marked by ruins of a dozen stone cabins. An old, small but beautifully crafted rock furnace stands as a lonely monument to the little "city" of hardy men. The ghost town site makes a good camping area, providing a fine view of the valley. There are no facilities though water is available from Wyman Creek. Please take your trash with you. There are no "pickups" here!

A typical back-country road (maintained to service the power line) leads west to Wyman Canyon. Narrow, winding and rough in spots, it follows along the creek then claws its way up a steep-sided mountain when the canyon closes to only stream width. Traveling through picturesque Granite Valley, it again returns to creek-side and eventually joins the Bristlecone Pine road at an elevation of 10,000 feet. Following Wyman Creek up from high desert country to pine forests on the crest of the White Mountains makes a beautiful drive. Several four-wheel-drive trails branch off the main road and lead to "cliff-hanging" mines. Most of them have long been idle, but they are still under claim.

Not for the timid, Wyman Creek Road

is sometimes impassable. Many side-tributaries empty into the creek and the combined runoff from heavy storms often carries sizable boulders which cut away at the canyon walls and wipe out sections of the road. Water level marks, 30 feet above streambed, indicate the depth of water that has rushed wildly down the canyon in recent years.

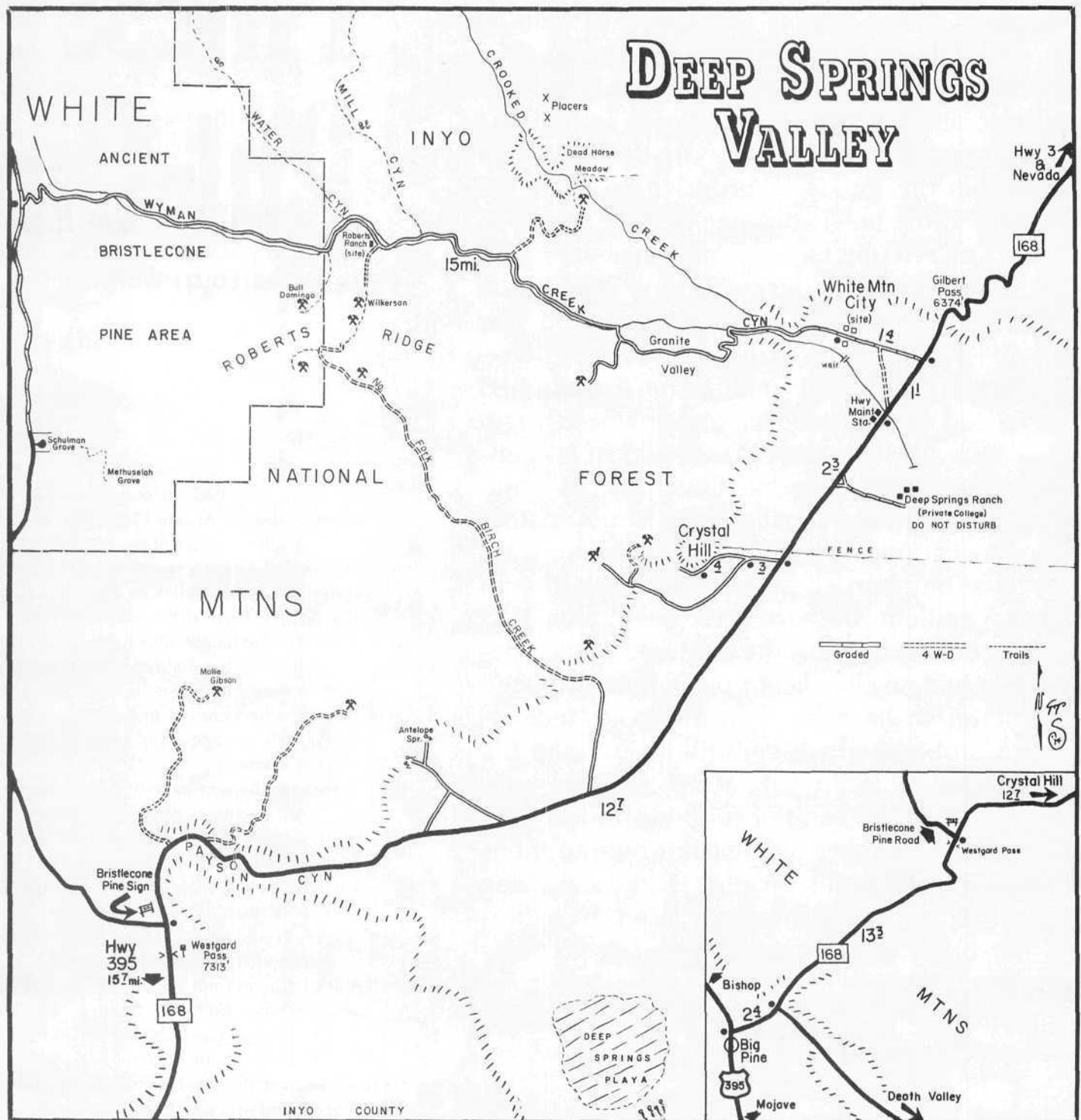
There are several dirt roads heading into the mountains from the highway along the western side of Deep Springs Valley. A four-wheel-drive trail leads north up the North Fork of Birch Creek

