

THE

Desert

M A G A Z I N E

JULY, 1944

25 CENTS

I meet the Eager Beavers



... by your Union Oil Minute Man

Gloria, our beautiful Minute Maid, and I had just opened the station last Saturday when bedlam, itself, drives right into the station!

It's the *Eager Beaver Patrol*, Troop No. 17, Boy Scouts of America, and their pals, jammed in Cal Withertree's truck. Cal's their Scoutmaster, and he's taking them out to collect waste paper.

Before Gloria or I can say *Be Prepared*, the station's swarming with assorted Scouts. While Gloria asks Cal about gas, I start to check the oil,

but a Scout beats me to it. He gives me a smart salute and exclaims: "A Scout is courteous."

"Now wait a minute," I tell him. "The Union Oil Minute Men are also—"

At this point another Scout comes scooting around the truck dragging the water hose. I make a pass at it, but he says: "A Scout is friendly."

"But dag-nab it, bud, so are the Union Oil—" I start to shout, but I'm interrupted by two more Eager Beavers

with the air hose. "Hey, now," I yell, "this *self-service* might be fine at *some* places, but we Union Oil Minute Men believe our customers are still the most important people who come into our stations, and we try to be—"

"Helpful!" exclaim the two Scouts—"Boy Scouts are helpful—pardon us, please."

The whole thing is getting serious. Then I get a wonderful idea. I sneak around the pumps to get the windshield cleaner. But by the time I get it the Scouts have already got another bottle, have cleaned all the glass, and are all tucked back in again; and Cal Withertree and the truck and the assorted Scouts go roaring out of the station, leaving me standing by the pump with the bottle in my hand.

I see Gloria watching me. "Now you listen to me, Gloria," I say. "Remember

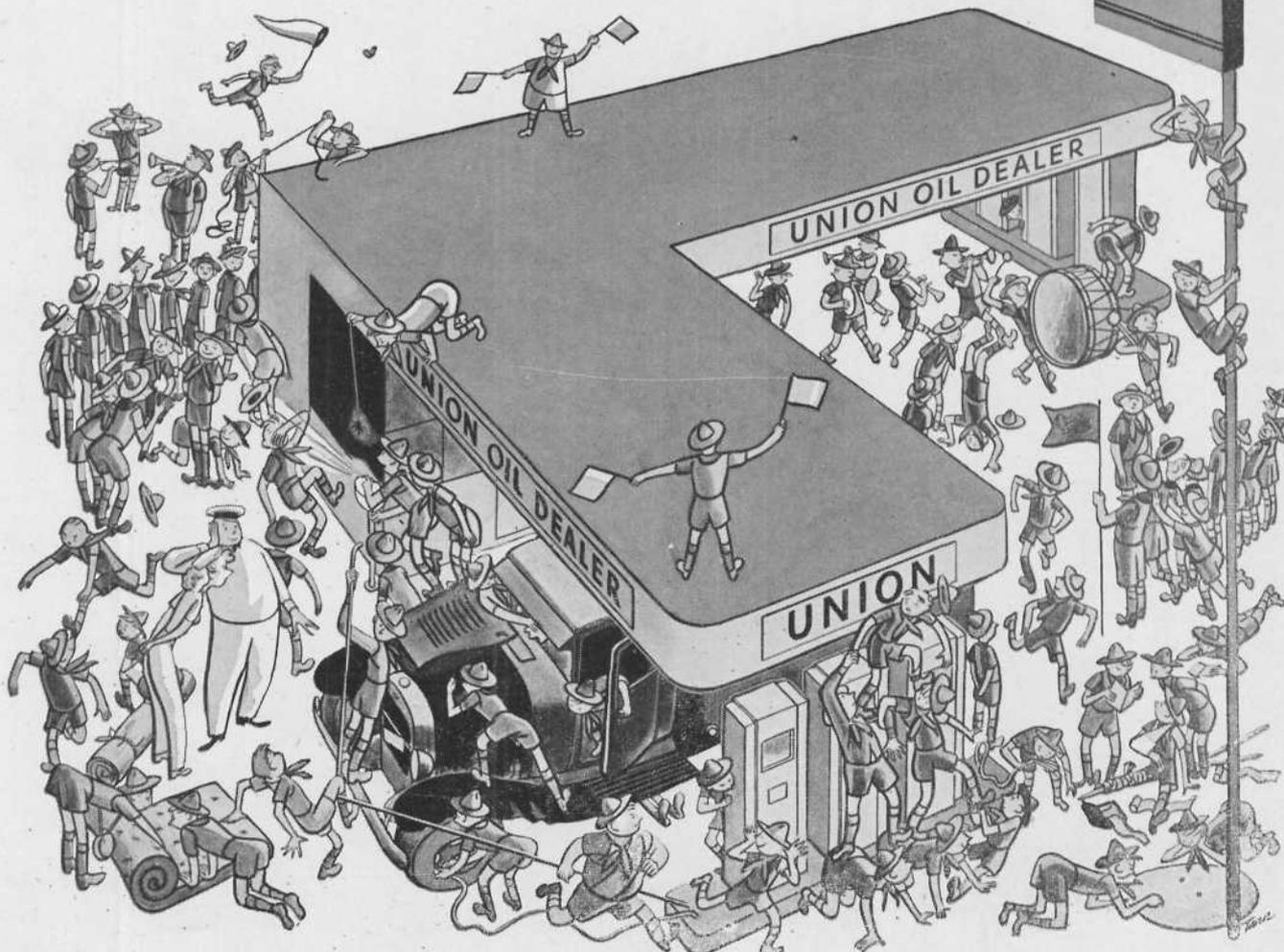
this—Union Oil Minute Men are—"

Gloria grins, and says: "Trustworthy, loyal, helpful, friendly, courteous, kind, obedient, cheerful, thrifty, brave, clean and reverent!" Then she salutes and marches into the station... from which I hear giggles!

Say, doesn't *anyone* want a good deed done?

The latchstring is always out at Union Oil Minute Man Stations. Courtesy, friendliness and essential motoring services are never rationed. We're busy as anyone else, but we're...

Never too busy to be helpful!



DESERT Close-Ups

• New contributor this month is Dr. Philip A. Munz, distinguished professor of botany, Pomona College, Claremont, who collaborated with Jerry Laudermilk on the story of plant adaptation. His book on Southern California botany proves his interest in flora of this desert and semi-desert region. But his special interest lies in his research throughout the western hemisphere on the *Oenothera*, genus of the evening primrose.

• Mabel Wilton, whose first contribution to Desert Magazine appears in this issue, started life in Michigan, has written articles, short stories and poems for religious, nonsectarian and juvenile publications under several pen names. She has appeared as speaker on numerous radio programs, she wrote skits and poems for Fanchon Marco's drama class for a year, some of which are now published in book form, dedicated to her adopted daughter Patricia Ann, now in air corps, medical division, of the WAC.

• When entering Death Valley from the old Nevada mining towns of Beatty and Rhyolite, one usually enters through Daylight pass in Boundary canyon. Those who seek the remotest bypaths might turn off this road before reaching the Pass, following the trail through Leadfield and continuing through Titus canyon. It is the high walls that narrow this canyon down to the point called Titus Portal which are photographed by Josef Muench for this month's cover. The rocky road here shows only a faint track as evidence that automobiles dare adventure into such a forbidding place.

• Next feature for those interested in mineralogy is a mystery story, such as only a scientist like Jerry Laudermilk could tell. It's a story of ancient Indian beads of a mysterious red stone which shows all the warm tones of color from pink to dark red and which sometimes glows with a deep velvety shade like the color of hematite. It took a spectrographic analysis in a college lab to solve the mystery of this red stone's origin. Those who have been skipping words like "spectroscopy" in magazine and newspaper articles, are going to become familiar with its importance and the ways in which scientists use it to answer their questions.

CREED OF THE DESERT

By JUNE LE MERT PAXTON
Yucca Valley, California

There are tiny foot-prints on sandy roads
Where quail crossed here and there;
The designs they leave remind one
Of quilts at a county fair.



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Wilson Howell is a man with a dream. A dream which he has been laboring for 17 years to bring to fulfillment. In a wilderness empire above a vast desert land he is building roads and trails and check dams. As he makes plans for rustic cabins and ramadas and outdoor barbecues, he bears in mind the wild rustic beauty of the natural setting. For it is such an environment that is needed by artists, writers, scholars and scientists and those others who are overworked and strained to the breaking point. It is for these that Wilson Howell is creating what he calls his little paradise. He wants to provide for them delightful hideaways at the end of dim aromatic trails and such sports as tennis, swimming, horseback riding, hiking. This is the story of how one man is building a dream—for others.

Paradise--Above the Palms

By MABEL WILTON

THE interior of the little thatched roof curio store at Ribbonwood, on Pines-to-Palms highway, was cool and inviting when we stepped inside. The earth floor felt restful to our tired feet.

No one was in the store and there was no answer to our repeated calls, so we made ourselves at home, poking about among the articles on display, examining the rings made from ribbonwood, the pine cone lapel pins.

Finally we became uneasy, and curious too, about the continued absence of the owner, and were wondering what to do about it when Patricia Ann, my daughter, discovered a note penciled on an empty paper sack under a chunk of rock on the counter. The note said, "I am working on the road over toward the rim of Palm canyon. If you want me for anything just strike the Indian gong hanging outside the door and I will come up to the store.—Wilson Howell."

Since it was Patricia Ann who had discovered the note, she felt she should be the one privileged to strike the gong. She struck it with such a blow it sent echo after echo vibrating, with seemingly electrical force from one mountain peak to another through the quiet summer air.

"Bravo!" I remarked with a chuckle, "that surely ought to awaken the dead, let alone bring the hermit from his lair. Say, that's a pretty slick idea, that Indian gong," I went on, "it surely leaves the hermit a lot of leisure—Oh! Oh!—that must be Mr. Wilson Howell coming now." I had spied the tall slender figure of a man in faded blue denim trousers and battered old felt hat just rounding the curve in the road that leads off in the direction of Palm canyon.

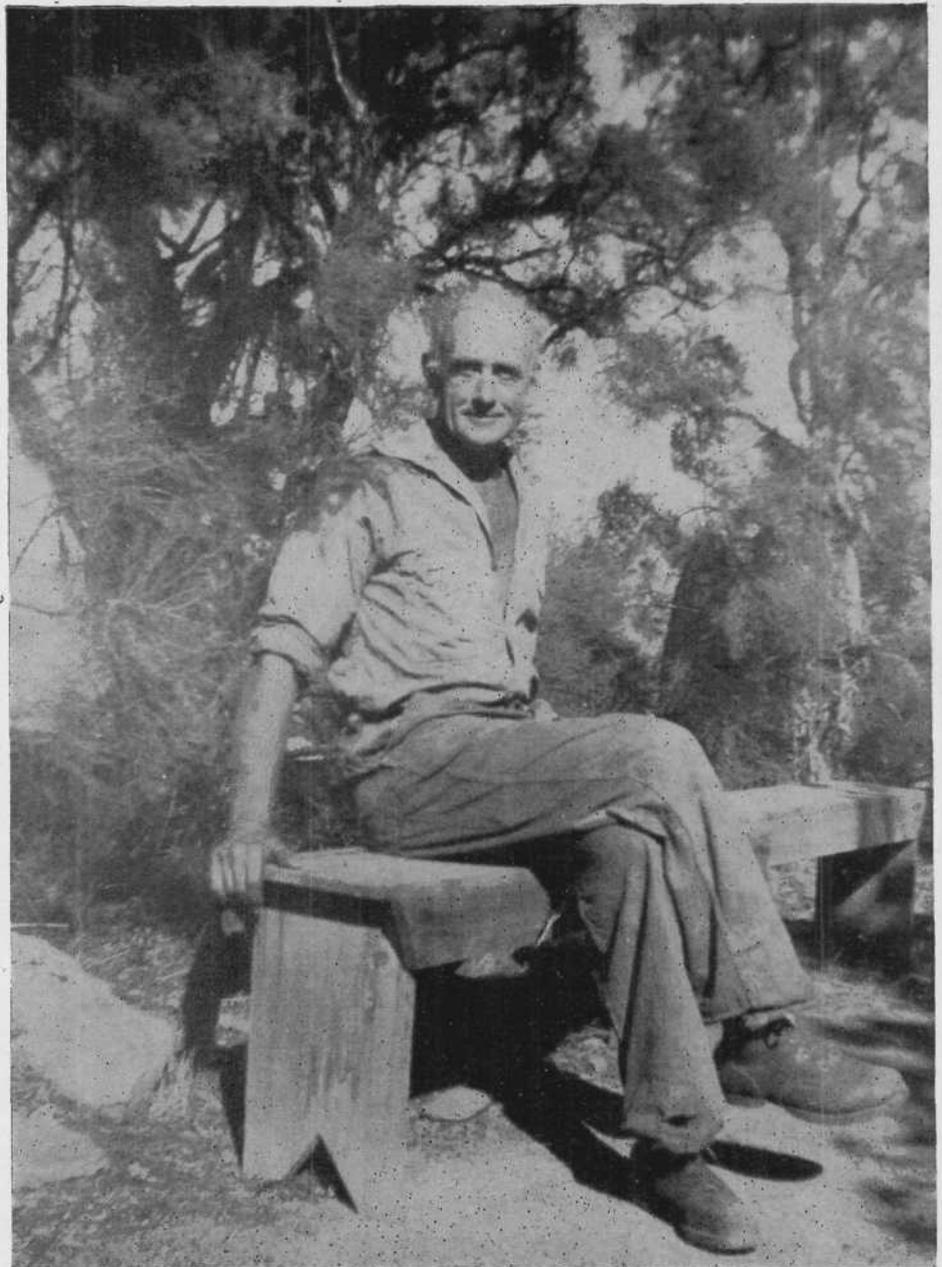
"Yoo, hoo!" we called to him, through cupped hands, and he "Yoo hooed" back to us in the same fashion. As he approached we could see that his face was tanned to the color of brown parchment from the desert winds and sun. His faded blue eyes

held a quizzical look, and they seemed to take us all in at a glance.

"Are you the owner of this place?" we asked, and when he assured us he was, we added, "But, aren't you afraid to go away

off into the hills and leave the store wide open to the public like this? Aren't you afraid someone will carry off everything in the place?"

"No, no indeed," he said, his blue eyes



Wilson Howell under a Ribbonwood, the shrub for which his "paradise" was named.



Along Pines-to-Palms highway which now curves down to the desert past Ribbonwood. Frashers photo.

smiling at us from beneath the brim of the drooping old felt hat. "I just naturally trust folks and I guess they just trust me, too. I never have had anything stolen yet, and I never yet have been cheated out of any money." He chuckled to himself as though he just that minute had thought of something amusing. Seeing our questioning eyes, he explained, "Once I found a note on the counter in the store, saying that the customer had taken an article and had hidden the money somewhere in the store, but of course he didn't say exactly where he had hidden it. Well, it took me exactly three days to find that three dollars and 25 cents. No," he added thoughtfully, "nothing is ever locked here at Ribbonwood."

"How do you happen to be living up here all alone?" I asked.

"Well, you see, it's like this. I have a wonderful idea for a project, and I have been trying to get someone interested enough in it to help me carry it through. I can't make much headway alone. It's a big undertaking, and it means a lot of hard work with a lot of capital involved."

"Project!" I exclaimed. "What project do you mean? Let's hear about it."

That seemed to please him. I could see it was a subject very close to his heart.

"I am trying to make this place into a sort of community rest center, or in other words a rest resort for people in ill health. I want to make it into a place that is entirely different from the general run of health resorts. A quiet, peaceful place with all the comforts of home, yet retaining as much of the natural scenery and atmosphere as possible. Something entirely rustic from beginning to end where sick people can come for the rest and relaxation they so badly need. I would prefer to make it into a place where artists, writers, scholars and scientists, who are badly in need of just such an environment, can come and forget their work for a brief



One of the many check dams Wilson Howell has built.

spell, yet at the same time they can be surrounded by a beautiful natural setting.

"Instead of just the two cabins I have

Through this wilderness Howell has been building roads and trails.



here now, I have visions of a group of log cabins up here on the top of this mountain, with lots of roads and trails leading to the most scenic spots. There could be a tennis court and a swimming pool, horseback riding, hiking and all kinds of sports. There are all sorts of hideaway places here among these rocks and it's an ideal place to come to get away from the hubub of city life." As he spoke his face was alight with many dreams.

"Do you know what I was doing up there on the rim of Palm canyon?" he asked abruptly.

"No," I answered, "I wouldn't know, but please go ahead and tell me all about it."

"I was working on a road I am breaking through to the very rim of Palm canyon. Some day I hope to have a good road where cars can drive clear down to the canyon, and then I hope to establish a series of lakes there."

"But, isn't that a tremendous undertaking for one man alone?" I asked doubtfully.

"Well, yes, I suppose it is," he answered. "That's just why I need help. But, that isn't my only problem. I have a lot of trouble up here fighting vandalism and cattle grazing. The ranchers around here will let their cattle run loose, and then there always are some people who will be destructive."

He seemed lost in thought for a few minutes, then resumed his account.

"I have made a critical study of this country up here and from the standpoint of recreation and living conditions, I find it to be the most wonderful and exhilarating spot in the whole Southwest. This place could be made into a regular paradise—yes, it's a regular paradise in the making," he added as his eyes turned almost reverently toward the west and the mountain peaks where the sun was setting in a peacock fan of multi-colored clouds.

I broke in on his meditations to ask,

"How long have you been living up here alone?"

"Well, let me see now," he pondered, "I guess it's all of 16 or 17 years ago that I first cut a trail through the brush up here to this place." He leaned over to replace a stone I carelessly had overturned with my foot. Just then something crawled out from underneath another stone close by. It looked like a small snake, and I eyed it a bit skeptically as it crawled toward me. Seeing the expression on my face, Mr. Howell reassured, "No need to be frightened of that. It is only a legless lizard. Poor things, they are almost blind and have to practically feel their way about." Bending down, he picked it up and placed it on a rock in the sun.

Sitting on a couple of rocks outside the quaint little curio store in the warm sunlight, I pieced together the story of Wilson Howell and the dream that is his project.

Born in 1888 in New Jersey, of an old pioneer family he had ventured westward in 1919 to settle on a ranch near the small desert town of Indio, California. His fondness for the desert had increased each year, but he found that the extreme heat of the desert and the long hours necessary for desert ranching were taking a heavy toll of his health. Reluctant to go far from his beloved desert, yet realizing that he must make a change, he began to look for some place near the desert but high and cool enough to have the desired effect upon his fast failing health.

Taking what few provisions were necessary he made his way toward the hills. He followed a trail leading up into the Santa Rosa mountains. When night came he found himself standing upon a rocky cliff

overlooking a vast desert area, as well as a magnificently beautiful canyon of palms. To him it seemed the ideal spot because of its semi-desert character combined with the high altitude.

Living alone for a few years up in that scenic area only served to convince Wilson Howell that this should become his permanent home. And since it had restored his health he recognized its possibilities as a community rest center for others who needed the same climatic change and environment.

With this idea formed, but lacking the finance with which to buy the 2000 acres or more, he tried to arouse the interest of his neighbors and friends. His idea was to form a cooperative group who would purchase the property, administer it according to the Golden Rule, with one for all and all for one. It would involve the purchase of Santa Rosa mountain land to the south, with 7500 feet of virgin timber at the top, bordered by Palm canyon and the foothills of San Jacinto.

Failing in this cooperative purchase plan, he negotiated a loan and bought the property himself. He found that at times merely keeping up the taxes on the land was more than he had bargained for, and several times he nearly lost it.

However, merely purchasing this property was not enough. A road must be made to his door so people could come, and there was no road except a trail which ended at Keen Camp, 12 or 15 miles away.

Howell finally interested J. Winn Wilson, late editor of the Indio Date Palm. In 1927, with the help of Wilson and other influential people, plans for a road-way were made and carried through. The road started at Idyllwild Junction and pass-

ed directly through Howell's property, to connect with the Indio-Palm Springs road at the opposite far end of the mountains. Today this road is known to thousands of motorists as the scenic Pines-to-Palms highway.

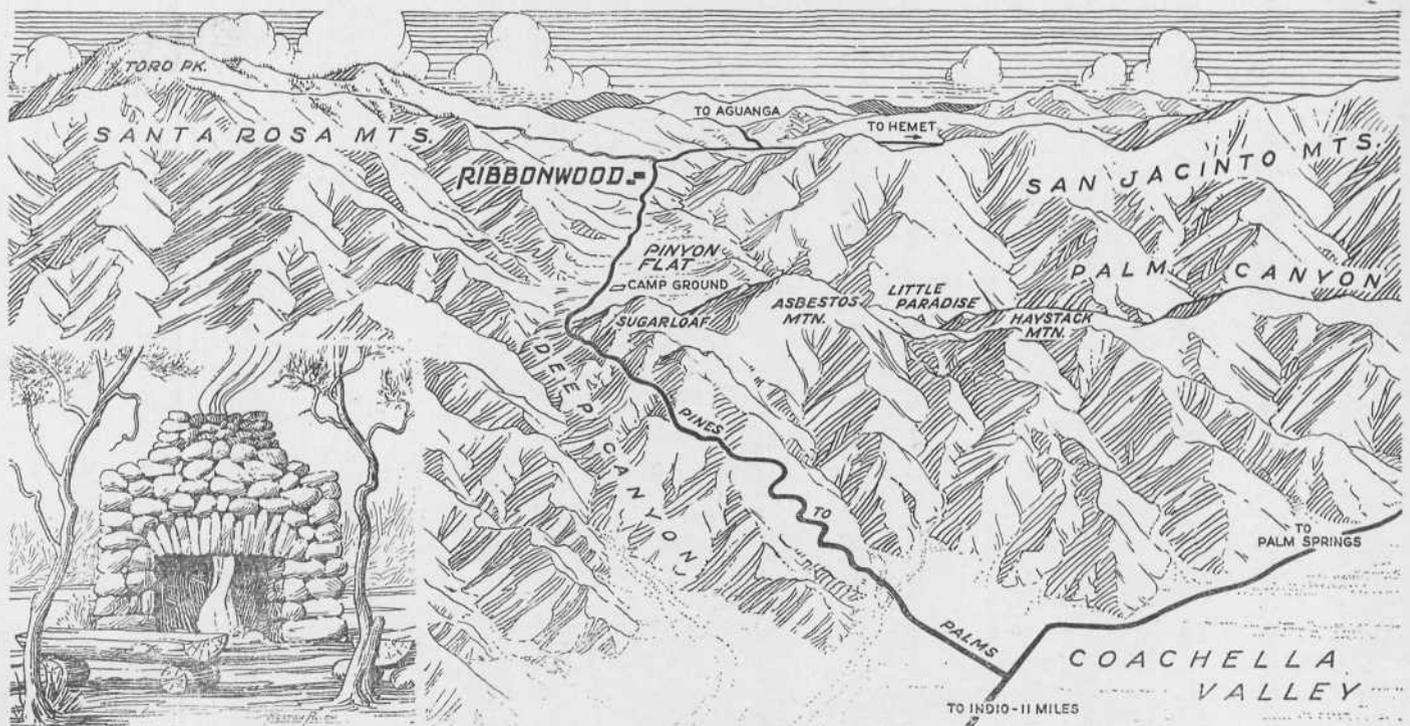
Despite the handicap of ill health, Howell set to work to build a store. He erected a rustic lean-to with log beamed ceilings, a thatched roof and an earthen floor. The fireplace he built of stones gathered from the hillsides. The counter and tables he made of logs nailed together.

Not content with this, he proceeded to build another huge outdoor fireplace with a ramada to shade the tables and benches. This he intended to be used as a community gathering place for parties and barbecues.

His progress was slow and at times discouraging for, lacking the funds to purchase materials such as nails and cement, in any large amount he had to buy one item at a time. He would buy one sack of cement or one sack of nails and when that was used up he would wait patiently until he had saved up enough money for more and then would continue the work.

When he considered a name for his little rustic paradise, he thought there could be nothing more suitable than Ribbonwood, because that shaggy red-barked relative of the chamiso was the most abundant of the native growth surrounding his place. A friend suggested Ribbonwood Land, but the simple name of Ribbonwood appealed more strongly to him and as such it now is marked on road maps.

Encouraged by the advent of the highway, Wilson Howell started to beautify his surroundings. He broke roads and trails here and there to every interesting





Ribbonwood picnic grounds, shop in left foreground, cabins in back among the ribbonwoods. Frashers photo.

and advantageous scenic point on his property, always keeping in mind the natural rustic beauty of the place, leaving enough of the wild growth to retain the true setting of nature.

Breaking these trails and roadways required lifting huge boulders and chopping down a great deal of heavy underbrush, with plenty of filling in and leveling. It was an ambitious task even for a man in perfect health. But the vision of a dream to be fulfilled led him on. Up to date he has built at least 10 miles of roadway and trails through the property. At intervals there are spots cleared for picnic grounds.

