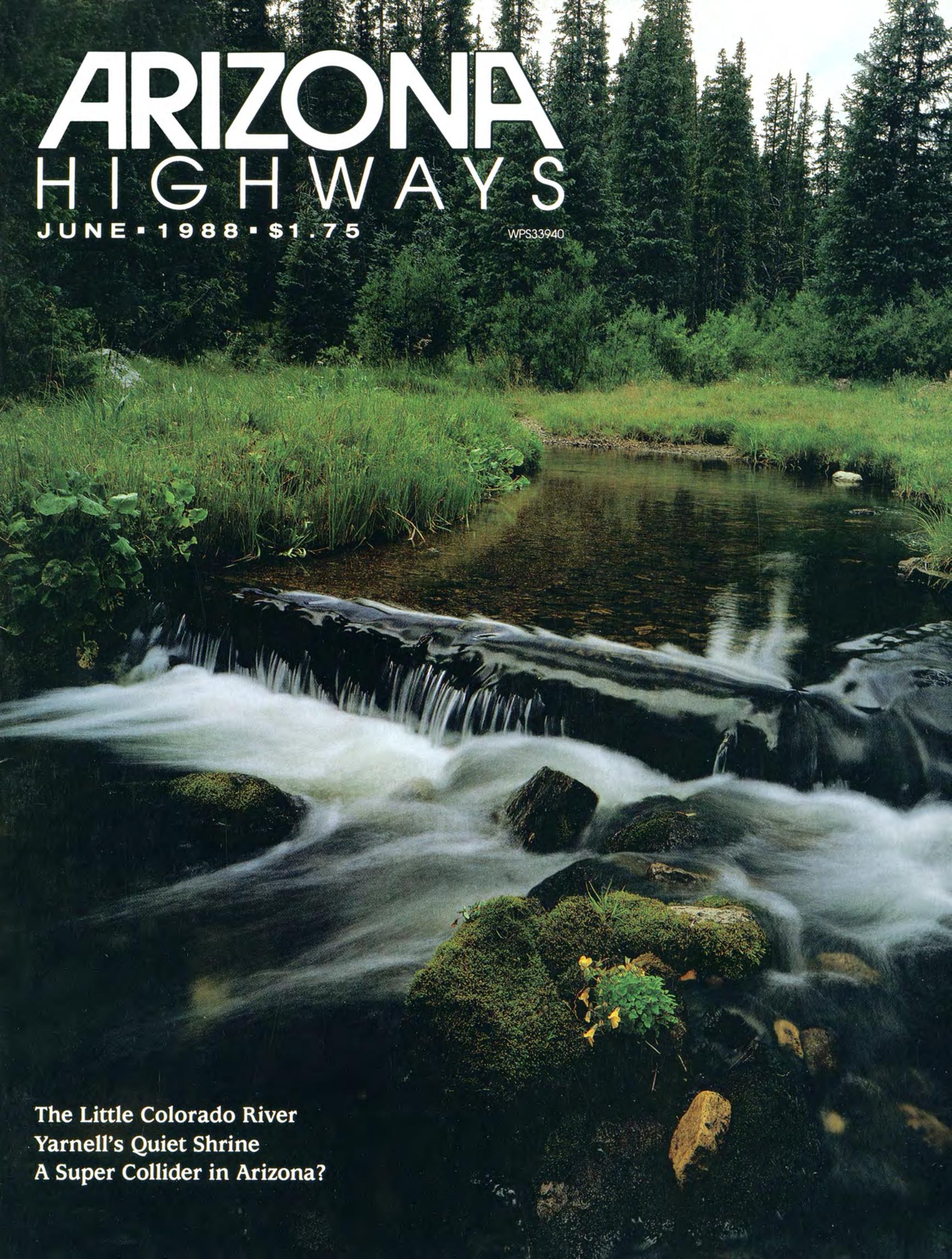


ARIZONA HIGHWAYS

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The Little Colorado River
Yarnell's Quiet Shrine
A Super Collider in Arizona?



ARIZONA

HIGHWAYS

JUNE 1988

Vol. 64, No. 6

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by Tom Dollar

On a saguaro-studded desert plain—if their proposal is accepted—Arizona's leaders hope to construct a vast elliptical laboratory of particle physics that may shed light on how the universe began.

