

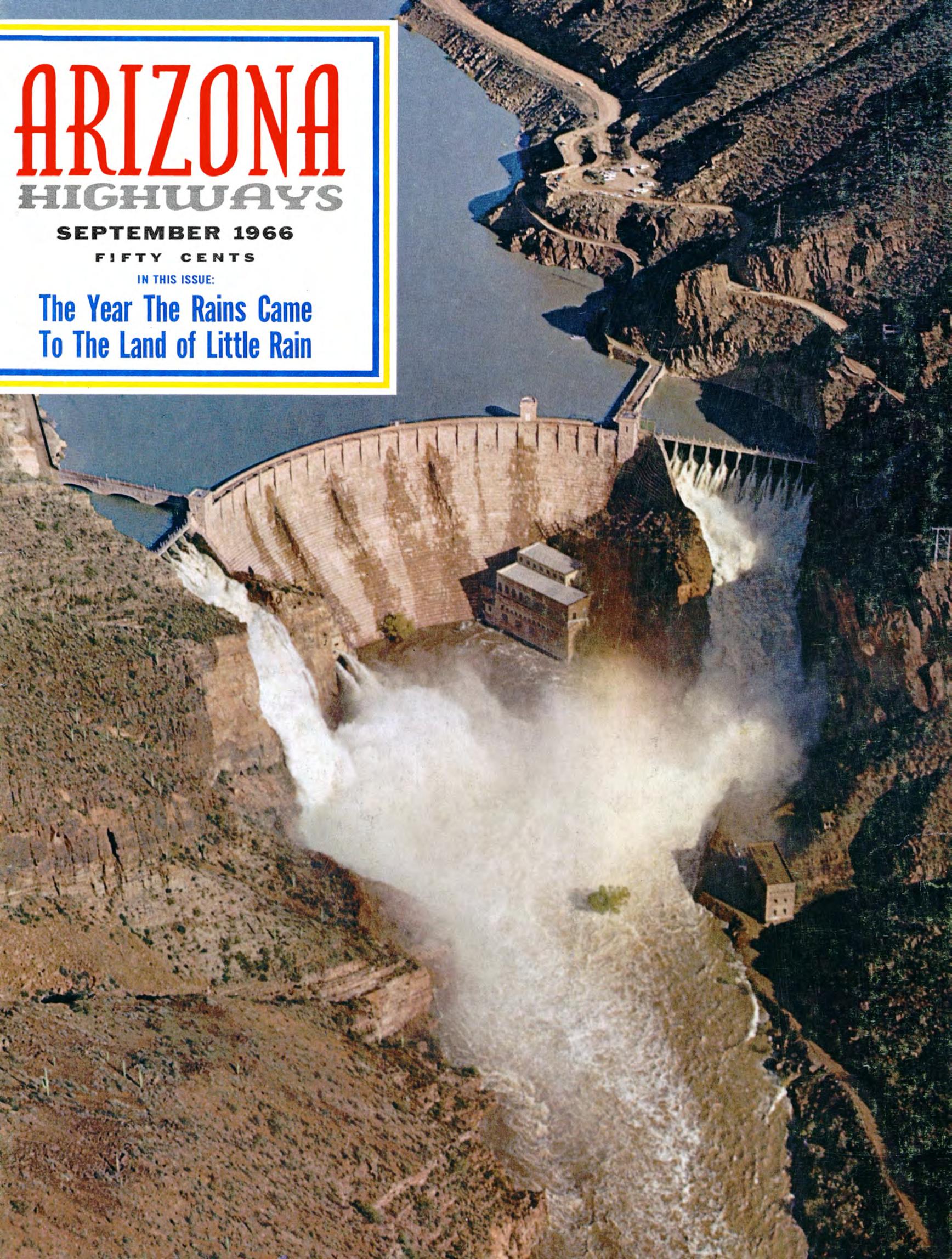
ARIZONA HIGHWAYS

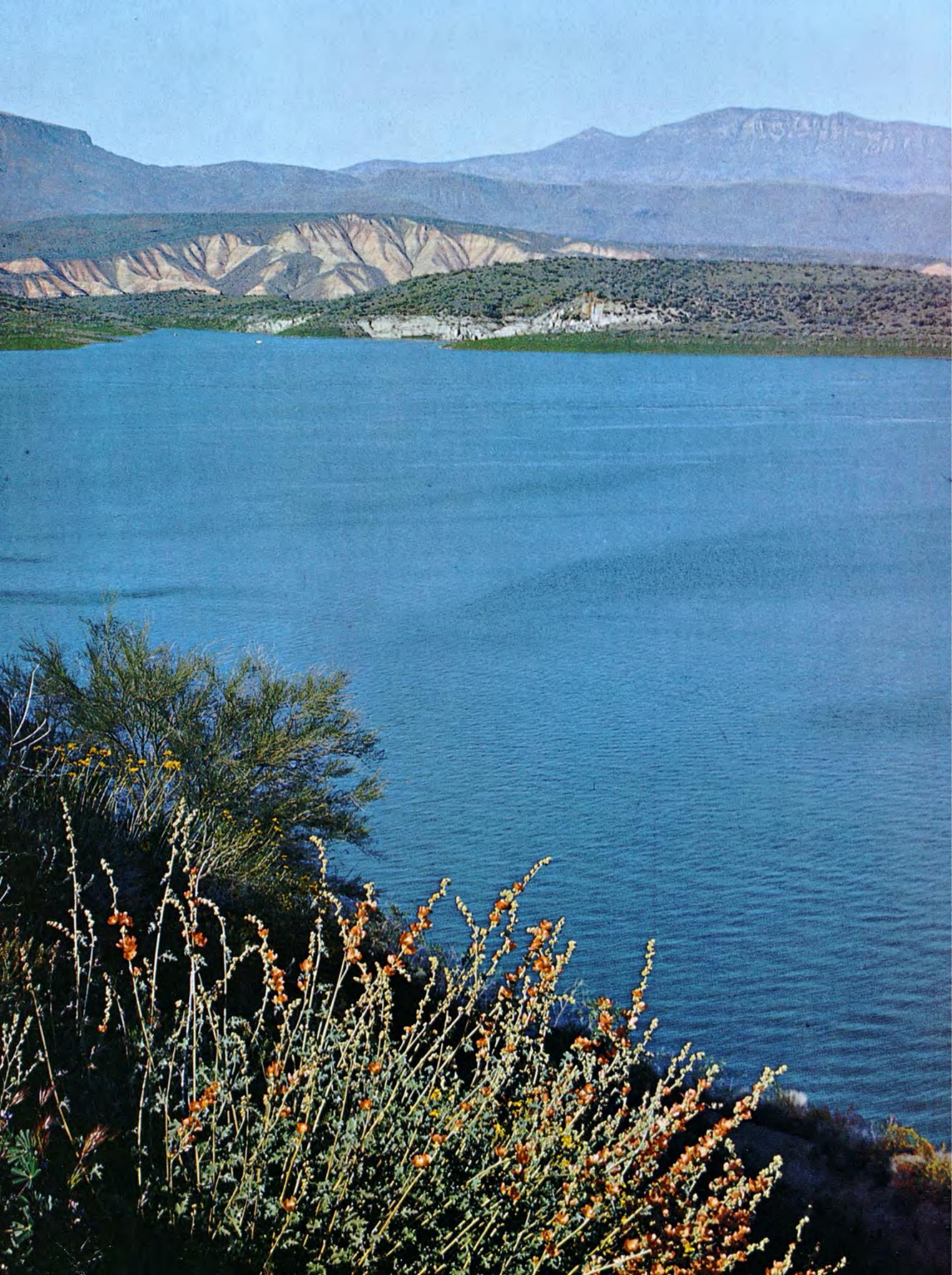
SEPTEMBER 1966

FIFTY CENTS

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**The Year The Rains Came
To The Land of Little Rain**





ARIZONA HIGHWAYS

VOL. XLII No. 9 SEPTEMBER 1966

RAYMOND CARLSON, Editor
 GEORGE M. AVEY, Art Editor
 JAMES E. STEVENS, Business Manager

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 REVEALED TO AVID AND INTREPID CAVERS

SAM GODDARD
Governor of Arizona

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 BE SURE TO SEND IN THE OLD AS WELL AS THE NEW
 ADDRESS INCLUDING ZIP CODE.

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FRONT COVER
 "THEODORE ROOSEVELT DAM, DEC. 31, 1965" BY JAMES E. WILKIE, JR. This air view shows Theodore Roosevelt Dam on the Salt River filled to overflowing in the month of December, 1965. This historic dam, dedicated in 1911, is truly an American landmark. By controlling the Salt River, it made possible the farming of desert land in Arizona's great Salt River Valley, the beginning of the first successful reclamation project in the history of mankind. The last time the dam overflowed was in 1941. 4 x 5 Speed Graphic; Ektachrome Professional Type S; f.8 at 1/400th sec.; Schneider-Kreuznach Symmar 180mm lens; December, 1965; ASA rating 80.

OPPOSITE PAGE
 "RISING WATERS OF ROOSEVELT LAKE" BY DARWIN VAN CAMPEN. This lake behind Theodore Roosevelt Dam has a capacity of 1,381,580 acre-feet of water. Created by a dam 280 feet high and 723 feet long, the lake is the largest and oldest in the Salt River Project system. For years perilously low, Roosevelt Lake enjoyed the bountiful blessing of huge runoffs from the watershed in 1965. Below Roosevelt Dam on the Salt River are three other dams impounding lakes filled to capacity last year. 4 x 5 Linhof camera; Ektachrome; f.27 at 1/25th sec.; 150mm Symmar lens; April; bright sunlight; Weston Meter 300; ASA rating 64.

THE RAIN IN SPAIN FALLS mainly on the PLAIN...

... But in Arizona, especially in the dry, desert areas, the rains mainly fall not at all. In the Salt River Valley, for instance, where normal precipitation is from six to seven inches, below normal figures were recorded for some years straight.

The good year 1965, however, turned out to be a wet year, with rain and melting snow on the 13,000-square-mile watershed of the Salt River Project turning the Verde and the Salt Rivers into gushing torrents, filling the dams on those rivers to overflowing. To record for posterity visual evidence of such happy events, we bring you in this issue a series of photographs showing what can happen when the rains come to the land of little rain. Scenes such as these may not be repeated in the next quarter century.

In another feature herein we tell you about Rancho San Ignacio del Babacomari, down in Cochise County, part of the historic Babacomari land grant, one of the oldest in the Southwest. Our narrator of this interesting saga of four centuries of European history on this portion of American soil is the present owner of the ranch, our good friend Frank Cullen Brophy, a man of many hats — philanthropist, farmer, soldier, banker, businessman, historian, rancher, philosopher, race horse breeder, scholar, public benefactor and inspired public-minded citizen.

From the green grasslands of the Babacomari, we turn take you to Arizona's underground wonderland — the land of caves and earth cracks, of which there are many. We do not pinpoint exact locations of these areas for fear of vandalism, but dedicated cavers will soon know how to find where they are. A dedicated caver will leave a cave as he found it, one of Nature's superb creations, the work of many thousands of years. . . . R.C.



COLOR CLASSICS FROM ARIZONA HIGHWAYS THIS ISSUE

35mm. slides in 2" mounts, 1 to 15 slides, 40c each; 16 to 49 slides, 35c each; 50 or more, 3 for \$1.00. Catalog of previous slides issued available on request. Address: ARIZONA HIGHWAYS, 2039 West Lewis Avenue, Phoenix, Arizona 85009.

RD-5 Theodore Roosevelt Dam, cov. 1; L-185 Rising Waters of Roosevelt Lake, cov. 2; CR-23 Green Meadowland of Babacomari Ranch, cov. 3; WH-77 Summer Scene Near Alpine, cov. 4; CR-24 Early Morning Reflections Along the Babacomari, p. 6-7; CR-25 On the Babacomari Ranch, p. 10; CL-6 Storm Over the Babacomari, p. 13; S-58 Sunset Over Babacomari, p. 13; CR-26 In the Valley of the Babacomari, p. 14-15; CR-27 Headquarters, Babacomari Ranch, p. 15; D-19 Horseshoe Dam on the Verde, p. 20-21; D-20 Granite Reef Diversion Dam, p. 22; D-21 Stewart Mt. Dam, p. 22; D-22 Mormon Flat Dam, p. 23; D-23 Horse Mesa Dam, p. 24; D-24 Bartlett Dam on the Verde, p. 25; D-25 Coolidge Dam on the Gila; p. 25; CV-7 Cave Scene — Northern Arizona, p. 31; CV-8 Cave Shield or Pallette — Southern Arizona, p. 34; CV-9 Calcium Carbonate Canopy — Southern Arizona, p. 34; CV-10 Canopy Room in a Southern Arizona Cave, p. 34; CV-11 Cave Waterfall — North Central Arizona, p. 34; CV-12 Rimstone Pool — Southern Arizona, p. 35; CV-13 Lava Cave — San Francisco Peaks Area, p. 38; CV-14 Ice Stalactites, p. 38; CV-15 Emerging from Earth Crack near Flagstaff, p. 38; CV-16 Bottom of Earth Crack, p. 38.

NEXT MONTH: AUTUMN'S VARIETY SHOW IN ARIZONA



"I decided to erect two crosses and to take possession of the land, following the instructions I had received."



Illustrations By
TED DE GRAZIA

San Ignacio del Babacomari

By

FRANK CULLEN BROPHY

The Romantic Saga of Four Centuries of European Culture on Historic Soil

The first European to set foot in what is now Arizona was Fray Marcos de Niza. He had been ordered to find the fabulous, but non-existent, Seven Cities of Cibola with their reputed abundance of golden treasure. That was in 1539 — less than fifty years after Columbus had discovered the New World. It was also some seventy years before the English settlement was established at Jamestown in Virginia and the landing of the Pilgrims at Plymouth Rock on the New England coast.

After marching across a weird and desert landscape, he reached the headwaters of the Santa Cruz River, where the topography and climate suddenly changed. Here it was that the Franciscan friar wrote in his diary on April 12, 1539: "The country round about here looked better than any I had passed through so far. I decided to erect two crosses and to take possession of the land, following the instructions I had received." Then he may have marched over the Canelo hills, which lie northwest of the Huachuca Mountains, and walked down the valley of the Babacomari for the next few days until he reached the Rio San Pedro. He described his obviously unexpected welcome: "I then followed this program (taking formal possession) for five days, during which I continually came into settlements where I was welcomed heartily and entertained." This was the first formal taking possession of the land in the name of the King of Spain in what was later to be known as the Pimería Alta in Nueva Vizcaya, and it happened in the beautiful well-watered grasslands that still unexpectedly gladden the eyes of visitors as they emerge from the Arizona-Sonora desert.

Now, some 400 years later, the records of these early dwellers who welcomed Fray Marcos have been uncovered and studied. An aboriginal life is revealed that goes back to the year 1000 A.D. at least. At the Babacomari Village site, where the Upper Pimas dwelled, it has descended from prehistoric ancestors; and they made handsome ceramics, built houses of local materials and cremated their dead, placing the remains in burial urns or *ollas*.

The following year, Coronado and his army came this way on their famed but unsuccessful search for the Seven Cities of Cibola and the ever-elusive El Dorado. Then this ancient land fell back into the prehistoric silence which had been so unexpectedly shattered by the coming of the white man and his restless search for souls and treasure. A hundred and fifty years elapsed before the black robes of the Jesuit priests were seen in the Babacomari Valley, with the redoubtable Father Francisco Eusebio Kino leading the way. This was the year 1692, when Father Kino first made the acquaintance of Chief Coro at his extensive village of Quiburi where the Rio Babacomari empties into the San Pedro, and caused Kino to remark: "it is true that I found them somewhat less docile than the foregoing people of the West." The next day he proceeded up the Babacomari to the Cienaga and village at Basosucan (modernized Huachuca) where he met Chief El Taravilla, which means "the Prattler."