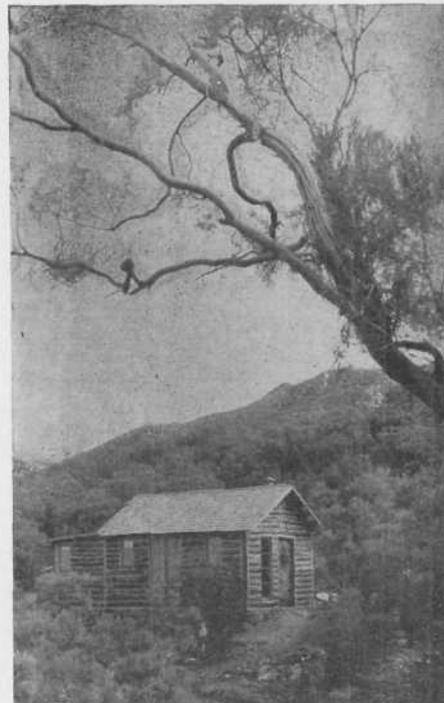
Besides building roadways and trails, Howell has built about 300 fairly large check dams, and 100 small ones to stem the tide of water that comes with winter rains and light snowfall. He plans to pipe water from various springs on the property to different areas, especially to one flat piece of ground he calls his "little farm," where he can raise his own garden stuff.

Back of the curio store are two log cabins which sleep four each, and Mr. Howell's rustic tepee-shaped home. The cabins are well furnished and quite compact, with kitchenette and dinette combined. There are a bedroom and a lavatory with shower, while in the front there is a cozy living room with a natural stone fireplace. The cabins are rustic throughout with beamed ceilings and cowhide rugs on the floors or nailed to the walls. We liked the little cabins and the owner's company so much that we rented one of the cabins from him and stayed several days.

One morning as Mr. Howell and I sat in the sun outside the little store, I noticed several metates ornamenting the grounds outside. Inclining my head toward them I asked, "Where did you find those?"

He eyed me thoughtfully for a second and then said, "Years ago, in fact so many years ago that the Indians living around here now can't remember, there used to be

an Indian camp up here. I found those metates on the spot where they had camped. There are a lot more at the camp site, but it is pretty well hidden. You couldn't find it unless I told you exactly where it is. I have never told anyone about it because I am afraid people would come and carry them all away. Maybe some day when I get this place all fixed up the way I want



Log cabin is rustic, with beamed ceilings and cowhide rugs, but comfortable and convenient. Frashers photo.

it, I will bring a few more of them down here for ornamental purposes."

When I didn't speak he hesitated a moment, then went on. "There is a stream running back of the store, you know, and most people would think the Indians

would camp right along the stream, but they never did. Indians never camped too near the water, because it made it easier for them to catch the wild animals when they came to drink. Rather a clever way of bagging the unsuspecting game to provide fresh meat for their meals."

Impatiently I brushed a stray fly off the end of my nose, while Mr. Howell removed his shabby old felt hat and whacked it against his knee a couple of times, possibly to straighten out a few kinks, or change the droop to a new angle. Then squinting his eyes up at the sky he remarked, "Well, it looks like it might be pretty warm later on this afternoon. If you and the youngsters want to go horseback riding you can hire some horses from the Indians about two and a half miles up the road."

It might, or it might not have been a subtle hint to get rid of me, and to stop my infernal questions. I wouldn't know, but I do know I found Wilson Howell a veritable encyclopedia. His conversation touches on almost every subject under the sun, for he reads and studies all the current issues of the best magazines. He also reads spiritual and religious works and has read the Bible through four or five times. Consequently he has a great, overpowering love for all wild animals and flowers and deeply resents their destruction.

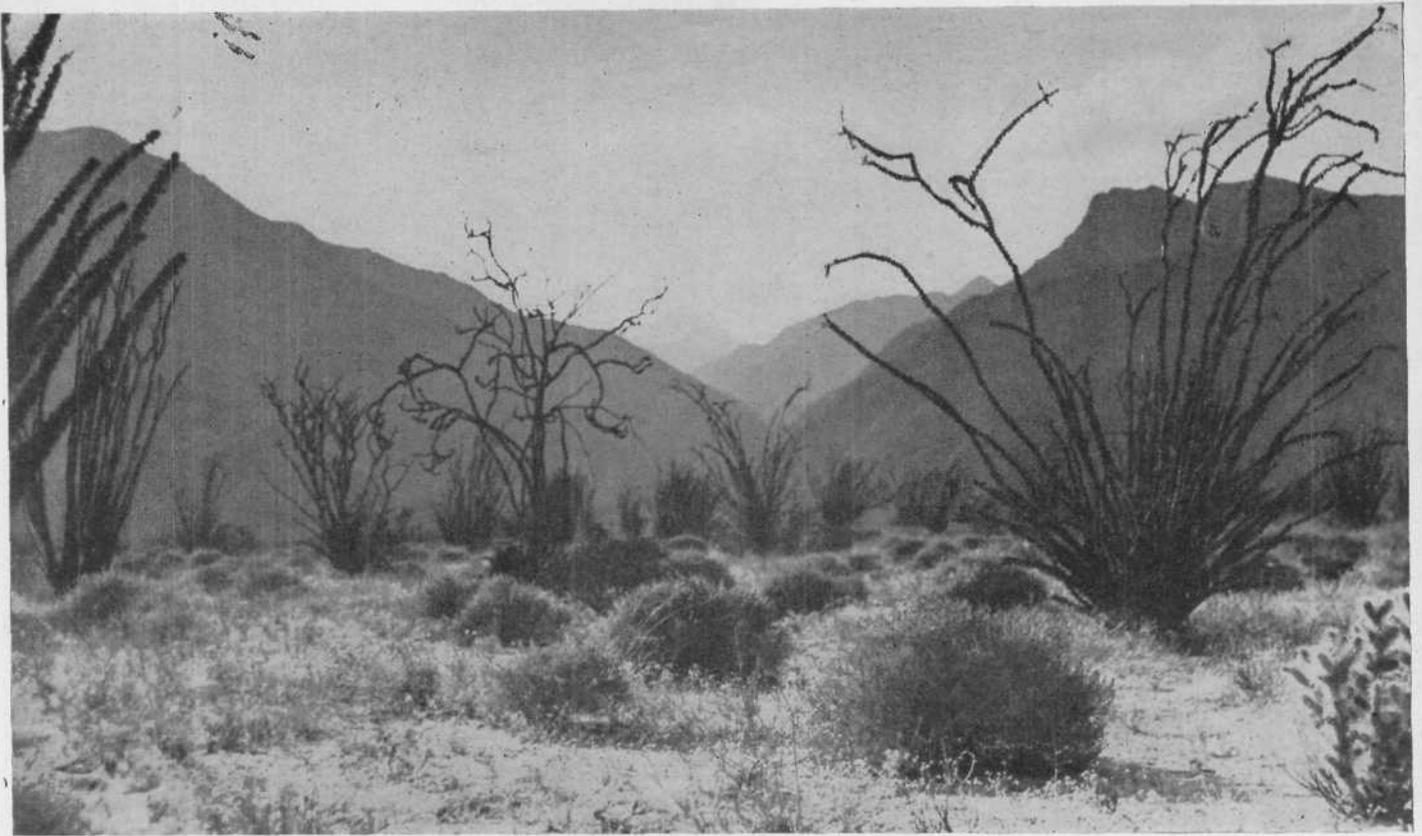
Signs directing the way along the various paths bear instructions such as these—"ENJOY BUT DO NOT DESTROY," "DON'T PICK WILD FLOWERS—THEY ENJOY LIVING THE SAME AS YOU DO," "LET OTHERS HAVE A CHANCE TO ENJOY WHAT YOU MIGHT DESTROY." These signs always are in plain view of the public and if you should pick so much as the tiniest sprig of wild flower, or move a rock or stone, I can assure you Wilson Howell's sun-faded, kindly eyes can very quickly turn to a cold steel blue.

Howell is familiar with every rock and flower on his land, and he touches them as reverently as a mother might fondle her beloved child. Living alone high up in the Santa Rosa mountains has given him an intimate love and knowledge of nature.

Wilson Howell's dream of creating a perfect paradise for those who appreciate nature's gift to mankind is far from being realized, but he feels that some day with hard work and the courage to back up his dreams it eventually will come true.

The night before we left for home we sat late before the open fire in the big outdoor fireplace watching the red glow of the coals and talking in subdued voices of many things. And it was with the deepest reluctance that we departed the following morning.

I don't know how the rest of our party were impressed, but I felt that I had touched something rare and beautiful, and very very close to the Infinite.



These desert plants—ocotillos, incense bush, cholla cactus and various annuals—are adapted to overcome obstacles of heat, drought and foraging animals. G. E. Barrett photo.

To Save Their Lives--They're Tough

If you miss your footing and come to a one point landing on a bed of prickly pear cactus, don't blame Mother Nature for your injured feelings. In her code anything goes that aids survival of the species. And this baffling, stinging, burning entanglement of spines and glochids is just one of her more obvious defense weapons. Sometimes she resorts to what Jerry Laudermilk and Philip Munz call "underhanded tricks" and "weapons of stealth." These two scientists tell Desert readers in plain language how desert plants can persist in an environment hostile to life—but an environment in which the survivors are tough and conditioned.

By JERRY LAUDERMILK and PHILIP MUNZ

Drawings from original specimens by Jerry Laudermilk

THE June day was hot and dry. Our canteens were running low and we were thirsty. The water situation was becoming something to think about. All around us the desert plants had to contend with the same problem but seemed to have the situation well in hand. There had been no rain for months—and still they flourished. Some even were brave enough to blossom. Smoke trees were masses of blue flowers and despite the heat they had a cool and springlike look. Not only the smoke trees but the wild gourds blossomed and many smaller and less dramatic plants held their own against the drought. How were they able to live, let alone blossom, after months of high temperature, dry air and dry soil? The answer is that these silent desert dwellers have adjusted themselves to their surroundings.

Adaptation to environment involves countless and wonderful tricks to overcome adverse conditions. Laymen sometimes tap their heads and look knowingly at one another when a botanist talks about plants and the subtle sort of sense they show in protecting themselves from their enemies—both the hostile natural surroundings and the hungry animals. There are many

points about the adaptations of plants that grow in unfriendly situations that will supply headaches for generations of botanists yet unborn. However, some surprising and interesting facts about the structure and behavior of such plants are well understood.

Many plants have chosen a tough life. Mesquite, desert willow and several others have staked out their claims along washes where there is a reasonably ample supply of underground water. Their roots sometimes reach down as far as 50 feet. In fact, water close to the surface is indicated where these plants are found. Another group including iron wood and palo verde also grows along washes but depends on flood water instead of trusting to long root systems. In this way they wait, and when the water does come they take advantage of the intermittent supply.

Many other plants, including the big cactus family, solved the water problem by attacking it from a different angle. These plants have shallow and widespread roots near the surface where they can take advantage of the thin layer of moist top soil when rain does come. Many of these plants grow on dry uplands of the desert where rains are rare, short and violent. The top soil

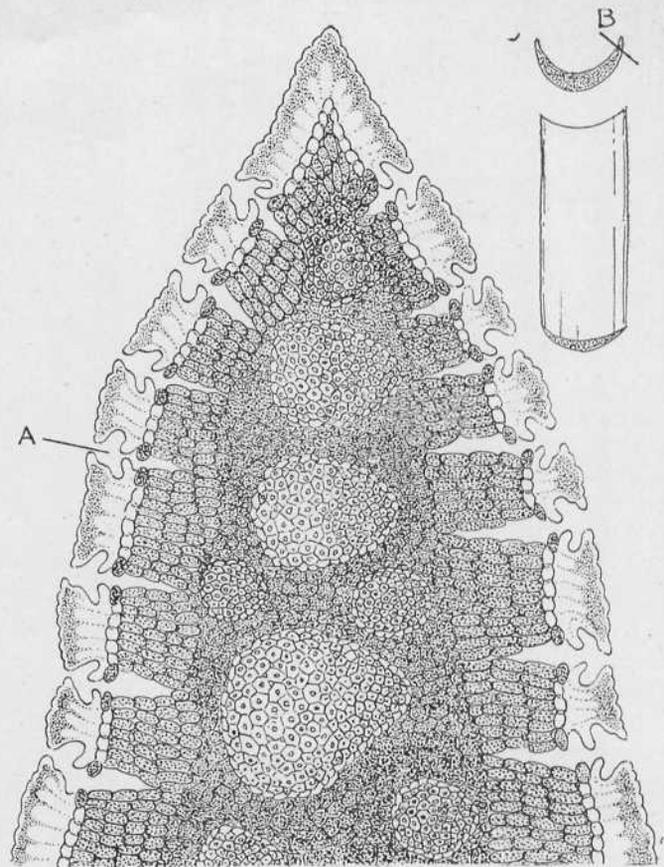
is soon soaked and the roots work furiously laying away a water reserve stored up in the cells of the plant itself against the hard times sure to come later in the season.

Although desert plants always are on the lookout for water, permanent pools sometimes are found in unexpected places. Such water is likely to be highly mineralized. There will be but sparse vegetation around their margins but some plants can utilize such water. Cat-tails often grow in water salt enough to taste. They grow profusely along the canal beside the road near Newberry, California, on Highway 66. A few other plants utilize such water because their cell sap is adjusted to function with water containing a high concentration of mineral salt. But for most desert plants the problem does not seem to be utilization of water but how to surmount a lack of water.

Annual plants solve the problem by being drought escaping. These take it easy and wait until the rains come. Then they pop up and have a gay time while the soil still has some moisture. They flower, ripen their seeds and die—all in a few weeks. The seeds lie dormant until the next rainy season and then go through the same short life span. Although this system may seem a little frivolous to the cacti which grow close by, the system works. Some of the lily family use a different approach.

These plants, the desert lily, mariposa lily, wild onion and others have underground bulbs or rhizomes. These bulbs and rhizomes are terrifically alive, little bombs of energy, ready to explode when favorable times come. They do not apparently struggle against the drought. They simply die back to the ground and the bulb carries on—waiting. This waiting game also is carried out in another manner.

Some plants "play dead" during the drought. Perhaps you have noticed when you were about to start your campfire, that certain bushes that looked like firewood refused to burn—they were green inside. These plants are drought enduring. They simply shut up shop temporarily when business is quiet and also



Joshua tree leaf has deep stomata in urn-shaped pits. Tiny two-way valves to cut down evaporation are shown at A. B shows edge of leaf from which section was cut. Greatly magnified.

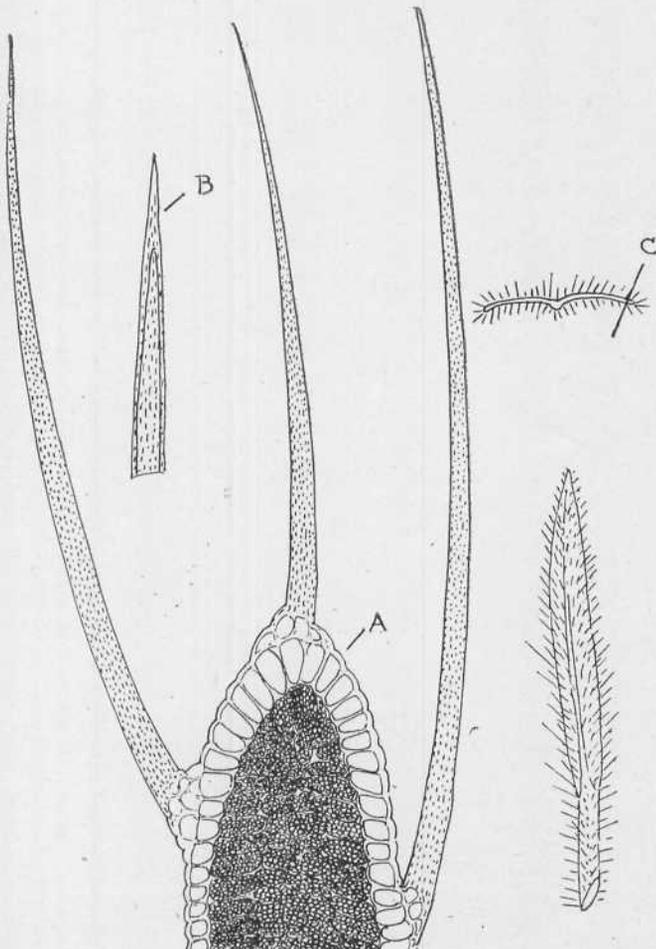
wait, but do it with their branches—the entire plant waits. Creosote bush and burroweed brave it out along these lines.

Other plants are "water bankers" with the foresight to accumulate a surplus of water to tide them over the dry season. They include the cacti, agaves and the succulents. They have fleshy stems, fleshy leaves or fleshy roots like the wild gourd. They gorge their cells with water and can draw on this supply when the need comes. These plants are drought resisting. Obviously, desert plants are concerned with preservation of what water they can store up or do without. Vegetable tissue dries out rapidly under unfavorable conditions and these are many.

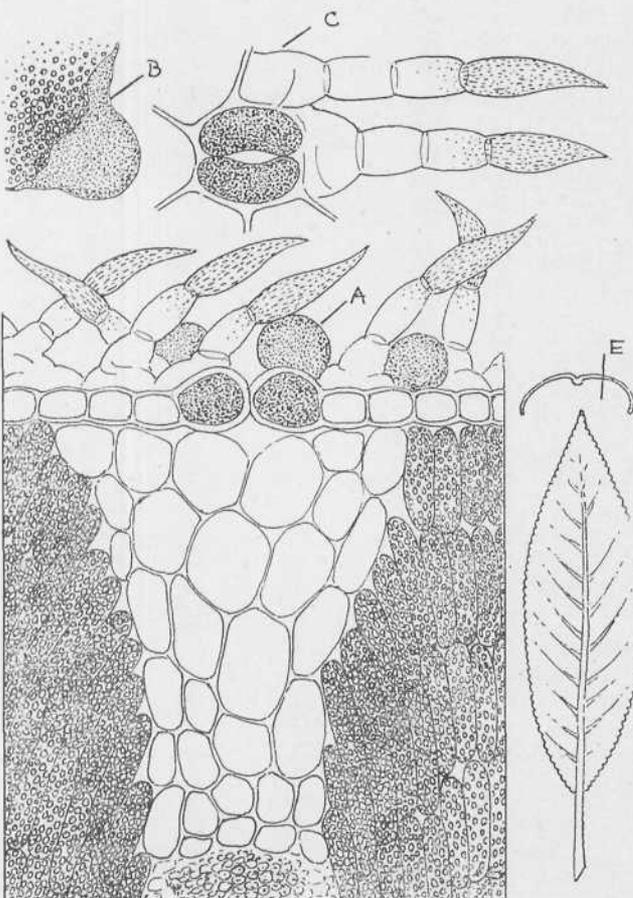
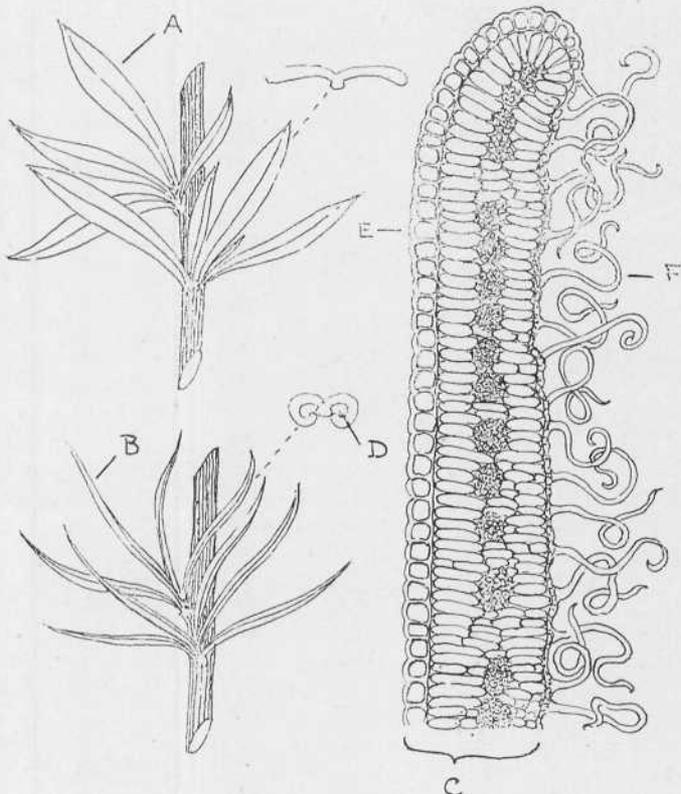
One of the quickest ways for a plant to lose water is through large leaf surfaces. Plants breathe and lose water during respiration—but this point comes up later on. So, nearly all desert plants have small and often thickened leaves. Some have gone so far as to discard leaves altogether and have turned over to the stem the work of food manufacture which is the function of the green leaf whose cells are tiny laboratories where one of the most important of life processes takes place — changing carbon dioxide and water into sugar and starch. Here we are brought face to face with a tremendous mystery which has to do with the sun and the amazing correspondences that exist between the biggest thing in the solar system and humble little patches of green pigment in the cells of plants.

These cells have to be protected against water loss and so the surfaces of all plants are covered by a transparent but waterproof skin. This covering or cuticle is secreted by the epidermal cells.

Section through edge of fiddle-neck leaf shows, at A, long simple hairs which discourage a foraging animal. While glochids of a cactus hurt, these simply nag. More highly magnified hair tip is at B. Section through leaf is at C.



Wild buckwheat shows a different adaptation strategy. At A, leaves are in wet weather stage; at B, the dry. C shows highly magnified section through leaf at D, disclosing cuticle thick on outside at E but thin and protected with hairs at F, underneath. As leaf wilts it curls under on thin side as at B.



All plants, whether they live in the desert or not, must have this protection. A good example of the value of this protection can be seen by peeling an apple. Within just a few hours the water which otherwise would have been stored up for months is lost. Some of the best examples of a thickened epidermis are furnished by plants which really are blessed by having "thick skins"—a godsend to anything, plant or animal. Desert tea, agave and all the yuccas have especially thick cuticles. In some plants like scrub oak the leaves may be so heavily coated that they break when folded. When plants wrap themselves in this waxy protective coating the cells must maintain a connection with the outer air with which they exchange carbon dioxide and oxygen.

On sunny days carbon dioxide and water are combined in the green cells to form sugar and other food material and to release oxygen. At other times, glucose and oxygen are combined to liberate energy and produce carbon dioxide and water. In fact, the plant actually burns up its food reserve in practically the same way that an animal does. So to be able to give off these gases the cuticle is perforated by tiny breathing pores called stomata, a Greek word meaning "mouth." The stomata actually are slits between bean-shaped, specially formed guard cells. When there is abundant water during the daytime, the guard cells are distended and pull apart. In fact, this is the way the plant opens its myriad mouths. When plants wilt from lack of water, the guard cells draw together and close the stomata. When the stomata are open and can function, they lose water vapor from the wet interior of the plant. But desert plants have developed a great many methods to guard their stomata and prevent evaporation.

Often they have remarkable structures such as urn-shaped pits with the stomata buried deep in the bottom of the pit. Sometimes the pit is constructed so that its neck will be almost as narrow as the stomata itself and water vapor must escape through two openings with a dead air space between. These marvelous, microscopic, two-way valves are highly efficient in cutting down evaporation and are especially well developed in the leaves of the Joshua tree and century plant, or agave.

If the stomata are protected by a thick, felt-like layer of hairs the plant obtains the same effect. These hairs are of many and sometimes fantastic shapes. In the case of some plants like burweed, woolly marigold and some milkweeds, the hairs branch to form a woolly mat. In other cases like the buffalo berry, parts of the hair radiate from a center like the spokes of a wheel making a flat sheet of umbrella-like scales. The salt bushes have developed an especially fancy type of hair. These are tiny balloons filled with gas which eventually open and show a shiny surface. When the hairs or scales are white the leaf looks silvery, like that of the desert holly. This reflects much light and heat, which still further protects the cells from the intense desert sunlight which is itself very injurious to protoplasm, the living part of the cell. Some plants like creosote bush and yerba santa accomplish this light reflection by use of shiny, highly varnished leaves. In these cases wax or shellac-like materials are secreted by the epidermal cells. Other plants have solved their water problem by what would seem to be a rather extravagant method.

Many trees and shrubs lose their leaves entirely during the dry season. Palo verde, smoke tree, turpentine broom and ocotillo, leaf out after the rains, but as the soil dries they shed their leaves, thereby saving what little moisture they have. A thin layer of cork forms over the scars left by the fallen leaves. This further protects the plant against evaporation.

Innumerable schemes are employed by the leaves of plants when they have to tackle difficult situations, and students of

Specialty of white sage is its oil glands. At A is specialized cell full of oil, close-up at B. At C are two hairs and a bean-shaped stoma. General leaf structure at D is vertical section through leaf at E, along line shown.

plant-lore have many entertaining tales to tell about the ingenuity of foliage and the sort of quiet wisdom plants show during times of drought and during the rainy season when the foliage adapts itself to accord with moisture or the lack of it.

Some perennial grasses have their stomata all on one surface and during dry weather the leaf blade may fold under from the edges or even fold lengthwise so that the pores all will be on the inside. Such leaves are ridged and furrowed longitudinally and so easily can curl under as the outer cells wilt. The leaves of wild buckwheat of both the desert and the coastal valley curl under from both sides and less leaf surface is exposed during hot weather. They may remain in this position for months. Perhaps the outstanding example of curling to avoid drought is the resurrection plant which grows in the deserts from western Texas to Sonora, Mexico. This plant rolls up its branches into a tight, dead looking ball during the dry season but after the first rain it flattens out again into a bright green plant. The resurrection plant often is for sale as a curiosity.