Canyon for some 10 miles to several old mines. For a guide to serious exploring, purchase the Blanco Mountain and Lida topographical maps.

Of particular interest to rockhounds is Crystal Hill, less than a mile from the highway. Veins of quartz containing crystals will be found in a conical-shaped, granite hill. Clear, smoky-tipped, smoky and milky crystals from one-half to eight inches in length may be obtained by hard-rock mining. You will need a shovel, pick, sledge and chisels to dig into the veins. A level, cleared area

at the base of the hill makes a good campsite.

Deep Springs Valley is a special place for those who prefer "doing it themselves." There are no sign posts to direct you, no marked trails to follow, no campgrounds, no gasoline stations or grocery stores. You must come prepared to explore and find its many delightful recesses on your own. In this day of more and more control and restrictions on the use of our mountains and desert, Deep Springs Valley is a welcome change from organized living and playing. □



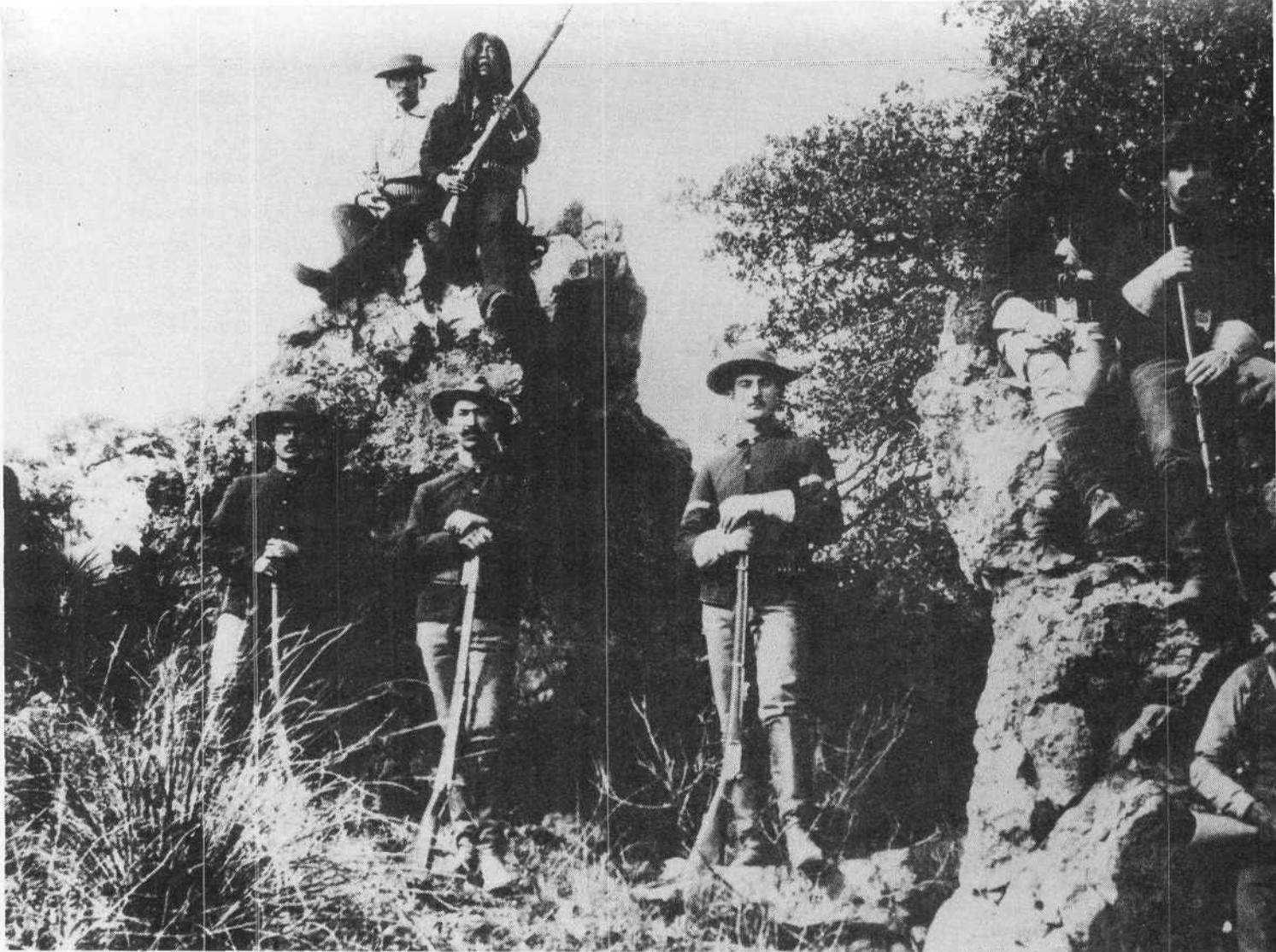
Although the Apache Indian was one of the finest fighting machines the world has ever seen, his improvident habits kept him in perpetual confusion and turmoil. He was always in serious need of food, arms, ammunition and horses. To him, these items were totally expendable without thought for the future and he always required dependable outside sources of resupply. White settlers, freight wagons, mule trains, and even individual travelers felt the continual weight of Apache need for material and understandably felt imposed upon when they were sometimes forced to give up their very lives as well as their worldly goods in order to support the raiding Indians. The Apache was also the victim of circumstances. His ancestors had long known many sources of raw gold in the land and lived to regret ever telling the greedy whitemen where the "useless" yellow metal could be located. The Apache had many sad experiences which convinced them that they must forever after keep quiet concerning the yellow metal. This they have meticulously done. Further, with no visible means of support, the Apache could not walk into just any border town with a sack of coin so