By 1696 the trail from Quiburi on the San Pedro, up the Babacomari Valley and over the Canelo pass to Santa María, was a familiar one. On December 15th of that year Chief Coro and his Indians met him as an old friend with "handshakes and embraces," and Kino notes in his diary that this *Rancheria* (Quiburi) "has more than 400 souls assembled together and a fortification or earthen enclosure." From his headquarters mission and ranch at Dolores to the south, Kino brought "a few cattle and a small drove of mares for the beginnings of a little ranch" on his next visit. This was the beginning of livestock raising on the Babacomari.

Professor H. E. Bolton, who rediscovered the long-forgotten Kino in the historical archives in Mexico City, astounded the modern world with the exploits of this remarkable priest. Today the statue of Father Kino represents the State of Arizona in the Hall of Statuary in Washington, D.C. Bolton describes the Babacomari of Kino's time in this way:

"Now crossing the Canelo Hills, much as the road runs today, they swing northeastward, and at the end of fourteen leagues from Santa María (about ten miles south of the present international border at Lochiel) they halted for the night at Huachuca (present-day headquarters of the Babacomari Ranch) the village where lived Chief Taravilla. Here the travelers were welcomed by eighty

persons and lodged in an adobe house with beams and an earthen roof. Huachuca was situated in a fertile valley, with *carrizales* or reed marshes, where plentiful crops were raised. The spot was manifestly *La Cienaga* — now the site (headquarters) of Babacomari Ranch. The name of the village is still preserved in Huachuca Mountains and Fort Huachuca nearby. Huachuca was the last village of the people whom the Spaniards called Pimas Proper, those beyond were Sobaipuris."

After that visit, the Babacomari began to prepare for a missionary, and thereafter it was known as the *visita* of San Joaquin de Basosucan (Huachuca). Another mission house was also being built some twenty miles away where the Babacomari joins the San Pedro at Santa Cruz (now Fairbank).

By 1706 the Pimería was flourishing, and this included the last outpost of the Upper Pimas on the Babacomari. Under these happy circumstances, Kino writes in his justly famous *Memoir of Pimería Alta*: "In all those posts or pueblos there are very good beginnings of Christianity, houses in which to live, churches in which to say Mass, fields and crops of wheat and maize, and the cattle, sheep, goats and horses which the natives for years have been tending with all fidelity." And all this some seventy years before the leaders of a new nation met to sign the Declaration of Independence in Philadelphia.

continued

In 1773 the Society of Jesus (Jesuits) was suppressed throughout the world, due to the attacks of emerging world-revolutionary forces and a combination of church and dynastic politics. Eventually word came from Rome. Soon the magnificent missionaries, who had opened up and mapped the *Terra Incognita*, and preached the message and promises of Christianity to a world that received it gratefully, obeyed like soldiers and marched sorrowfully out of the *Primería*. The little flocks of the faithful remained, with the new faith they had received; and still remain among Arizona's earliest Christians. However, marauding Apaches and the warlike *Jacomes* recognized the change, and soon began to make existence so precarious on the outskirts of the *Pimería* that the settlements on the San Pedro and Babacomari broke up and the families moved towards the interior.

Meanwhile the Spanish military forces had established *presidios* in Tubac, Tucson, Fronteras and other settled communities. Eventually orders of the Crown were issued to encourage the settlement and development of these distant lands in this still very New World. Grants of land suitable for stock raising and agricultural pursuits were made to officers and soldiers by the Crown, who had the ambition to acquire and organize them. This was a challenge which appealed to the self-reliant and far-sighted ones. Later, when Mexico won its independence from the Spanish Crown, in 1822, the new government continued to follow the same policy, and the acquisition of land grants went on for some years at an accelerated pace. As subsequent events have proved, these are the oldest and most consistent patents of ownership of land that exist in the American Southwest today.



WESTERN WAYS

“WE STOPPED AT THE RANCH”—
illustration by Frederick Remington depicts
soldiers' arrival at Babacomari ranch

Captain Francisco Elias Gonzalez de Zaya arrived in Mexico from La Rioja, near Bilboa in Northern Spain, in 1729, at the age of twelve. Thirty years later, as a captain in the Spanish Army, he escorted a large band of Sobaipuri Indians from the lower end of the Babacomari and relocated them near the strategic pueblo and old Jesuit *visita* of San Augustin del Tucson. This was in 1762. He gave the settlement the name of San José del Tucson. Here the actual site of a *presidio* was located and laid out by General Hugo O'Connor, on August 20, 1775. The

THE
Elias Saga



from the book
ON THE BLOODY TRAIL OF GERONIMO
by Lt. John Bigelow, Jr. — F. C. Brophy collection

latter was an Irish soldier serving in the Royal Spanish Army, like many other Irish refugees of that day, who were gaining distinction in the armies of France, Austria, Spain and in the Continental Army during the American War of Independence.

From Captain Francisco Elias Gonzalez de Zaya descends the Elias family in Sonora and Arizona. For six generations, the Elias have produced important figures in the military, religious, governmental and economic life of the Mexican States of Chihuahua and Sonora, and the American State of Arizona. These have included a President of the Mexican Republic, two Governors of Sonora, a Governor of Chihuahua, and soldiers who fought with distinction against the Apaches, against the French under Emperor Maximilian, and the notorious American *filibusteros* under Crabbe. Several of the Elias were distinguished priests of the church of Mexico. As landowners and livestock raisers, their achievements were extraordinary. From 1766 to 1855, various members of the Elias family acquired and operated no less than thirty large land grants and ranches in Sonora and that part of Arizona which was acquired by the United States after the Mexican War of 1848.

In the year 1829 Don Ignacio Elias and Doña Eulalia Elias purchased from the Mexican Government, under provisions of the 1824 Law of Colonization, eight leagues (*sitios*) more or less, "for raising large herds of cattle and horses." This allotment was located in what was then known as the parish (*paraje*) of San Ignacio del Babacomari in the jurisdiction of the Presidio of Santa Cruz. Its boundaries were somewhat indefinite, but it is assumed that its usable area was approximately 130,000 acres. The actual title to this land grant was issued by the Treasurer General of the State of Sonora on December 25, 1832.

During the next eighteen years the Elias built the original fortified headquarters, and grazed thousands of cattle and horses on the lush well-watered grasslands which extended from the Santa Rita Mountains to the San Pedro River. But, as soon as an organized purposeful operation was evidently successfully on its way, the forces of destruction and pillage appeared with the increasingly frequent

raids of the Apache. Within two decades, two Elias brothers had been murdered by these Indian raiders, and by 1849 the family was forced to abandon their flourishing hacienda and return to Arizpe in Sonora.

A few years later the U. S. Boundary Commission, under the leadership of J. R. Bartlett, set out, in 1851, to establish what was to become the international boundary line between the United States and Mexico. When they stopped at the Babacomari Ranch, Commissioner Bartlett wrote the following:

"The valley of the Babacomari, is here from a quarter to half a mile in breadth, and covered with a luxuriant growth of grass. The stream which is about twenty feet wide winds through this valley, with willows and large cottonwood trees growing along its margin . . . This hacienda, as I afterwards learned, was one of the largest cattle establishments in the State of Sonora. The cattle roamed the entire length of the valley, and at the time it was abandoned there were no less than forty thousand head, besides a large number of horses. The same cause which led to the abandonment of so many other ranches and villages, had been the ruin of this. The Apaches encroached, drove off the animals and murdered their herdsmen. The owners, to save the rest, drove them further into the interior and left the place. Many cattle and horses remained, however, and ranged over the hills and valleys nearby. From these, numerous wild herds have sprung which now cover the entire length of the San Pedro and its tributary, the Babacomari."

Soon after Bartlett had explored the ancient route of the Babacomari, one of the first authentic Arizona pioneers, Captain James H. Tevis, camped at the old ranch headquarters and describes it in his reminiscences, *Arizona in the Fifties*: "The old Mexican fort on the Babacomari, which is now used as a ranch, stood on the tableland about two hundred yards from the west side of the Babacomari Creek. . . . The fort which consisted of adobe buildings covered about an acre of ground. A wall about fifteen feet high encircled it, with one entrance at the east side large enough to drive a wagon through; and the rooms for quarters were built on the east, south and west sides of the enclosure with lookout posts on top of the walls."

continued on page 8



*"Early morning
Reflections Along
The Babacomari"*



JACK BREED



ST. XAVIER DEL BAC—founded in the late 1700's

THE
Story of Inez

The mid-nineteenth century in the Pimería Alta was not an era of romance. On the contrary, most tales of fact or fiction of that period deal with murder, massacres, pillage, torture and treachery. But there is one outstanding incident of romance during this bleak interval which had its surprising and happy ending on the Babacomari Ranch in 1852, and is therefore a part of the varied and unexpected story of this ancient land grant. Bartlett, in his *Personal Narrative* reviewing the work and travels of the International Boundary Commission, relates:

"Her name is Inez Gonzalez, daughter of Jesus Gonzalez of Santa Cruz, near the San Pedro River in Sonora. She was then in her fifteenth year. In the preceding September she had left her home, in company with her aunt and uncle, another female and a boy, to visit Magdalena, where the Feast of St. Francis was celebrated each year. They were escorted by a guard of ten soldiers. When one day's journey out they were attacked by a band of Pinal Indians, who lay in ambush in a narrow canyon. Her uncle was killed, and all the guard, save three people who made their escape. Inez with her two female companions and the boy, Francisco Pacheco, were carried away in captivity. She had been with the Indians since. The other captives, she understands, were purchased and taken to the north by a party of New Mexicans. Inez lived on with the Indians and no improper freedom was taken with her person, but she was robbed of her clothing save her skirt and underlinens, and was made to work very hard. She spent the whole period of her captivity at two of the regular planting grounds of the Pinals."

These Pinal Indians were a small band of the Apache tribe, and they ranged in the rugged area between the Upper San Francisco River, near the modern town of Clifton and the Sierra Pinal and the Sierra Blanca. Being cut off from the mainstreams of Apache life by mountain ranges or deserts, their ways and customs were often different. One notable exception was that they held prisoners rather than kill them. They used the men for hunting and they made the women (who were in the majority of the prisoners) work with their own squaws doing the drudgery and less interesting work. When occasion arose they sold these women prisoners. That was what eventually

happened to Inez. Through sheer good luck, her purchasers, one Peter Blacklaws, a trader from Santa Fe, and Pedro Archeveque and José Valdez, two New Mexican natives out to make some easy money, ran afoul of the International Boundary Commissioner, who was a man of honor as well as courage and intelligence. When he saw Inez and recognized her as a person of good breeding who had been gently reared, he rescued her from the traveling group and determined to try to find her family, whom he assumed were somewhere in Northern Sonora where he was headed. This was indeed the long arm of coincidence reaching far out into a relatively unknown land.

Let Commissioner Bartlett continue the narrative. "The fair captive was of course taken care of by the Commission. She was well clad with such materials as the Commissary of the Commission could furnish . . . But with all the attentions extended to her, her situation was far from enviable in a camp of over a hundred men, without a single other female. She found employment in making her own garments, being expert at the needle and occasionally spent time reading the few Spanish books in our possession."

After several months of reconnaissance and hard travel, the expedition arrived at the San Pedro River in Arizona and then proceeded up Babacomari Creek on the old missionary route to Santa Cruz, where the Mexican Commissioner, General Condé, told them the family of Inez was living. While camped at the old fortress ranch headquarters on the Babacomari, Commissioner Bartlett sent a party out to reconnoiter. He then describes what happened: "They (the scouting party) followed the San

Pedro to the mouth of the Babacomari, thinking we should move our camp that way, and had fallen in with a large party of Mexicans who were engaged in hunting wild cattle. They told the Mexicans who we were and of our desire to get to Santa Cruz. They also told them about the captive girl Inez Gonzalez, whom we hoped to restore to her family. This Mexican party turned out to be from Santa Cruz, and singularly enough it included her father, uncle and many friends. This was the first intimation they had that the poor girl was living and had been rescued from her savage captors. To a man, they left their hunting ground and accompanied Carroll to our camp.

"The joy of the father and friends in again beholding the face of her whom they supposed was forever lost, was unbounded. Each in turn embraced her after the Spanish custom; and it was long ere one could utter a word. Tears of joy burst from all; and the sunburnt and brawny men, in whom the finer feelings of nature are usually supposed not to exist, wept like children, as they looked with astonishment on the rescued girl. The members of the Commission could not but participate in the feelings of the poor child and her friends. Big tears rolled down their weather-beaten and bearded faces, which showed how fully they sympathized with the feelings of our Mexican friends."

And thus the tragedy of Inez ended at the old hacienda of the Babacomari in a burst of joyful reunion. This happened only a few years after the two Elias brothers were killed while defending the herds and people of the Babacomari Ranch. From the day when Marcos de Niza took possession in the name of the King of Spain, tragedy, romance and coincidence are intricately woven into the curious pattern that has been the history of San Ignacio del Babacomari Grant.

continued on page 11

JERRY D. JACKA



TUMACACORI

—one of the earliest missions now preserved as a National monument

The first foundations of old world culture were the missions erected by the padres. These were the early community centers for Europeans and natives alike.

F. C. BROPHY COLLECTION



a scene on the Babacomari ranch—circa 1870-1880



When the American Civil War ended, the government of the United States found that it had an Apache war on its hands in the new Territory of Arizona, which President Lincoln had established in 1863. Troop G of the 1st U. S. Cavalry was sent into what had become the heart of Apacheland. On December 11, 1866, Camp Wallen was established on the banks of the Babacomari, using the old walled hacienda of San Ignacio del Babacomari for its quarters. During the next two years these troops fought three successful engagements with the fast-moving Apaches under Cochise in the rich grass country which lies between the Huachuca Mountains on the south to the Chiricahua Mountains some eighty miles to the north and east. Camp Wallen was abandoned on October 31, 1869, and it was not until 1877 that a new military post some eight miles south of the Babacomari Ranch was established. That was the present Fort Huachuca. It was also the year that Dr. E. B. Perrin and his brother Robert, of San Francisco, California, started the long protracted effort to establish the validity of the title of the Babacomari grant under the laws of the government of the United States.

An article in the *Arizona Sentinel*, published at Yuma on January 25, 1879, succinctly stated the problem that confronted the Perrins:

“In violation of the treaties with Mexico and the Act of Congress of July 22, 1854, the pueblos and private land grants in Arizona have been surveyed and certified for sale as public domain.

“The Mexicans have no juster grievance against the Americans than the violation of their rights to land in California, New Mexico and Arizona.

“The grants are, some of them, from the Spanish Government and over 100 years old. Those from the Mexican government date since 1825, and whatever may be the result, it is certain that the rights of the claimants would never have been questioned by the Mexican government.

“That the titles should remain unsettled for a generation is an injustice to the claimants as well as the settler, and will retard the settlement and prosperity of the Territory.”

Dr. Perrin and his brother came from Green County, Alabama, where their father was an eminent physician and wealthy southern planter. Dr. E. B. Perrin was educated for his profession in New Orleans and Philadelphia. When the War between the States broke out, he volunteered as a private soldier in the Army of the Confederacy, but he was soon assigned to duty on the staff of the medical director of Beauregard’s Army. During the war he served on the staff of General Pendelton, General Robert E. Lee’s chief of artillery, and at war’s end was chief surgeon of a division of cavalry commanded by General Forrest. After the war he moved west to San Francisco and engaged in a spectacular career of land acquisition which brought him into the twentieth century as one of the great land-owners of the country. His extraordinary insight and energy led him into the magnificent valleys of California,

where he acquired the famed Chowchilla Ranch of 115,000 acres, and later developed numerous successful colonies in the rich inland agricultural valleys. Along the right-of-way of the new railroad in Northern Arizona, the Atlantic and Pacific, he acquired some 265,000 acres, and in the newly annexed land of Southern Arizona he purchased the rights and title to San Ignacio del Babacomari from the heirs of the Elias family, who had originally established the grant in 1829.