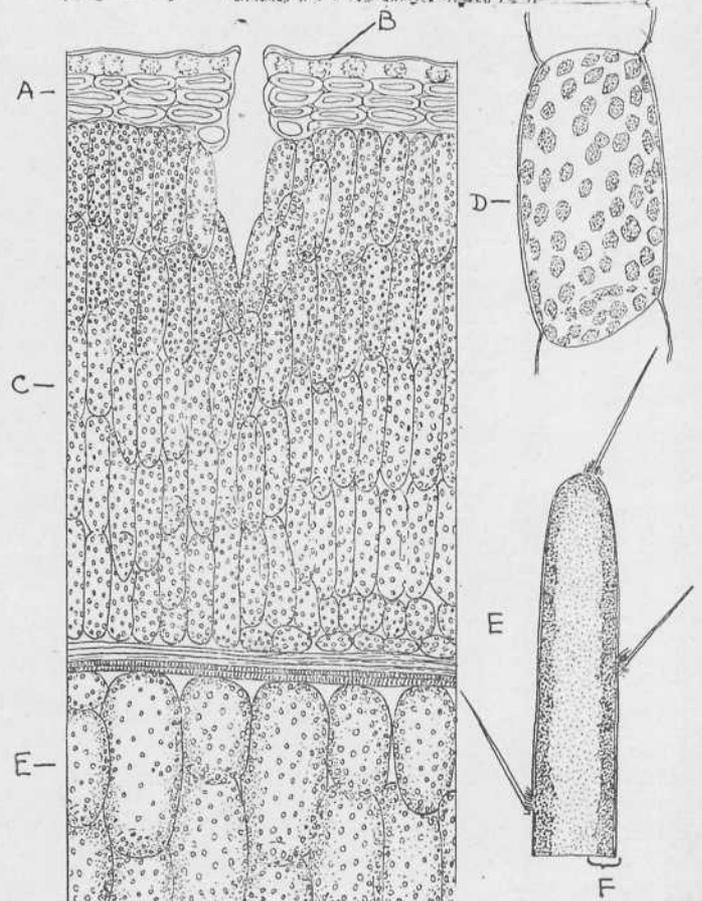
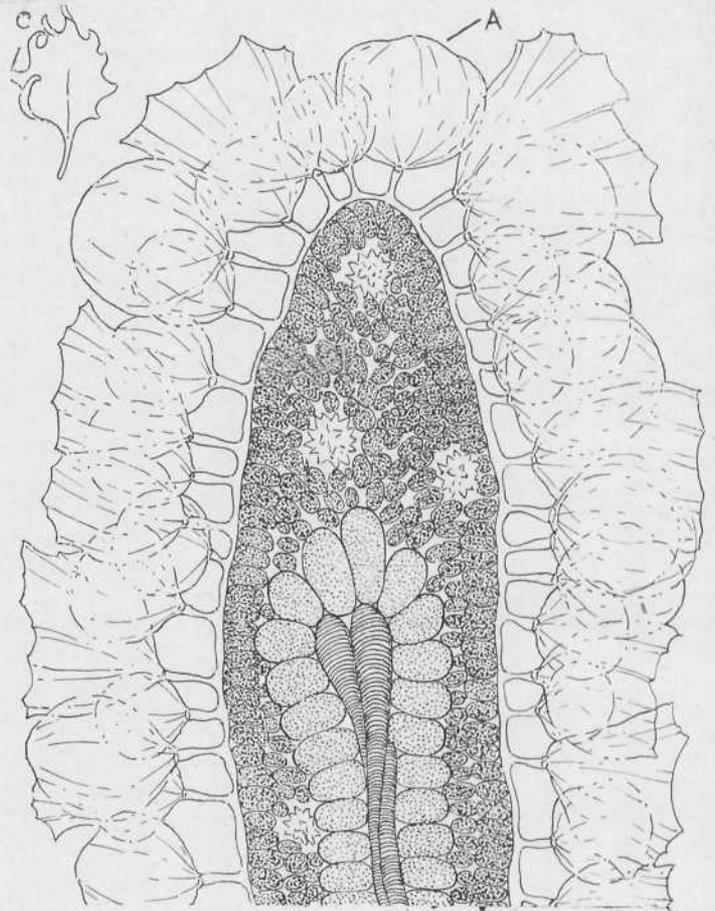
Some of the pea family are so constructed that when the leaflets wilt they fall one against another like overlapping shingles on a roof to protect each other from the heat. It is a beautifully simple and logical thing to do. In some cases chemistry also helps the plants to overcome the water supply problem.

The cacti, pickle bush, alkali weed and certain other fleshy plants are so adjusted that during the dry season chemical changes take place in the cell sap which enable them to retain the water they have. Some of the complex carbohydrates in the cells are changed into simpler ones which form a sort of glue-like substance that is able to absorb and hold water. It is a rather astonishing fact that when botanists attempt to mount specimens of these plants, unless the cells are killed by immersion in boiling water, the specimen is likely to surprise the collector by having come to life and put out vigorous young sprouts. This remarkable quality of the juice in case of the cacti can be shown very simply. If a prickly pear stem (one of the pads, incorrectly called "leaves") is peeled and its protecting cuticle entirely removed, it glazes over by a hardening of the surface and will remain moist and alive inside for many months.

Another adaptation of this fleshy habit which enables a plant to absorb and store water, is a bellows-like action shown to perfection by the barrel cactus and the saguaro. In these plants, the woody, mechanical tissue is in the center of the stem, surrounded by a region of thin-walled cells. Just under the epidermis is a heavy band of thick-walled tissue that is very strong and elastic. When the stem is gorged with water, the outer ribs move apart and as this supply decreases they draw together like the pleats in an accordion. This action would not be possible if the woody tissue grew near the outside of the stem instead of in the center.

This property of water storage is sometimes fortunate for sojourners in the desert—that is, humans who may need a drink and need it badly. The juice of the saguaro is not good water since it contains too much mineral salt. But the barrel cactus is a reliable source of water for the thirsty individual who knows how to attack the problem. To guard against exactly this state of affairs, this cactus is armed with a formidable array of spines and fishhooks. One way, probably the best, is to cut out the top and churn up the pulp with a stick. Within a few minutes, water will collect in the hollow. It may taste something like a

Desert holly's balloon-like hairs, at A, burst to give plant its silvery look, reflect heat of sun. Section is through the leaf at C.



Prickly pear cactus is a "water banker." Section of a pad shows water storage and epidermis. At A is tough, parchment-like cuticle reinforced with crystals of calcium oxalate, at B. C shows green cells full of chloroplasts (tiny living things worked by sun power to make sugar and starch and other food from carbon dioxide and water). D shows cell full of chloroplasts more highly enlarged. Layers E show cells gorged with water and containing a few chloroplasts. Greatly magnified section taken at F.

raw potato but is good water. Tenderfeet have died in the shade of these natural water tanks.

Although the juice of the barrel cactus and saguaro are watery, most cacti have glue-like sap. There is a surprising variation in the sap of desert plants. This variation is a fact that applies to all plants, but is more evident in the plants of the desert. The reason is simple. Syrup dries more slowly than water, so in the case of cacti and related plants, the thicker and more concentrated the juice, the more slowly they give up their water. Besides these direct adaptations to resist drought, desert plants have a number of roundabout ways of surviving.

Some of the adaptations help slow-growing plants to defend themselves from foraging animals that find little enough to eat in any case and are ready to try anything that isn't downright poisonous or doesn't taste too bad. Many plants of dry regions have characteristic strong odors and tastes—some rather pleasing and others very disagreeable. Most of these odors and tastes come from essential oils in the plants. Although many of our best flavorings and seasonings come from these essential oils, when they are concentrated in the plant they are far from pleasant.

These attributes which animals shun actually give desert plants much of their personality and charm. Some of the most aromatic and flavorsome are turpentine broom, creosote bush, the sages and many others of the mint family. Creosote bush has many virtues aside from its beauty which are not generally known. One of these is the fact that prospectors who run short of tobacco can stop their longing for a smoke by chewing the twigs which have an "ash tray" flavor quite satisfactory to an old smoker. Like a great many other plants of the desert, creosote bush has potent medicinal qualities which were well known to the Indians, especially the Coahuillas who knew their desert pharmacopeia to perfection. The essential oils are secreted by certain specialized cells which are conspicuous in the indigo bush and the turpentine broom. This latter plant is a close relative of the oranges and lemons. Aromatic oils in plants may be formed as waste products in the cells but are a highly effective source of protection. They also probably help in cutting down evaporation.

Another liquid defense is latex or rubber milk, the white or yellowish, sticky juice which bleeds from the cut stems of such plants as rabbit bush, milkweed, desert dandelion and several others. The Coahuillas made a typically American use of this latex chewing gum. They used to collect the juice from a certain species of milkweed, let it evaporate to thicken and then used the product in the regular way. This gum at first has an extremely bitter flavor but this soon disappears and the "chew" that remains apparently could last forever—and why not, since it is practically pure rubber?

This latex, which is of special interest in these days of rubber shortage, is an emulsion of proteins, sugars, gums, alkaloids and other substances distasteful to animals. Latex also works mechanically as an automatic sealing material for any breaks in the cuticle of the plants. In the case of some euphorbias the latex is very poisonous and in the South African desert, the Bushmen used the milk of certain species as an arrow point. Several of these desert shrubs are a possible source for commercial rubber. Guayule is now being grown for that purpose.

To protect themselves from their enemies, plants have still other devices such as spines and spine-like hairs—the horrible, hair-like, microscopic glochids of the cacti. They linger in the skin like visiting relations. These spines are of many types. Some are simple outgrowths of the epidermis and vary from sharp hairs like those of the fiddle-neck to tough, more permanent growths like cactus thorns of all sizes. Sometimes spines are modified branches from which the leaves have fallen as in the case of the smoke tree and buckthorn. They also may remain as the midrib of the leaf. This is a peculiar trait of the ocotillo.

Spines of the larger types generally are smooth. Others like the microscopic plant-hairs are frequently barbed or provided with hooks down the sides like those of the sandpaper bush and evening star. Some plants which are harmless when growing in damp places become ferocious when they come into conflict with the desert. In fact, a certain species of fuchsia from the Chilean desert has extemporized very effective thorns by hardening part of the leaf.

The forbidding look of these spiny plants should be a warning in itself. The rather gentlemanly *Opuntia parryi*, close relative of the beautiful but terrible "jumping cholla" admonishes you 10 times with its longer thorns before it finally gives up and lets you "burn" your fingers on the devilish little glochids at the base of the cluster of long spines. Despite this armament of spines and glochids, animals desperate for hunger sometimes will eat the cactus anyway. The little antelope chipmunk and other rodents start at the base of the stem, carefully avoiding the spines, and eat the pulp by working upward. Old, tough range cattle frequently eat the deerhorn cactus—thorns, glochids and all. This is probably the last word in food "roughage." But nothing under heaven could eat the jumping cholla, a regular plant demon, entirely covered with stiff spines.

Plants of the desert have to be hard in order to survive. They have many tricks, sometimes underhand tricks which they always are ready to use against an enemy. In the majority of cases these means of defense are weapons of stealth, a type that seems to be a favorite with all living things. But in the code of Mother Nature—anything goes that may preserve the species.

DESERT CREOSOTE HAS 23-LETTER WORD MEANING "CRISP," "CRUNCHY"

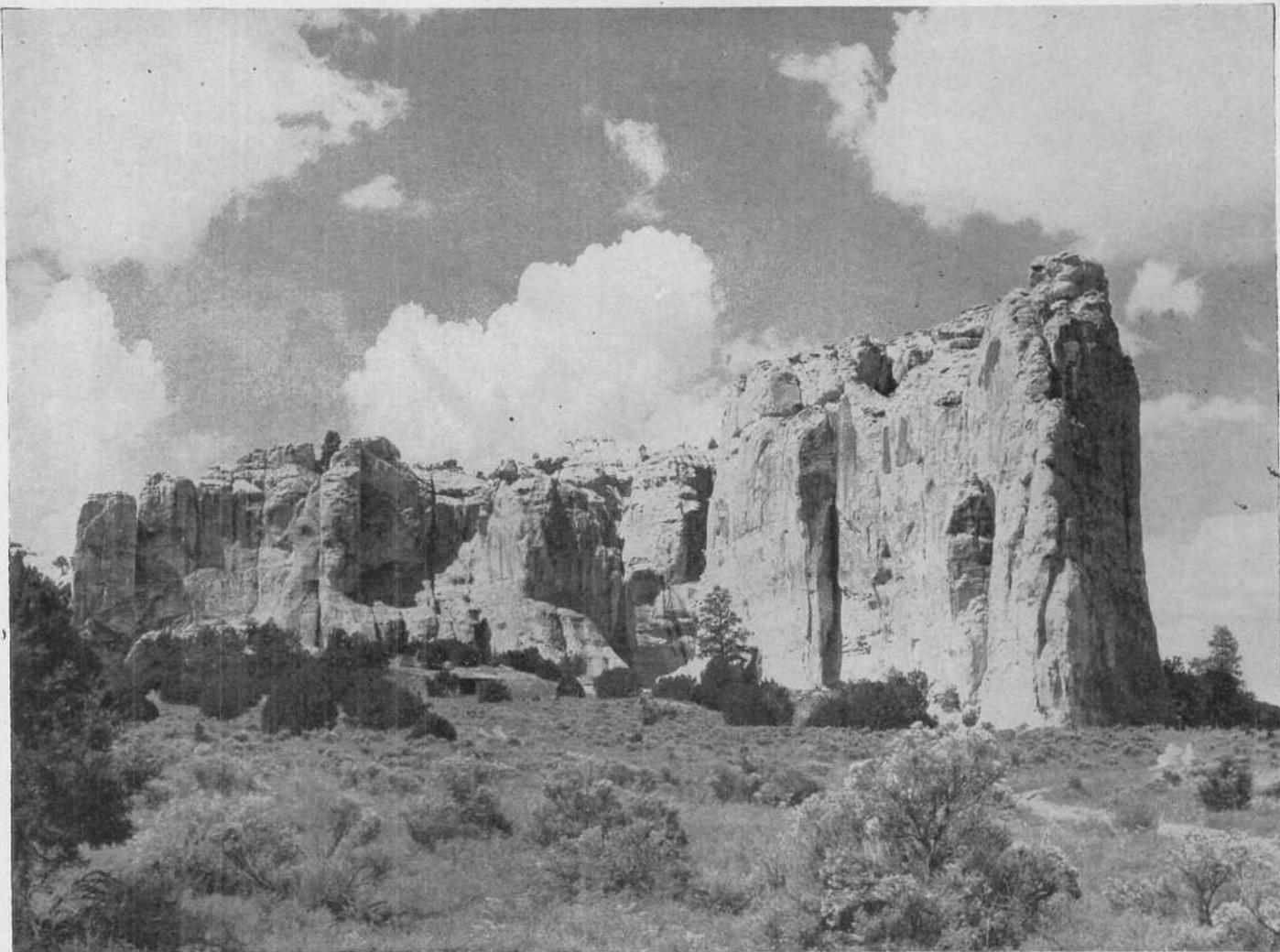
Scientists who have been studying problems of food preservation believe an important contribution can be made by one of the Southwest desert's most common shrubs—the creosote. Those who call the resinous heavy-scented shrub or small tree just plain "greasewood" would never suspect that scientists have found it contains such an imposing substance as nordihydroguaiaretic acid. This acid, "Ndga" for short, is a powerful antioxidant capable of increasing the stability of oils thereby preventing rancidity.

Foods such as cookies, crackers, potato chips and confections which have been prepared in oils stabilized with this acid will remain fresh and crunchy. Results of experiments with it were told at recent meeting of American Oil Chemists society. H. C. Black of Chicago, Swift and Company chemist, said his company had used a similar antioxidant, gum guaiac, obtained from a West Indian tree. "We have been using gum guaiac for stabilizing shortenings and oils for several years," Black reported. "It takes shortening out of the ice box and puts it on the shelf without fear of early spoilage."

Main credit for advancement in study of antioxidants was given to necessity of economical storing of foods over long periods for armed forces. Its postwar value, in aiding to feed the world, was seen to be of even greater benefit.

First application for harvesting greasewood in New Mexico federal grazing area was made by L. A. Sullivan of Hatch for W. J. Strange Co., of Chicago, who requested an increase to one ton per day. Sullivan already had furnished eight tons of creosote "strippings." In harvesting, only the leaves and small branches are needed to obtain Ndga.

Creosote is common throughout the Lower Sonoran life zone of the Southwest in California, Arizona, Nevada and New Mexico. This is the typical low humidity, low rainfall, high summer temperature area in which plants have developed greatest adaptive characteristics to withstand such climatic features. It is estimated that in New Mexico alone there are 10,000,000 acres of the shrub which will keep the world's cookies crunchy.



Near the base of the 200-foot cliff of El Morro mesa are carved the signatures and messages and declarations of more than three centuries of Southwest "invaders." Even before the first Spanish name, there were marks and scrawls of the native Indians on the sandstone rock that was to become a diary of the Southwest. Frashers photo.

Sword Points and Dreams in Stone

It might have been the drowsy sound of summer insects that lulled them to dreaminess—but they are sure they heard sounds strange to the ears of moderns—a rhythmic jangle of metal, then an increasing volume like the sound of many voices. As Joyce and Josef Muench rested at the foot of the great mesa of El Morro the pageant of Southwest history passed before them—the scarlet and gold magnificence of Spain's conquistadores fired by dreams of treasure, the slow trudge of the brown robed bearers of the Faith, the later crisp sound of marching feet of Americans ending the Spanish era, the long creaking roll of pioneer wagons—all these came on like waves that broke upon the rock where each caravan left the story of its hopes and triumphs and failures.

By JOYCE ROCKWOOD MUENCH

DESERT heat lay like a heavy cloak pressed down upon the earth. It was July and we were on our way to visit El Morro, the Inscription Rock where New Mexico's historic "autographs" have aged in all kinds of weather for more than three centuries. Our car labored over the dusty 65 miles southeast from Gallup to the great plateau whose extreme rim is covered with extinct volcanoes, into the valley where once there ran an ancient road from

Zuñi to the Rio Grande. Among its great many colored sandstone mesas stands the greatest of them, El Morro.

Weathered by the ages it loomed like a great headland or bluff, giving an effect of bastions and turrets of a Spanish castle. Approaching as we did, the insurmountable peak of a mighty wedge rears over 200 feet high and the wings sweep back for thousands of feet. Once behind its battlements the wedge shape is seen to be open,

with shrubs and trees, a small undulating valley lying within its protecting arms. At the apex is a natural basin, reinforced recently, which catches the rain water and saves it for the thirsty traveler on this fabulous old roadway.

My husband and I climbed wearily out of the car and spread a blanket upon the ground. Stretched out upon it we looked up at the 200 feet of cliff that soared above us. The ruins of a prehistoric village set

on each of the wings like a crown can be reached by an ancient trail of foot holes, a few hundred yards south of the tower. They were built—the villages and the trail—by the people of Pueblo IV, the culture which followed the great Classical period which ended about 1300. Some of the crude petroglyphs found on the rock may have been made by them, thus making El Morro's record cover more than 500 years.

The noise of summer insects floated over us, enveloping and lulling us to a forgetfulness of heat and discomfort. I was in a mood to believe that El Morro itself might be ready to speak. There came an undertone to the drone of the bees and the flies that soon took command and drowned out those busy voices. I tried to place its component parts. There was a jingle to it, the sound of metal on metal and a rhythm too that was overlaid by something which eluded me. Before long the volume had so increased that the elusive sound became recognizable as voices—many voices.

"A large party of horsemen is coming this way," I said to my husband as we puzzled over the different sounds and waited to see what manner of a cavalcade this might be. Why so much metal in with the march of men's feet and the drum of horses' hooves? Around the corner they

came at last, swinging along, and as the procession swept up to where we were, near the edge of the pool, we gasped in astonishment.

A lean native, surely an Indian, led the way. His simple clothes appeared to be of hand woven cotton. Behind him came first a magnificent figure on horseback. The animal was almost covered with a finely chased equipage and the rider held the gold and scarlet flag of old Spain resting in his stirrup. He was dressed in red velvet and a handsome plume bobbed in his hat. I turned my eyes from him to see the others who began to file into view. Some of them wore jackets of fine flexible mail. They all had swords that clattered with every movement. When the first man reached the edge of the inviting pool, he swung off his mount and a soldier materialized from the crowd to hold it. For the next few minutes there was bedlam.

Wave after wave of men and horses reached our resting spot and the air was tumultuous with Spanish voices, the whinnying of horses and all the noises that a crowd of men and animals can spread upon the air of a summer day.

(I had no time to wonder at the moment why we were not seen or how this strange procession could be here before our eyes.

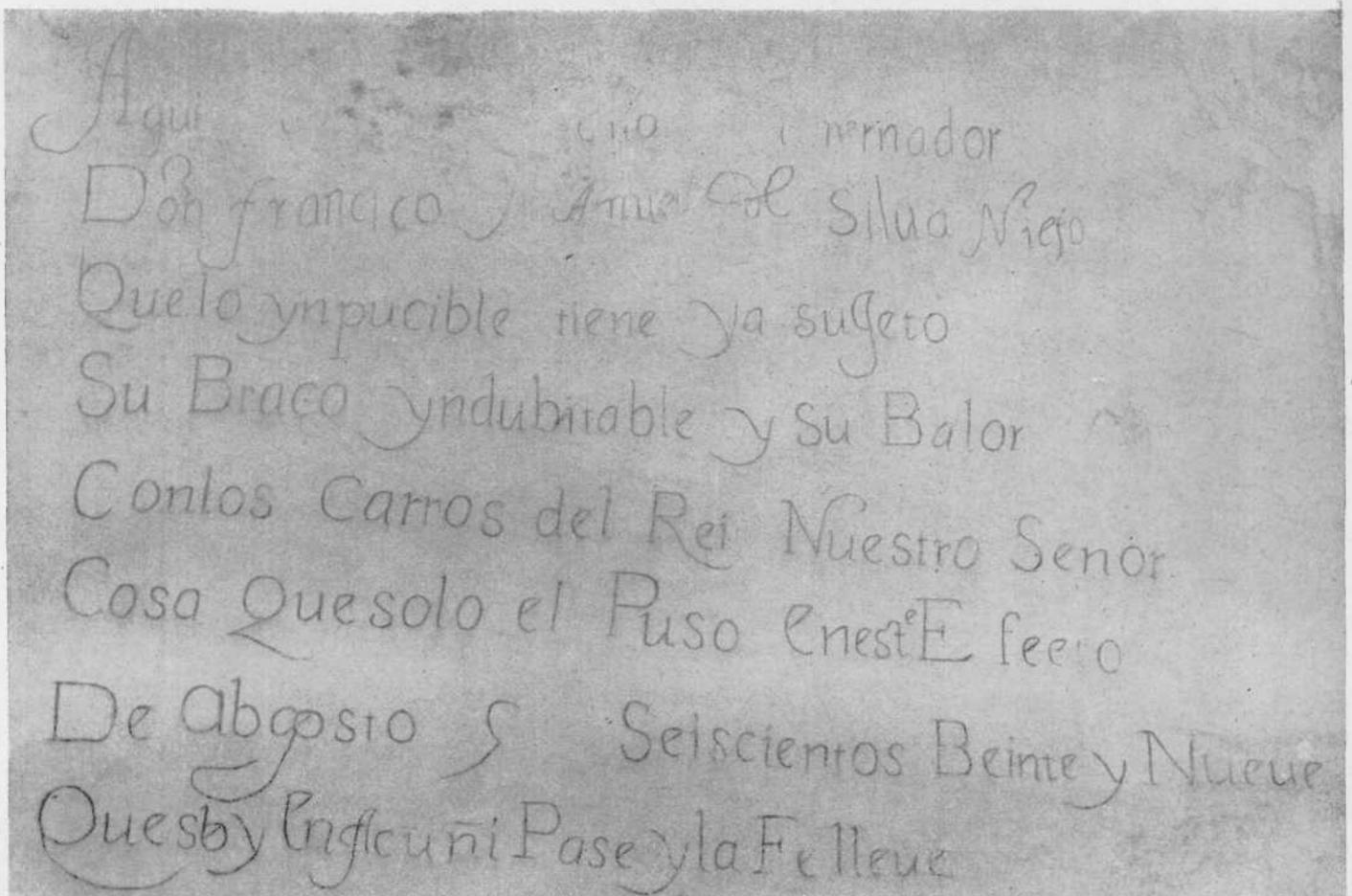
Something had happened to time and it skimmed by in a most capricious manner.)

When a few horses had had water they made room for others and it soon became apparent that this was to be the campsite for the night. While fires were being lighted, horses bedded down at a little distance, and our Spanish soldiers chatted among themselves with much gusto and good humor, although they were very tired. A jaunty young man detached himself from a group and taking out a short poinard walked over to the wall of El Morro. He started to prick out letters with the sharp point. Some other men walked over to watch him and one read in a pompous voice:

"Pasó por aquí el adelantado don Juan de Oñate al descubrimiento de la mar del sur a 16 de Abril ao 1605." (Passed by here the provincial chief don Juan de Oñate from the discovery of the Sea of the South on the 16th of April year 1605.)