he seldom bothered to keep any that appeared incidentally in his loot. Barter definitely had no significant place in the Apache life style, so he lived with a supply and demand problem which continuously taxed his ingenuity. This is the story of how one Apache Chief solved his supply problems for his entire band for a whole winter without endangering any of his people. His success was such that, although he massacred 19 whitemen in order to safeguard his secret, that fact goes unnoticed in history and the event is remembered only for the gold at the Lost Adams Diggings.

Nana's Finest Put-On

by JOHN S. SOUTHWORTH

BESIDES HAVING an odd name and being no beauty, Apache Chief Nana was a cob-rough character of the old school. He lived the harsh life of the Apache tribesman, he got drunk on the raw native liquors, he beat his wife when she needed it, he fought with his neighboring Apache tribes for no other reason than to keep his braves in top fighting form, and he went out of his way to do battle with the Mexicans south of the present border.

He never became as well-known to the American people as did his contemporaries Cochise, Geronimo, Victorio and Mangas Coloradas, although his hard-riding raids and exploits were more unbelievable than the best those other worthies could muster. He was cold and efficient rather than colorful with the result that he did not trigger enthusiastic press reports from the frontier newspaper correspondents. General George Crook, the one army general who really understood the complex nature of the Apache and who was the most successful



Army officers and their scouts during the 1800s. Photo courtesy Arizona Historical Society.

in confining it, publicly stated that Nana was the real brains of all the hostile leaders.

For all his capabilities, Nana didn't leave many positive things to show for his long and violent life. But then, he really didn't have much to work with. His tribe raised a few simple crops in a desultory sort of way, when and if the mood struck them or an opportunity presented itself. He was not adverse to raiding neighboring tribes for any useful items, including women and children as well as the necessities of life such as food, weapons, ammunition and horses.