This was the beginning of a legal battle the result of which hung in the balance for a quarter century. But Dr. Perrin was not a man to quit. In spite of discouragements, reverses, and unanticipated difficulties, he and his brother Robert persisted. Finally, on February 10, 1900, the Court of Private Land Claims confirmed the title to “Ignacio and Eulalia Elias, their heirs, successors in interest and assigns.”

Yet this was not the end. The boundaries had to be established and the acreage determined. Using the time-honored method of surveying Spanish land grants from a central point within the property, a rectangular plot, with stone markers set at every half mile, covering a distance of forty-six miles, was established and recognized by the office of the U. S. Surveyor General and filed at Phoenix, Arizona, on September 10, 1902. The area thus determined consisted of 33,792.20 acres.

Finally Dr. Perrin received his Letter of Patent which brought the long court action to an end:

“To Have and to Hold the said tract of land with the appurtenances thereunto belonging unto the said Ignacio and Eulalia Elias and to their heirs, successors in interest and assigns forever with the stipulations aforesaid.

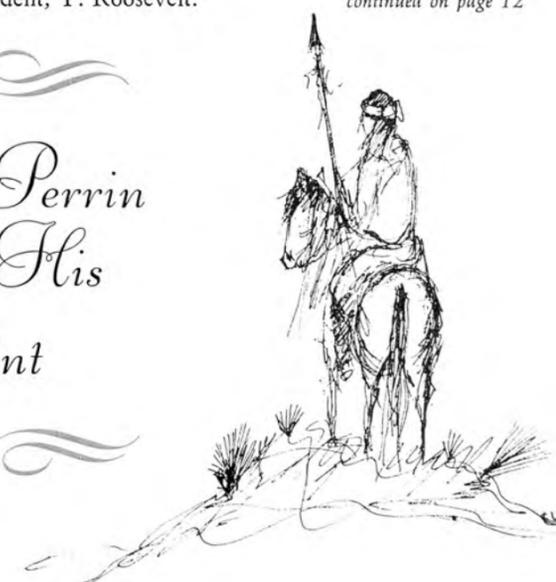
“In testimony whereof I, Theodore Roosevelt, President of the United States of America, have caused these letters to be made Patent, and the Seal of the General Land Office to be hereunto affixed.

“Given unto my hand at the City of Washington this sixteenth day of May in the year of Our Lord One Thousand Nine Hundred and Four and of the Independence of the United States, the One hundred and twenty-eighth.

“By the President, T. Roosevelt.”

continued on page 12

Dr. Perrin
Proves His
Point



Frank Cullen Brophy was born in Bisbee, Arizona Territory, on November 16, 1894. Coming from an Irish family that pioneered from Canada to the California gold fields in 1850, and had sought fortune, adventure and freedom in Australia, South America, South Africa, India and Europe throughout the 19th century, his parents must have been chagrined as they speculated upon the delicate little individualist who was growing up in the sheltered life of a Victorian Society which dominated the *haut monde* of what was otherwise a hell-roarin' mining camp of territorial days.

They solved their problem by packing him off to boarding school in the East at the age of ten. According to some reports, this made a man of him. So much so that he was fired out of Newman School a few years later for "rowdyism." Then, to show that the old school was all wrong about him, F.C.B. went to Andover and was finally accepted at Yale in the class of 1917. After four exceedingly pleasant and carefree years, he again left the academic world under a cloud, a few weeks before graduation, in order to join the army. After he returned from France, in 1919, Yale recognized his sterling worth by sending him a sheepskin which said Bachelor of Arts, but nothing about *Cum Laude* or *Honoris Causa*.

By this time our hero had grown into a hardy specimen who had risked his future by playing water polo in the Eastern Intercollegiate League, where he developed sinus trouble that even Arizona could not cure. Anyway, he lived, married, had children, and didn't take life too seriously until the combination of sinusitis and a world depression laid him low for seven years, giving him a good rest and an opportunity to ask himself some questions.

By the time World War II came along, he was up and at 'em again; but this time he was an "isolationist," and said that fighting still another war "to Make the World Safe for Democracy" was the bunk.

Anyway, our subject kept out of jail, made money in the banking business, sold groceries in million-dollar quantities, grew citrus fruits and cattle and speculated in Wall Street and real estate. For one unskilled in what is euphuistically called the "art" of business, he did all right. He also wrote his own advertising

ABOUT THE AUTHOR



ARIZONA PHOTOGRAPHIC ASSOCIATES

for his bank and liked it so much he decided to become a writer as soon as he found the time.

Meanwhile, in order to keep his "hand in," he wrote numerous letters to the editor, which annoyed the Communists, Socialists, Liberal Totalitarians, and other do-gooders, no end. However, there were quite a few "no-gooders" who said they thought he had a future with a pen, although he was now more than three score and ten. Therefore, he wrote this little essay for ARIZONA HIGHWAYS, and if his luck holds he hopes to be a regular contributor to PLAYBOY by 1967.

continued from page 11

From Ballybrophy to Babacomari

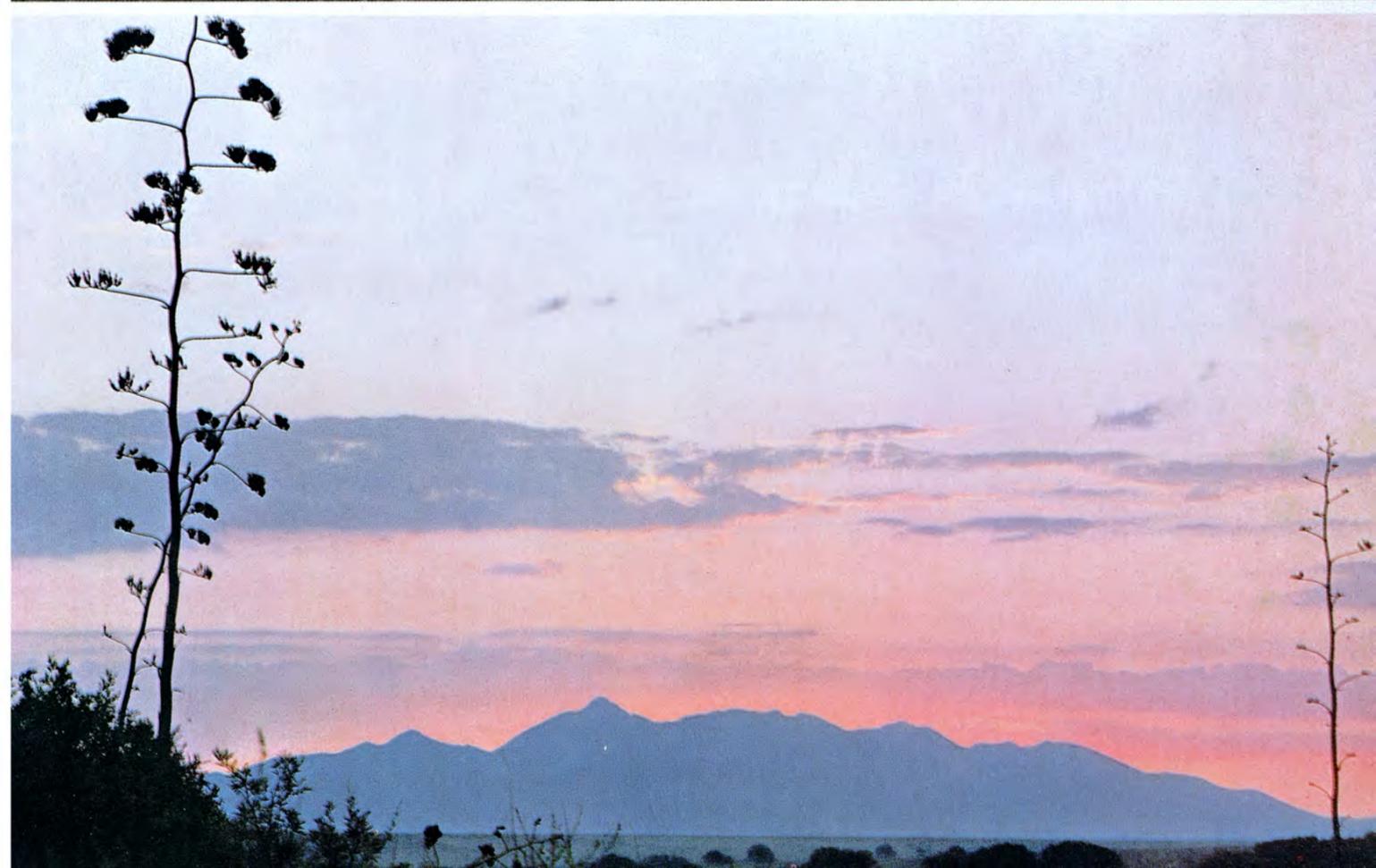
The Brophys are an old Irish family long settled in the County Leix in their ancient patrimony of Magh Sedna, which some centuries later was anglicized Ballybrophy. This is a fertile part of Ireland which the Danes invaded in the ninth century, and where the Normans came after they had conquered Britain in the eleventh century. Over the years the Norse, Norman and Gaelic bloods have mingled in the families of later centuries. It is the paradoxical story of Ireland that the conquered frequently absorbed their conquerors through intermarriage, language and customs. Hence the oppressors of one generation often produced the rebels of a later one.

The story of the Brophys in the American Southwest, and particularly in what is now Arizona, properly begins with Michael Brophy, who resided near Kilkenny, Ireland, in the mid-eighteenth century. He had participated in the abortive rebellion of 1783, and was one of the leaders in the tragic rebellion of 1798. Having been captured by the British regulars under General Lake in the Battle of Vinegar Hill, he was promptly executed by his captors as a dangerous man. But he left a legacy to Ireland

and the frontier world of the nineteenth century in his eleven sons. It was from these sons and their descendants that some of the qualities of this Irish patriot and rebel leader can still be traced in Australia, India, South Africa, Canada, Latin America and Arizona.

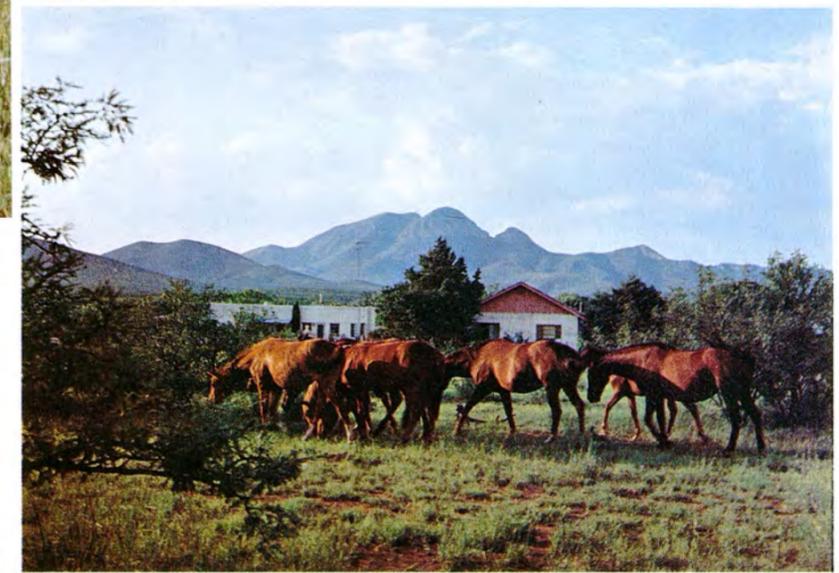
The story of the first Brophy in Arizona would never have been known had it not been for a letter written in 1852 by an aged Irish-French priest, Father George Brophy, who had been at the bedside of LaFayette when he died in France, in 1834. It was written to a nephew whom he had never seen, then residing in Canada; and it told of the death of Francis Brophy in Cebolleta, New Mexico (New Mexico and Arizona were one in those days). He wrote: "One of your cousins, Mr. Francis Brophy, who was educated in Trinity College Dublin, died last year in the United States Army in Mexico at the age of twenty." Records of the U. S. War Department reveal that Francis Brophy enlisted March 26, 1849, in the 3rd U. S. Infantry, and that he died at Cebolleta, New Mexico, near the present boundary line between Arizona and New Mexico on January 5, 1851 of disease. He was twenty-two years of age.

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"In the Valley of the Babacomari"



"Headquarters, Babacomari Ranch"



About the same time another grandson of Michael Brophy came into this virtually unknown Southwest via the U. S. Army. He, too, was a soldier and fought with the American army in Mexico. According to his biographer: "As a non-commissioned officer he led the attack at Cherubusco, there received eleven wounds, was left on the field for dead, and was so reported." However, this was not yet to be. He recovered, returned to the States,

KARSH, OTTAWA



Statue at far right—Father Francisco Eusebio Kino in the rotunda of the national capitol, Washington, D. C.



settled in California, where he served as an officer in the California Militia. True to the inexplicable affinity of this family for Arizona, this Michael Brophy's grandson, Brother Bernardino Brophy, O.F.M., is today a missionary among the Indians of Arizona, and is currently helping the St. John's Indian School spread the Arizona story around the world with successful tours of its famed St. John's Indian Dancers under his leadership.

A generation later, in 1867, came James Brophy from near Kilkenny, Ireland. According to the War Department records he enlisted in the 8th U. S. Cavalry, commanded by Colonel John I. Gregg, and served through five Apache campaigns in Arizona. On June 11, 1869, "Private James Brophy of Troop B, 8th U. S. Cavalry, was awarded the Medal of Honor for bravery in scouts and actions with Indians in Arizona in the year 1868."

The next generation produced James E. Brophy, who arrived in Arizona in 1881. Soon after he reached the new boom town of Tombstone, he established a ranch holding at Soldier's Hole and went to work for the Chiricahua Cattle Co. There he became a member of the Chiricahua Rangers, a voluntary military organization under the command of J. C. Pursley, and fought when called upon through the last years of the devastating Geronimo period of Apache warfare in Arizona and Mexico. William Henry Brophy, a younger brother who had just come out from Ireland, helped dig what is still known as the Brophy Well near Soldier's Hole in the Sulphur Spring Valley. Many years later the same William Henry Brophy served with the rank of Major, U. S. Army, as Deputy Commissioner and Chief of Stores for the American Red Cross in France, 1917-18. F. C. Brophy, his son, was a Lieutenant of Field Artillery with the A.E.F. in France in World War I. And his son, William Henry Brophy II, enlisted and served as a fighter pilot with the U. S. Air Force in Europe during World War II, where his unit was cited and decorated by the United States and Belgian governments.

When the Brophy family acquired the Babacomari Ranch, in 1935, it became the third owner of this historic ranch since the King of Spain, four hundred years earlier. The Upper Pimas and their ancestors had lived there from prehistoric days until the marauding Apaches drove them into the interior during the eighteenth century. Then the Elias family took possession and built the old fort-like hacienda in 1833. They, too, had to contend with the dread Apaches, and in time were forced to withdraw into safer territory.

After the Americans were legally established in Arizona, Dr. Perrin and his brother arrived on the scene. The future of the Babacomari Ranch was then obscured by the outcome of the Mexican-American War of 1846-48, and the subsequent Treaty of Guadalupe-Hidalgo in 1848. The court record of the proceedings involved in establishing the status of the Babacomari grant contain the names of dozens of prominent pioneer citizens of early Sonora and Arizona. Had it not been for the knowledge and experience of Dr. E. B. Perrin, to say nothing of the fortitude and determination required for decades of legal controversy and expense, the status of the Babacomari might still be in question today. Just as the Elias had made it the first and foremost livestock venture in Southern Arizona, in the face of great physical danger, so Dr. Perrin preserved the integrity of its title and the continuity of its productivity with a legal battle that lasted for more than a quarter century.