The man in scarlet then was politely invited to inspect the work. His approval was immediate and he stood looking at the delicate Spanish letters for so long that I wondered if he could be glimpsing the some 150 inscriptions that were to follow this, the first, cutting into the rock the record of Spanish exploration in a new world. Then this must be Oñate, the dis-

Translations of the 17th century Spanish inscriptions sometimes vary. In any version, the poetry of such an entry as this one of Governor Nieto's in 1629 loses much of its musical rhythm. Joseph Muench photo.

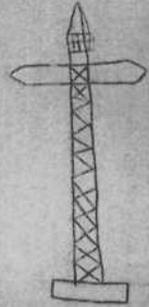


Lt. J.H. Simpson USA & R.H. Kern Art.
 visited and copied these inscriptions,
 September 17th / 18th 1849.

R. H. Kern
 Aug. 29
 1851

SOY de mano de Felipe de
 Arellano el 16 de septiembre del
 año 1620

S^{sa} P^{sa} Azz B^m D^m 1632 A^o
 Aca Beng^{sa} D^m D^p Letrado
 Lujan^D



Here is a threat of vengeance for the death of Father Letrado, signed "Lujan" on March 23, 1632. Near it are the signatures of young Lt. James Henry Simpson and R. H. Kern, the artist who illustrated the reports Simpson wrote on his military reconnaissance from Santa Fe to the Navajo country, which took him past El Morro in 1849. To the left of the Lujan inscription, surrounded by the imposing names of history, is the simple entry, "I am from the band of Felipe de Arellano 16th of September—soldier." Muench photo.

coverer of New Mexico, who had founded San Gabriel de los Españoles in 1598—second oldest town in this country and who was now on his way back from a trip to the Gulf of California! The first governor of New Mexico turned away from the inscription with a sigh, and without

warning the whole procession faded. But still we were not alone.

Other soldiers, adventurers and priests were to be seen milling about the pool. I saw many writing upon the wall. I have forgotten most of them but there was that one signed "Eulate" that says:

"I am the captain-general of the provinces of the New Mexico for the King our Lord. Passed by here on return from the pueblos of Zuñi on the 29th of July of the year 1620 and he put them in peace at their petition asking him his favor as vassals of his majesty and anew they gave

This extended announcement of July 29, 1620, tells of the captain-general's establishment of peace in the Zuñi towns and the Indians' "petition asking him his favor as vassals of his majesty and anew they gave the obedience . . ." Muench photo.

Yo cap, gen, de las pro, del nuebomex, Pozel Reynro, S Pasopoz aqui de buelta de los pue
 blos de Zuñi Mas 29 de Julio de la año de 16 20 y los puso en pa Sa supedi m pi
 Diendole su favor como bastos de suma q y de nuebo diezon la obediencia a todo lo q
 hizo con el agasax es el o y prudencia como tanche isthanisimo stampazicu
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 lido
 APATA Bartolom nairansu

the obedience all of which he did with clemency and zeal and prudence as (a) most christianlike (obliteration) most extraordinary and gallant soldier of unending and praised memory (obliteration)."

I heard men talking of strife, of bloodshed and of the rebellious native Indians. There was rage over their own failure to find gold and precious stones. They still talked of the Seven Cities of Cibola where they had been promised streets paved with gold and of more wealth than any man could use. Spain was far away and many of them longed for home and their own land.

Soon another larger group of men trudged wearily up to the rock. They sang as they came along the dusty road as though to encourage themselves and even their horses, for only about half of them were mounted. Their leader was a gracious man and he talked hopefully of peace. It was he who wrote with his own hand:

"Here passed the governor
Don Francisco Manuel de Silva Nieto
Whose indubitable arm and whose
valor

Have now overcome the impossible
With the wagons of the King our Lord
(a) thing that he alone put into effect
on August 9 (one thousand) six hundred
twenty nine

That one may to Zuñi pass and the faith
carry."

He looked at it carefully and then read it aloud to his men, this record which was to be almost all that is now known of him. Then he and his men were gone, to be followed by a handful of riders who stopped only long enough to water their horses and to eat a little food themselves and to write hurriedly on the rock:

"They passed on the 23rd of March of the year 1632 to the avenging of the death of Father Letrado." It is signed by "Lujan."

Francisco de la Mora Ceballos was then governor of New Mexico and he had sent this expedition of which Lujan was a soldier, "to avenge" the death of the missionary, killed by the Zuñis that year.

I recall one swaggering leader who called out for any man who could write, since he himself could not. A slender youth of hardly more than 18 stepped forward with dagger in hand. He carefully made the words in the rock as they were dictated to him.

"In the year of 1716 on the 26th of August passed by here Don Feliz Martinez, Governor and Captain-General of this Kingdom, to the reduction and conquest of Moqui; and in his company the Reverend Father Fray Antonio Camargo, Custodian and Judge-Ecclesiastic."

When the captain-general had finished reading it aloud he turned to the motley crew that loitered near. He gave them a kind of pep talk. It was evident that they needed something of the sort. There was

dissatisfaction and even fear upon some of the faces. A scouting party was sent out and came back within a few hours with two Indian prisoners. These they carried off with them in a hurried retreat when a party of Indians threatened an attack. This was the Martinez who was to be recalled in disgrace from his governorship and is remembered as one of New Mexico's worst leaders.

Still others wrote their names upon the rock, many whose humble position never put them into any other record. There was the soldier who wrote:

"I am from the hand of Felipe de Arellano, on the 16th of September, soldier." He is believed to have been one of the Spanish garrison of three men left at Zuñi and killed there by the Indians in 1700.

More companies of soldiers and small bands of raiders continued to come like waves that broke upon the rock and then receded to be followed by another wave. Once in a while a pioneer and his family broke the chain of the Spanish influx, and gradually fewer and fewer soldiers and priests came by. Then upon the summer air came the crisp sound of marching feet and a company of soldiers, this time of the new United States. They made camp, refreshed themselves and left their mark upon the rock.

It was in 1849 that Lt. J. H. Simpson and R. H. Kern, artist, came to the rock and first copied the inscriptions.

The Spanish "invasion" was over and more than 150 inscriptions could be seen around the base of El Morro in that language. But the rock still looked the same. The same warm air in summer beat upon it, and the same errant breeze lifted momentarily the blanket of heat.

And then we found ourselves still lying on a blanket in the shadow of El Morro on a hot day in July, after our dream of over three centuries.

In 1906 presidential proclamation made a national monument of El Morro in Valencia county, New Mexico. Now when the traveler leaves U. S. highway 66 at Gallup he goes on state highway 32 through Ramah to this spot where a substantial custodian's house has been tucked in the woods out of sight of the rock. Copies of ancient ladders help the visitor scale the walls to the ruins.

The Spaniards no longer take the road that leads to Zuñi and (as they had hoped) to the Seven Cities of Cibola. But one need only to close his eyes for the procession to start moving down the valley. The echoes of stirring days have beat against the rock and need only the eye that wants to see and the ear attuned to them to recount that old story again. The priceless inscriptions upon the rock will be preserved for all men to see. And New Mexico holds as one of her richest treasures this page of autographs in stone.

Sez Hard Rock Shorty of Death Valley . . .

By LON GARRISON

"Jack rabbits," vowed Hard Rock Shorty, "generally are good for stew if you catch 'em young enough an' are like to starved to death yourself. Aside from that I dunno any way they do more'n a poor job o' decoratin' the landscape. There's exceptions o' course—like John the pet jack rabbit I had up in the Panamints once."

Hard Rock filled his pipe with his personal mixture of fumigating powder and settled back in his chair on the Inferno store porch.

"John really had some wolf in 'im, I guess. I got 'im when he was jus' a little feller an' by keepin' 'im around camp an' feedin' 'im my beans an' sourdough hotcakes he grewed 'til he was most as big as a coyote. He learned to gnaw ham bones an' then it wasn't long 'til he started huntin' meat for himself—in fact he went on a meat diet 'o mice, squirrels an' rabbits. Even saw 'im eyin' my leg once or twice but he never got nerve enough.

"The coyotes'd give 'im fits though. They'd chase 'im but couldn't catch 'im an' then he'd chase them for a while. He could catch 'em too but he hadn't teeth enough to kill 'em an' aside from a couple he managed to trip an' kick to death, coyotes was quite a problem to 'im. He'd set by the tent when coyotes run by an' cry like a baby, wantin' to catch 'em an' couldn't.

"He was purty good at diggin' up rabbits though, an' one day after he'd been diggin' rabbits out I noticed that his front feet was in bad shape—the rocks'd wore his claws out an' his feet were jus' like a couple o' tooth aches. I cut up a couple o' old iron spoons I had an' strapped 'em on back of his front feet so he could dig with 'em but they didn't interfere with his runnin'. John tried a couple o' runs with the spoons on an' they worked real good. He come back to camp an' thumped out a 'Thanks Shorty' message an' jus' then a coyote walked by.

"John galloped out to this coyote an' if I hadn't saw it I wouldn't believe it, but he beat that coyote to death with them iron spoons!"

Andy was just a white-footed desert mouse—a little brown-grey elf with bright black eyes and large sensitive ears. But he was more than a mouse to the South family. He had been accepted as a member of their Yaquitepec household. Now Andy is dead. No more will he perch on Marshal's toes. Or nibble juniper berries and pinon nuts by the fireplace. Or come at midnight to watch Tanya write poetry by lamplight. For Andy died in battle under mysterious circumstances. Marshal writes the final tribute to their favorite of Ghost Mountain's "little people."

Desert Refuge

By MARSHAL SOUTH

ANDY, for so long the friendly little sprite of Yaquitepec, has passed on. Andy was a white-footed desert mouse of more than ordinary intelligence—which is saying a good deal, for the white-footed mice are an intelligent and lovable tribe. But Andy was exceptional, even among his own people.

His beginnings are shrouded in mystery—even his name. For we yet don't quite know how we came to call him Andy. He must have been with us for some time before we noticed him, for the twilight shadows of Yaquitepec are full of soft-moving little people, and one mouse looks very much like another. By the time we had begun to recognize Andy as an individual he long since had adopted us as his friends.

To trust the human race usually is a fatal error for the creatures of the wild. But Andy seemed to have decided that the roof beams of Yaquitepec covered the Lodge of Brotherhood. So he boldly put behind him all the teachings of his forefathers and took us whole-heartedly into his life.

He made himself a member of the household. Someone to be looked for and to be sharply missed on those rare occasions when he failed to appear. With the first twilight shadows, and often long before the lamps were lighted, he would be with us. Coming from we knew not where and scurrying back and forth between the legs of the table and chairs, like a busy little brown-grey elf, in his search for crumbs. We learned in the course of time that Andy was set apart from other mice by a distinguishing brand—a tiny nick on one of his soft gnome-like ears. An ancient battle record, probably. It was Andy's brand.

Not that we needed the identifying mark. For we soon came to know Andy through his special mannerisms. He had a confident gait and poise. While his tribe-folks slipped softly by along wall ledges or peered at us with bright beady eyes from the corners of shelves or cupboards, Andy would come boldly down, running nimbly across the perpendicular faces of adobe walls and slipping confidently about between our bare feet, as he hunted for dropped bits of bread or fragments of piñon nuts. Sometimes he ran over our feet. And on occasion would use them as lookout stations upon which to perch while he scanned the surrounding terrain. On such occasions we would say, "Andy, please! This is my foot—not a watch-post!" And we would jiggle our toes a little, and he would hop down. But not in fear. He had made friends with the "gods" and he knew that they would do him no harm. He knew, too, that manna frequently came down from "heaven" in the shape of various special tid-bits—even whole piñons. These he would accept with perfect politeness, taking each one delicately from between the



Andy, of the bright eyes and trustful heart.

offering fingers and squatting dark-eyed and trustful upon his haunches while he nibbled the morsel to the last fragment.

Nor was his range confined to the floor. He explored the whole house, hunting into every odd corner in his search for edible items of interest. We never knew him, however, to be guilty of doing any damage. His was a simple little soul and he asked nothing save the crumbs and left-overs. One of his favorite ranges was upon the big flat top of the fireplace. There, among the jumbled collection of "treasures" that Rider, Ruddyard and Victoria collect, he often would discover chia seeds, grains of Indian corn, sweet juniper berries or fragments of old tortillas. Whenever he made such a find he would carry his prize triumphantly to a favorite spot at the extreme northwest corner of the fireplace top. There he would squat down gravely and, holding the morsel daintily in his forepaws, would proceed to enjoy his meal.

Andy did not live under our roof. He had a little personal wickiup outside somewhere among the rocks and mescals and cactus, to which he departed when he grew tired of adventuring. He had his own particular pop-hole near the summit of one of our unfinished walls, which he used for his goings and comings. But some nights he stayed in the house a long while.

Often Tanya, whose habit it is to get up at midnight and write poetry in the silence while all the rest of the household is wrapped in slumber, had him for attentive companion. Out of the shadows he would come, climbing nimbly up a table leg and appearing above the far edge of the long table top. Here he would pause a moment, as though to give polite notice of his presence. Then he would come pattering down the length of the table and would choose a vantage point, usually upon a book, where he could be within a foot of Tanya's moving pencil. There, in the lamp glow he would squat, silent and attentive, his large delicate ears and sensitive nose twitching with intense interest, as his bright eyes followed the movements of her hand at its writing. Sometimes Tanya would speak to him softly and his nose and ears would move as though in answer. But he sat on unafraid; undisturbed even by the movements and rustle of the paper when she turned pages. After a long while he would get down from his perch and silently go away. Perhaps he too was a poet. Who shall say? The great pianist Paderewsky had a similar experience with a tiny spider which came regularly to listen to his playing.

Now Andy of the bright eyes and trustful heart is dead. No more will he perch upon our toes. Or nibble juniper berries

upon the corner of the fireplace. Or come in the silence to worship the mystery of the moving pencil in the lamplight.

Andy died in battle. Never will we know the whole story of Andy's ending, any more than we will know the details of his beginning. All we know is that, going out one morning, we found in the bottom of a dry shallow water cistern, upon which we were making repairs, five white-footed mice. Three of them were huddled, heads together, in a little grey ball in one corner. Two others lay out in the center of the cistern floor, mangled and dead. And one of the dead mice was Andy.

The sides of the cistern were smooth plastered, and once in it the five had been unable to escape. But how did all of them manage to tumble in together? And just what sort of a bitter struggle had been waged there in the night darkness? The battle had been savage, as the blood, spattered plentifully all over the plastered floor, bore witness, and as the chewed feet and tails of the dead combatants attested. The three trembling and fear-numbed survivors gave us no clue. One of them was badly wounded. And when we had lifted them gently out of their prison and turned them loose beneath the shelter of a spreading juniper they vanished into the cover of the rocks and grass, carrying their secret with them.

Every once in a while, one or other of our correspondents, mistaking the reasons which inspire our love of the desert and our revolt against Civilization, see fit to chide us, more or less good naturedly. Alluding to our ideas of clothing and of food and to our disdain of many of the gadgets of progress they accuse us of "aping the Indians." To which we often reply that the charge is no insult. That on the contrary if some members of our population would "Indian the ape" much good would accrue.

Not all of our well-wishers quite understand the barb in this retort. Those who do, however, and whose "come-back" letters recall that heroism of Kipling's who "spread her anger hot as fire through six thin foreign sheets, and more" are very definite.

We grow a little annoyed sometimes at the aspersions often cast upon the original inhabitants of this great land which our nation has appropriated for its own. Although the Indian was no paragon of all the virtues, as some would have us believe, neither was he the inferior and ignorant savage, as too many regard him.

The American Indian is a human being fashioned of the same clay as we all are. He is our blood-brother, as are all other members of the human race, irrespective of creed, nationality or color. And just as no one man can gather all the treasures of the earth into his own satchel, so is it impossible for any one nation or race to be the possessor of every good quality and virtue. The wise man seeks for pearls of beauty and understanding in every quarter. And having found such treasures is rejoiced, counting it of no moment whether they came from the mussels of a river or from the oysters of a tropic sea. In many ways the philosophy of the Indian and his simple natural way of life were much superior to those stilted fetishes before which our vaunted civilization bows. It is all a matter of balance and choice and of common sense. I have no sympathy with "mass" thought. Brains were given the individual to think with. In this regard the actions of many people reflect the lament expressed in Kipling's ballad, "The worst we took with sweat and toil. The best we left behind."

The Indian, particularly the desert Indian, was the embodiment of nature's freedom. In these days of permits and forms and of cluttering of every action of speech and motion by a multiplicity of civilization-engendered rules, the Indian stands out as a bright light in the darkness. We like to remember sometimes the tang of the winds that come down over the red cliffs of the Navajo reservation. A spurious tang. For there is

in the very nature of a "reservation" little of freedom. Still there is something free in the breath of that vast silent land and the feel that comes to one from contact with its dark-skinned resolute people. There is a sense of fundamental things, of beginnings. In silence and great spaces was liberty born. Always has the flame of it burned brightest in the hearts of silent peoples, tending their flocks beneath the desert stars.

Summer, the magic weaver, favors now the bright trails of Ghost Mountain and its surrounding desert. Already, among the junipers and the tall blossoming stalks of the mesquites, she has set up her loom. The warp is stretched. Brightly dyed skeins of color lie ready to her hand, and already she has begun the weaving of that magic blanket which each year gathers into one perfect whole all the freedom and fascination of the wilderness.

Watch now, as the design grows under the nimble brown fingers. Mystery and Symbology, Sunlight and Shadow. Foreground and dim purple distance. Hope and Fear. All of man's longings and frailties, his hazy future and his mysterious past.

See! Here is a friendly thread of brown, an inquisitive racer snake, gliding like a painted shadow between the dry stems of the dead buckwheat bushes. And over here is sharp contrast, a splash of brilliant scarlet woven from the flame tips of the ocotillos and the ruby berries of the wolf bushes. Look, too, at this broad band of yellow, more dazzling than all the useless gold of all the world. It is fashioned from the honey-laden blooms of league upon league of tall, gently swaying mesquites. The shimmer that dances about it is wrought of the jeweled wings of myriad honey-bribed bees.

Over here, again, is an odd patch—a queer design of a drowsy little horned toad asleep on the top of a rounded grinding stone, a stone which perhaps has not been disturbed since it last was touched by the hands of an Indian woman half a thousand years ago. And see this other pattern—this triangle of indigo shadow! This is Silence—the silence of a deep canyon whose secrets of the past no man ever shall unlock. And what is this—these zig-zag threads that pass beside it? Ah, that is a forgotten trail, the trail into the purple distance down which perhaps the Indian woman went, from her last task of grinding, and her four brown desert children with her, and the stalwart desert brave who was her mate—down, down and on into the dim distance.

And what is this shimmering design where the threads cross and mingle so bewilderingly? That? Why, that is Mystery, the mystery of the desert. For, do you not see, the pattern is not finished. Nor will it ever be finished. For here the roads end—and begin. Here Progress halts and its tinsel trappings crumble. For here dwell the old gods of the desert who keep the portal, and scatter the dust over the tracks of the passers—and over their bones. The Spaniard lies here—under the dust. And here lie also those who went before the Spaniard. And those who went before *those*, also. The sands shift and shimmer. The mirages swim. The fingers of Summer, the weaver, fly faster and faster, blending the threads, wearing the pattern of the blanket. But that bit—the pattern of Mystery—never shall be finished. Mystery belongs to the gods of the desert—and to Eternity.

DAWN

*Dawn lights the heavens with her flame
And lights the mind with new resolve.
No longer do we see the same
As in the night. The shades dissolve.
So with our lives—our faith and truth
In ever dawning wider scope
Enlight our ignorance and youth
With wisdom and with greater hope.*

—Tanya South

Abandoned Homestead

By KATHARINE BUOY KEENEY
Portland, Oregon

The empty house stands silent and alone.
Tall rye grass bends above rough weathered
stone

Now fallen in a heap—a lonely cairn,
The out-door cellar sage has overgrown.

A picket fence surrounds this wilderness
Of desert growth dully gray and flowerless.

A snake warns with its rattle to beware,
Destroying silence where its whirrs transgress.

Abandoned, yet the empty rooms betray
An unseen presence living there today—
Ghosts of young pioneers whose children now
Review the years they spent in youthful play...

They touch the walls with questing fingertips
Where faded paper hangs in tattered strips;
They try the pump from which no water
flows,
Remembering the taste on thirsty lips.

Then sense the spectral shapes that drifting stray
And mingle with the shadows dim and gray...
That little boy and girl with Mom and Dad,
Whose presence haunts this house of yesterday.

MESA MOON

By LAURA LOURENE LEGEAR
Long Island, New York

The low-bent moon is a yellow rose,
A sunburst on the stem of night,
Crying its color against the soul
Like amber butterflies in flight.

Metallic moon like a molten flower,
Shedding thin sunlight on the sea,
These blown-gold petals slow the pulse,
A yellow wind has hallowed me.

A SONG TO A HORNED TOAD

By M. W. BUCKINGHAM
North Hollywood, California

Oh! Come, my little friends, I'm not the one
whom you should dread;
I'll not begin to harm a single thorn upon your
head,
You scamper off real quickly then you play like
you are dead;
The desert is your mansion and its sand-box is
your bed.

You borrowed from the kings so you could have
a fan-like crown,
A small, fantastic, stately fan with webs re-
moved between.
Two pits of onyx jewels are encased where men
would frown;
And since you have no merry voice, your life is
quite serene.

Sometimes, you droop your jaw and I can see a
crimson gleam;
Then, when I turn you over, I can see a patch
of snow
With polka dots of grey revealed in blots of
lemon cream;
But how you keep it tidy is a thing I'll never
know.

A gown of splendid thorns adorns the skin upon
your back,
A prickly coat of armor that would put the
knights to shame,
Those odd designs in fancy trails impressed my
mental track
To eulogize in parody the fame that you can
claim.



*A prospector's home in Ballarat, ghost town of Panamint Valley, California.
Photo by Robert J. Schulz, Los Angeles.*

RETURN TO THE DESERT

By JEAN HOGAN DUDLEY
Palomar Mountain, California

Sick of the city's clamor,
Of wearisome words and faces,
I will go down again
To the lonely desert places.

There's beauty in desert scenes—
The lovely curve of a dune,
The silhouette of a palm
Against a rising moon.

There I would find once more
Silence as deep as dreams,
Stars hung so close to the earth
A hand could touch them it seems.

Ragged stretches of rock
Where flowering cactus grows,
And yucca, serene and white,
(Our Lord's Candle) grows.

In the stillness, night and day
Would pass with their changing hues,
Leaving a hoard of peace—
Wealth I never could lose.

And like the prophets of old
Who the wilderness had trod,
There I could blend my soul
With the infinite spirit of God.

THE ENCHANTED LAND

By I. M. SCHANNAP
Salem, Oregon

Where is that enchanted land
Of which we speak
In bated breath, by wave of hand?
Is it the land or the life we seek?

Where is the land of soul's content,
Though hardships march on every hand,
And none have cause for just lament?
Where is the enchanted land?

The mountain meadows have their urge,
And desert plains allure;
The seashore bears its human surge,
The valley's crops are sure.

Enchantment is for every land
Where human souls abide
And dwell in peace 'til God's command
And neighbors not deride.

CACTI

By WALDO O'NEAL
Clovis, New Mexico

A ghost of the silent desert
With arms up-lifted in prayer;
A proud and stately warrior
With an armor of spears, beware!
A lone surviving soldier,
All the somber desert mocks;
A fountain in a furnace,
Is the desert's paradox.

WITH PROPER AWE

By MURRAY SKINNER
Los Angeles, California

Oppressive silence of the desert land
Compels conceited man to give it heed,
Standing on lava rock and sliding sand
Man's ego is deflated with sharp speed.

Majestic areas of burning blue
Confuse the vision and conceal the goal,
And straining eyes grow blurred with sweeping
view
Until self-pride is sponged from out the
soul.