His tribe got along and lived with its many cousin tribes in a sort of armed truce, gathered together under one name by the white men who called them what the Zunis called them, "apache" meaning "enemy." Any confederation the Apache might have had was extremely loose, based mostly on language ties and convenience. And if it wasn't convenient, forget it. But they did a good job of controlling all of eastern Arizona

and beyond, from the Colorado River far down into Mexico and eastward across the Rio Grande. Their land was austere and cruel, and so were they.

The coming of the white man cramped the Apache style more than somewhat. While a few of the more restless chiefs and braves demonstrated against the new establishment in a most modern manner, old Nana studied the changing situation and recognized many new and interesting challenges. True, his territory now had to be shared with unwelcome strangers, but they brought items of great new interest to him, items that could be collected quite easily, at the same time offering a great deal of fine red-blooded sport in the taking. So now, Nana could live off the white man as well as the sunburned land, and he acted accordingly.

Being a good general, Nana put his problems to work for him. He set out to implement one of his most successful coups, one for which he has never been given proper credit because he and his

band performed their allotted tasks with utmost precision, and not one of them ever talked. He put together a fascinating scheme which was destined to produce equipment and supplies sufficient to keep his whole band of 40 or so braves plus their squaws and kids through one whole winter. This wonderful plan of his would not require his braves to leave their camp, and best of all would not leak the secret of his gold-baited trap. His scheme was superior and it worked almost perfectly.

Chief Nana laid thorough plans. His trap needed unprocessed gold and a secluded hideaway. The measure of his success on both counts is well documented. There was very real gold and the chosen spot has not been located to this day, though not from lack of trying. Perhaps long-forgotten raids on Spanish or Mexican gold shipments along the Rio Grande between Colorado and Santa Fe or Sonora had already provided the perfect bait.

More likely, a raid on freighters



Typical Apache braves as photographed in the 1800s. Photo courtesy History Division, Los Angeles County Museum.

moving gold from recently-discovered Rich Hill south of Prescott, Arizona, to the newly-established United States Mint at Denver, Colorado, provided Nana with the necessary gold, plus a few incidental animals, guns and ammunition. In this latter case, Nana just diverted a shipment, in its entirety, to one of his favorite strongholds, there to pour out the gold in an area "about the size of a wagon bed" to await its rediscovery by a chosen group of white men. Conveniently and better to fully arouse the white man's deep lust for gold, Rich Hill nuggets were extremely large, large enough to earn for an area at their source the descriptive name of "The Potato Patch."

And so it was that in late 1864, the stage was fully set for one of the west's bloodiest Indian massacres which is remembered today, more than 100 years later, almost entirely as a lost mine story.

An Indian informer, well known to the white men of Tucson, Arizona, was

planted in the idle gatherings of gold-hungry prospectors in that western desert town. At the right moment, he told of much gold to be had many days to the northeast. His story, with its ring of authenticity, had the expected effect and for the promise of a few dollars, a gun, and a horse or two, he agreed to guide the miners to the bonanza he knew. The more the merrier, as the guide put it, since there was plenty for everyone and a large party would be safer in that hostile land. Little did any of them realize the fatal role each was to play as victims of Chief Nana's careful plot. Presumably, the large party was for its own advantage. Actually, it was the other way around. A larger party would require more food which it would never live to consume, but which the Apache would.

Twenty-two prospectors were in the group that headed northeast out of Tucson. They traveled easily under the expert direction of their volunteer guide who never got lost or became confused,

no matter how obscure the trail. He knew every step of the way, pointed out landmarks, and make a special point of showing the trail to Fort Wingate, near present Gallup, where more supplies could conveniently be obtained should such become necessary. The Apache plan assured that such would become necessary.

The excited, expectant miners were 10 days out of Tucson when a very particular, very remote, and still unidentified canyon was reached. According to their willing guide, the canyon had only one access, the one they were using. The defile was a typical Indian stronghold with plentiful water, steep walls, and no unwanted visitors, but at the time of their arrival it just happened to be crawling with Apache Indians. Chief Nana and his whole bloodthirsty crew were waiting to greet the newcomers. Greatly out of character, Nana welcomed the miners, promised no harm, and allowed the guide to show where to dig.

Gold beyond the wildest dreams greeted the eyes of that ill-fated few almost immediately. Gold in great lumps lay beckoning just below the surface. Exhausted as were those travelers from many days of the trail, the gold fever was hard upon them and they all found new strength to dig far into that first night, ceasing only when they were fully convinced that the gold would still be there on the morrow.