In 1935, when the Brophys took control, most of the old dangers and uncertainties had disappeared; but there was a new, and in some ways a no less menacing situation to face. Some fifty years of uncontrolled open range operation in this area led to serious overgrazing. During this period there were several dry cycles where drought diminished the grass cover and caused deep trails and gullies to be worn into the parched earth. As the grass disappeared and the water holes dried up, cattle died in the severe drought of the early 90's in such numbers that one account describes the skeletons and carcasses extending over miles of country, and never being more than a stone's throw distant from one another. Then, when the drought broke, years of torrential rains followed. The cow paths and gullies deepened into arroyos and sometimes canyons. The topsoil began to disappear as the summer floods boiled down the newly made watercourses. What had once been a rich, undulating valley of grassland that had supported vast herds of cattle and horses was now fast becoming the point of origin for thousands of tons of priceless soil waiting to be borne down the Babacomari into the San Pedro river and finally on to the Colorado, where it would be dumped into the ever-changing estuary of the Gulf of Lower California. For the past three decades, a fight has been waged to stop this erosion by controlling the floodwaters.

Men of the land have always had to match their strength and imagination against the capriciousness of Nature. But when man abuses Nature's choicest gift — the good earth itself — then he faces disaster itself, though he seldom recognizes it until too late. The penalty for abusing the land is the life penalty. When the rich topsoil is squandered, the lean, hard years begin. Nature not only rebels, it reacts. The long valleys of wind-rippled

grass, where matronly cows and calves like yearlings once grazed, now change with the abruptness of a stage set. In their stead, one faces the sunbaked swales filled with stunted yellow weeds and scraggly white thistles. The dwindling cows look smaller and longer legged, and the calf that lags behind is lean and lacks luster. The nearest water hole is always a little too far when the dry years set in. The sky and faraway mountains retain their subtle charm, but the once-beautiful land grows gaunt and ugly. Outraged Nature dons her meanest garb.

This almost happened at San Ignacio del Babacomari. For decades, a quiet war has been fought, where dikes and furrows were placed like companies of soldiers to stop or divert the attacking waters after the summer downpour sets in. New, as well as old grass varieties, were seeded year after year. Gullies were plugged and arroyos dammed. Seeps were turned into water holes. New wells were dug and drainage basins changed from millraces into ponds large enough to attract stragglers from the mysterious bird migrations.

After thirty years of conservation warfare, peace has come again to San Ignacio del Babacomari. The horses win their share on the race course, the cattle prove up at the weighing scales when the shipping days arrive. The land is full of hope and awaits the summer rain with the anticipation of the bride for her beloved.

Once again the ancient song of the land is heard:

"Arise my beautiful one and come. The winter is past. The flowers appear on the earth and the time of pruning is at hand. The song of the dove is heard in our land. Arise my beloved, my beautiful one, and come." ■ ■ ■



WESTERN WAYS

It hadn't rained in a long time, or rather it hadn't rained in any appreciable quantities. For years the rain gods had been niggardly in their beneficence, so much so even the desert spring flower displays were not spectacularly showy, disappointingly so to avid photographers forever trying to be at the right place at the right time. Lakes behind the dams on the Salt and Verde Rivers were getting lower and lower, and San Carlos Lake behind Coolidge Dam on the Gila (*bee-lah*) was the lowest it had been in years. Up in the hills where the deer and Herefords roam, cattle tanks were going dry; what should have been green grass was a brown stubble; and dust devils, playthings of the wind, were kicking up their heels in wild abandon. Yep! It had been quite a long dry spell!

Then things began to happen! Let's let Rod J. McMullin, general manager of the Salt River Project, tell about it in his own words:

THE YEAR THE RAINS CAME TO THE LAND OF LITTLE RAIN

"In the winter and early spring of 1965, fairly large amounts of precipitation fell on the Salt River Project's 13,000-square-mile watershed area. In late March and the first two weeks in April, warm air and rain moved into the state, rapidly melting the snow which had accumulated there during the previous four or five months.

Unlike the usual weather pattern for that period of time, the nights stayed warm and did not allow the snow to refreeze. This hastened the runoff.

On April 19, 1965, the Verde River reservoirs — Bartlett and Horseshoe — were filled to their maximum operating capacity. This forced the Salt River Project to open the spillway gates at Bartlett Dam for the first time in nearly twenty-five years.

The water released from Bartlett Lake flowed down the Verde River, into the Salt River, over Granite Reef Diversion Dam and down the usually dry Salt River channel through Tempe and Phoenix.

The Salt River reservoirs — Roosevelt, Apache Lake (Horse Mesa Dam), Canyon Lake (Mormon Flat Dam), and Saguaro Lake (Stewart Mountain Dam), were able to accommodate all the runoff and did not have to be spilled.

In August, 1965, the usual heavy summer rain storms did not occur. However, there was some rain on the watershed which helped to saturate the soil.

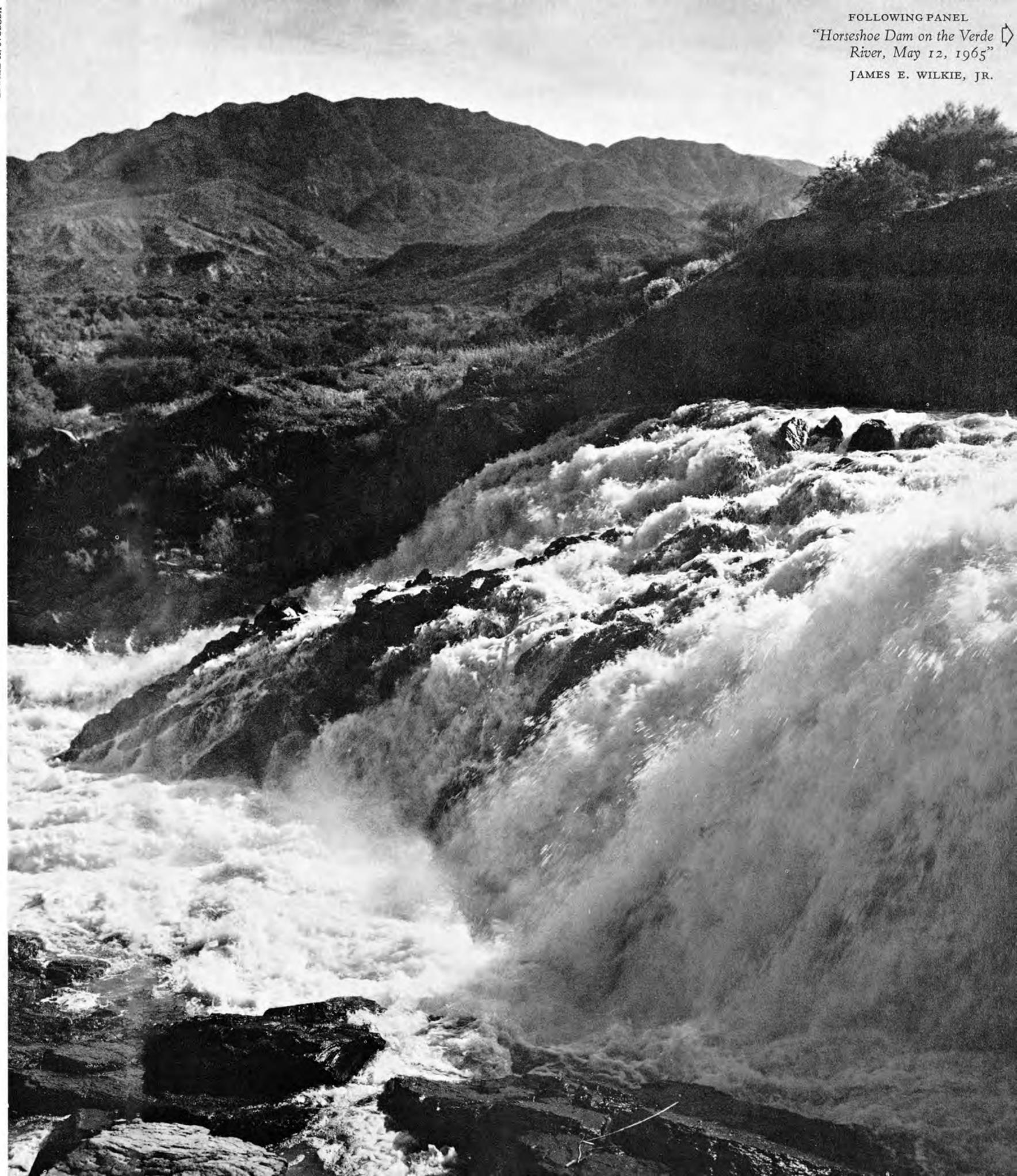
Small quantities of precipitation also fell in October, keeping the soil wet. During this time, the temperatures averaged well above normal.

The weekend after Thanksgiving, large amounts of rain fell over most of the state. The ground quickly became saturated, and a heavy but short-lived runoff occurred, boosting the contents of the Project's reservoirs.

The precipitation then decreased for about two weeks, but the weather remained warm.

On December 9, 1965, when a series of storms began, there was space in the Salt River reservoirs for 584,375 acre-feet of water. The Verde River reservoirs had room for 224,014 acre-feet of water. (One acre-foot of water equals 325,850 gallons, or water one foot deep over the area of one acre.)

continued on page 26





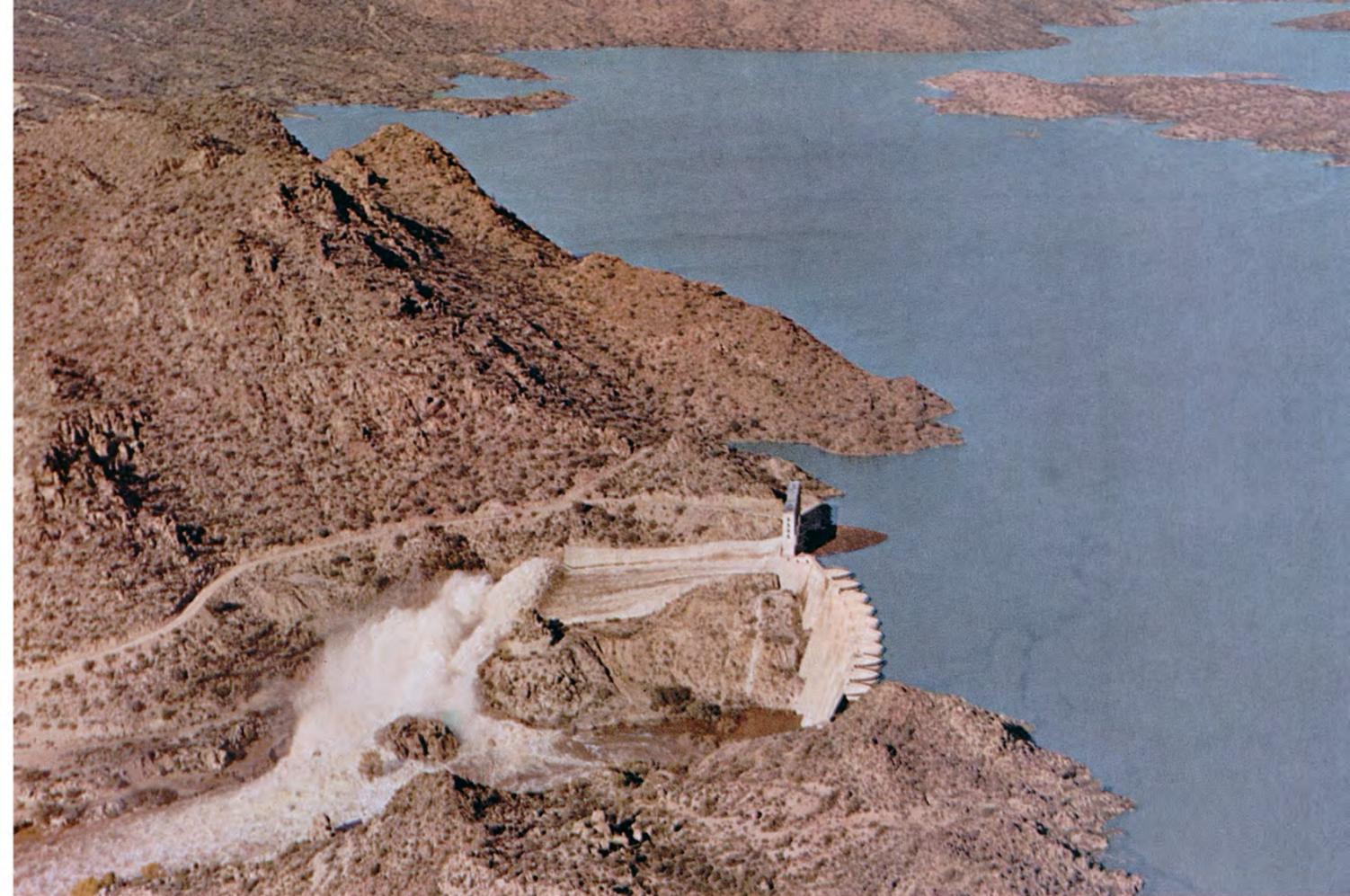


"Granite Reef Diversion Dam, Jan. 1, 1966" BOB STONOFF

"Mormon Flat Dam, Dec. 31, 1965" JAMES E. WILKIE, JR.

"Stewart Mt. Dam, Dec. 31, 1965" JAMES E. WILKIE, JR.





◁ "Horse Mesa Dam, Dec. 31, 1965"

"Bartlett Dam on the Verde, Dec. 31, 1965"

PHOTOGRAPHS:
JAMES E. WILKIE, JR.

"Coolidge Dam on the Gila, Jan. 1, 1966"



Since the ground was completely saturated from previous rains, nearly all the water which fell on the watershed immediately became runoff into the Project's reservoirs.

This condition was not normal. Usually, the precipitation falling at this time of year is in the form of snow and lies on the ground in the mountains until the spring thaw. Also, the watershed is usually dry or only slightly moist and will absorb the little snow that melts during the warmer daytime temperatures.

These unusual conditions on the watershed in December—wet soil, rain instead of snow, and no freezing temperatures at night to refreeze daytime thaw — caused record inflows into the lakes. Never in the 53-year history of the Project have the reservoirs had such a large gain in storage during the month of December.

Throughout November and December, as we received higher than normal runoff into our reservoirs, we were constantly watching conditions on the watershed and in our reservoir system. Inflows suddenly began to increase from 757 cubic feet per second (cfs) on December 9, to 22,000 cfs on December 10. This rate gradually declined to 3,072 on December 21, but on December 23 jumped to 149,680. We were required to release 3,900 cfs of water through the valve at Stewart Mountain Dam.

The inflow rapidly declined to 26,430 cfs on December 24 and continued to decline until it reached 4,990 on December 29.

The amount of water in our reservoirs increased from 1,263,661 acre-feet on December 9, to 1,880,999 on December 29, reducing our unfilled capacity to 191,051 acre-feet. As the inflow continued and the reservoir levels raised, we continued our close evaluation of the situation.

On Tuesday, December 28, following a top-level conference, we began implementing our emergency plans on an hour-by-hour basis. Wednesday's statistics did not indicate what was to come. Thursday morning, the inflow increased to 30,950 cfs and climbed rapidly.

We began to release water from the valve at Bartlett Dam early Thursday morning. Shortly after noon we opened the spillway gates and, as the inflow on the Verde continued to increase, we raised our water release until it reached 30,000 cfs by late afternoon.



FOR THESE YOUNGSTERS THIS COULD WELL BE A ONCE-IN-A-LIFETIME MEMORY.