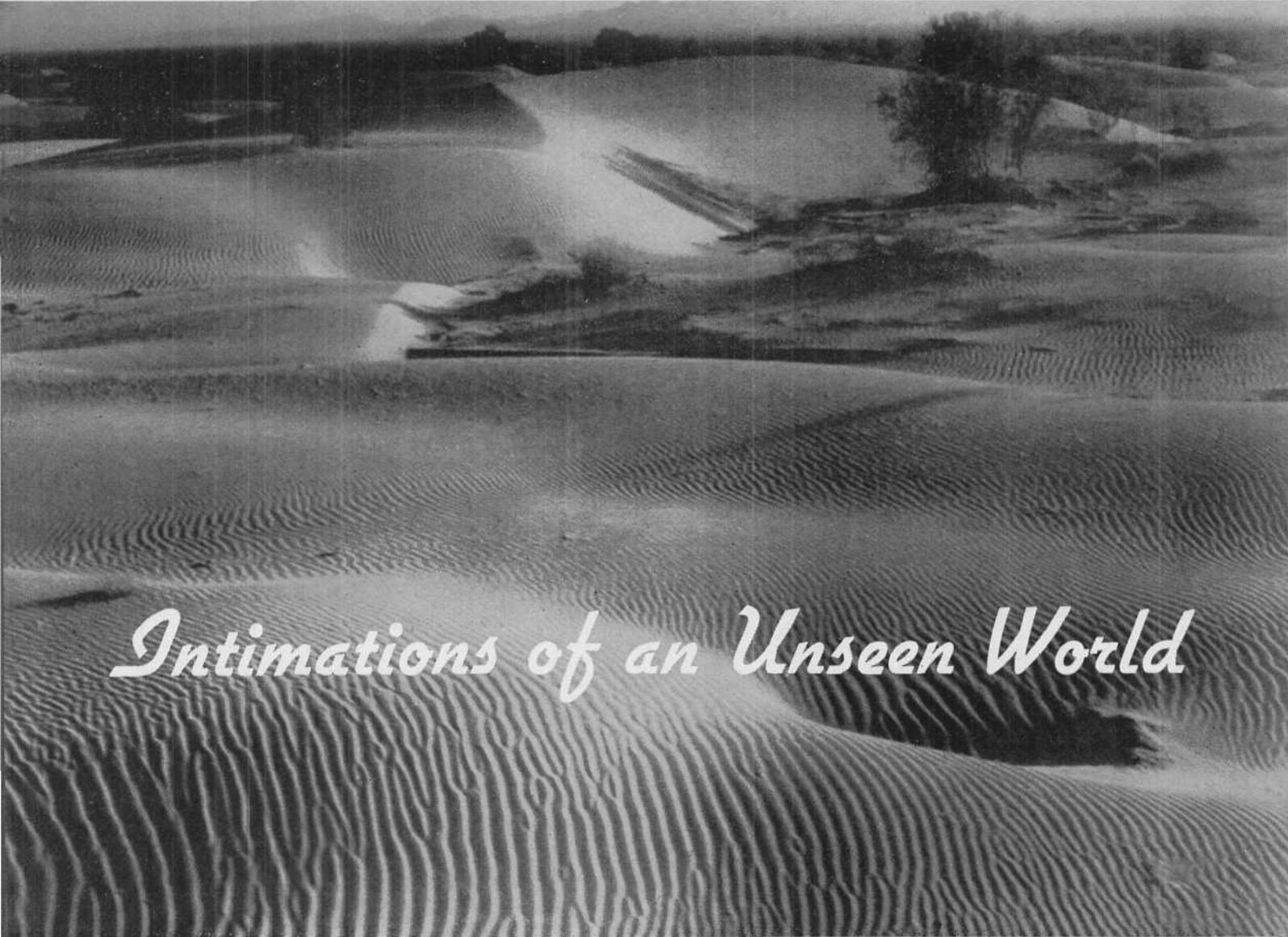
Two-legged mite, set to a sluggard pace,
Wound up and running like some young-
ling's toy.
Man shrinks before such condescending space
From manhood to the stature of a boy.

DEATH VALLEY

By IRENE BRUCE
Reno, Nevada

The wind wants no flowers growing
Where he and the wind go blowing
Over stern sands.
No dew dares to enter the ground
Where day without any sound
Stretches hot hands.
The sun's acres must be kept clean
Where he stares with his sterile mien
Down at the lands.

No trespassing allowed, not a cloud!
Only ghosts of men are allowed,
No building stands.
Winter once wandered the region,
But sun took over his legion,
Stealing his brands.
Now all of the seasons are bare,
And only wind has a share;
Death, his demands.



Intimations of an Unseen World

TEXT and PHOTOGRAPHS by RICHARD L. CASSELL

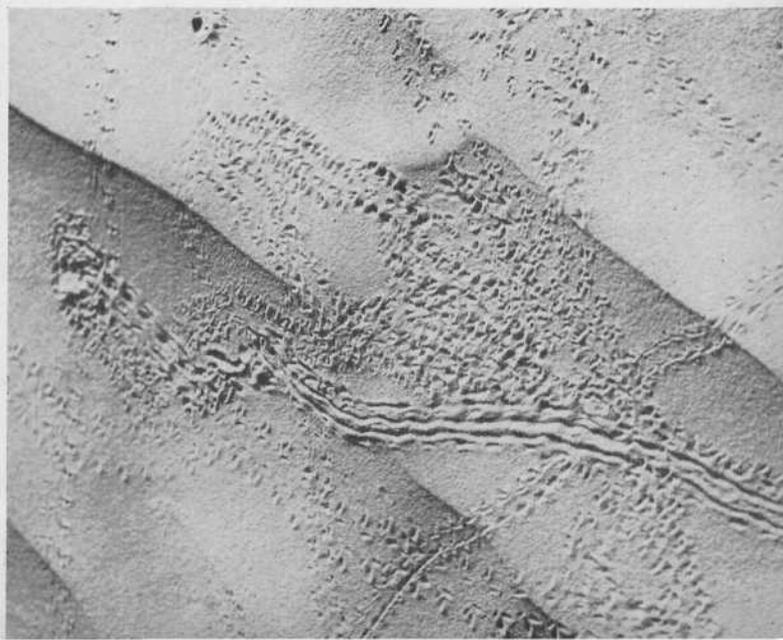
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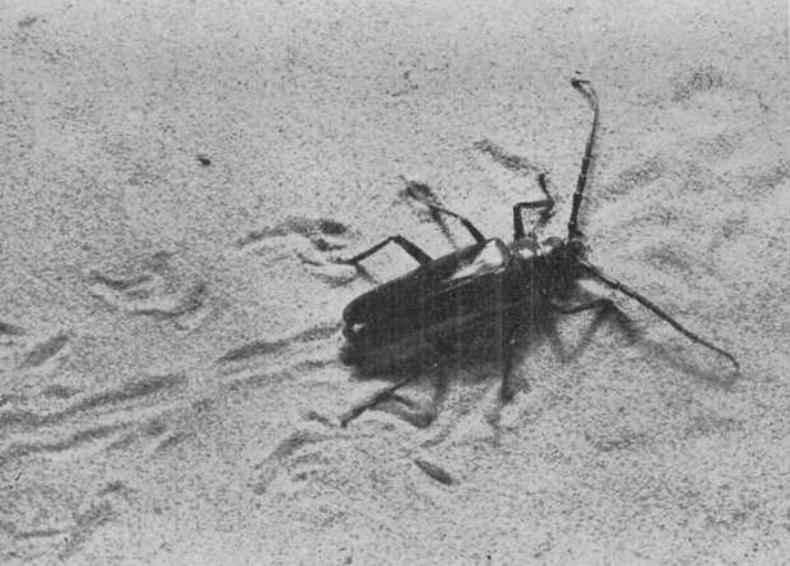
Much has been written of the desert's sculptured promontories, its paradox lakes, its grotesque flora, its picturesque peoples. But those who would seek the intimate must depart from the grandiose and fantastic. They will behold a world of delicate charm and poignant violence. A world of tiny creatures—myriads of them—which rarely are seen. Only intimations of that unseen world are visible, patterned precisely and unerringly in the sand.

2

In wonder they will gaze at the winding trails of minute prints and lace-like scrolls of countless insects, large and very small. Intermingled with them are footprints of the higher animals—the predators and those preyed upon, the pursuer and the pursued, the strong and the weak—at play and in death. Before these stippled tracings in the sandswept wastelands, we have entered the desert world of the intimate and the humble.

3





4

Now our eyes will become accustomed to seeing the beauty and drama which is evident in the records incised in every sand dune, such as that on the Yuma road 30 miles east of Calexico, California (photo 1).

That which has the greatest appeal to my fancy is the delicate tread of insect life. The artistic patterns and scrolls of micro-prints festoon the sand beneath small creosote or greasewood shrubs in a sandy area between the L. S. Watts ranch east of Calexico and the All-American canal (photos 2 and 3).

Sometime in midsummer, after dark, retrace your footsteps of a morning hike. The hot and barren sand



5

which was devoid of a vestige of life under the sun has become a fairy playground with the end of day. It is during the night shift that the California prionus (4) asserts himself. He bumps his noisy way in the upper reaches of creosote and mesquite. Eventually he crashes to the ground and we can observe how it is that he simulates the track of a small lizard. It is his "undercarriage" that drags the sand as he paddles along to a buzzing fresh take-off into the wind.

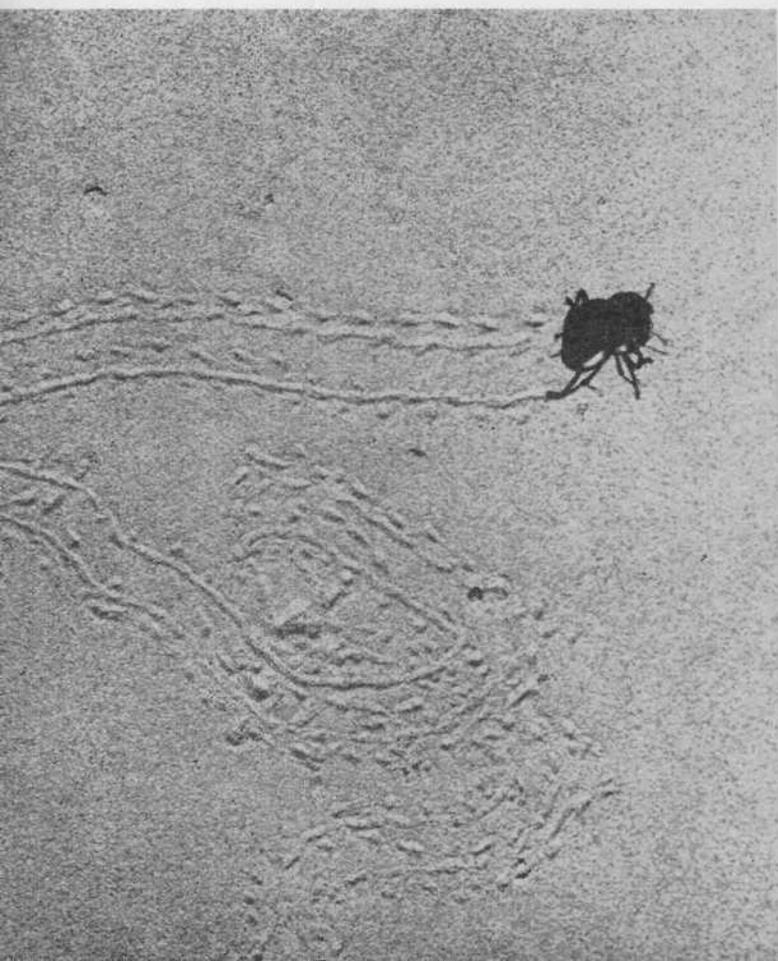
Nearby, the ciliated sand beetle (5) scuttles among "boulders" of sand granules. His stippled wanderings are among the tiniest and achieve the most delicate filigree. In his scurry-

ings he encounters myriads of flightless ground beetles (6 and 7) trundling about feeding upon small inorganic matter and organisms of a microscopic nature.

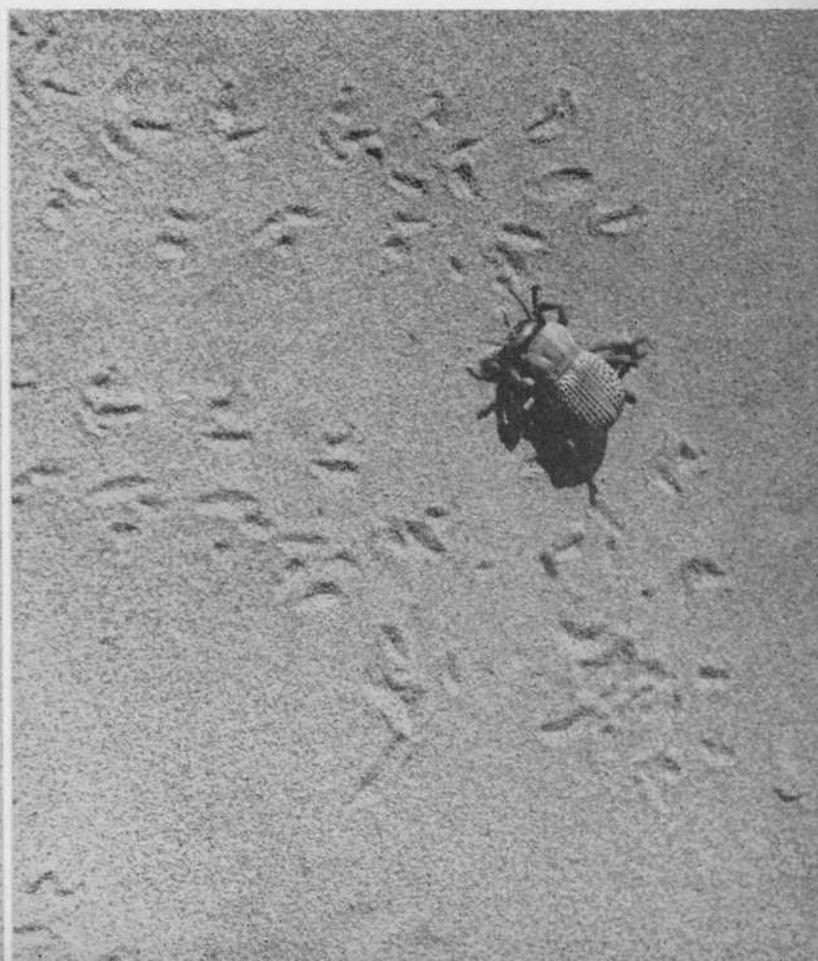
Snake tracks especially stir the imagination. Does this one (8) imply prologue or epilogue, tragedy or comedy? Is it coming or going, at home or abroad? It could be that of a rattler although it is quite narrow. More probably it was made by a Pacific gopher snake, which is common in Imperial Valley.

Gopher snakes are lured by the succulence of tender young rodents. Notice the many small tracks about the entrance—and add two and two.

6



7

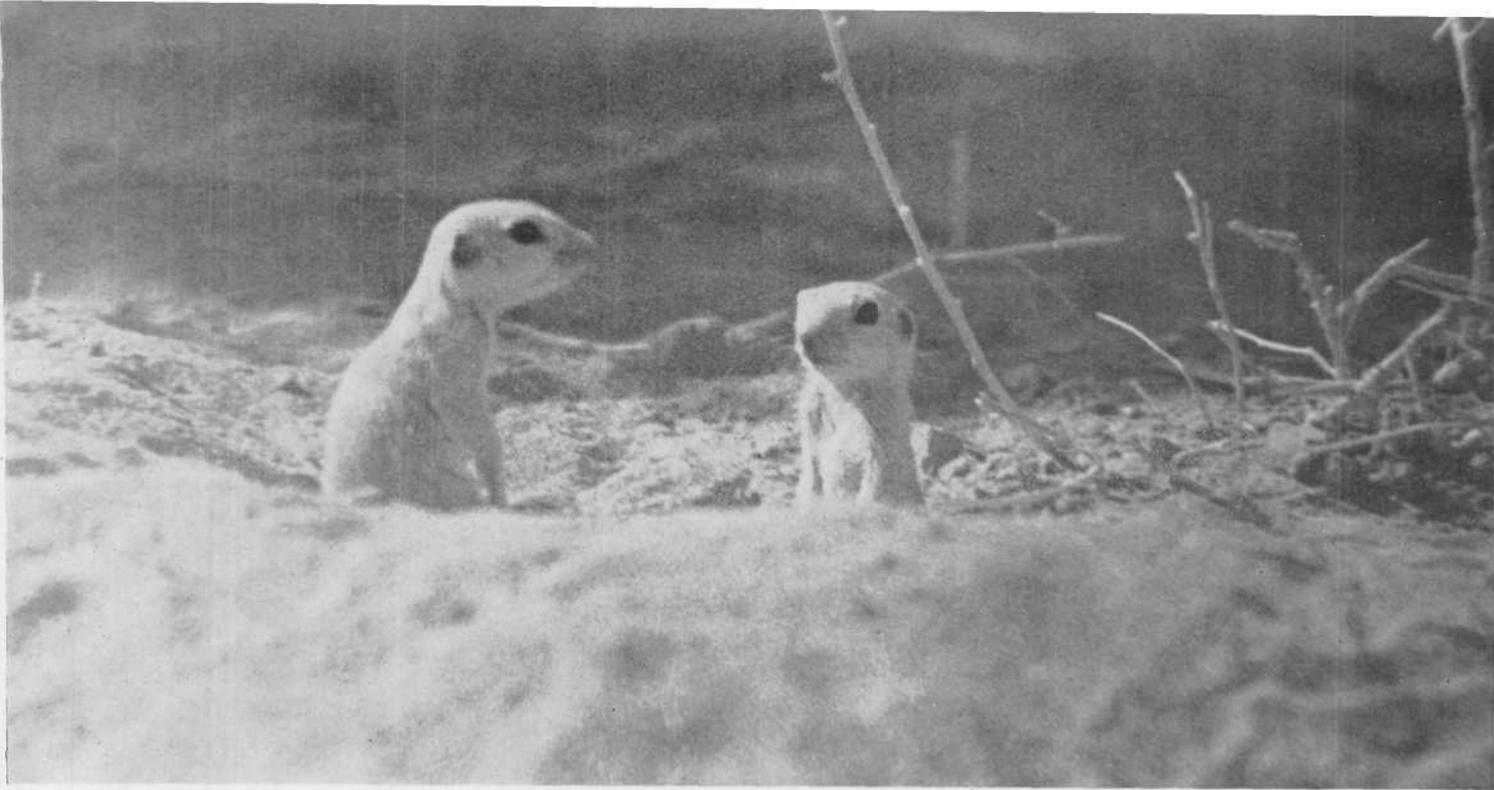




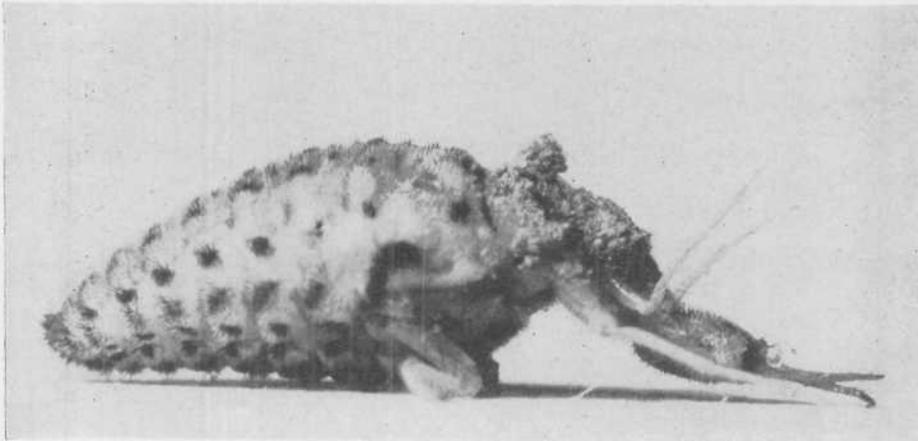
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10



11

Evidently the snake entered the hole, dined on chipmunk and remained in a contented stupor while digesting his loot. Why did I say "entered?" Because a snake track so narrow could not have been made by a snake with a full tummy.

Mother Nature protects many of her "little fellows" with the art of camouflage. The desert chipmunk (10) is typical of those who must run away for life. Such a tender morsel soon would be among the vanishing if it were not for his sun-bleached, washed-out, protective coloration. Try to imagine his vividly striped, red-head-

12





13

ed counterpart of the mountains transplanted to the arid sand-grey tones of the Colorado desert, and you will agree that neither sunstroke nor old age would be his fate as a Swainson's hawk careened among the mesquite and creosote! Proof of his many enemies may be seen in the footprints about his doorstep. The desert fox, coyote, badger and other predators, besides the birds of prey, always are unwelcome guests of the desert chipmunk.

Special mention is deserved by one desert insect whose species has been known for more than 200 years without having acquired a name in its adult stage. The only name today that serves as identification is the adult ant-lion. He is a long bodied, long winged insect resembling the damselfly, variegated grey in color. His disposition is amiable enough. He apparently does nothing worse than beat his head against electric light bulbs at night.

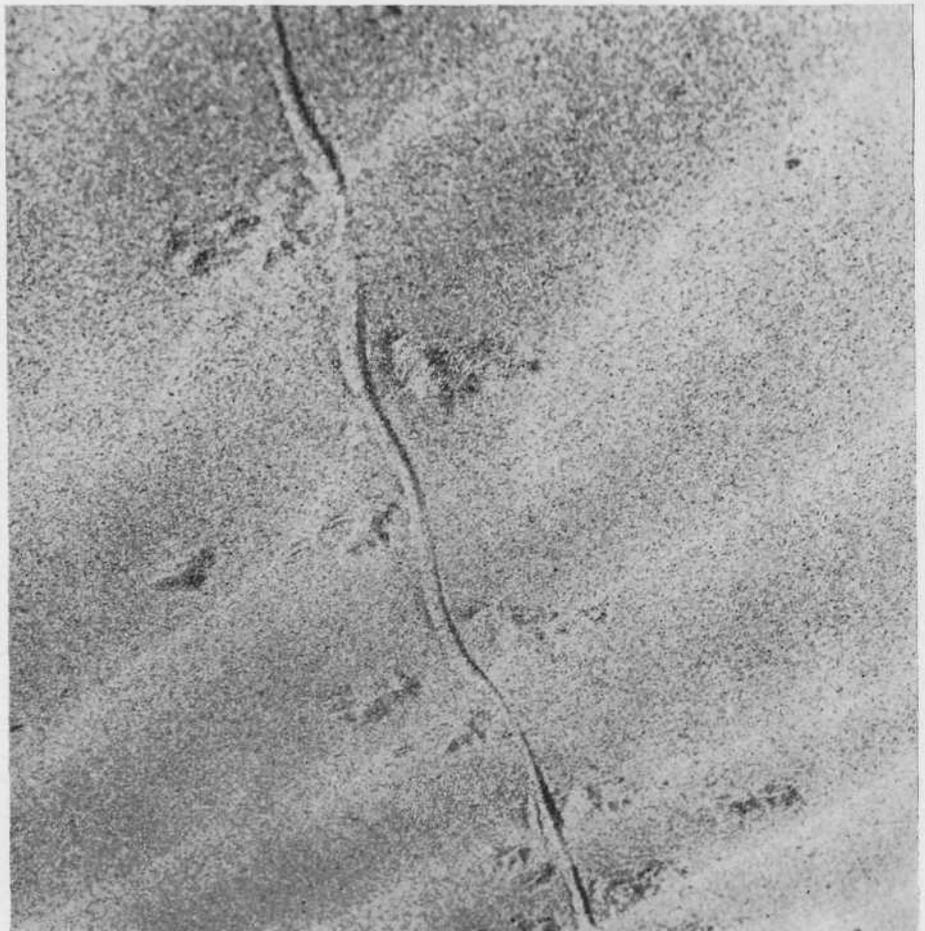
But this is the Jekyll and Hyde of the insect kingdom both physically and "spiritually." For in its immature stage (11) it perhaps is the most ferocious larva in the world. Physical-

ly he is quite a delicate gremlin except for his head, which is the only part that ever shows above the sand during his entire larval existence. Rest of his body always is underground, even when "walking" — which is backwards (9)! Place the ant-lion on top of the sand and he immediately crash-dives.

Like the orb spiders, the ant-lion also builds a trap in which to capture prey, but in the form of a funnel-shaped excavation about an inch across and an inch in depth in sand or loose earth at the apex of which he waits without a move, sometimes for days at a time with only his huge wide spread jaws visible. The sand trap is made by the larva traveling backwards in ever decreasing spirals flipping out earth with its head.

Let a sow-bug, ant or any other creeping or crawling creature small enough slide into the trap—and clash go the great jaws! If the prey is too large and breaks away and attempts to crawl up the sides of the crater, the powerful head commences to flick dirt upon the victim, causing it to tumble to the center where again the jaws come into play. When the prey at last is subdued, it is sucked dry of body fluids, then flipped with great violence from the pit. The carcass some-

14



times lands a foot or more from the place of execution.

This may go on for several months, depending upon the abundance of food. The ant-lion then submerges, spins a sand studded cocoon that resembles a granular grey pill and remains for the next several weeks while the strange metamorphosis takes place. How a grey-winged insect about two and a half inches long can come from a chubby little larva one-sixth that size is indeed a magician's trick. He seems literally to unravel when the time comes for the "blessed event."

Perhaps the eeriest spectacle of this miniature world is the "flight" of the vinegaroon. He is a wingless creature but unbelievably agile. He appears to be a dancing, swirling tuft of brownish vegetation fluff being blown about by the wind until he comes to a sudden halt—and you look closely! What you see is one of the ugliest of Nature's creatures. And while you look you probably will see and hear four powerful grinding jaws as he cracks and devours very small hard shelled beetles. His disposition is as nasty as his appearance. Now and then two will meet and a momentary battle ensue (12).

The vinegaroon is known by many names—solpugid, sun spider, wind

16



JULY, 1944



15

scorpion, kill deer, flanga, hunting spider, and to the Mexicans as gluvia and genisaro. Ugly as he is, his bite is entirely mechanical and harmless.

Then inevitably there always will be seen the tracks of the rabbit, both jack and cottontail, large and very small. These are characterized by a triad pattern. Whether he is sitting down, walking (13) or running, a kind of three-cornered pattern results. Here his tracks cross those of a centipede.