It was still there the next day and the day after that. The miners made plans to stay the winter and the Indians, playing their roles to the hilt, were more than happy to have them. Construction of a log house was begun and plans made to send a small party to Fort Wingate to bring back sufficient supplies for a long stay. The situation was all too perfect. It just couldn't last, and it didn't.

Only one miner retained his common sense through all the greed which blinded the rest. He had decided that his 60 pounds of raw gold was enough for any man and, feeling ill at ease in the abnormal situation, left the diggings with the supply party which would follow the Fort Wingate track so carefully pointed out only a few days earlier.

The single man made it safely back to Tucson with his load of gold, to sell it, and to live a while to enjoy the benefits thereof. His actions being fairly common in those uncommon times and therefor

not newsworthy, his name went unrecorded. The Fort Wingate group, loaded with food useful to the Indians as well as to the miners waiting their return, made it back to the hidden canyon, almost.

The supply train was long overdue when a man named Adams, concerned for the safety of his friends, as well he might be in those circumstances, climbed from the canyon, accompanied by another miner, to check the access trail. They were totally unprepared for the scene that presented itself. The returning train, loaded down with all the impedimenta required to maintain 20 white men through a long winter, had been ambushed, massacred to the last man, and the animals with their loads of food removed to parts unknown. Unwanted mining tools littered the grisly scene.

Thoroughly frightened, Adams and his companion raced to warn those who remained at work in the base camp. They were too late. Nana and his efficient followers were in the final stages of wiping out every white they could get their hands on. Already some of his braves, unable to restrain themselves any longer and in a spirit of unbounded enthusiasm, had begun a bloodcurdling celebration of the complete success of Nana's finest plan. The two shocked observers waited not for their belongings nor their new-found, and now-lost, wealth. Recognizing their fortunate position in surviving two massacres, they took off for civilization with little more than their lives, a tall tale and one large nugget which Adams habitually carried in his pocket.

Unknown to Adams, still another man made good his escape in his own manner. Being in just the right place at the right time, he was able to avoid the total extermination as planned by Nana. Cut off from the natural escape route, he climbed the canyon wall, headed east without equipment or supplies, and eventually reached safety in the pueblos of the Rio Grande.

Each escapee told his own story, convinced his listeners, and precipitated interest ranging from curiosity to full-blown expeditions. For years, searchers actively sought the lost Adams, Davidson, or Brewer Diggings, named according to which survivor originated the story they had heard. Adams lived the longest, searched the hardest, and his name

has survived the rest. As far as the record goes, every search has been fruitless. Even the general area of Nana's stronghold remains to be positively identified, for in true Indian fashion, Nana destroyed all incriminating evidence, little realizing how well his plan had worked and how long it would take for the white man to get back on his trail. They are not really well onto it yet.

The massacre site and the gold used as bait both remain thoroughly lost. Adams himself spent most of the years which were left to him in a New Mexico-based search which yielded not the faintest clue. No better success has been reported by any outsider in a hundred years of trying. Casual modern interest seems to center farther north in the canyon country, but persistent rumors point toward the depths of the Gila Wilderness, an area which also happens to be convenient to Nana's home base at the warm springs near present-day Winston, New Mexico.

Old Chief Nana never admitted a thing, not even when confronted by Adams himself almost 20 years after the massacre. Nana went to his Happy Hunting Ground shortly afterward, a wholly incorrigible and totally unreconstructed Apache raider. He is probably still enjoying the excitement he caused during his long and eventful life, excitement which even yet recurs every time someone arouses new interest in the Lost Adams Diggings.