By Thursday afternoon, our data began to indicate that the inflow into our Salt River reservoirs was also going to be a problem. We immediately began to release water from Stewart Mountain Dam in increments of 5,000 cfs until total releases reached 20,000 cfs. The gates were opened at Mormon Flat, Horse Mesa and Roosevelt Dams. Not since 1941 had anyone seen water spill at Roosevelt.

But the inflow continued to climb at an unprecedented rate — a rate of runoff which we had not experienced for the past 50 years. We continued opening gates on the Salt River system by 5,000 cfs increments until the release reached 40,000 cfs by late evening.

We limited our release to a total of 70,000 cfs (30,000 from the Verde and 40,000 from the Salt) which, combined with uncontrolled runoff from Sycamore Creek, resulted in a flow of 75,000 cfs over Granite Reef Dam. According to official flood control studies, the natural banks of the Salt River will contain a flow of 82,000 cfs. We operated at all times below this level.

The Project's storage system was receiving inflow of 192,000 cfs, nearly three times as much as was being released. But, through controlled releases, no more than 75,000 cfs ever flowed down the river.

Our next step was to create an unfilled capacity of 200,000 acre-feet in our reservoirs. This was accomplished Friday, January 7 of this year. This was done to allow us to use our reservoirs, in the same manner we did during the peak inflow period, to control and help minimize future water releases down the river in case any new storm occurs."

So the year 1965 went out like a wet duck, but the rain gods decided to turn off the faucets in 1966.

The Weather Man in Flagstaff reported that for the first six months of the year the area was experiencing its second driest period since 1900, "with sixty-five consecutive days of no measurable moisture." When things get that dry in Flagstaff, one of the state's dampest areas, you can imagine how dry it has been in the lowlands! Hardly enough moisture to prime a thirsty frog for a good spit. . . . R.C.



In Arizona's dark and mysterious underground world are hidden realms of breathtaking beauty and splendor. They are revealed to human eyes only when explorers' lamps and flash bulbs penetrate their spectacular recesses. Exquisite decorations, which took nature thousands, perhaps millions of years to achieve, could be, and have been in many areas, destroyed in one tragic moment by vandals who have no reverence for beauty, or the little-known rare works of nature. Arizona cavers have vowed that until there is legislative or other protection (or until there is nothing left to protect), the places of these "fairyland" caverns will not be identified, save those which have already been publicized. They will remain, as much as possible, veiled in obscurity along with Arizona's lost mines and other lost treasures.

"In Arizona's underground are around 120 caves which have been explored," says Wilfred Bryant, Jr., one of Arizona's top explorers, and president of the Central Arizona Grotto, "and it is still possible for a caver, on a



Cave explorer prepares for descent. Note special gear and flexible wire ladder.

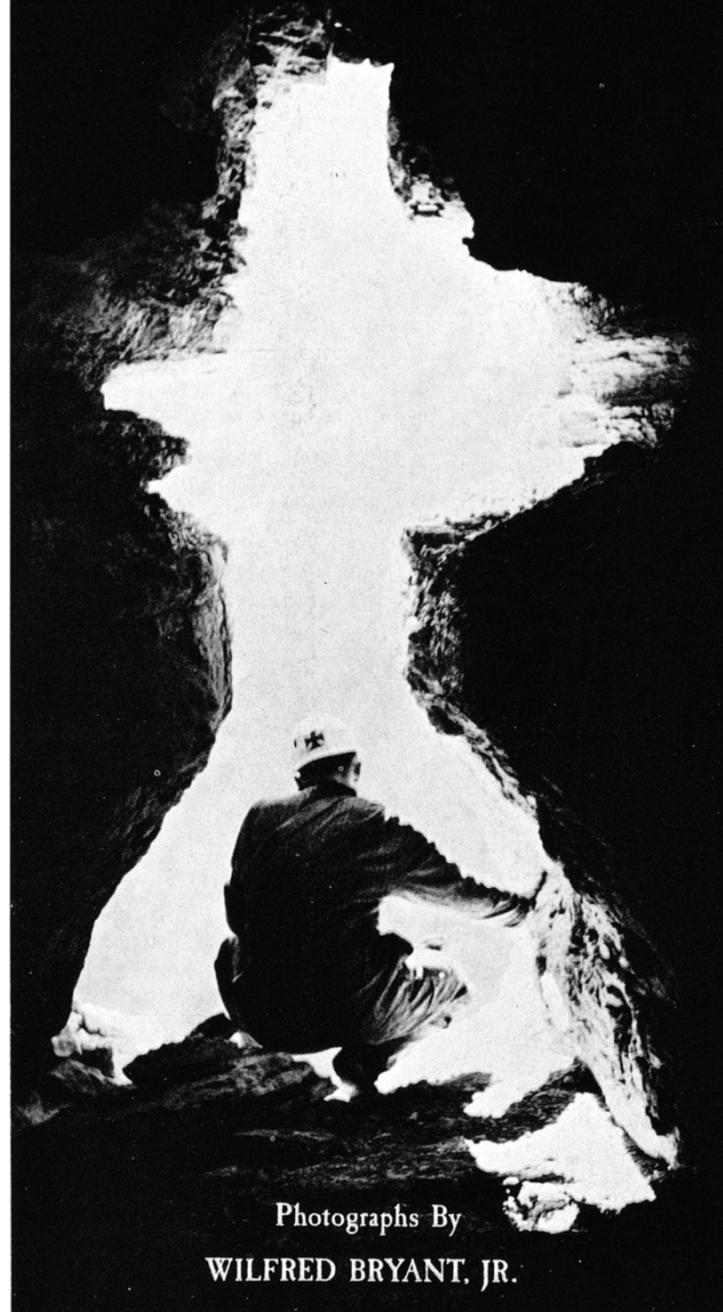
Saturday afternoon, to discover a new cave or room where no human foot has ever left its imprint. Among the 120 explored caves there about sixty 'live' caves (with dripping water), and about sixty 'dead' (dry) caves. Around forty-five of these caves contain masterpieces of beauty. If water drips into a dead cave," says Bill, "it will come to life again and its formations will continue to grow.

"One 'wild' (unprotected) cave has a room 498 feet long. It is one of the largest cave rooms in the state."

Bill Bryant is listed as one of the five best hikers in Arizona. As he has been president of the Central Arizona Grotto for six years, and took most of the pictures that go with this story, let's take a trip with him into the underground world of caving.

BY IDA SMITH

Arizona's UnderGround WonderLand



Photographs By
WILFRED BRYANT, JR.

Realistic word descriptions of the special formations and rooms are awe-inspiring, and some are fearsome: Angel Wings, Cathedral, Kingdom of the Elves, Chapel of the Ages, Praying Nuns, Halls of Gold, Flow-stone Flower Garden, Lily Pads, Frozen Waterfall, Mystery, Haunted, Giant Sloth, Skeleton, Bat Cave.

There are only two caves in Arizona which are open to the public and are under adequate protection; Colossal Cave, twenty-eight miles east of Tucson, and Grand Canyon Caverns, twenty-two miles west of Seligman. The latter caverns were previously known as Coconino Caverns, and at one time as Dinosaur Caverns. A trip through their spectacular rooms and passageways is a memorable experience. Marian Talmage and Iris Gilmore give vivid descriptions of Grand Canyon Caverns in ARIZONA HIGHWAYS, October 1965. Dates of other issues of ARIZONA HIGHWAYS with stories of Colossal, Rampart, and Skeleton caves will follow this article. The word, cavern, states the Encyclopaedia Britannica, is from the Latin, *caverna*, a synonym for cave.

Sloth Cave, otherwise known as Rampart Cave, is not beautiful, but has disclosed much scientific information. It is in the sheer face of a cliff wall of the Colorado River canyon. It has been sealed shut with a steel gate for further research by the National Park Service. Its four-footed inhabitants, the giant sloths, lived there thousands of years ago. It is a reminder of the long, distant past.

Skeleton Cave, north of Superstition Mountains, is a drab hole in the canyon wall littered with the bleached bones of a deadly combat between the Apaches and white soldiers. It has no beauty. Only disquieting memories.

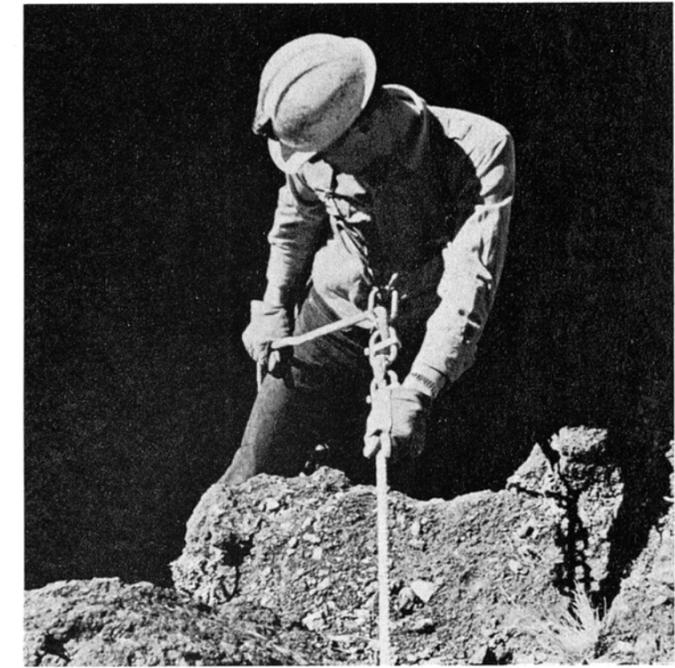
Arizona caves fall into two main categories; limestone caves, which predominate, and lava caves. At a symposium conducted in 1959 by the National Speleological Society and the American Association for the Advancement of Science on the origin of limestone caves, agreement on all points was not unanimous. However, it was believed that most limestone caves were formed in a zone of saturation, and not carved in the zone above it by surface waters pouring in. Arizona limestone was under ancient seas some 180 to 270 million years ago. Marine fossils found embedded in it tell its story. As the land uplifted, percolating underground waters carved tunnels and caverns.

Cave decorations or formations are created by mineralized water dripping through crevices in the limestone. Formations in live caves are still in process. In the darkness and silence of immeasurable time, droplets fall, one by one, to build over millenniums, their fantastic creations.

Speleothem is the general name given to all cave formations. The name derives from the Latin *speleum*, which means cave. Stalactites are speleothems which hang down from the ceiling. Stalagmites grow or form up from the floor. If and when the two meet, the resulting speleothem is a column. "Helictites," says Bill Bryant, "don't know which way they are going." These are delicate tubular formations of calcite that ooze out in any and all directions from holes or crevices, and harden. The law or conditions

which govern their formation are as yet unknown. Some gypsum "flowers" occur when crusts or blisters of gypsum burst into flower-like forms. Gypsum's most beautiful formations are known as *selenite* crystals, a Greek name comparing their pearly sheen to moonlight. Calcite also produces a variety of patterns, from tubular to delicate prismatic or needle-like crystals. In his outstanding writings, Jerry Hassemer, assistant editor of the *Cave Crawlers' Gazette*, describes some of these formations as "Fragile helictites that defy gravity; and wispy gypsum flowers that bloom in rare splendor."

One large helictite, known as the granddaddy of them all, was discovered by Tina (Mrs. Bill) Bryant. The group watched it for five years and found that it was still intact. At this writing there is only one women member in the group: Tina Bryant. "If you can't lick them," laughs Tina, "you have to join them!" It was Tina's interest that induced her and Bill to explore their first cave.



The line is checked before drop into Dante's Descent. Note anti-spin linkage.

There are three caving groups in Arizona: two in Tucson, the Southwestern Speleological Association, and the U.A.A.C. Grotto at the University of Arizona; and one with headquarters in Phoenix, the Central Arizona Grotto. The two latter organizations are chapters of the National Speleological Society (founded in 1941). The Phoenix society's bulletin is called the *Cave Crawlers' Gazette*. At this writing (September, 1965) officers of the Central Arizona Grotto are Bill Bryant, president; Dick Ball, vice president; George Lane, secretary; Leslie Ball, treasurer; Peter G. Kokalis, editor *Cave Crawlers' Gazette*; Gregory Lane and Jerry Hassemer, assistant editors; Jay Tyler, cover artist; Jerry Hassemer, cartographer; Gregory Lane, cartoonist.

continued

There are sixty or more chapters of the NSS in the United States, and approximately 1900 members. Members are known as cavers, spelunkers, and speleologists. The first two might be called those who explore caves for recreation and adventure. The third group is comprised of those who make a scientific study of caves. However, there is some of each quality in all. "At present," says Bill Bryant, "we do not have a teenager group, but we are often accompanied on trips by college student members, who are an asset to our organization."

But to go back to the cave formations. Flowstone, or "draperies," are formed by water laden with calcium carbonate flowing over a slanted surface. Smaller formations that have fanned out and hardened are called "shields." "These are considered very rare," says Bill. There are "soda straws" and "bacon" and many other strange formations. The dark stripes or areas are colored mainly by iron oxide. One room contains formations so unusual that they have not as yet been classified.

Entrances to caves are varied, explains Bill. Some are noticeable entrances. Others are hidden behind brush, under rocks; and one is in the bed of a wash, a dangerous place in flash-flood season. However, the wash was dry when Leslie Ball, Jerry Hassemer and Curt Holmes visited it. They rappelled down the 161-foot shaft. While they were exploring the cave, it started to rain — one of those spot deluges common to the Southwest. In a little while water was pouring down the shaft. Leslie Ball climbed out. He waited for an hour for the others, but they did not come out. In a panic, he hiked to the nearest road and hailed a truck. The driver was drunk, but dry. It hadn't rained there. What ensued went something like this:

Leslie: "Sir, a couple of my friends are down a 161-foot cave shaft in a flash flood, and it's raining cats and dogs! Will you help me get them out?"

Driver: "Brother! Your brand of firewater must have been mo' powerful than mine! There's no sech thing as a 161-foot shaft around these parts. Besides, it ain't rainin'!" And it hadn't where he had been driving.

With that he roared off down the road. Leslie hurried back to the cave to do the best he could — and met his friends climbing out. They had waited in a safe spot for the flood to diminish. After reaching the top, safe but drenched, Jerry Hassemer exclaimed, "Man, we'd better go to church tonight!"

A passageway in another cave is called the "Pretzel Crawl." It is shaped much as the name implies. "The smallest hole we have been through," says Bill, measured 2½ feet long, 7 inches high, and 14 inches wide."