Proceeding farther along, we come to a combination foot and tail print (14). There are two desert animals which could make a track like that—the prionus beetle (see 4) and the lizard. It must have been the latter, for the trail of the prionus measures about one inch across while this track is a good three inches.

There are several lizards in this particular locale east of Calexico—the chuckawalla, leopard lizard, crested lizard, desert whiptail, gridiron-tailed lizard and the ocellated sand lizard—and all of them to my knowledge raise their tails high in the air when in a hurry. This fellow evidently was taking it easy with a stomach full of insects, and going no place in par-

25

ticular. Thus we deduce that here a lazy lizard dragged his tail.

Innumerable insects and spiders, snakes and lizards people the nocturnal unseen world of the desert. But the first sign of dawn gives intimations only of a fast moving episode. It is then the roadrunner or paisano (15) will run along the trails looking for breakfast lizards. He quickly places a bush between himself and you, and probably all you will see from then on are the footprints of his measured stride (16).

You will not confuse the paisano's tracks with those of the Gambel quail (17). His usually are found where there is plenty of cover to hide his shyness. They are small short steps, with heel-and-toe pattern.

Here in a cool dark corner beneath a dead mesquite the stripped sand marks the lair of a mouse (18).

If you are keen eyed and lucky you may see a lone coyote or possibly a



17

number of little desert foxes still out of their holes prowling about in quest

of chipmunks before the heat of day makes them retire.



LETTERS . . .



DM Thank-you Note . . .

New York City

Dear Friends:

When Mr. and Mrs. Ira C. Hamilton received notice of our Desert gift subscription to them these drawings arrived without other comment. First view shows Desert turning up unexpectedly in the Hamilton's mail. I just love the last picture—Mrs. H. hugging the radiator, Desert in her hand, while a lovely vision blots out the New York City view of apartment building across the street.

Desert is more precious than ever here, where in a sense the city comes more nearly within the popular conception of the "forbidding, repellent desert." Only complaint I have is, there isn't enough of DM! I always want more.

ERNEST H. LYONS, JR.

"First Fan Letter" . . .

Los Angeles, California

Gentlemen:

In my forty-some years this will be the first fan letter I have ever written.

I subscribe to many magazines, including several mineral magazines. I consider Desert Magazine one of the very finest and I am grateful for the growing excellent mineral sections. I enjoy your fine articles on events and localities and hope that someday it will grow to take in the mountains as well as desert.

I enjoy, too, Mr. Henderson's remarks from abroad and wish for him and the many others we are missing an early return, and for your magazine continued success.

W. HARVEY NEIL



DM Will Be a Legacy . . .

Manhattan Beach, California

Dear Desert Magazine:

Received my May issue today and as usual it is beautiful. The cover is gorgeous. You have the finest publication anywhere. I am a great lover of the desert and am very proud of my complete file. It is a joy to myself and friends, and I hope to pass it on to my descendants.

C. B. LEFFLER

Cactus Whitewash . . .

Jacumba, California

Dear Desert:

We especially enjoy your bird features. Richard Osmond in March issue is very much mistaken about our "limited association" "with roadrunners. We have seen many many of them and like them. Each creature has its own method of gaining a living though it may not coincide with ours. When we lived on our ranch west of Brawley, Mr. Stanley was walking along a lane between big eucalyptus trees when a roadrunner came to him, ran back, then came close again, repeating the performance. He followed, and found a big gopher snake up in a tree in the bird's nest with the mother roadrunner in its coils—she was dead but still warm.

I read Marshal South's article on whitewash. Here is a formula by Chas. S. Knowlton of Fullerton, California, in the Pacific Rural Press: Gather fresh cut prickly pear cactus leaves, put in wooden barrel and mash with shovel or other implement, cover with water, and stir occasionally. Next day, after lime has been slaked, thin it with cactus water. There are many cases in which this whitewash has been good 100 years later. Cactus water also is used in the mud for making and laying adobe bricks.

MRS. FRANK STANLEY

No More "Football Playing" . . .

Trona, California

Dear Editor:

I am tired of imitating a football player, trying to get a copy of Desert each month, so I'm doing the smart thing I should have done long ago, to-wit—sending in my subscription. Now I can tuck my copy of Desert under my arm as it arrives each month and go down the street with a self-satisfied smirk on my face.

What's Desert got that no other magazine has? I don't know, but it's something that makes people hoard the darn thing as if it were gold. I have always prided myself on being a more or less generous person, but this magazine of yours is doing something to me. I find myself actually hiding my copies. Only a select few ever get to see them.

I'm a newcomer to the Mojave—I'm still deathly afraid of rattlers and all the "bugs." But I'm already getting the "desert squint" because I like the glaring sunshine. I'm even becoming a rockhound. I came originally from the shade-lined towns of the southeast but I'd die if I had to live in them again.

I know the desert is cruel and hard but I prefer a shack on the Mojave to more comfortable quarters in the East. I know it can give health and many other things to those who are willing to search.

NYLA SCOTT DE MARCUS

Oldtimer Discovers DM . . .

San Jacinto, California

Gentlemen:

Please enter me as a subscriber. I happened to pick up a copy of your magazine in the library and the first article I saw was of W. A. Chalfant, for whom I worked 14 years. Was with him when he published his books, "The Story of Inyo," "Death Valley: The Facts," and "Outposts of Civilization." Next I saw a picture of Chris Wicht, the first man with whom I put in a shift in the mines. Chris used to kid me about my tenderfoot days. I entered the mines wearing a derby hat, a heavy sweater and other heavy clothing. At the first level I straightened up and my hat was crownless. At the second level I shed my sweater, and at the bottom I was down to skin.

Next article I saw was about Ballarat, where I was a post-office clerk in 1904. Left that to take a jerk line team to haul freight to the Keane Wonder mine across Death Valley from the nearest railroad at Johannesburg. Then went to work building a road into South Park to haul in a stamp mill and supplies. The remnants of old wagons which the article mentioned no doubt were from the very wagons we abandoned there, for to my knowledge there was no other wagon into South Park.

I was very familiar with Bill Heider, Fred Gray, Scotty, Slim, Shorty Harris, Thurman and many other old timers. Clifford Burton of the Tropicco mining and milling company at Rosamond, and I discovered the Ballarat Wonder, near Ballarat, and sold to "January Jones" in May, 1906. I'm just mentioning these few experiences to show you why Desert Magazine is so interesting to me.

M. M. SANFORD

Who Knows Child of the Earth? . . .

Tulsa, Oklahoma

Dear Editor:

Perhaps some reader can supply authentic information about a small denizen of the deserts and mesas of the Southwest, which the Mexicans call *Niño de la Tierra*, or Child of the Earth. During four years of roaming around New Mexico and Arizona I was never fortunate enough to see one. But I have talked with several who claim to have seen it. They describe it as a doll-like animal, about three or four inches in length, walking on all fours, with head and face like that of an infant. They claim it will not attack you unless molested and that its bite is more deadly than a rattlesnake's.

I'd surely appreciate any information on this little animal, with accurate description, drawings or photos.

ALBERT LLOYD

Gem State Promises Postwar Show . . .

Nampa, Idaho

Dear Desert Magazine:

Idaho and eastern Oregon rockhounds just now are too busy helping to win the war to do much rock hunting and cutting and polishing, but with the help of your fine magazine and a few meetings to gloat over with our fellow "hounds" we are going to be ready to carry on with the old enthusiasm in the postwar period.

We think we have some of the best rock hunting ground that lies outdoors, and if you are like the Gentleman from Missouri, plan to attend the Northwest Federation rock show in Boise, Idaho, just as soon as we finish a certain "polishing off" job across the big ponds.

We want to commend the editor, or editoress, on the global scope of the articles during the past year. Not many magazines that size can boast a "war correspondent" in Africa and the South Pacific, such as we have in the Hendersons, nor the variety of material offered from month to month.

RICHARD E. HANSON

TRUE OR FALSE . . .

If you cannot answer half of these within a few minutes, just review the past few issues of Desert Magazine. In that way you will discover how observing a Desert Rat should be while reading his Desert Magazine. The other answers will have been discovered by the Sand Dune Sages either by experience or in reading of earlier issues of DM or in supplementary reading of good desert books on history, mineralogy or nature lore. Answers on page 34.

- 1—Rock collectors know that all crystals belong to one of six classes, or systems. True..... False.....
- 2—Butcher birds impale their prey on thorns and barbed wire fences because their feet are too weak to hold it, as do hawks and owls, while tearing it apart. True..... False.....
- 3—First ferry across Colorado river near present site of Yuma, Arizona, was operated by Louis J. F. Jaeger. True..... False.....
- 4—Apache and Yavapai Indians never intermarried. True..... False.....
- 5—Silicosis may be contracted by a gem cutter breathing silica dust from sanders. True..... False.....
- 6—Parrot feathers have been found in prehistoric cliff dwellings but the bird is extinct in Arizona today. True..... False.....
- 7—The most revealing clue in identifying any of the Pentstemons is contained in the name itself. True..... False.....
- 8—Magnesium is about the same weight as aluminum. True..... False.....
- 9—One of Harold Bell Wright's most popular books was about early days in Imperial Valley. True..... False.....
- 10—As result of army units stationed in the desert until recently, many new gem and scenic areas will be opened to postwar travelers. True..... False.....
- 11—Joshua trees were not known on the desert in prehistoric times. True..... False.....
- 12—If you were in a Sahara desert oasis in July and wanted some dates to send back home, you probably would "buy" a tree. True..... False.....
- 13—The tepary is a small mammal. True..... False.....
- 14—The name Arizona is derived from Papago Indian word *Arizonak*, young or small spring. True..... False.....
- 15—Authorities agree that the roadrunner is more destructive than beneficial. True..... False.....
- 16—Fluorite is the only mineral which fluoresces. True..... False.....
- 17—"Forgotten Frontiers" by Dr. A. B. Thomas deals with the military campaigns of Juan Bautista de Anza. True..... False.....
- 18—Only manuscript copy of Father Silvestre Velez de Escalante's Journal, in which he described much of the Southwest for the first time, is in the Newberry Library, Chicago. True..... False.....
- 19—Live specimens of ancient Trilobites may be found near fossil fields in Utah today. True..... False.....
- 20—Quartz looks white because the light rays striking it are reflected and not absorbed. True..... False.....

HERE AND THERE . . . on the Desert

ARIZONA

British Diplomacy, Western Style . . .

PRESCOTT—When Lord Halifax, British ambassador to United States, arrived at this "cowboy capital of the world" on his recent Southwest tour he was wearing a 10-gallon hat. Cowboy headgear had replaced fashionable Homburg when he called on state and city officials in Phoenix. He left here for a picnic on rim of Grand Canyon.

Penicillin for Plant Cancer . . .

TUCSON—Success in use of penicillin in killing of parasite of plant cancer has been announced by Dr. J. G. Brown, plant pathologist at University of Arizona. Penicillin injected by hypodermic needle into affected plants will have its greatest value in nurseries where early discoveries of infection can be more easily made and treated. It is especially effective in cancer or crown gall of such fruit trees as the peach, grape and raspberry vines, tomato and potato plants, sugar beets.

Barrel Cactus Saves Flier . . .

YUMA—After four days and nights of wandering in desert east of here, Lt. Edward W. Zaleski, El Centro marine air base, was rescued after efforts of searchers on foot, in jeeps with two-way radio connections with planes flying overhead. While on cross-country flight his plane caught fire, he baled out. Planes accompanying him dropped note to spread his parachute as marker and stay with it. He walked towards his fallen burning plane to save fire for night signals, but lost his way back to parachute. In his wanderings, search party discovered he had climbed peak to get bearings, had scratched his initials in huge letters which were seen by planes, left note he was headed west but tracks showed he went south. They found on third day that after experimenting with various cacti, he had broken small barrel cactus with stones for its juicy pulp which he drank and used to bathe his feet. At other places he had dug out sand to cool his feet below the burning surface. Once digging for water, searchers estimated he had thrown out hundreds of pounds of sand. Finally a plane spotted him waving a cardboard target used by desert troops. His tongue was swollen, he had lost much weight but he could talk coherently. It was estimated he had walked about 145 miles in the four days.

George Dunn, 82, who saw Geronimo and his braves surrender to General Miles, died April 20 in Bisbee.

Motorists Cited in Delinquencies . . .

PHOENIX—Careless motorists who leave keys in the ignition switch here may be charged with a misdemeanor, with maximum penalty of six months in jail and \$300 fine, according to Police Chief James Duane and Superior Judge Harold R. Scoville. Decision was first step in juvenile delinquency prevention project. The two men agreed that well-intentioned but careless motorists were indirectly responsible for many youths stealing cars for "joyriding." Fourteen boys cited during first three months of year took only cars with keys.

More Breakfast Juice on Trees . . .

PHOENIX—At the end of May 1,300,000 boxes of desert grapefruit remained to be harvested. About 1,063,000 boxes of this number were in the Salt River valley, 100,000 in Imperial Valley and 137,000 in Coachella Valley.

Prominent Pioneer Dies . . .

PRESCOTT—A. A. (Tony) Johns, 79, pioneer civic, political and business leader died here May 24. He had been president state senate and speaker of state legislature, president Arizona wool growers, chairman Arizona highway commission, member board of regents University of Arizona. He came to Arizona 62 years ago. His wife, Cora E. Weaver, who died several years ago, was Prescott's "first white child."

Champion pine log—five feet three inches at base and tapering only 10 inches—was brought from Sunset Crater country to Saginaw and Manistee lumber company mill in Flagstaff. According to tree rings it was 291 years old, had reached growth usually attained by tree 500 years old.

CALIFORNIA

Death Takes Mark Rose . . .

HOLTVILLE—Death came May 17 to Mark Rose, one of Imperial Valley's most colorful political leaders. A veteran of struggles for valley's progress since 1901, when he first filed on land here, dug ditches and canals on it, he is called the "father" of All-American canal and Boulder dam. Rose Levee and Rositas Dam were named after him. He helped organize Laguna Water company, he proposed All-American canal as means of developing Eastside Mesa, he was for many years an important figure in Imperial irrigation district. Local committee headed by K. K. Sharp is planning memorial statue of Rose to be placed in city park.

"Barbara Worth" Creator Dies . . .

EL CENTRO—Harold Bell Wright, whose historical romance "Winning of Barbara Worth" has become a trademark of Imperial Valley, died of bronchial pneumonia May 24 at Scripps Memorial hospital, La Jolla, aged 72. For 20 years his books, such as "That Printer of Udell's," "Calling of Dan Matthews," "Eyes of the World," "God and the Groceryman," "Shepherd of the Hills," eight of which have become motion pictures, "kept the critics writhing and the masses happy." At his ranch home east of here he wrote three of his most popular novels. He later built an Indian style home near Tucson, Arizona, but inquisitive visitors caused him to retire to a ranch in San Diego's backcountry near Escondido, where he lived the last seven years. His final book, "The Man Who Went Away," was published last October.

They'll Drink Salton Sea Water . . .

INDIO—Experiments with water purification method now being used in New Guinea for troops were started at Date Palm beach in May to purify water of Salton Sea for drinking purposes. Cleaver-Brooks company of Milwaukee is conducting experiments. They expect their invention to make not only salt water but stagnant and sewage water drinkable.

Panamint Prospector Dead . . .

PANAMINT CITY—Carl Mengel, beloved one-legged prospector of the Panamint mountains, died April 28 in San Bernardino, where he was born in 1868. He had prospected in Mother Lode country, at Goldfield, Tonopah and Randsburg. He was a friend of Hungry Bill, famous Panamint Indian. He organized Butte Valley mining company which produced lead and gold until 1940. Many rockhounds had enjoyed hospitality at his Butte Valley rock cabin.

A WESTERN THRILL

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

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

GHOST TOWN NEWS,
BUENA PARK, CALIF.

New Road for Mojave Miners . . .

TWENTYNINE PALMS—For construction of 29-mile federal access road from Amboy to Dale Lake, east of here, some \$13,000 has been allocated by public roads administration. Project will benefit Desert chemical company and other mining operators. Road will afford this town direct route to U.S. 66.

Visions for Borrego . . .

BORREGO—After inspection tour of this 20,000-acre desert area, supervisors of San Diego county, where much of this land lies, were enthusiastic over future agricultural and resort prospects of Borrego Valley. They believe there is good potential water supply which could be pumped for irrigation. Said Supervisor Walter Bellon, "Borrego desert is an early crop region which produces the finest dates in the world. It is the only place in the world where there is no root rot. Its grapes and tomatoes are unsurpassed." Deputy County Agricultural Commissioner Silas Osborn said they found three or four live streams they had never seen before, emptying into Coyote creek. They "discovered" many canyons unknown except to cattlemen and prospectors, saw numerous groups of native palms which signified water.

Desert Pilot Killed in Action . . .

PALM SPRINGS—Lt. Owen Coffman, son of Earl Coffman and grandson of Mrs. Nellie Coffman, founder of Desert Inn, was killed in action over Europe April 21. He was born in Palm Springs in 1920, attended local schools, was Stanford university graduate. He had received his commission at Yuma, Arizona, army air base, was flying fortress pilot. American Legion has named local post in his honor.

Some to be Cool—Others Hot . . .

EL CENTRO—Special modified war production board order makes desert coolers available to agricultural and war workers. Applicants must order coolers on triplicate WPB form No. 1319. Approved applications will be filled as long as available coolers last.

NEVADA

Forest Fires Decreased . . .

CARSON CITY—Nevada forest and range fire losses were cut nearly 500,000 acres last year by prevention work, according to Forest Supervisor Fred H. Kennedy. Large numbers of volunteer workers assisting state and federal agencies were given credit for decrease.

Family Marooned on Desert Island . .

LAS VEGAS—Marooned for two days on storm-swept Black island in the middle of Lake Mead, Mr. and Mrs. Earl Evans and two tiny children returned safely after searchers in army planes and park service boats failed to find them. Starting out from Vegas Wash in 16-foot outboard motor-boat for a day's fishing, they were caught by storm, took refuge on island, where they had to spend two nights and next day with but a single blanket, two cushions and a life preserver for warmth. After rations of one fig bar each, they spent chilly cramped night. Storm still raging next morning, they gathered some of the sparse vegetation to build a small fire. They had caught five bass but had no cooking utensils. Evans pried lid off his metal tackle box, burned off paint and used it to fry fish for his hungry family. They heard searching boats and saw the planes but were unable to attract their attention. They could not find enough wood to build a signal fire. At 5 a. m. the third day they were able to navigate lake waters. Evans is cashier for Basic Magnesium, Inc.

Nevada Beavers Disappearing . . .

CARSON CITY—Disease and poachers have reduced the beaver population on Colorado river below Boulder dam 75 per cent since 1942, according to Mrs. Esther Herman, secretary fish and game commission. The disease, which is taking heavy toll of the younger beaver, is of an undetermined nature. Poachers, who thus far have escaped detection, are warned that illegal trapping is both a state and federal offense. Purchase of such pelts also is state and federal offense. Pelts are worth \$28 to \$36 each.

The Desert Trading Post

Classified advertising in this section costs five cents a word, \$1.00 minimum per issue—
Actually about 1½ cents per thousand readers.

MISCELLANEOUS

For \$5.00 a complete lapidary equipment, including mud saw, diamond saw, lap, grinding, sanding and polishing wheels, some supplies, 1000 to 2000 lbs. California cutting rocks. E. E. Robb, 1251 East 74th St., Los Angeles 1, Calif.

Large stock of petrified palm. Twenty tons of rock specimens. Navajo rugs, reservation hand hammered silver and baskets from many tribes. Many other handmade artifacts. Daniels Indian Trading Post, 401 West Foothill Blvd., Fontana, Calif.

FOR SALE—Indian relics, 23 assortments from which to choose, \$1.00 per assortment or \$20 for all 23. All perfect specimens. Choose from these: 10 beautiful prehistoric Indian arrowheads; 10 tiny bird arrowheads; 10 arrowheads from 10 different states; 2 stone tomahawks; 4 spearheads; 5 stone net sinkers; 10 fish scalers; 2 hoes; 4 agate bird arrows; 5 flint drills; 7 flint awls; 10 beautiful round head stunning arrowheads; 4 fine sawedged arrowheads; 4 fine flying bird arrowheads; 4 fine drill pointed arrowheads; 4 fine queer shaped arrowheads; 4 rare double notched above a barbed base arrowheads; 5 double notched above a stemmed base arrowheads; 12 small knife blades of flint; 1 rare shaped ceremonial flint; 3 flint chisels; 7 crystals from graves; 10 arrowheads of 10 different materials including petrified wood. Locations given. 100 arrowheads \$3.00. 100 very fine mixed arrowheads all perfect showy colors including many rare shapes such as drill pointed, double notched, saw edged, queer shapes, etc., location and name given, \$25.00. List free. Lears, Glenwood, Ark.

NATURE, the vital Science, is the only living way out of confusion and chaos. Address—BASIC-RESEARCH LABORATORIES SYSTEM, 785 Lafayette Street, Denver 3, Colo.

LIVESTOCK

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

"Karakul Fur Sheep — America's Great Livestock Opportunity—You can be a part of this fascinating business and have your Karakuls cared for by experienced rancher. Write for details, James Yoakam, National Distributor, 1128 No. Hill Ave., Pasadena, California."

REAL ESTATE

House and 40 acres improved farmland on paved road in Arizona, between Yuma and San Luis, Mexico. In cantaloupes this season, \$8,000. Address: Owner, 1708 California St., Berkeley 3, Calif.

FOR SALE—Comfortably furnished mountain cabin in south central Nevada on good county road, kitchen-dining-living room, bedroom, two screened porches, spring house, fine water, two-car shelter, 7200-ft. elevation, dry climate, restful, privacy, scenic. Address J. E. Dix, 1214 Spruce St., South Pasadena, Calif.

For Imperial Valley Farms—

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Since 1914

EL CENTRO — — — CALIFORNIA

NEW MEXICO

Did He—Or Didn't He? . . .

SAN JUAN PUEBLO—Cpl. Antonio D. Maestas, serving with army in Italy, reported with bad cold to doctor. German shell burst in nearby building, knocking down both corporal and examining doctor. Getting to his feet, patient found cold had vanished. "Guess the concussion killed the germs. I feel fine now." Then he remembered he had had a thermometer in his mouth—they couldn't find it anywhere. He doesn't think he actually . . . well, er . . . no, he's sure he didn't—but every time he gets a twinge in his innards he wonders . . .

Lincoln County Museum Plans . . .

ALAMOGORDO—Mementoes of Lincoln county cattle war and Billy the Kid, its most noted participant, will be preserved in restoration of old Blazer mill at Mesacero, scene of one of the feud's first battles. Mill will be converted into a historic museum as joint undertaking of Alamogordo chamber of commerce, Southwestern association of chambers of commerce, New Mexico museum and Indian Service.

John Evans New Pueblo Chief . . .

ALBUQUERQUE — John Evans has been appointed by Secretary of Interior Ickes as superintendent United Pueblos agency to succeed Dr. Sophie Aberle, recently resigned. Evans, son of author Mabel Dodge Luhan of Taos, formerly was Indian arts and crafts dealer in Santa Fe, onetime investment banker. He entered government service in 1942 as assistant project director of Colorado River war relocation center at Poston, Arizona, and lately served as acting chief of Alaska branch division of territories and island possessions. He was European correspondent for Newsweek magazine in 1941, is author of two novels, "Andrew's Harvest" and "Shadows Flying."

Desert Methods to Help China . . .

ALBUQUERQUE — Scientific studies of farming and ranching practices made in Southwest by department of agriculture will aid in planning recovery of China's drouth areas, according to Dr. Lien-Chieh Li, soils scientist with Chinese national geological survey, who has been inspecting experimental areas in Southwest. Both irrigated farms and dry-farming areas received special attention.

Census Taker Has Troubles . . .

ALBUQUERQUE—Indian service officials estimate New Mexico's Indian population is just about 50 per cent accurate in reporting births and deaths among their tribes. Investigation shows that of 1431 births last year, just 722 were registered. One pressing need for registration is in establishing proofs of dependency in servicemen's benefit allotment claims. One inducement to remedy situation is offer of attractive "diplomas" to registering mothers.

TEXAS

Miners to be Invited . . .

EL PASO—Plans are progressing for International mining day to be held here early next fall. A directory of mining men of New Mexico, Arizona, Colorado, Texas and Mexico is being compiled. Mining men of Southwest will be invited to study pending mining legislation.

Who's Who in Sunshine? . . .

EL PASO—Published statement that Arizona and New Mexico hold top honors in amount of sunshine was disputed by Chris P. Fox, manager local chamber of commerce. He asserts Texas area around El Paso has more sunshine than New Mexico and his organization "is preparing a booklet to say so." Statement in question was made in article by Cleve Hallenbeck, former Roswell meteorologist, in May issue of New Mexico magazine. It stated that New Mexico ranks first in winter sunshine and Arizona first in summer sunshine. Fox objected that the article considered the entire state of Texas, including the cloudy and foggy coastal zone.

UTAH

Look at Him on Nickel . . .