Perhaps you will be the modern-day searcher who will recover whatever golden treasure remains where it was planted by one of the West's most successful mine salters, and old Nana's eyes will turn blood red, just as they did in the old days, when that time comes. □

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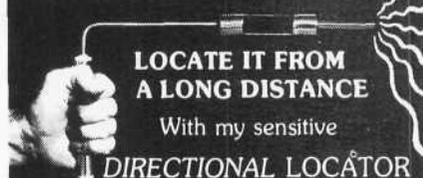
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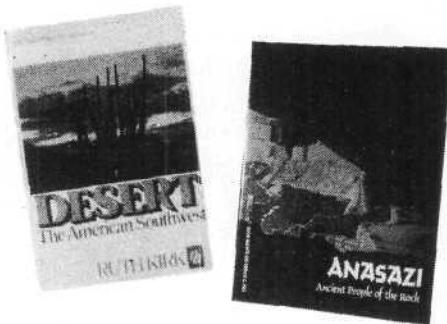


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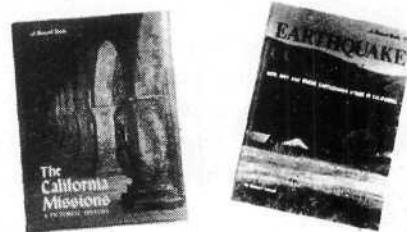
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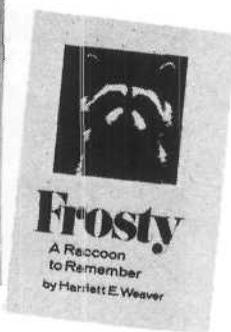
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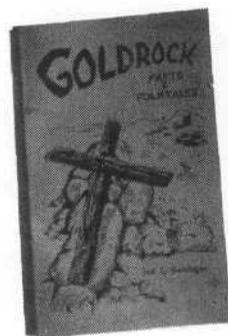
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Rambling on Rocks

by Glenn and Martha Vargas

Apatite: No. 5 in Hardness

AS FAR AS mammals (which includes humans) are concerned, apatite is one of the most important minerals. It is the constituent of teeth and bone. Ideally, the mineral should be a calcium phosphate, but always fluorine, and usually chlorine are part of the chemical make-up. Thus, the mineralogist writes the formula as $Ca(F, Cl)Ca_4(PO_4)_3$. On rare occasions, there is no fluorine. The material that has an excess of fluorine, which is normal, is sometimes known as fluorapatite; that which has an excess of chlorine, which is very unusual, is chlorapatite.

Pure calcium phosphate (without either fluorine or chlorine) is known, but has a variable composition. Thus the mineral apatite always contains either of these gasses as part of the molecule, and is simply known as apatite, with no prefix reference to the gas. The name, in spite of our teeth being composed of it, does not refer to eating, but stems from the Greek (*apatos*—to deceive) because it has often been mistaken for other minerals.

The presence of a high amount of fluorine in the apatite making up tooth and bone structure is very important to higher animals. A lower fluorine content tends toward a weaker, more brittle structure. This is the reason for fluorides being important to prevent tooth decay.

Apatite crystals belong to the hexagonal crystal system. Many of these are beautiful symmetrical hexagons. Most are small, usually under two inches in length, but sometimes large ones are found weighing up to as much as 500 pounds. The color of apatite is highly variable. Blue and green are most common, and yellow, purple, red, brown and colorless are least common.

Apatite does not have much use industrially, but it is important as a fertilizer, adding phosphorus (phosphates) to soil. In some regions, it is mined as apatite, and prepared for use as fertilizer by adding acids. In other areas, it is mined as calcium phosphate which is the remains of some form of animal life. Sometimes this is known as bone phosphate because it is found as bone remains in huge fossil beds. Evidently the long burial in fossil beds tends to drive off the fluorine and chlorine, leaving calcium phosphate with other impurities.

One interesting side issue of this situation is when fossil bone is infiltrated with a small amount of iron. The result is known as odontolite, and is blue in color. This sometimes is called bone turquoise and has been found in pieces large enough to cut into gemstones. For many years, it was thought to be bone and teeth replaced with turquoise. Actually, it is the mineral vivianite (iron phosphate); turquoise is copper and aluminum phosphate.

We have seen some of these odontolites (from the Greek *odontos*—tooth), and they are beautiful, perfect teeth and bones of a light blue color. Teeth are much more resistant to decay than ordin-

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ary bone, thus the name was given because teeth in this form were more common.

The mineral collector is very interested in apatite. The wide range of colors and hexagonal forms are excellent for collections. The most common form is a true hexagonal prism, but this is commonly altered by more faces lying on the corners of the sides and tips of the crystal. Some are so altered that they are almost cylinders. Some crystals are very short, resembling hexagonal coins.

If apatite had a hardness greater than five, it would be an extremely popular gemstone. Regardless, the faceter cuts suites of stones of various colors for a collection.