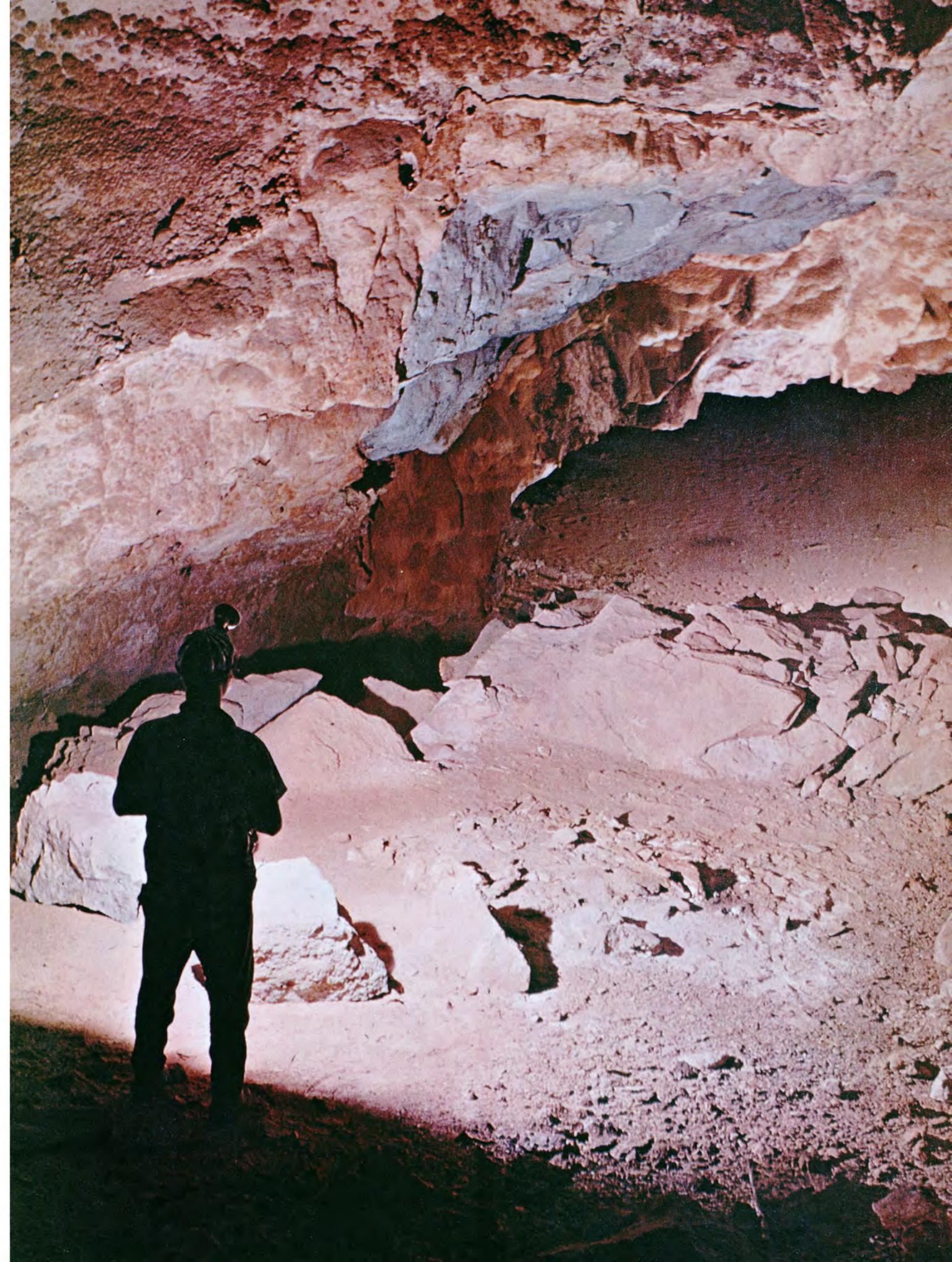
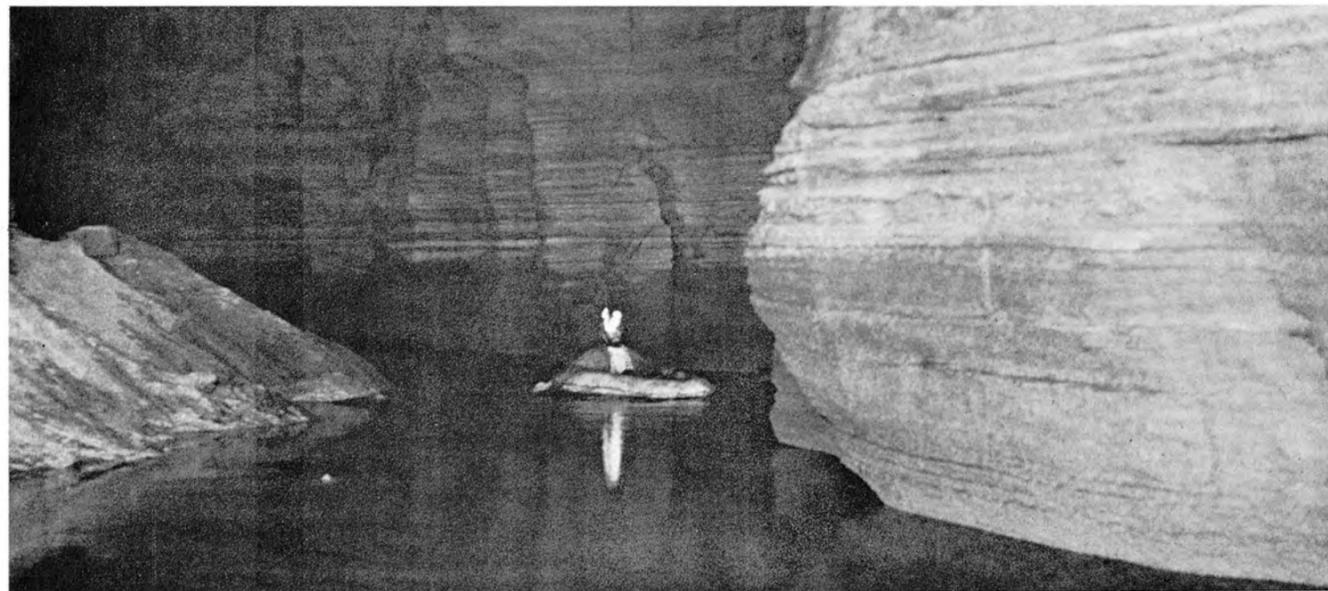
One of the cavers' favorite "girl friends" is a life-size figure resembling a woman. The folds of her gown and golden hair are of gleaming calcium carbonate. To see her (new cavers and all) they have to step off into forty feet of darkness, of course by way of cavers' nylon ropes and ladders.

In one cave a three-foot waterfall pours into a lovely rimstone pool. Here, in one of the photos, Tina Bryant looks at reflections of the stalactites above, reflections that show only when cavers bring their lamps to dispel the eternal darkness. The scalloped edges of rimstone pools form the "lily pads."

A "frozen pool" in one dry cave shows waves formed by the last drop of water that fell before the pool dried and hardened. How many thousands of years ago that last drop fell, nobody knows.

A cave no one had ever before seen was found to contain calcite crystals twelve to fourteen inches high, and estimated to be several hundred years old. In another cave an eighty-five-pound stalactite lies where vandals left it. It was knocked down with a sledgehammer. It required a fifty-five-foot climb to enter this portion of the cave. Its walls, covered with exquisite formations, have been written upon. "Even novices with vandal instincts have improved their caving ability," says Bill Bryant. "Their ability exceeds their education. In another cave we found several servicemen, who should have known better, roping small stalagmites to pull them down. It takes years for even small stalagmites to grow. A stalagmite forty feet tall takes scores of thousands of years." *continued on page 32*

Underground river tunnel.



One of the most beautiful of Arizona's caverns contains a "blue grotto." Once exquisite stalactites hung like a shining curtain. Almost all have been knocked down.

A room in one cave contains a "pelican," fine specimens of "bacon," and a "chandelier." So far these have not been damaged.

Some stalactites are musical when tapped, giving off a variety of bell-like tones that had lain silent for aeons of time. There are stalagmites that look like fairy castles, and some like cathedrals. Among other striking formations is a calcium carbonate "angel," and a "butterfly." The words, "haunted," "mystery," and "ghost" are applied to some for various as yet unexplained reasons.

"Those pretzel crawls and 161-foot rappels in the dark scare me to death!" Moulton Smith told Bill Bryant. "They remind me too much of the tragic end of my fellow Kentuckian, Floyd Collins."

"Floyd Collins was not a cautious or well-equipped caver by modern standards," explained Bill. "Caving today is a well-planned science, with modern equipment, safety devices, and adequate safety rules, one of which is *never go caving alone!*" Bill produced a copy of the *Cave Crawlers' Gazette* containing a list of rules, the use and care of equipment, and a list of pocket-size balanced meals.

Although there has been limited professional fossil research done in Arizona caves, one local member, Gregory Lane, collects specimens for a professional paleontologist, and bones have been sent to a university for identification. Major finds have been made mostly by government scientists, particularly in Sloth Cave. One local caver found a perfect specimen of an ancient spiny sea snail.

Animal life found so far in Arizona caves are bats, a few insects, and an occasional salamander. The salamanders are the same color as those found outside, so it is assumed that they are visitors. Incidentally, among cavers, the word, "cave-insect," is the "catalyst" which changes a caver from a crawler to a collector!

Arizona's most noted bat cave was publicized some years ago — another cavern in the cliff walls of the Colorado River. Ninety or more feet of guano has been taken out through the years. The cave is privately owned, and it is believed to have unexplored depth.

In Colossal Cave the bats have been driven to a deeper recess called Bat Cave, which has its own entrance. This room has been and probably still is under intense research by scientists. Most resident bat species are insectivorous. A few are fruit eaters. No evidence of vampire bats has been found in the United States. Two migratory

One of the most fascinating club publications in Arizona is the *Cave Crawlers' Gazette*. Edited by Peter G. Kokalis and his staff, it contains many thought-provoking articles contributed by the officers and members. Several members, including Bill Bryant and Jerry Hassemer, have contributed to the *National Speleological Society News* also. Several members have become well-known for their color slide shows on cave formations. Bill Bryant, Jerry Hassemer and Joseph Glover have presented shows at various clubs. The shows have a conservation slant.

Another project was a cleanup job on Arizona's most beautiful, most visited, and most vandalized wild cave. It took six men and seven days of labor to remove bags and bags of rubbish, and later to build a \$140 gate. Upon a return, they found the gate had been blown open. The cave is on private but unguarded property.

The 1965 NSS convention (their 22nd), in Bloomington, Indiana, was attended by a group of Arizona members. A panel discussion was held on cave-owner relations and courtesy, and how to keep public caves open. "In recent years," they said, "several good caves have been plagued with vandalism and by thoughtless and discourteous acts against their owners, with the result that they have been temporarily or permanently closed." Fol-

Lava caves are interesting, but ordinarily not pretty except when they have ice formations in the spring when the thaw is on. By June the ice will likely be gone. These are not true ice caves, which are formed only in masses of ice or in glaciers. Arizona has no true ice caves, unless there should be one hidden in its baby glacier in the San Francisco Peaks.

Jerry Hassemer, in his *Underground Adventure in Arizona Days and Ways*, March 5, 1961, gave a clear description of the general theory of the origin of lava tubes or caves. The outside surface of a lava flow solidifies while the interior is still molten. When a disturbance breaks the outside, the molten lava flows out, leaving tubes and cavities.

The longest lava tube in the state, as far as is known, has a total passage length of 3757 feet. Lava tubes or caves are so well insulated that they are always cold. Under special conditions they could have ice all year.

The time to see a lava cave is in the early spring, when ice stalactites and stalagmites are present. Bill Bryant has captured a striking photograph of one of these.

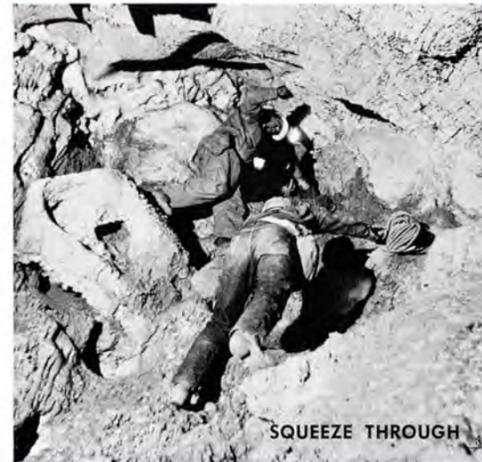
Sometimes more stable beauty finds its way into lava caves and gas cavities. "Percolating waters are often quite similar to those in limestone and gypsum caves," says



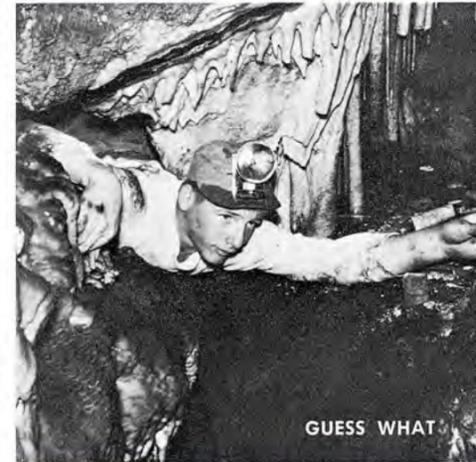
CRAWL IN



TWIST AROUND



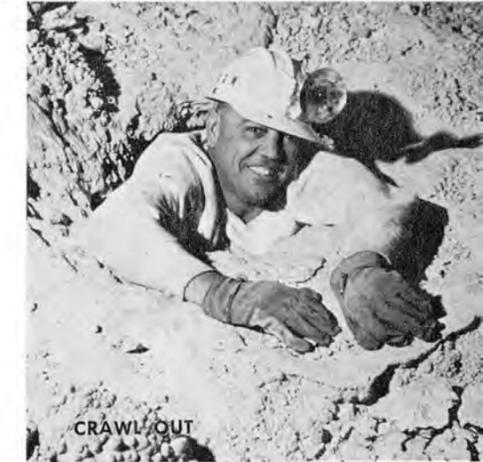
SQUEEZE THROUGH



GUESS WHAT



COME HOW?



CRAWL OUT

As most Arizona caves are limestone caves, their minerals are mainly derivatives of limestone, such as calcite and aragonite (with their attending crystal formations), travertine, onyx, et cetera, which are all calcium carbonates. However, there is one known gypsum cave (calcium sulphate). The NSS lists the two most common cave minerals as calcium carbonate and the sulphate minerals. Scientists in the NSS say that while speleogenesis (study of the origin of caves) is an old subject, the study of cave mineralogy has only begun, and that the few caves in the United States that have been researched for minerals have revealed some completely unsuspected kinds.

Samuel F. Turner, noted Phoenix geologist and groundwater consultant, has made a descriptive list of cave minerals — those which have been and might be found in Arizona caves. The list is quite impressive.

species of fruit eater arrive each spring by the thousands. However, these have been found to be nectar feeders, and therefore assumed to be pollinators. Also, all were found to be expectant mothers! All bat species in Arizona, both resident and migratory, are beneficial. Bat rabies is exceptional rather than common. George Olin gave an excellent account of Arizona bats in *ARIZONA HIGHWAYS*, January, 1956, in an article titled *Colossal Cave, Home of the Hummingbird Bats*.

Temperatures in limestone caves in the northern part of the state average around fifty-six degrees. In the southern part the average temperature is seventy-one degrees. However, in the northern area lava caves, the group found temperatures of thirty-six degrees in July. It was so cold they could see their breath.

lowing this, the NSS published a brochure called *Cave Courtesy*. It can be obtained free from the NSS, 2318 N. Kenmore St., Arlington, Virginia 22201.

Undoubtedly there are still many unexplored caves in Arizona, some beautiful, others merely interesting, and a few scary. So a word of caution! The late Jerry Laudermilk, research associate in geochemistry and paleobotany at Pomona College, and author of *Cave of the Giant Sloths* (*Desert Magazine*, November, 1942), said that there are other enormous caves, similar to Rampart Cave, in inaccessible cliffs of the Colorado River, with ledges of lush growth watered by springs, where stragglers of the eight-foot giant sloths might still linger. He cites the famous explorer, Nordjenskiolk, and another, Marcellin Blule (both South American explorers), and he asks (perhaps a bit facetiously), "Is the sloth extinct?"

Samuel Turner. "Thus lava caves may have true calcite and aragonite stalactites and stalagmites and gypsum formations." He also cites rarer minerals which might be present under certain conditions.

If you would like to explore Arizona's underground wonderland — without the pretzel crawl, or a 161-foot rappel in the dark, take an armchair travelogue with one of the Arizona cave photographers. I can assure you it will be filled with wonder, interest, and excitement!