SALT LAKE CITY—Although buffalo in state-owned herd on Antelope island in Great Salt Lake are making a comeback, Utahns still will have to look at them on nickels only. Too much carelessness has been shown by visitors to the island, causing death to young animals in some cases. Buffalo first were identified on the island in 1845 by Osborne Russell, trapper, when "herds passed from mainland to island without swimming." Four hundred head grazed on the island's 175 acres, accompanied by the tiny antelope until the latter disappeared about 1870. The buffalo came close to extinction, but with the recent increase and the greater protection now given them, will probably more than hold their own.

Weatherman Gets Light Beam . . .

SALT LAKE CITY—This is one of the 26 cities in which U. S. weather bureau is installing electronic ceilometers, which will outmode measure of weather ceilings by balloons. Ceilometer sends out a modulated beam of light which diffuses at base of cloud; a scanning device then measures the distance of the cloud from earth by computing of angles.

Utah Color via Hollywood . . .

KANAB—Coral-pink sand dunes near here will be setting for Universal's technicolor picture "Queen of the Nile" starring Maria Montez and Jon Hall. Rebuilt set of "Buffalo Bill" in this area will be used for "Sioux City." Universal is scheduled to film the technicolor picture "Can't Help Singing" near here in August, starring Deanna Durbin and Gene Kelly. Locations east of Cedar City will be used for RKO-Radio's "Tall in the Saddle," starring John Wayne. Alta will be setting for Selznick International's "House of Dr. Edwards" starring Joseph Cotten and either Joan Fontaine or Ingrid Bergman.

Government Land Purchases . . .

SALT LAKE CITY—Since 1940 the government has paid \$2,046,000 for about 64,105 acres through local U. S. district court. This does not include original sites of major military installations such as Wendover, Kearns and Hill Field, which were paid for directly out of Washington, D. C. Largest acreage handled was 16,497 acres in Millard county for Japanese war relocation center at Topaz.

DESERT SUBSCRIBERS

We wish we could mail all your monthly copies of Desert Magazine in individual envelopes or wrappers. Due to paper shortage this is impossible. Special care is taken that your copies leave our office in good condition, properly addressed, in the hope that they will reach you in the same condition. As soon as more paper is available they again will be mailed in individual wrappers.

Final plans are being made for heroic Utah monument, "This Is The Place," commemorating discovery, exploration, settlement of intermountain West. Sculptor is Mahonri M. Young, Utah-born sculptor, grandson of Brigham Young.

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If you need back issues to complete your files, write for a list of single copies now available.

And we're still paying \$3.00 for the
November, 1937, issue . . .

THE *Desert* MAGAZINE

636 State St. El Centro, California

Mines and Mining . .

Washington, D. C. . . .

House mines and mining committee has just established four standing subcommittees to consider specialized phases of the mining field. Coal committee members—Representative Randolph (D. W. Va.), chairman; Kelley (D. Penn.), Murdock (D. Ariz.), Bishop (R. Ill.), Landis (R. Ind.). Nonferrous minerals and metals—Representative Murdock, chairman; Engle (D. Calif.), White (D. Ida.), Rockwell (R. Colo.), Ellsworth (R. Ore.). Precious minerals and metals—Representative Engle, chairman; Murdock, White, Rockwell and Ellsworth. Phosphate, potash and nonmetallics — Representative Peterson (D. Fla.), chairman; White, Fernandez (D. N. M.), Bradley (R. Mich.), Brehm (R. Ohio).

Geneva, Utah . . .

Over 600 women are being trained at Geneva Steel company here to replace men, from office jobs to operation of cranes and conveyors. It takes approximately 4500 workers to operate the Geneva plant at full production. At present operation is proceeding with less than half that number.

Bishop, California . . .

Red Cross here is seeking whereabouts of Ole Anderson, formerly with Vanadium corporation mine. He had sent a worried message to his nephew in Norway on October 9, 1942. A reply has just been received here for him through International Red Cross, Geneva, Switzerland, from Nels Visdahl, Vaage, Gudbrandsdalen province, Norway. Anyone knowing Anderson's present address should communicate with Mrs. Mary Holman, director Red Cross home service department, Bishop.

San Francisco, California . . .

State mining board, recently appointed by Governor Earl Warren, is composed of Philip R. Bradley, Jr., Pacific mining company, Jamestown; F. C. Van Deirse, San Francisco, president Gold Producers of California and general manager Yuba Consolidated gold fields; William C. Browning, Los Angeles, manager Golden Queen mining company, Mojave; William Wallace Mein, Jr., San Francisco, Calaveras cement company, San Andreas; and George W. Hallock, Grass Valley, president California hydraulic mining association.

Los Angeles, California . . .

To aid prospectors and miners to find a market for their minerals and to aid development of natural resources, mining committee of Los Angeles chamber of commerce has just published "Industrial Minerals—Non-Metallics." It is a 42-page companion book to previously published "War Minerals—Metals." From Alunite to Zircon, data includes physical and chemical properties, sources of domestic and foreign production, consumption and utilization, marketing, prices, present producers, possible buyers. There is a list of names and addresses of industrial mineral milling plants and chemical manufacturers in the Los Angeles area.

San Diego, California . . .

To investigate and publicize newly discovered mineral deposits in San Diego county, county bureau of mines has requested supervisory appropriation of \$3990 for fiscal year 1944-45.

San Francisco, California . . .

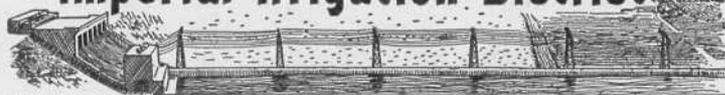
A new edition of "American Mining Law" has been published recently by California Division of Mines, Ferry Building, as Bulletin No. 123. This is a revision of No. 98 which appeared in 1931, prepared by the late A. H. Ricketts. It is an accurate treatise on laws and court decisions relating to mines in United States.

EIGHT YEARS OF ELECTRICAL PROGRESS

- Eight years ago, on May 18, 1936, the first consumer owners were connected to Imperial Irrigation District power lines. The record of growth and expansion achieved since that date stands as an inspiring tribute to the determination and wisdom of our people to develop fully a great natural resource.
- The original small diesel generating plant with which the district launched its power program, was doubled—then trebled in size—two huge hydro plants built and placed in operation—the extensive electrical properties of the California-Electrical Power Company in the Imperial and Coachella Valleys purchased and added to the District's system—and other advancements and improvements recorded.
- The "Little Acorn," constituting a distributing system serving only a small portion of the City of Brawley, has grown to the "Mighty Oak" whose branches of transmission lines now spread over two of the most fertile agricultural valleys in the world, bringing the blessings of electricity not only to all cities and towns in the areas served but to thousands of rural homes previously denied the conveniences of electricity. Starting with a handful of customers, the District's power business has grown until now it will gross approximately two million dollars in 1944 — a record that is truly phenomenal.

NO PAUSE IN WAR EFFORT—The District is contributing its quota to the war effort too—by keeping the wheels of agriculture and power turning—doing its part in the Nation's general program aimed at the inevitable overthrow of Germany and Japan, and the restoration of our American way of life.

Imperial Irrigation District



Use Your Own Power—Make it Pay for the All American Canal

GEMS AND MINERALS

ARTHUR L. EATON, Editor

ROCKY MOUNTAIN FEDERATION MEMBERS, REVISED, FOR 1944

- Canon City Geological Club, F. C. Kessler, Secy., 1020 Macon Av., Canon City, Colo.
 Colorado Springs Mineralogical Society, Helen S. Caldwell, Secy., Lenox House, Colorado Springs, Colo.
 Colorado Mineral Society, Mignon S. Pearl, Secy., 818 South University, Denver, Colo.
 Grand Junction Mineralogical Society, Mrs. Richard Fischer, Secy., Box 555, Grand Junction, Colo.
 Kansas Mineral Society, H. K. Ward, Minneapolis, Kansas.
 Lander Geological Society, L. V. Abbott, Pres., Box 66, Lander, Wyoming.
 Mineralogical Society of Arizona, Dr. George G. McKhann, Secy., 909 East Willetta, Phoenix, Arizona.
 Mineralogical Society of Utah, Forace Green, 161 East 2180 South Street, Salt Lake City 5, Utah.
 Nebraska Mineral and Gem Club, Mrs. Ralph DaMetz, 401 West 24th Street, Kearney, Nebraska.
 New Mexico Mineral Society, Fred Miles, Pres., 813 West Fourth, Roswell, New Mexico.
 Oklahoma Society of Earth Sciences, W. P. Bailey, 22 S. W. Jefferson, Mangum, Okla.
 Reno Rock and Mineral Study Club, Mrs. R. L. Thompson, Secy., Route 2, Box 230 Reno, Nevada.
 Riverton Geological Society, John R. Pitts, Secy., Riverton, Wyoming.

SANTA MONICA CLUB BEGINS NEW YEAR

Santa Monica gemological society held its first meeting of the fifth year May 4 at Santa Monica junior college. Officers installed were: Vern Cadieux, president; H. O. Little, vice-president; George Hartman, second vice-president; Dorris Baur, recording secretary; Mrs. Elsie Jacobs, corresponding secretary; Errol McRill, treasurer.

Prof. Osterholt concluded his series of talks on the quartz family minerals, which was illustrated by specimens brought by members. Also exhibited was a piece of "ray rock" or triboluminescent silica. Past-president Harry Stein exhibited the new spalerite from Mexico which is triboluminescent, fluorescent and phosphorescent.

WHAT IS BLACK OPAL?

Many dealers list as "black opal" any of the darker shades of green, blue, blackish, grey, or other dark colors. Usually coming from Australia, any of the darker shades fall under this classification. However, the Virgin river valley in Nevada has furnished much truly black opal—opal as black as the blackest jet or obsidian. This Nevada black opal sometimes is only of an intense black color, without fire. At other times it is a deep black color and in the sunshine shows deep red, blue or green fire.

UTAH CLUB PUBLISHES FIFTH ANNUAL BULLETIN

Volume five, number one, of the news bulletin of the Mineralogical Society of Utah is now at hand. On the cover is a photo of a new habit of calcite, negative rhombohedrons attached to negative scalenohedrons. The excellent article within, by Arthur L. Crawford, explains that this "find" is entirely new and unique.

Besides the almost one dozen excellent articles on history, etc., one on the variscites and phosphates of Utah is outstanding.

Officers of the society for the present year are: Junius J. Hayes, president, 1148 East First South, Salt Lake City; Marie P. Crane, first vice-president; W. T. Rogers, second vice-president; Forace Green, secretary, 161 East 2180 South, Salt Lake City; Lillian M. Lockerbie, treasurer; Sears P. Roach, historian.

BELIEVE IT OR NOT RIPLEY IS WRONG

Chula Vista—California

Dear Miss Harris:

Enclosed is recent Ripley's Believe It Or Not item stating that "Fairy Stones are found only in Patrick county, Virginia." Since Desert Magazine has published two articles which would seem to refute this statement I thought the clipping might interest you.

SARA DOWNS

Holtville, California

Dear Lucile:

In reference to the "Believe It or Not" statement that perfect "fairy crosses," or staurolite crosses, are found only in Patrick county, Virginia. When anyone makes such a statement about almost any gem or mineral, he is sticking out his neck in a real big way. Such statements always are based on unfounded local belief.

Staurolite is an iron-aluminum-silica compound with water, none of these elements being at all rare. Mrs. White Mountain Smith, a native of Virginia, Desert Magazine, May, 1940, states that the crosses found in New Mexico and elsewhere are exactly like those of her native Virginia. She quotes Dr. Charles N. Gould, renowned geologist of Santa Fe, New Mexico: "These pebbles with crosses . . . are plentiful in Piedmont region east of the Alleghany mountains, and extend from Maine to Georgia. They are also found in the Black canyon of the Gunnison, the Royal Gorge, near Pike's peak, and here in the Sangre de Cristo mountains."

Frank Beckwith, Desert Magazine, June, 1940, states that he found some in ancient rhyolite near Topaz mountain, Utah, southwest of Delta.

Lying here on the desk in front of me, as I write this, are several dozen perfect Roman, St. George, Maltese crosses, and single crystals of staurolite from seven or eight different states, some of them still imbedded in their native rock. "Believe It or Not" seems to have slipped badly this time.

ARTHUR L. EATON

Unique Nevada Specimens

From the highly mineralized State of Nevada come many fine specimens. We are offering several this month that you will not want to pass up.

1. **Sulphur and Cinnabar**—These specimens have the unusual combination of yellow sulphur and red cinnabar. They are from a new find—from 1 x 1 to 6 x 8, and priced from 25c to \$5.00. A nice specimen with plenty of red will be sent to you for \$2.50.

2. **Cinnabar**—Nice red specimens of rich mercury ore. One of these should be in every collection.

1 x 1 to 3 x 3—25c to \$2.00

3. **Molybdenite in Quartz**—Nice brilliant silver colored molybdenite in snow-white quartz. These specimens would attract attention anywhere.

1 x 1 to 6 x 8—25c to \$5.00

Cutting Material from Nevada

Petrified wood from Slate Ridge, Nevada. This is beautiful vari-colored wood that will cut fine slabs of cabachons—

50c a pound

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COLLECTORS' ITEMS

In my excavations in prehistoric mounds, at Wickliffe, Kentucky, and other DIGS, I have accumulated thousands of duplicates which I have decided to dispose of to other collectors at very reasonable prices. Since this is not a business with me, I cannot bother with anything less than a \$5.00 order. Remit with order, and if goods are not satisfactory, money will be refunded.

The following are a few of my collectors' items. Some are definitely unique and all are guaranteed genuine:

Beautiful Kentucky Crinoid Buds—
 15c to 25c

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 Proprietor, Wickliffe Mounds
 WICKLIFFE, KENTUCKY

AMONG THE ROCK HUNTERS

Gem collectors club, Seattle, was host to Tacoma, Bremerton and Everett rock clubs at an unusually interesting meeting May 16. Dr. Fuller of Seattle art museum gave an illustrated lecture on Oriental jade from the standpoint of the lapidary. There were exhibits of excellent polished stones and cabochons. More than 90 persons attended.

Wendell H. Paulson showed kodachromes to illustrate his talk on snapshots at the Four Corners at the May 2 meeting of Mineralogical Society of Utah. The junior group enjoyed a field trip May 7 to City Creek canyon.

GEM MART

ADVERTISING RATE
5c a Word — Minimum \$1.00

Pink Muscovite on Albite Quartz—Something new for the cabinet. Specimens, 75c to \$4.50. Jay G. Ransom, 3852 Arboleda St., Pasadena 8, Calif.

Rare Specimens, Blue Celestite Crystals, 1 to 10 lbs. Cabinet specimens, \$2.00 per lb., delivered. Hans Anderson, St. George, Utah.

Rock Collectors, Attention! Summer Special—\$1.00 brings you 11 specimens and a polished cabochon! \$5.00 a genuine stone cameo. The Rockologist (Chuckawalla Slim), Garvey Trailer Park, 941 E. Garvey Blvd., Garvey 32P, Calif.

3 beautiful Colorado minerals, 6 prehistoric lizard scales, \$5.00, white spar, crystallized zinc and one beautiful agate specimen for cutting, size 3 x 3 to 4 x 4. Jack the Rockhound, P. O. Box 86, Carbondale, Colorado.

Idaho-Oregon Arrowheads—Obsidian and black lava, 50c each; agate, jasper, etc., in 4 grades, 50c, 75c, \$1.00, \$1.50. Lynn Crandall, Box 697, Idaho Falls, Idaho.

WANTED—To buy, sell and exchange specimens outstandingly rare and beautiful. Sam Parker, 2160 East Van Buren, Phoenix, Ariz.

Agate Jewelry and Oregon Agates: One dollar with ten cents for postage brings you four sawed moss agate slabs in excess of 1/2 inch by 3/4 inch for making cabochons or ring sets. These are quality. E. Lee Sigfrit, 211 Congress, Bend, Oregon.

Sample of the new California Jade, a true NEPHRITE that is hard, translucent and will take a polish. We cannot guarantee an unfractured gem. We will include a piece of Onyx of Cameo grade equivalent to India's finest Carnelian striped. Both for \$5.00. Kenneth J. Hines, San Benito, Calif.

Beautiful agate, flower jaspagate, picture jasper and dinosaur bone. Assorted lots of cutting material, gem quality, ten pound package \$10.00. Four pound package \$5.00. Send postage. Mrs. Richard Fischer, Box 555, Grand Junction, Colorado.

QUARTZ CRYSTALS of the finest water clear quality to be had, single points from 10c to \$10.00 each. Groups or clusters from 50c to \$25.00 each and up. No mineral cabinet is complete without a beautiful cabinet specimen of the fine quality I have. Outstanding groups at \$5.00, \$7.50, \$10.00 and up. Finest quality Wavelite 50c per lb. Delivery charges extra. Satisfaction or your money back promptly. Liberal discounts to Dealers. J. L. Davis, 303 Ward Ave., Hot Springs, Ark.

Los Angeles mineralogical society took a "field trip de luxe" to Arizona at Boos Brothers dinner meeting May 18, as guests of U. S. bureau of mines, whose sound film "Arizona—Its Mineral Resources and Scenic Wonders" was shown. Their mineral of the month, with displays, was copper.

Officers elected by Southwest Mineralogists, Los Angeles, for June, 1944, to June, 1945, are: Sam Boase, president; George Schwarz, vice-president; Jeane Lippitt, corresponding secretary; Alwilda Darrt, recording secretary; Florence Vercellone, treasurer.

Dr. E. C. H. Lammers, of Standard oil company, talked on geology of the Rocky mountains at May meeting of Long Beach mineralogical society. Iron minerals were displayed and the lapidarists exhibited their cut and polished stones.

Orlin J. Bell states that a heavy percentage of lubricating oil used in the diamond saw may be reclaimed by placing the sludge in a bucket and allowing it to stand. Clear refined oil will rise to the top and the mud will settle. This process may continue for weeks.

Sequoia group has approved the board's recommendation to present a suitable gift to each nonmember speaker in appreciation of his services to the club.

A night class in mineralogy began April 24 at Fresno tech. It meets Monday and Wednesday, 7 p. m.; subject, getting acquainted with California minerals.

TRUE OR FALSE ANSWERS

Quiz on page 28

- 1—True. The systems are—isometric, tetragonal, hexagonal, orthorhombic, monoclinic, triclinic.
- 2—True.
- 3—False. First ferry was operated by Yuma Indians in 1849 who employed two Americans to handle it.
- 4—False. One of the important Apache bands was the Yavapai-Apache.
- 5—True. Especially by one with predisposition to lung disease or history of it in the family. It is thought a simple mask is ample protection.
- 6—False. Small parrots have been reported seen in Chiricahua mountains, southeast Arizona.
- 7—True. Pentstemon is from Greek words meaning five stamens. Fifth stamen, the easy mark of identification, is imperfect, having no anther, top part usually thickened, frequently bearded.
- 8—False. Magnesium is about two-thirds weight of aluminum but has tensile strength of hot rolled or mild steel.
- 9—True. "Winning of Barbara Worth."
- 10—True. Due to many new and improved desert roads built by army. Also due to heavy rains and absence of rockhounds.
- 11—False. Fossil remains reveal prehistoric existence of Joshua trees, even beyond present day limits.
- 12—True. Most of the Sahara oasis date palms are owned by a few families who "sell" a tree to poorer families during the harvest season for \$4.00 to \$6.00.
- 13—False. Small desert bean (from Papago, *pawi*) which Indians grew in southern Arizona and as far west as Colorado river.
- 14—True. Generally agreed name is from a spring immediately south of the border, near either Banera or the Arizona ranch some 20 miles southwest of Nogales, Sonora, Mexico.
- 15—False. Stomach analyses prove road-runners much more beneficial than harmful.
- 16—False. It is known in numerous minerals but first was observed in fluorite and was accordingly named from this mineral.
- 17—True.
- 18—False. There are at least five manuscript copies. One each in Chicago, Seville, Paris, Mexico City, New York.
- 19—False. Trilobites are extinct and found in fossil form only. What some call "live trilobites" are Apus or "fairy shrimps."
- 20—True.

Minerals, Fossils, Gems, Stamps, Coins, Pistols, Glass, Bills, Indian Relics, Bead Work. Catalogue 5c. Cowboy Lemley Curio Store, Las Cruces, New Mexico.

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

INTRODUCTORY OFFER—One dollar each lot. Five all different Fluorescent Agates—polished. Thirty rough Mexican Opals. Fifty nice pieces Turquoise. Twenty different polishing specimens. Postage ten cents. Minerals and gems on approval. DR. RALPH MUELLER, Professional Building, Kansas City, Missouri.

Montana Moss Agates in the rough for gem cutting, \$1.00 per lb. plus postage. Elliott's Gem Shop, 26 Jergins Arcade, Long Beach 2, Calif.

50 assorted ring stones, including genuine and synthetic, \$7.50. Genuine Zircons, blue or white, 3 for \$3.75. Twelve genuine Cameos or Opals, \$2.50. B. Lowe, Box 311, St. Louis 7, Mo.

Tourmaline matrix, in quartz crystals, \$1.00 to \$30.00, tourmaline pencils, 50c to \$5.00, Essonite garnet-green-clusters, 50c to \$3.00, unique specimens. Sagenite agate, \$1.00 to \$4.00, specimen rough nodules. Gem list 10c. Return specimens if not satisfactory. The Desert Rats Nest, 2667 E. Colorado St., East Pasadena, Calif.

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

100 Jewelry Stones removed from rings, etc., \$2.00. 12 articles of Antique Jewelry, rings, pins, etc., \$3.00. B. Lowe, Box 311, St. Louis 1, Missouri.

Choice Palm Root—Full of eyes showing root and trunk structure. Very colorful. Sliced for Cabochons. 25 cents per square inch. Satisfaction guaranteed. GASKILL, 400 North Muscatel, San Gabriel, Calif.

Swisher's rocks, minerals and petrified woods. Island corals, shells, shell costume jewelry, fine copper minerals from Bisbee, Arizona. Fine quartz crystals from Arkansas. Also fine line of Art Figurines. Swisher's, 5234 So. Broadway, Los Angeles 37, California.

Escondido Desert club discovered there are plenty of interesting places so close to home that even in wartime they can enjoy field trips. Twenty-one members spent Sunday, May 21, at Aliso canyon. They didn't return loaded with gem specimens but they had found many varieties of wild flowers, enough rattlesnakes to add thrills, an iron-doored old mine in which a rare type of bat lived. And they "felt guilty" that the boys overseas couldn't enjoy the wading and the coffee made over a sweet smoke fire.

Annual auction was scheduled by Los Angeles mineralogical society for its June meeting.

Searles Lake gem and mineral society continue restoration work on Indian Joe's, about seven miles out of Trona.

The two final talks in the series on geology by John W. Fox, Sr., were scheduled for May 16 and 31 at Trona unified school. Subjects were history, geologic and otherwise, of the Ophir mine in the Slate range, and general geology of Searles Lake region.

Andrew Thickstun gave an interesting address at April meeting of Sequoia mineral society on his conception of the place the mineralogist has in the world today. He donated a specimen for the club's display case. At the May meeting Dr. W. V. Evans of Reedley junior college gave a short informative talk on Mt. Lassen, using colored slides.

Skilled human blowers produce better blown fused quartz for chemical, medical and industrial apparatus than machine blowers.

Sequoia mineral society emphasized tiger eye in the May meeting display.

At April 6th meeting of Mineralogical Society of Arizona, Mr. Norviel gave the concluding demonstration in his series of talks on determinative mineralogy. These demonstrations have been very helpful to members in giving a clear insight into the "why" of methods used to find out which elements may be present in an unknown mineral. The greater part of the display consisted of selected specimens of copper minerals from the collection of the late George W. Mintz. The entire collection has been given to the society by his daughter, Mrs. Georgia Arthur of Phoenix. Many of the specimens are museum size, chosen with discretion and taste.

Searles Lake members are still able to enjoy field trips. 58 went on their annual Death Valley trip, visiting Stovepipe wells, Furnace creek, Bottle house, etc. May field trip took the group to Red Rock cañon for geodes and jasper. They went via Inyokern and returned through Randsburg.

The final formal 1944 meeting of Sequoia mineral society was held June 3 in Fresno. Dr. Calvin McKim was guest speaker. Members displayed a marvelous variety of petrified woods both rough and polished. Informal gatherings in various communities will continue through the summer months. The monthly meetings have averaged over 50 in attendance out of a membership of 106.

H. C. Tillman owns a beautiful collection of transparencies, including woods, agates, etc. He displayed some of them for Kern county mineral society.

Kern county society limits participation in voting and displaying to paid-up members.

Salvaged cartridge cases are to be used in making pennies. The metal is contaminated by lead and antimony from firing and is not suitable for re-use in ammunitions.

Cogitations . . .

Of a Rockhound

By LOUISE EATON

Wun drawback to seein' a gem show 'r even to jus' lookin' at rox at sum-boddy's house is that there's always too mutch to comprehend all at wunce. When yu wanta discuss the display afterwards yu 'n th' uther fella cant remember the same specimens, xcept perhaps th' most outstandin' wuns. Unless yu takes note on everything yu're shure to miss something. Th' whole gem show, afterwards, seems sortta like a dream uv brilliant beauty that yu cant recall quite distinctly.