Burma produces a material that is blue in one direction and green in another. India is known for a number of shades of green. Green also comes from Canada. A pure colorless material comes from Bolivia. The island of Madagascar produces a number of colors, the best-known being a deep green, but a fine light blue is also found there.

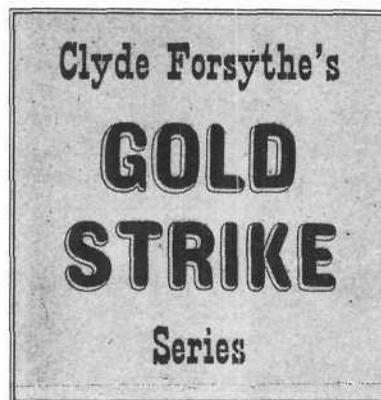
The best of all blue apatite comes from Brazil; a color rivaling the sapphire. Brazil also produces an interesting light-golden brown. A region in Mexico called Cerro de Mercado (Market Hill), and actually an iron mine, is known for yellow, almost cylindrical crystals that are often over an inch across.

The mines at Mt. Apatite, near Auburn, Maine produce the finest color of all, a deep royal purple. These are old mines and were thought to be completely worked out, but in recent years some pockets of excellent crystals have been found. One of the gem mines in San Diego County, California produces delightful pink-lavender crystals.

The refractive index of apatite is near that of topaz, thus the gems that can be cut from these crystals of many hues have good brilliance. The faceter finds that apatite is difficult to cut into a gem. There is no cleavage, but the mineral is brittle. This, coupled with the softness, gives some slight difficulties during cutting and shaping, but great difficulty is experienced during polishing. This, however, only adds to an interesting situation. The gem is not often seen, it exhibits a wide variety of colors, and is also a test of the cutter's skill. Thus, anyone who has cut a suite of these can be justly proud. □

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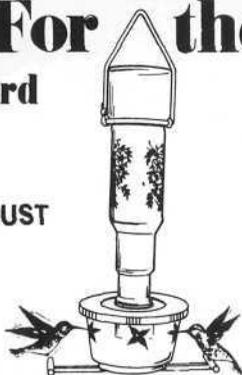
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Light on Lantern . . .

Regarding the lantern found by Mr. John W. Dixon, Jr., I, too, have an identical lantern which my father gave to me. Mine came from Colorado and was used for many years on the Denver and Rio Grande Railroad narrow gauge line running from Durango to Silverton. A retired employee of the line gave two of these lanterns to my father and one of them was equipped with a cast iron base that mounts on the wall.

As I understand it, these lanterns were used for lighting inside the coaches, and several can be seen on the walls inside the station at Durango.

BOB SERVICE,
Newhall, California.

The part of the lantern Mr. John W. Dixon picked up was the kerosene container which fits into the bottom portion of a railroad signal lantern. These little lanterns are very scarce and are a rare collector's item these days. What Mr. Dixon found would have no value as he would need the frame and globe of the lantern, also.

C. E. MILLER,
Oakhurst, California.

Editor's Note: Our thanks to the many other Desert readers who also identified Mr. Dixon's mystery object.

Reminiscing . . .

I have been a subscriber to your magazine almost since its inception, many years ago, and have always enjoyed reading its contents. I was a TB patient in a Phoenix sanitarium, and resident in a cabin, in Hassayampa Country Club, Prescott, during 1930-31, with full recovery, after returning back East, later.

During the time I was at Hassayampa, I had an old Essex touring car, and with my camera, made many trips out into the desert country, Grand Canyon, etc., taking pictures of interesting subjects. I have some of the 1930 Prescott Rodeo, Smoki Snake Dance and many others. I had the pleasure of meeting Charlotte Hall, in her home, and I still remember the dress which she wore when she went to Washington as the State's first representative of Copper. I believe it is still in the museum home which she left to Prescott. She

told me many interesting stories about early Arizona and the Indian Country.

I also met Dr. Douglas, from University of Arizona, who was the expert on the age of trees, as determined by tree rings.

I am glad that I had a chance to meet and talk with these interesting people, as well as the opportunity to see the real Rattlesnake Dance at Hotevilla. It is great that you give credit to such people in your magazine, who help to preserve its history, and make it such a wonderful place for those of us who love the great outdoors, and hope to preserve it the way God intended it to be.