Other cave articles in *ARIZONA HIGHWAYS*:
Colossal Cave, April 1941, January 1947, March 1947, January 1956.
Rampart Cave, July 1958
Skeleton Cave, February 1959
Grand Canyon Caverns, October 1965

continued on page 36



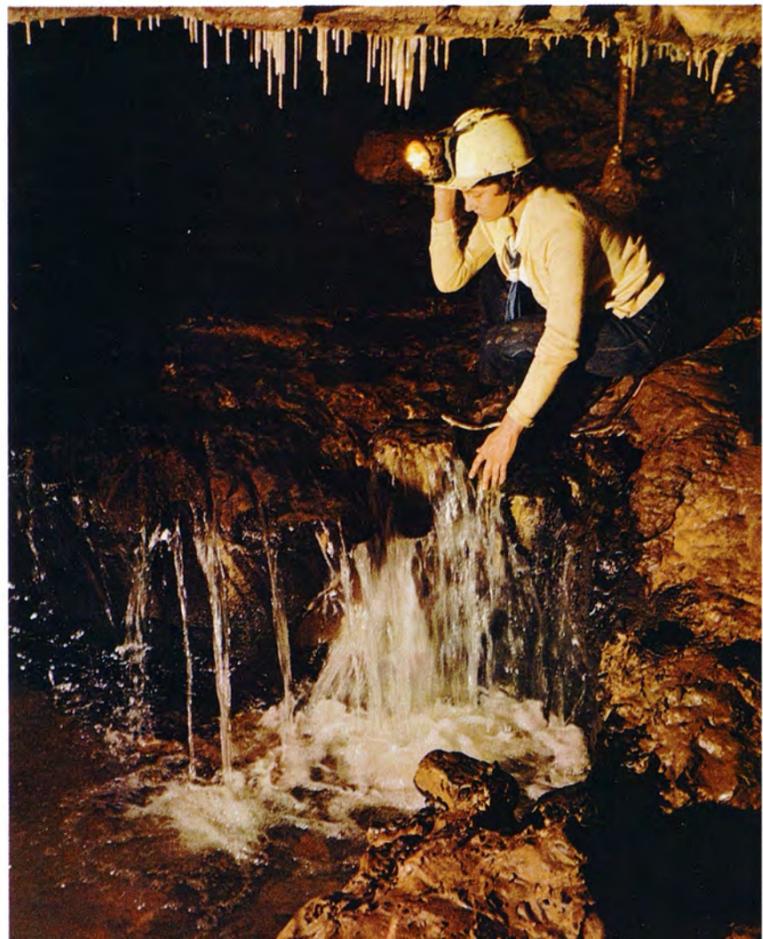
"Cave Shield or Palette — Southern Arizona"



"Calcium Carbonate Canopy — Southern Arizona"

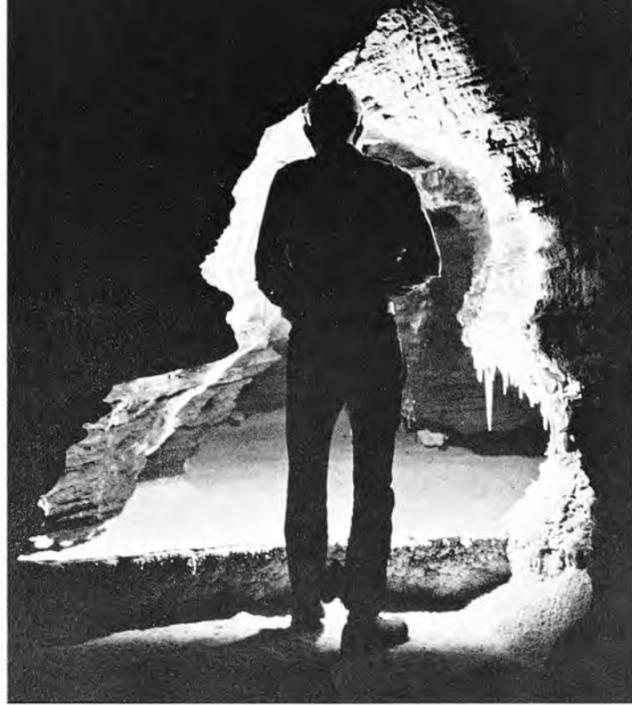
"Rimstone Pool — Southern Arizona" ↗

"Canopy Room in a Southern Arizona Cave"



"Cave Waterfall — North Central Arizona"





When Kenneth Laidlaw read that in a certain area in Arizona, "the earth was cracking up, and that bottomless pits were appearing," he decided to investigate. Ken is a California schoolteacher with a yen for Arizona exploring. He is a member of the Central Arizona Grotto, one of three caving organizations in the state. "Ken is our 'Sherlock Holmes,'" says Wilford Bryant, president of the organization.

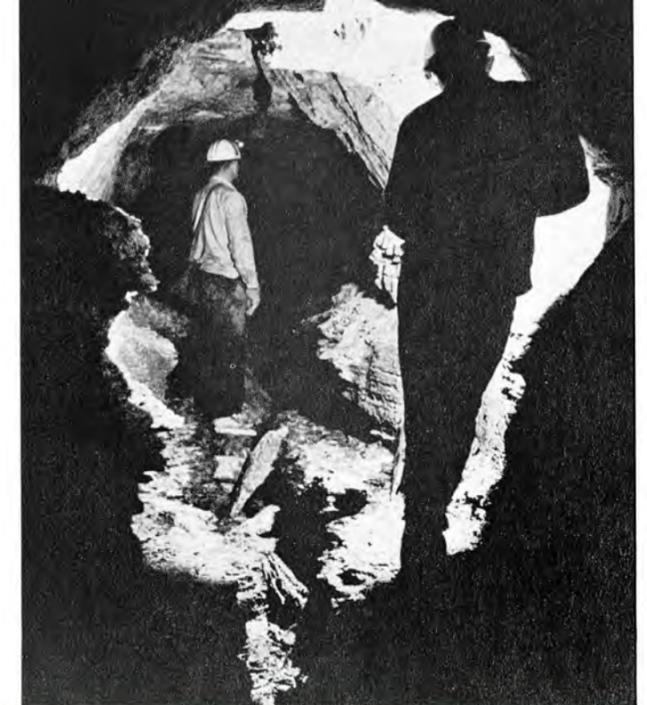
Upon making local inquiries in the "danger-threatened" area, Ken was told that a large earth crack had been present for ten or twelve years, but that recent earth shifting had occurred, which had caused some excitement.

Earth shifting and other movements, geologists explain, are quite normal. There are numerous causes, one of which is contraction and expansion due to heat and cold. Most of the movements are so gradual that they are not noticeable, but occasionally a jarring of more formidable proportion takes place, such as tremors from an earthquake, oftentimes a long distance away.

However, the cause of certain earth cracks is as yet unknown. One large earth crack in Northern Arizona

One Arizona earth crack was followed on the surface for five miles. No one had ever explored it. A rancher owns the land and directed the caving group to it for examination. Bill Bryant was the first to go down. The cavers descended 281 feet of vertical drop through limestone, a drop comparable to the height of a twenty-eight-story building. At the end of the limestone stratum, the fissure stopped. The group had hoped to penetrate through the sandstone, which was underneath, to the next limestone stratum, to see what cavities, if any, might be there. Sandstone has a different chemical makeup from that of limestone. This would probably account for the solidity of the sandstone stratum. Calcium carbonate, the essential constituent of limestone, is more soluble in water, especially so in acid water. All circulating water is more or less acid due to absorbing carbon dioxide from the air.

In places the earth crack was so narrow that the surface rocks had been stopped in their fall. Before descending, the group spent one and a half hours clearing away the rocks at the top, any one of which could have fallen and killed a man. It took the group nine hours to



Cave photography presents many problems that do not exist in photography above ground. Most cave photographers' equipment would seem unusual to photographers doing work on the surface.

For instance my favorite cave camera is a 1957 model Zeiss Ikon, 2 1/4" x 2 1/4" with 1:2.8-80mm Tessar lens. This is a folding bellows camera which is compact for climbing, plus the lens and setting mechanism is protected when the camera is closed.

Folding flash units are compact, light weight and quite reliable. Small flash bulbs with large light output such as M-3Bs in conjunction with color film are used. This combination weighs much less than an electronic flash unit and will produce more light permitting photographs to be made farther from the camera.

A small, light weight folding tripod is required for close-ups of small formations and multiple flash pictures. I carry these items plus bulb adapters, lens brush and cable release

underground

in a sturdy leather carrying case with a single shoulder strap. The case measures 3" x 6" x 14" and permits vertical rope climbing with camera gear.

Cave photography equipment is subjected to almost unbelievable amounts of dust, mud, water, banking along crawlways and lowering down vertical drops by rope.

One additional problem that underground photographers have is fogging of the camera lens caused by breathing. This can be avoided by breathing other than toward the camera or by visual inspection of the lens just before the picture is taken.

Techniques vary greatly but in general the worst lighting one can use is on the camera flash.

Side lighting either by slave lamp or assistant is always preferred. Many times an assistant is positioned away from

photography

the camera for side lighting with open flash and the camera operated on bulb. Using a prearranged signal system the photographer opens the shutter one second before the assistant fires the flash bulb. The shutter is closed immediately after the flash is fired. Since the cave is totally dark the film cannot be exposed except during the period of light from the flash. Lens opening is of course based on the distance from flash to subject. This method is quick and the photograph will benefit from all the light that the bulb is capable of producing.

In photographing large rooms or passageways multiple flash firing is done. The camera is placed on the tripod, settings made and the shutter opened. The assistant can walk forward, firing several flash bulbs at desired locations and then the shutter is closed. If firing positions are chosen

carefully, spectacular results can be obtained.

Long ago I found that when a formation looked colorful in the dim light of my carbide lamp it would record very good color when lighted by flash.

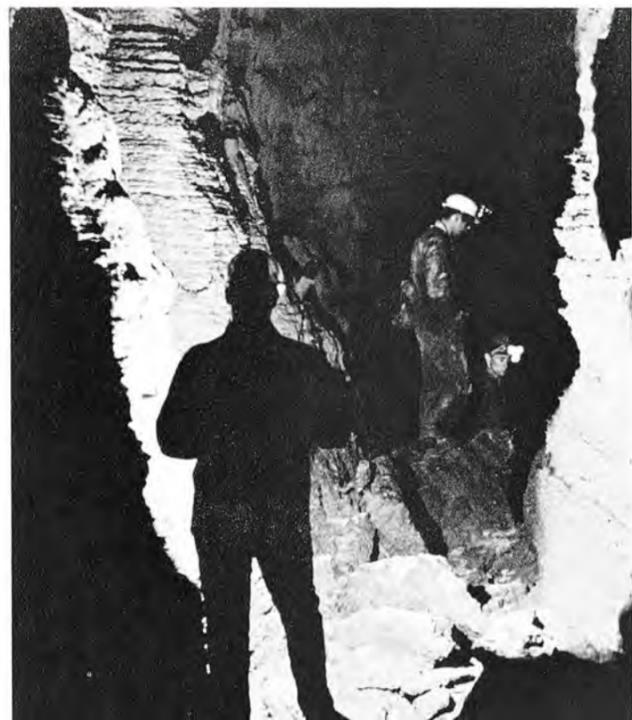
One mistake often made by cave photographers is to photograph a light colored or white rock, and forget to compensate in making exposure setting. This is difficult to remember and has caused many otherwise good photos to be overexposed.

Consider in all, that a speleophotographer works in total darkness that is dimly lit by his carbide lamp.

He drags his camera pack down vertical shafts, through crawlways and underground waterways. He many times cleans his hands of mud before each picture, works in the cold or while soaking wet in a cave stream.

Is it any wonder then, that even professional photographers have been known to have poor results when going underground?

— Wilfred Bryant, Jr.



is 520 feet deep. A report claimed another to be "two miles deep," but upon examination it turned out to be a great deal less.

A sink with holes, called the "Bottomless Pits," contains two holes large enough to enter. The caving group descended one of these to the bottom, which turned out to be about fifty-five feet down. They did not find any passages leading off. "Weren't you afraid?" we asked Bill Bryant. "Yes," said Bill, "because my wife, Tina, had seen a skunk enter one of the holes."

In another area it was reported that the "land was disappearing." Such reports should not frighten one unduly, because there is almost always a reason which, except in rare instances, is seldom as alarming as it seems. A side hole provided Kenneth Laidlaw an entrance beneath the sink where the land had "disappeared." A thirty-five-foot passage led to a cave with two four-foot rooms. "The cave," says Kenneth, "seems to have been carved out by water action. My further advance was stopped by a too-narrow fissure leading down. I plan to return and enlarge the fissure to reach the lower level."

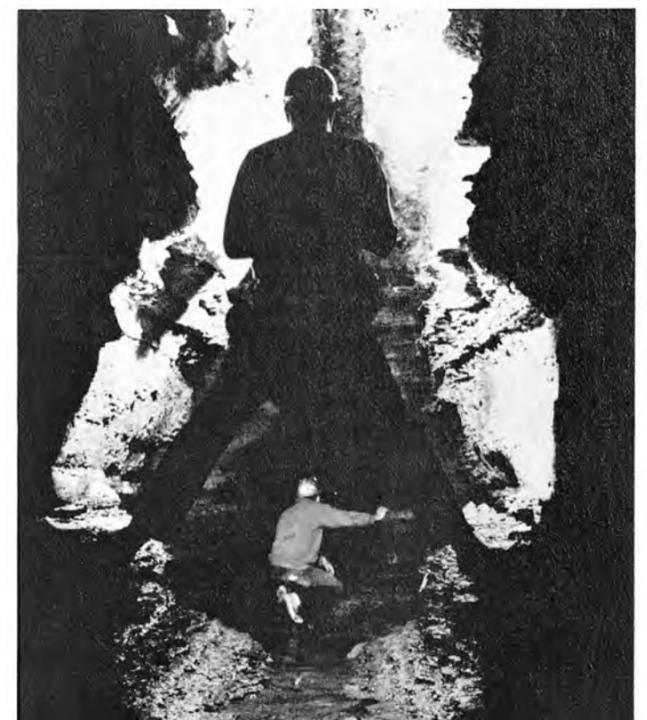
get three climbers down to the bottom and return to the surface. In some places the fissure was only about fifteen inches wide. The widest space at the bottom of this earth crack was ten feet. Here the group found tumbleweeds that had blown down.

Bill Bryant, who is an engineer for Arizona Public Service, says the crack would make a good place for a gas line!

Another deep crack which the group explored ended at the termination of the limestone stratum also.

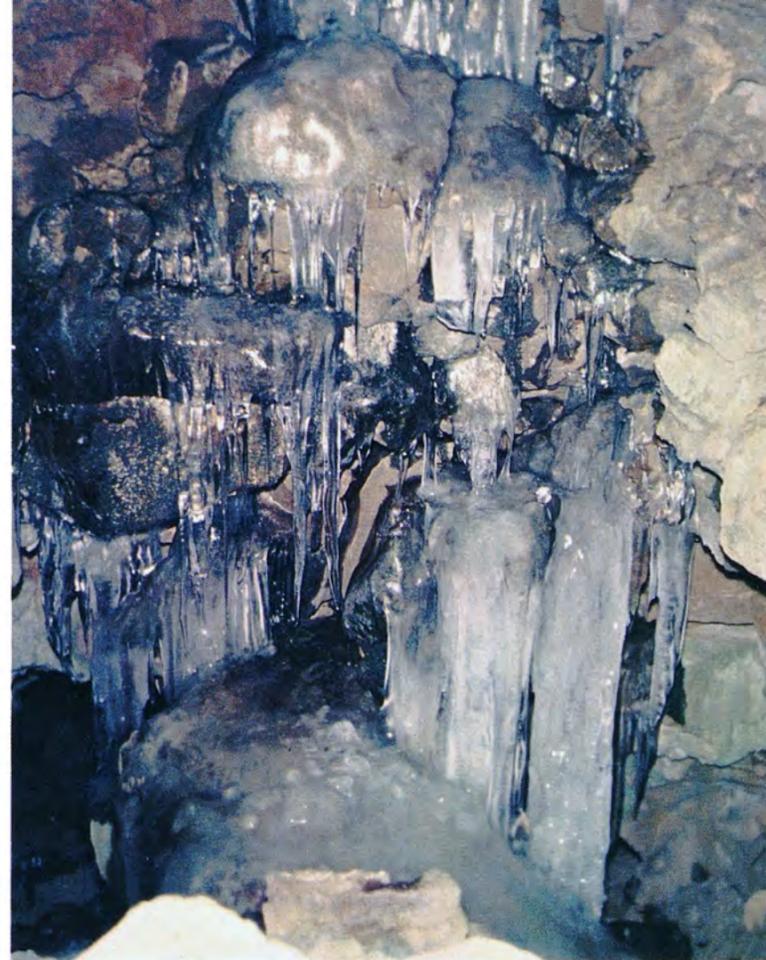
Earth cracks are of special interest to the geologists of the state. It is hoped by the caving group that the exploration and mapping of these practically unexplored regions will help in determining their nature and cause.