Good authority states that field tripin in many desert districts will be easier when the duration is dun than it wuz before th' war. Soljers has constructed roads here 'n there in places which usta be practically inaccessible. F'r instance, there's a good surfaced road in wun place where rockhouns'll be able to get to a field of palm, bamboo 'n jasper that very few folkse has ever before been able to get intu.

R. H. Milligan is librarian of Pacific mineral society. Books are in his office, room 810, Transamerica building, Los Angeles. They may be secured by calling there during office hours or by phoning to have them taken to a regular meeting for distribution.

Jack Tebo entertained East Bay mineral society May 4 with stories about obtaining minerals from Lost Bird's Nest mine, Eldorado county. R. E. Lamberson discussed one great gold strike after another at May 18 meeting, showing that the important strikes all over the world during the 19th century were linked together in a definite way.

Summer outing and field trip for members of Mineralogical Society of Utah has been set for July 1-5 at CCC barracks in Alta.

Clarence Woods, consulting mining engineer, spoke on geology and minerals of Bolivia and Peru at June 9 dinner meeting of Pacific mineral society, Los Angeles. Mr. Woods operated silver and tin mines in Bolivia from 1923 to 1929. Later in Peru he operated a gold mine which has produced \$15,000,000 during 50 years. \$3,000,000 since he has been operating it. The crews operating two of his gold mines in that area currently work 8-hour shifts in the mines and another harvesting raw materials for making quinine, under direction of his son.

Culiacan, Sinaloa, Mexico, reports that a large meteor recently blazed across the sky and fell with enough force to cause a series of explosions that shook the city like earthquakes. The meteor was so large that for several seconds it illuminated skies like daylight.

Capt. Hawkins substituted for Francis J. Sperisen at April 6 meeting of East Bay mineral society. Sperisen was delayed by car trouble en route to the meeting. Capt. Hawkins talked on precious stones.

Essential industries in 1943 used more than 71 million ounces of silver. Jewelry, arts and other uses, accounted for almost 50 million ounces more. The total reached almost 120 million ounces. Not all of this came from the government supply, as the mines of Mexico, Nevada, etc., furnished a very notable amount.

BEGINNER'S BEST BOOK

"Getting Acquainted with Minerals," by George L. English, is easily one of the outstanding mineralogy books of this period. Instead of writing a complete book for experts and advanced scientists, English has produced one for the beginner. He has dispensed with the difficult chemical basis of Dana, and grouped the minerals, instead, by their commonest element, such as copper, iron, aluminum, etc. Any beginner can get a good knowledge of elementary mineralogy from this book. 324 pages, 258 illustrations. Price \$2.50.

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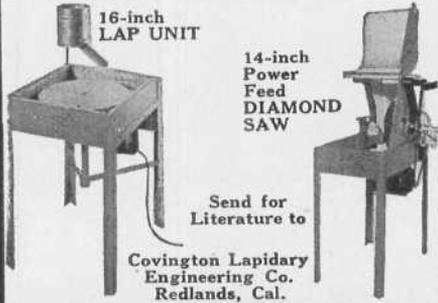
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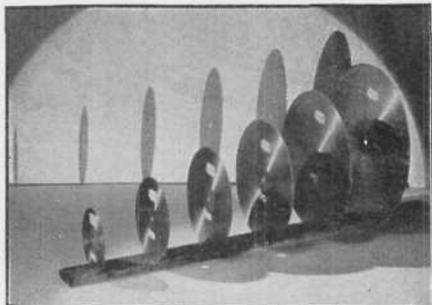
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and polishing equipment. Lelande Quick, who conducts this department, is former president of Los Angeles Lapidary society. He will be glad to answer questions in connection with your lapidary work. Queries should be addressed to Desert Magazine, El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

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

By LELANDE QUICK

This is being written in Texas where I am stopping for several weeks on a coast to coast business trip that will take me back to Virginia. While traveling is no picnic in these times it is not without its compensations at this time of the year for the scenes of the desert wildflowers from the train window and the new flora in Texas are beautiful to behold. And of course I'm having feverish dreams of the ten thousand spots I saw from the window where I imagined there was agate in the desert float or almost any kind of gem material.

When you're in California it is almost impossible to get into any group of people and mention gems that someone doesn't ask if you know So-and-so who cuts rocks, but here there doesn't seem to be anyone who ever heard of the word lapidary but I know they're around. These Texas people are all they are reported to be—the friendliest folk to be found anywhere. I've learned to distinguish the native from the outlander. As soon as he begins to leave the el out of the word help and talks about the difficulty in getting he'p I know I'm talking to a real Texan.

• • •

In April Desert magazine I asked for help for Mrs. Bacheller of Willcox, Arizona, who has no electricity for a shop. There are many people with American ingenuity to prove that Necessity was Edison's grandmother for they have utilized many things to make grinding wheels go where they had no electricity. For instance there is Leo Ferris of San Miguel, California, who has a lease on the famous jasper location at Stone canyon and who sells some of the finest jasper in existence. Ferris says he wouldn't discard his engine for a motor even if he had electricity. He has a 2 h.p. engine that runs 8 hours on 3 gallons of stove oil at a cost of 21 cents. The engine drives a line shaft that turns over 400 r.p.m. and by shift belts he runs his lap wheel at 580 r.p.m., his buffs and sanders at 360 r.p.m., and his grinders at 3600 r.p.m. He uses a flat belt drive and his lap is 3/8-inch by 24-inches and weighs 85 pounds. Ferris uses a 1/4-inch rope to throw the load.

Then A. Pelletier who runs the Indian trading post at Meteor Crater Observatory at Winslow, Arizona, advises that he uses a gasoline engine from a washing machine to run a generator that supplies him with enough electricity to operate a 1/8 h.p. motor. He also believes in my idea of utilizing an old sewing machine with treadle power.

Harold Odle, proprietor of the Flathead Museum at Rollins, Montana, who contributed our Lapidary Helps and Hints items last month, says old auto starters and generators can be rewired to rig motors up to 1/2 h. p. with use of wind. With these ideas I am sure that Mr. Bacheller, who is a good mechanic, can rig up some arrangement for Mrs. Bacheller and tell us about it later on.

Mrs. Bacheller sent me some of the Cape May (N. J.) "diamonds" discussed in April Desert magazine. They are quartz pebbles that become pink when heat treated. I don't think they are confined to the beach at Cape May, however, as I am sure I gathered such pebbles on the beaches at Asbury Park and Atlantic City as a boy. Miss Culin of Pasadena very generously sent me three faceted Cape May diamonds that are more than 70 years old so the "rock hound" is not a product of this century.

Much correspondence has come lately to me about polishing agents and I find that amateur lapidaries are experimenting with a number of things because of the shortage of tin oxide. If I can believe the trend tin oxide as a polishing agent will go out with the axis. However, I am inclined to the belief that the enthusiasm for new agents will pass after more extensive experimentation and when the tin oxide is available again. New things will find their proper niche but after all tin oxide is excellent for almost any material and it has been most satisfactory through the years producing so many prize winning exhibits that I don't think it will pass in the night.

There is a lot of talk about aluminum oxide replacing tin, but Wm. T. Baxter uses it in his Washington classes and reports that it takes three times as long to get a good polish as it does with tin oxide. Several persons have tried the German tripoli (not tripolite, which is reported to be only diatomaceous earth) and have high praise for it but it seems that the answer to the lapidaries' dream is to be found in a new optical polishing material called cerium oxide which sells for three dollars a pound. Herbert Monlux and James Arnold of Los Angeles both report such wonderful results that they never intend to use anything else. I saw some of Monlux' work, before I left California, which was done with the cerium and I have never seen a better polish. Arnold writes me, "I had tried to get scratches out of obsidian with tin oxide, using aluminum oxide for the finish, but the finest of them defied my effort. When I tried the cerium the scratches were not there after the first swipe across the disc. The results were positively amazing. Speed and saving of time are worth money even if it is only a hobby because it seems like a waste of power, if nothing else, if you spend five minutes on an operation that can be done in a second or two. Small amounts may be had without priority." I hesitate to suggest anything that I have not tried myself but I did not have the opportunity of trying this material before I left home and I did not want to delay getting this information to my readers. If you try it, will you advise me of the results?

I think that the ideal polishing agent is one that combines a saving of time with an ability to wipe out small scratches. To many amateur lapidaries it is a surprise when they find out that the polishing process really is another grinding process. They look upon the tin oxide stage as a purely polishing procedure and not as a final grinding procedure. I have never taken a piece of opal or obsidian to the final buffs without some fine scratches being visible with a glass and too often they do not disappear with the final polishing. They probably would with continued work. Any substance that will work with certainty and be a great time saver too will be a boon to the amateur lapidary. Perhaps this will be the thing that lapidaries inherit from the war—cerium oxide.

• • •

DID YOU KNOW . . .

- Black jade is really chloromelanite, a combination of silica, alumina and soda while nephrite is silica and magnesia, and jadeite is silica and alumina. They are all classed as jade.
- Jade exists in every color, the color being determined by the amount of iron present.



By RANDALL HENDERSON

WITH THE ALLIED FORCES IN AFRICA—A month has passed since my last diary notes were submitted to the censor and then forwarded to the home office of Desert Magazine. The days are warmer now, generally above 100 degrees at midday. But it is the dry heat of a desert that has only three inches of rainfall annually. There is no malaria here. We have discarded the mosquito boots and headnets that were issued to us before we came overseas. We work in shorts and sun helmets and sleep out under the stars. Two non-coms from the medical department are stationed here—but there seldom is an entry in the sick book. From the standpoint of health, few soldiers serving anywhere are as fortunate as we are.

* * *

Sometimes we are rather puzzled about the home front—7000 miles away, more or less. From this distant perspective we get two widely divergent views. One of them comes from the newspapers and magazines which occasionally reach our remote outpost. The story they tell us is not reassuring. We get the impression there is confusion in Congress, factional bitterness in both political parties, and much dissatisfaction with many things. The headlines too often reveal people at their worst—their pettiness, their arrogance, their intolerance—and of course all these add up to the one word ignorance. We discount some of the mud-slinging because this is election year, and it is a good old American custom to turn the candidates loose and let them howl to their heart's content. But we wonder if they do not lose sight of the issue which is of paramount importance just now—the winning of the war.

Fortunately, we do not have to depend entirely on the printed dispatches for our knowledge of affairs at home. We have another source of information—the pilots and planes which drop down out of the sky every day for fuel and servicing. Generally they have just arrived from one of the home fields overseas. They bring us tangible evidence of a home front that is producing super-airplanes in enormous numbers and skilled and courageous American boys to fly them.

I never cease to marvel at the miracle of these planes—the imagination of the men who dreamed them, the genius of the brains that engineered them, and the workmanship and skill of the great army of men and women who made and assembled the countless fittings and instruments and gadgets that are combined in each compact unit. I've prowled around inside of nearly all the big bombers—Marauders, Fortresses, Liberators and many others. I ride in them frequently on the test hops. My pride in America reaches a new high every time I go into one of these craft. And of the young men who fly them, if you want to know what I think of them, just multiply what I have said about the designers and builders of these planes by 100.

There cannot be anything basically wrong with a nation

which has created machines of such power and precision, and produced men with skill and courage and eagerness to fly them—for the cause of human liberty.

To those who read and believe everything in the headlines, it may appear sometimes that the leadership at home is hopelessly muddled. But it isn't as bad as that. Regardless of what petty-minded men may be saying about each other, the fact remains that America is producing what it takes to win this war—and I am sure this fact will be emphasized by events on the battlefield between now and the time these words appear in print.

It is true, we will have some major problems to solve in our own domestic bailiwick after the war has been won. There are problems of racial tolerance, of distribution of wealth, and of education, which demand radical changes in the traditional American way of thinking. But if we will devote to those problems just half the cooperation and energy that produced the men and machines which come down the runway of my desert service station every day, we will solve those problems just as surely as we are finding a way to beat Hitler and Hirohito.

* * *

Most of the natives here wear giddy-giddys. I've never seen that word in print so I am not sure of the spelling, but that is the way the Arabs pronounce it. A giddy-giddy is a leather amulet on the end of a cord, worn like a necklace, or around the arm or leg. I have seen Senegalese men and women loaded with a dozen or more of them. They are good-luck charms. The most popular one protects the wearer against physical injury.

Taleb, one of our houseboys, assured us they are "veree good." To prove his point, he told the experience of one of the French Senegalese soldiers stationed at the French fort here. This soldier had bought a charm from one of the traveling magicians who work all the larger north African towns and settlements. This magician demonstrated the potency of his giddy-giddy by putting one around his neck and then having his stooge stab him with a dagger. The blade never made a scratch.

So the soldier bought one. That was good magic for a black man going to war. It worked out all right until the French army doctor lined the company up for periodic inoculations. When he came to the soldier with the giddy-giddy, the needle broke. The next one broke. After three attempts to puncture the black man's skin, they had to arrange for a temporary sale of the giddy-giddy to a third party so the Senegalese could get his inoculation. Taleb believed this story. "Giddy-giddy verree good."

* * *

We are having trouble getting Taleb and Ahmed, the native houseboys, to do their work. They are always courteous and apologetic—but the floors went unswept and the laundry was overdue and the tin washpans never were cleaned. When we scolded Taleb he became very indignant—not toward us but

toward Ahmed. Ahmed had failed in his duty. And when we pounced on Ahmed he very sorrowfully informed us "Taleb should have done that. Taleb gone away, no do work."

It was the old army game of passing the buck. Of course it is a very proper game when confined to the army. But when the army becomes the victim, that is something else.

The billeting officer solved the problem. He called the boys together one day and announced that for one month Taleb would be head house boy. "Him boss. Ahmed do what Taleb say." Next month Ahmed is to be head boy and Taleb will be his helper. The wages were adjusted accordingly. It will all add up to the same in the end, as far as pay is concerned, but we are now getting better housekeeping in our four-room mud house.

It is big clumsy Jello, the Senegalese soldier who does guard duty at our quarters, who always comes out second best in the native intrigues of our household. Jello has a heart as big as all outdoors—but he doesn't think as fast as Taleb and Ahmed. Consequently, he does all the heavy work.

Jello is a rabid movie fan. His guard duties prevent him from attending the cinema except when one of the officers stays in quarters for the evening. Then Jello comes in with a smart salute and asks, "You go cinema?" And when he is told, "No, I stay home. You go," he grins and bounces out of the room as happy as a youngster who has just received permission to go to the Saturday afternoon matinee.

* * *

Nearly every day I would stroll out among the palms in the oasis to see if the new fruit crop had set on the trees. And now it is here. Day before yesterday I saw the first of the new fruit stems, high up among the stubby fronds—the fruit is as big as peas. The Arabs tell me the dates will be ripe in July. Then the nomads will flock in here from all this desert region and camp under the trees until the fruit is gone.

Most of the date palms in this part of the Sahara are wild uncultivated natives of the Sahara. They are not pampered and coddled like the date palms in California's Coachella valley. Here no one ever takes the trouble to remove the offshoots—and as for hand-pollinating them, I doubt if the Arabs ever heard of such a thing. Apparently there are but two periods in the cycle of a palm when the Bedouins pay any attention to the tree. One is the fruiting season each year, and the other is when the tree dies. Then the trunk becomes valuable for wood. It is the only timber available here for building purposes. It is used for roof trusses and ramadas.

I am told that few commercial dates are shipped out of this region. There are too many hungry Arabs around at harvest time. Recently, at a dinner served by a French officer here, dates were brought on as the last course. They were served from a goatskin bag, the bag in which they were packed during last year's harvest. The host simply untied the leather thong around the neck of the goatskin, and we reached in with our forks and gouged out a hunk of the compact cake inside. The natives who stuffed them into this bag were a little careless—they had gotten some sand into the cake. I am sure that Russell Nicoll at Valerie Jean's would be quite horrified at such packaging methods.

* * *

Native arts and crafts are not as far advanced here as among the desert Indians in the United States. I have found very little in the way of art that is worthy of the name—and yet I have a feeling that these Sahara tribesmen have latent abilities which would quickly develop if materials were more accessible and there was a bit of guidance and encouragement.

Nearly every evening well-dressed native craftsmen come to our quarters offering crude but ingeniously designed articles of leather, brass, copper and silver. They make leather bags and pipe cases, jewel boxes, miniature scimitars to be used for paper knives, padlocks and other small items. Some of the craftsmen do slipshod work, others show considerable skill.

In a large adobe building in the oasis a score of Arab women are at work constantly on the weaving of blankets and rugs. The

equipment and methods are much the same as one sees on the Navajo reservation in Arizona and New Mexico. However, instead of dyed wools, these women work almost entirely with camel's hair in natural color. White goat's hair sometimes is used for the designs. However, these women do not go in for the intricate and colorful patterns one sees in Navajo rugs. The French government through its *locale residente* sponsors the weaving industry and controls and markets the output.

When I first visited the dark crowded mud building in which the local weavers were working I came away with a feeling that something was wrong with this picture. Then it came to me that my interest in Navajo rugs is partly due to the colorful setting in which I so often have seen them made—the picture you have seen in Desert Magazine many times, of a Navajo woman in bright-hued costume, her neck and arms and ears adorned with silver and turquoise, working in the shade of a juniper tree, while her sheep browse on the sidehill nearby.

These Arab women are turning out a very serviceable product, but the adobe building and the setting in which they work is without glamour. It looks too much like an eastside sweatshop. But this isn't a tourist town. I am sure that if it were, the French resident soon would see the value of setting up his weavers on a sand dune in the shade of a palm tree. And perhaps adding a bit of color to the flowing black tunics they wear.

The blankets and rugs in most cases are in solid color—the natural tan of camel's hair. However, occasionally a small white pattern is worked into the corners or the center of the rug. The *residente* told me there is a great scarcity of camel's hair this year, due to a long drought in this region which has cut down the feed supply and forced large numbers of camel owners to take their animals farther south. There is a ready market for all the weaving that can be turned out, partly due to the American soldiers' demand for souvenirs to send home.

* * *

Life is never dull at this desert outpost. Two big bombing planes on their way to the front dropped down out of the sky this week for a wash job. That is not as ridiculous as it may sound. Grease and dust on the airfoils retard the speed, and on long hops that may have a critical bearing on the fuel supply.

* * *

This happens nearly every day: The incoming transport plane rolls to a stop on the parking ramp. The mechanics open the door—and out pours a stream of passengers. They have been riding the bucket seats for hours and want to walk around a bit while the craft is being serviced.

A blast of our 100-degree desert air greets them. They look around the drab treeless horizon. They can see the shimmering mirage down at the end of the runway and the dust devils dancing on the bajada far over on the other side of the valley. And then they start wise-cracking about "what a helluva place to be fighting a war."

I do not argue with them. If I told them I had asked for such an assignment as this they would be sure I was some kind of a crackpot. They have not yet learned that the grim aspect of the desert merely is a mask. And that for those who have the interest and the will to look behind and beyond the mask there is a world of infinite charm and inspiration.

But one cannot get such ideas over to a stranger in a 30-minute conversation so I just let it go at that. I often think of the story about the woman who traveled across the American desert in midsummer. She was hot and ill-tempered and wanted everyone to know that she thought the desert was next door to hell. "This is an awful country," she exclaimed. "I don't know how anybody could see anything good in such a place."

A quiet-spoken stranger across the aisle who had gotten on the bus at one of the desert stops turned to her with a look of pity and asked, "Lady, don't you wish you could?"

After all, as thoughtful men and women all down through the ages have been discovering, "what one sees in the physical world around him is very often a reflection of what is in his own soul."



A GREAT ARCHEOLOGIST WRITES HIS CAMPFIRE REMINISCENCES

In a small volume, *CAMPFIRE AND TRAIL*, Edgar L. Hewett, lecturer, museum builder, teacher, archeologist, has compiled notes of "a thousand and one campfires" ranging from the mesas of New Mexico to the deserts of Arabia and the Sahara and the heights of the Andes. Intimate thoughts and reflections culled from his 40 years of teaching and exploration, which he calls his post-graduate work, are set down in great variety, informality and the charm of colloquial expression.

In it he pays tribute not only to those whose formal education has led them into his field but to those countless others whose school has been only the palm and pine, the seven seas, the silent desert spaces.

A world-wide scope of subject, a timelessness of thought when he contemplates past civilizations, are contrasted with such bits of personal philosophy as, "To want what one needs, and have the ability to get it, as needed, would be a priceless lesson to this avaricious world where to want a million times more than one needs and spend a lifetime gambling and worrying to get it, is all too common."

The pungency of pine forests and desert sage, the spirit of vanished ages, romance and whimsical humor intermingle in such chapters as *Through the Silent Land*, *Camping with the Cave Man*, *Windswept Troy*, *Andean Highways*, *Galilee*, *Where Tyre Was*, *On the Great Caravan Trail*, *Sahara*, *By the Waters of Babylon*, *Conquest of Cheops*, *Palm and Pine*, *Making Archaeologists*, *My Last Campfire*.

His reverent approach to his life work he expresses when recalling his emotions as he entered the abandoned canyons of the Pajaritans: "It took quite a while to make up my mind to disturb the soil that I felt was sacred; longer still to spoil the scene with scientific papers. Who can describe silence and space and time, and a world of only immemorial spirits? . . . Two score years I have been camping in the serenity of these noble walls, with the calm, silent men who here move among their ever-living ancients . . . And I shall come again, many many times, to walk with them in these quiet places and share the solitude and the stars."

Here is a book to read repeatedly, dipping into it at any point—for inspiration,

a wider understanding, a glimpse of a boundless perspective.

Published 1943 by University of New Mexico Press, Albuquerque. 165 pages, 12 plates. \$2.00.

MUSEUM PUBLISHES NOTES ON CALIFORNIA TRIBES

An interesting study of Southern California Indians is contained in *Southwest Museum Leaflet No. 10* (2nd edition), written by Edwin F. Walker. It is a general, rather sketchy survey, for as the author states, "Today more than half of the original California groups have not a single living representative. For this reason and also because few records were made of the Indians while they were living, it is necessary to go back to the dead past and depend upon archeology for much of the picture of their daily life."

Their homes, clothing, food, occupations and ceremonies are described in the 16-page leaflet. 20c.

NEW MEXICAN SOLDIER REMEMBERS HOMETOWN

Young John Fellows was buying his ticket, bound for the army, leaving his home town in New Mexico's Sangre de Cristo mountains. Curtis Martin's *HILLS OF HOME* tells about the people he remembered as he was leaving.

As the characters and sketches of their life history pass in review through one young American's memory the poignant appeal of the story grows, for it takes on a universal character through its relation with countless other boys who have left their homes in the same manner.

Ernesto Bartilino, the stone mason, with the strong cigar and the glass of wine at his elbow as he talked on the porch summer nights; Richard Maxwell, once-famous archeologist whose life had slipped into futility; Philip Carson, the Englishman who burned the new house he had built for the fiancée who discarded him; Alfred Garcia, morbid son of a Mexican-Indian ancestry—these were some of the people of John's town.

The author was somewhere in the Pacific, serving in the navy, when this, his first book was published.

Houghton Mifflin Co., Boston, 1943. 186 pages. Illus. \$2.00.

BEAN HARVEST AND KID HARVEST TAKE LEARNIN'

Tod McClung's ambition was to grow beans on his New Mexico homestead and add to his six-forty so it would support his family in good years and bad. To suggest that his children go to school was an affront—couldn't Tod teach them young-uns all they needed to know? "We're like mules that bust clods and sweat and know we ain't good for nothin' but just that," he told the teacher. "We're hard and tough and down in the dirt where we belong . . . Don't try to lift us out of the soil, for it's our meat and livin'."

His wife Faybelle agreed, with "What is good enough for us is—" But the teacher came back, "And that exactly is the thing that is holding you people down in the dirt." The McClungs could not see that by the time their youngest son was grown, farming would be too complicated to continue in the simple pioneer ways. Already their neighbors, who did not scorn the new school, had reaped fat crops the first season Tod's "luck" failed.

Maybe Mary the teacher couldn't tell him about farming, but she could tell him undeniable facts about his children. "But you've failed in your kid harvest, Tod McClung. Failures that will drain on the field crop money you've turned into the bank. The six youngsters you have seeded and reaped have all turned out failures but two; and if you don't come out of the rut these two, your only salvation, will go to ruin with the rest."

There's Piddle, Tod's rounder of a father-in-law; the righteous hypocritical Marvin and Virgie Smeet, full-blooded Baptists who made a great show of reading the Bible—when someone was looking; the Widow Burge and her son Craze Rufe who told fantastic tales of buying railroads and banks at 30 cents a piece; Preacher Ike Flowers, who didn't like to farm so "reckoned he could be a service to the community by preaching to the people and passing around his hat for pay." Fact that regular Baptist ministers considered him too ignorant and "not fit to preach God's word" was in a way an advantage to Preacher Flowers—this way he was "on his own hook with nobody to boss him around but the Lord."

These are some of the McClung's neighbors, prototypes of whom John L. Sinclair, author of *IN TIME OF HARVEST*, has known in the many years he has ridden the range, visiting nesters' shacks and sharing an extra potato and a spare mess of beans. About these people he has written a novel as earthy as *THE GRAPES OF WRATH*. But a novel smaller in scope, out of the epic class and drawn with less tragic hopeless lines.

Published by Macmillan company, New York, 1943. 226 pages. \$2.50.

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