HARRISON I. DIXON,
San Diego, California.

Mexico Road Report . . .

I have just read "A Run on Mexico 1," in the July issue. Mr. Smullen mentioned the narrowness and lack of shoulders of the new highway, but he neglected to mention roving livestock and broken-down vehicles on the pavement. A danger warning is three rocks on the shoulder or center line of the road.

We were towing light trailers and drove 45-50 miles per hour on the straight stretches; this is not a high speed highway.

Mr. Smullen should have stopped in Santa Rosalia. There is an excellent bakery (*panaderia*) and, most important, an ice plant. Also, we found it more economical and convenient to change our dollars or cash traveler's checks and obtain pesos at a bank. One usually loses a little in the exchange when paying with dollars, especially for gasoline.

We had a most enjoyable and interesting trip to Mulege and Loreto in late March.

STERLING KENDRICK,
Ridgecrest, California.

We have just finished reading Mr. Smullen's article on the new Baja Highway, and enjoyed it very much.

We drove it as far as Bahia Concepcion in mid-May, and can report to your readers that government-sponsored gas stations along the way are all open, whether completed or not. So there is no trouble finding gas. The *paradors* were still being completed, but most seemed to be open, as were the hotels at San Ignacio and Santa Inez.

Mr. Smullen has a more optimistic view of the dangers of the highway than we do. With NO shoulder, in fact usually a four-foot or more drop-off, plus the hazard of foot-high square-ended culvert tops, there is little leeway and no escape in case the other fellow crowds you or blinds you, or an animal or a car looms up ahead of you. It is also difficult to get out of the way of others if you have mechanical or tire trouble.

Senora Espinosa, a long-respected-gas station, store and restaurant owner of El Rosario, advised us to never drive it at night and to always use great care, especially on curvy parts of the road where curves are not banked, making it impossible to see ahead. She knows whereof she speaks!

BETTY MACKINTOSH,
Chula Vista, California.

Calendar of Events

SEPTEMBER 21, Third Annual California Searchers Hunt, 1:00, Historic Pena Adobe near Vacaville, Calif. General Hunt, Ladies Hunt, Junior Hunt. All TH'ers welcome. For registration information, contact: Ed Tanner, 415-223-3388.

SEPTEMBER 21, "Recreation in Rocks" sponsored by the Peninsula Gem and Geology Society, Rancho Shopping Center, Foothill Expressway & South Springer Rd., Los Altos, Calif. Featuring gold panning, cutting material, handmade jewelry, cut geodes, etc. No Dealers.

OCTOBER 4-13, London Bridge Days, Lake Havasu City, Arizona. Third anniversary of the opening of historic London Bridge on the lower Colorado River.

OCTOBER 5 & 6, Second annual Bisbee Gem and Mineral Show, National Guard Armory, Bisbee, Ariz. Exceptional exhibitions by noted collectors and dealers.

OCTOBER 12-13, San Fernando Valley Mineral & Gem Society's Annual Show, North Hollywood at the Valley Plaza Recreation Center, 12240 Archwood St. No admission. Displays, auction, club sales, dealers, demonstrations. Contact: Opal Cockey, 6306 Camellia Ave., North Hollywood, Calif. 91606.

OCTOBER 19 & 20, Long Beach Mineral & Gem Society's 30th Annual Show, "Carnival of Gems." 2175 Cherry Ave., at Hill St., Signal Hill, Calif. Admission free. Dealers, exhibits. Chairman: Frank Teringer, 3935 W. 60th St., Los Angeles, Calif. 90043.

OCTOBER 19 & 20, Daly City Rockhounds Inc., 10th Annual "Golden Gate Gem & Mineral Show." War Memorial Bldg., 6655 Mission St., Daly City, Calif. Dealer space available. Contact: Mary Louise Froese, P.O. Box 596, Daly City, Calif. 94017.

NOVEMBER 2 & 3, "Galaxy of Gems" sponsored by the Oxnard Gem and Mineral Society, Esplanade Shopping Mall, Oxnard, Calif. Exhibits, Dealers, demonstrations. Free parking. Space provided for self-contained campers. Contact: Dan Lounsbury, 1024 Corsicana Dr., Oxnard, Calif. 93030.

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