It would be of no avail to move, with hopes of getting away from "mystery holes" in the earth's crust. Every state in the Union, except Rhode Island, has caves, earth cracks, and "bottomless pits." It has been well stated that a mystery is no longer a mystery when its true facts become known. New Mexico's Carlsbad Caverns, one of the most beautiful and spectacular caves,



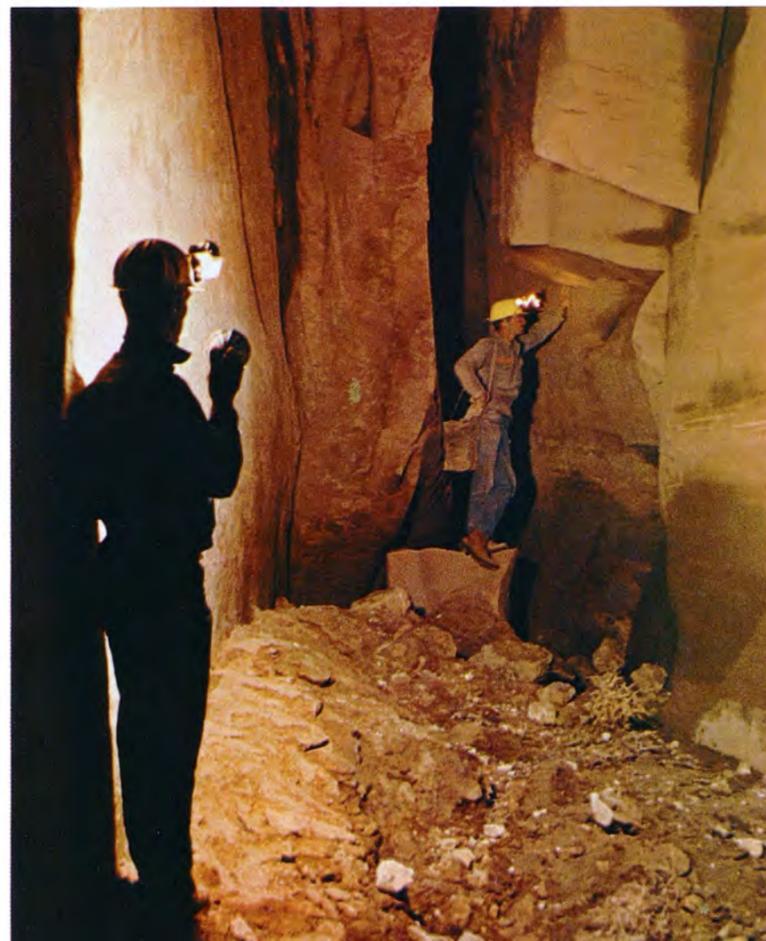
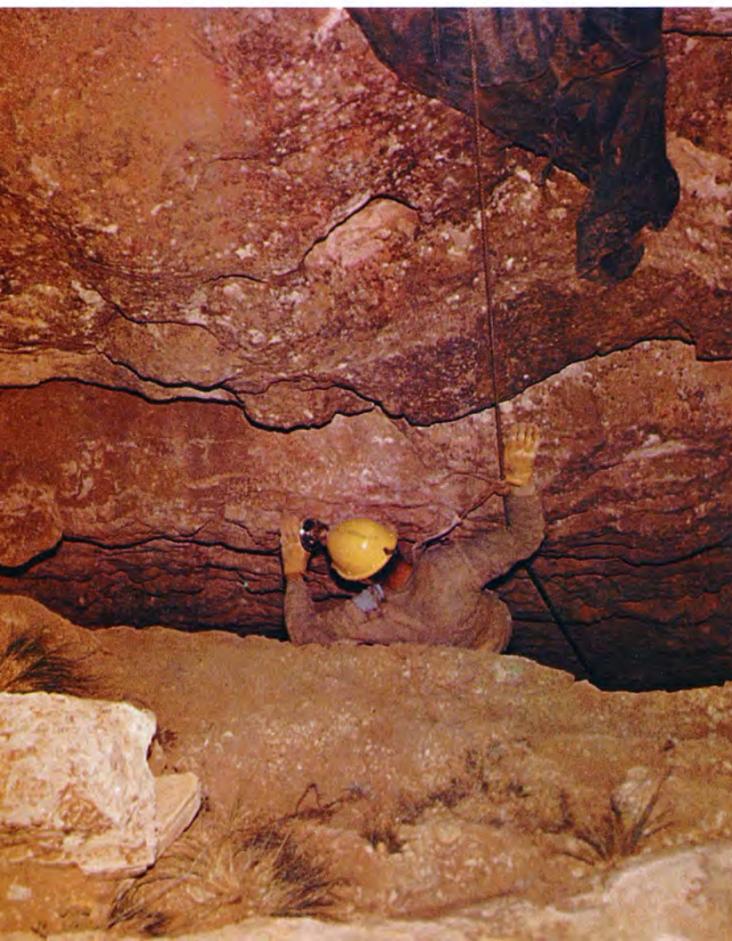


"Lava Cave — San Francisco Peaks Area"



"Ice Stalactites — San Francisco Peaks Area"

"Emerging From Earth Crack near Flagstaff"



"Bottom of Earth Crack, 281 Feet Deep"

is no small hole in the ground; and Kentucky's Mammoth Cave is said to be the largest known cave in the world.

One of the most interesting and awesome of Arizona's "bottomless pits" is around 300 feet deep and measures 106 feet across its surface opening. Its vertical descent is 257 feet straight down. From there on to the bottom it slopes. The hole was located many years ago and named Dante's Descent. The first explorer went down in a metal barrel with a winch cable. For years it was forgotten and practically lost. Its opening is well hidden among jagged lava rocks.

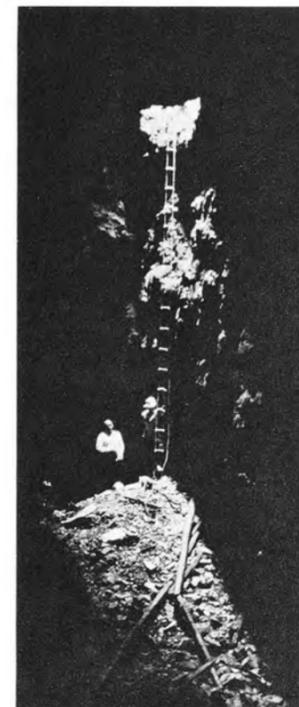
Kenneth Laidlaw and others from the Central Arizona Grotto hunted several weekends for the opening. One day Ken called out to the group, "That's it — right over there! It's the biggest hole I ever saw!"

Bill Bryant and the others reached the bottom that day also, but not without Bill receiving serious rope burns, in spite of his well-padded caving clothes. Bill had used a body rappel rope instead of brake bars.

The climb out of such places is not done by physical strength alone. It is achieved by way of prussic knots on the rope, which can slide upward when pushed, but hold tight when downward tension is applied, and lastly by a newer device called Jumar ascenders. The dangers lurk in many other unsuspected places of which only experienced cavers are aware.

In the bottom of the hole the cavers found a rounded heap of lava rocks which they believed to have once been the roof which had fallen in.

"Dante's Descent," says Bill Bryant, "is one of the



A very exclusive club — and very hard to find.

There were eleven experienced cavers in the party. Some unloaded their gear and lugged it over near the big hole. They went to the edge, looked into its deep blackness, and lugged their gear back to the truck.

But Ken Laidlaw, Bill Bryant, Jerry Hassemmer, Pete Delany, and Ken Jarocha were not to be defeated. Obtaining a 320-foot nylon rope from the truck, they secured it to a juniper tree, and Ken Laidlaw took off into the unknown darkness. About ten feet from the bottom he reached the end of the belay or safety rope and began to spin. Before the fellows at the top could add more rope, Ken was a sick lad. Upon reaching the bottom, he collapsed momentarily upon the ground. They had not used the belay ropes as an anti-spin line, which they explain, carefully, is sometimes necessary. It is the extra rope that keeps the climber from spinning. "Always do as we say, not as we sometimes do," is one of their important bits of advice.

deepest sinkholes in the United States. No one knows about the hole except a very few cavers. It is so dangerous that there are not over twelve people in the state I would want to see attempt it."

Bill took a photograph from the bottom, showing the round opening at the top, fringed with greenery, and the blue sky in the far distance. It is one of the most unusual underground photographs ever taken.

While space explorers are attempting to reach the craters on the moon, the serious-minded cavers are searching out little-known recesses of our earth, to help give better knowledge and understanding of the world we live in. However, the places described here are extremely dangerous and should not be attempted by any other than experienced cavers. *

AT TWILIGHT

The gentle fingers of the wind
 Caress the trembling grass
 While far above, majestic clouds
 In slow procession pass.
 The shadows lengthen by the hill
 As day begins to dim,
 And mourning dove and whip-poor-will
 Join in an evening hymn.

— Peggy James

EMPTY TREE HOUSE

The tree house is empty . . .
 The boy isn't there
 The tarp that's a door
 Still flaps in the air . . .
 The tree even weeps for the joy once known;
 The laughter is gone
 And the tree is alone . . .

— Elsie Maiden

SATURDAY SONG

I lie on the grass and consider a daisy,
 Letting the drowsy hours go by.
 If I really tried I could stop being lazy
 But I'm just too lazy to try.

— Jane Merchant

MESSAGES FOR POSTERITY

Will the marks carved during vacation
 By people all over the nation,
 On trees and caves and heights terrific,
 Be tomorrow's heiroglyphic?

— Leona Meals

MISSILE BASE

At a wide sky
 looking down
 in wonder,
 We hurl our brash,
 new lightning
 and thunder —
 Usurp sky's old
 prerogatives,
 to form
 Its dark portents,
 without the
 cleansing storm.

— Gloria Maxson

THIS DESERT NIGHT

Where plodding oxen threaded all these worn
 And windblown trails, an eager satellite
 Leaves earth's slow ways . . .
 its vapor-trail has torn
 The sapphire tent above this desert night.

— Maude Rubin

SEPTEMBER SUNSET

September's shining knife of night
 Severs the rays of day;
 Its serrate edge
 Of horizon sedge
 Slices the light away.
 Now tilting wings of gull and tern
 Float high above the dark,
 From molten gold
 One feathered fold
 Carries the day's last spark.

— Maude Rubin

Yours sincerely



THE WONDERFUL WORLD OF BIL KEANE:

. . . The Keane Family and, judging from the mail we've received, many "Family Circus" and "Channel Chuckles" readers, were delighted with "The Wonderful World of Bil Keane" in the July issue.

I would like to thank you for detouring ARIZONA HIGHWAYS into our home and around my drawing board, Writer Blake Brophy for putting all those nice words together so accurately, Photographer Herb McLaughlin for making us look reasonably photogenic without shattering a lens, and Art Editor George Avey for fitting us so unobtrusively into the pages of such a beautiful magazine.

My own world is more wonderful because of it.

Bil Keane
 Paradise Valley, Arizona

• It was a delight to share Bil Keane's "wonderful world" with our readers.

THE HOPI RULES:

. . . Your August issue is marvelous for the quality of the color pictures and its artistic presentation. The way my sketches were displayed thrilled me. I would like, however, to let my Hopi friends know, and I hope they realize, that I would never have done sketches from life during a ceremony. I respect their tradition and understand that notes, sketches or photographs should never be done on the mesas during sacred rituals. In fact, the Zuñi people are still thankful on my notes on this subject in your November, 1954 issue. May

OPPOSITE PAGE

"GREEN MEADOWLAND OF BABACOMARI RANCH" BY JOSEF MUENCH. This scene shows the green meadowland of the Babacomari Ranch, located near Elgin. After the first summer rains, this prime cattle country turns green on the Spanish Land Grant of Babacomari. The Mustang Mountains appear in the distance. While modern maps give the spelling "Babocomari," early Spanish maps give the spelling as "Babacomari." The name is from the Papago and means "caliche hanging over in little cell-like formations." 4 x 5 Linhof camera; Ektachrome; f.22 at 1/50th sec.; 6" Xenar lens; August.

BACK COVER

"SUMMER SCENE NEAR ALPINE" BY FRANK ELMER. Photo taken approximately ten miles south of Alpine on Arizona 666. The photographer is a son of Carlos Elmer, for years a valued and esteemed contributor to the pages of ARIZONA HIGHWAYS. Of this photo Frank says: "This photograph was taken on my first picture taking safari to the Mogollon Rim Country. Returning home on Arizona 666, south of Alpine, we came upon this tranquil scene. The small stream, green meadow and horse corral all combined to make this the perfect shot for my first submittal to ARIZONA HIGHWAYS. Thank you for your gracious acceptance of my first serious work." And we thank you, Frank, for a fine scenic study. We hope to have more from you in the future. 4 x 5 Burke & James Press camera; Ektachrome; f.16 at 1/100th sec.; 6" Goertz Aerotar lens; June; bright day; ASA rating 50.

my remarks help Bahanas (or white people) respect the Hopi rules.

Paul Coze
 Phoenix, Arizona

• By error, we captioned Artist Paul Coze's delightful sketches illustrating our article on the Hopi Snake Dance in our August issue as "sketched from life." We apologize to Paul and to our many Hopi friends. Paul's letter above is self-explanatory.

MESSAGE FROM ENGLAND:

. . . It seems a long time since I first heard of ARIZONA HIGHWAYS — in fact it was 1949, when an American friend kindly bought a subscription, which drew my attention to this exhilarating, colourful and well-informed production. After this subscription expired — and I think it lasted two or three years — I forgot about it due to pressure of business, but recently my very good friend, Mrs. Cornelia Lininger of The Lodge on The Desert, Tucson, bought a subscription, which has resulted in a real awakening of eye and mind to the delights and pleasures of your wonderful State.

I do not know what happened to the January issue, which seems to have gone astray, but the remainder have been right up to expectation and as it is my custom to pass on magazines I have read to people of my acquaintance, who may well be qualified for visits to U.S.A., there is always the possibility that someone will be so impressed as to want to see this idyllic part of the Universe for himself.

I cannot speak too highly of the quality and general presentation of ARIZONA HIGHWAYS. Every year seems to be a vintage one, and how fortunate you are to have an apparently unending source from which to draw your most attractive presentations. If there is a State I would want to live in on leaving England's green and pleasant land, it would be the State of Arizona, where I am fortunate in having many wonderful friends.

Peter Dale
 Peter Dale, Ltd.
 London, England

• We are sure, Mr. Dale, leaving "England's green and pleasant land" (and how wonderful it must be!) would find much to enjoy here in Arizona.