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Part of proposed site of the Super Collider. FRED GRIFFIN ▶

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In the little mountain town of Yarnell, where tumbled boulders brood near the edge of a dramatic escarpment, a wooded retreat encourages quiet contemplation by residents and travelers alike.

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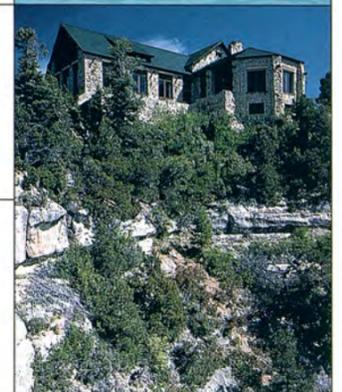
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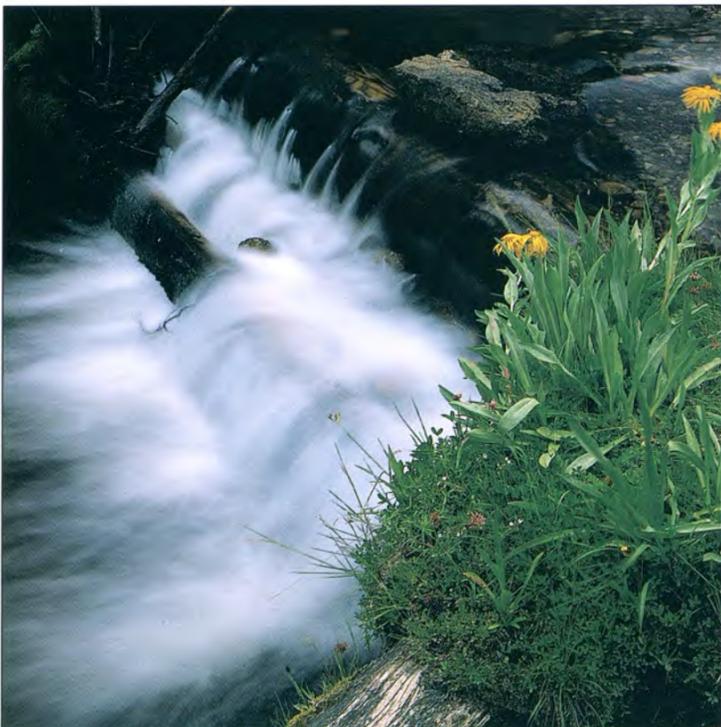
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(FRONT COVER) *Idyllic scene near the headwaters of the Little Colorado River in the Mount Baldy Wilderness of eastern Arizona. For more about this historic watercourse, see page 22.* WILLARD CLAY
(OPPOSITE PAGE) *The soft shades of twilight suffuse the ancient rocks of the gorge of the Little Colorado River west of Cameron.* JEFF GNASS

EDITOR'S

P A G E



EVERY SO OFTEN one of our readers raises a question about the fidelity of a photographic reproduction in *Arizona Highways*. If the individual has never lived in or visited our state, he or she may find the startling colors of a Southwestern sunset suspect, or the blue of an Arizona sky quite unbelievable. Or, knowing that commercial photographs and studio portraits are often retouched, one may wonder if we have resorted to air-brush techniques to amend an image.

I can state our policy quite simply. We do not believe in altering photographs or enhancing their color tones. Our photographers go to great pains to record a scene or activity authentically. In turn, the editorial and production staff, the technicians who prepare our color separations, and our printers all focus their efforts on reproducing the original transparency as exactly as their skills and the state of the art will permit.

Recently a subscriber wrote, "I have been disturbed by what I call an excessive use of an air brush on photographs that contain water." He will be relieved to know that we do not even possess an air brush. The blurred or sweeping appearance of water in certain images—what he interprets as air-brush alteration—results from the movement of the water and the length of the exposure of the film.

Air brushes and color "hyping" aside, modern computer technology has made it possible to alter photography in quite remarkable ways. At *Arizona Highways* we have accepted such a technological assist only twice in my memory: once to extend a fence railing a few inches to solve a cropping problem, and once to lighten a slightly underexposed photograph that captured exactly the moment and composition we wanted. Beyond such rare technical refinements, we anticipate no other use of the new technology.

As journalists, we want *Arizona Highways* to be a reliable publication of record, equally accurate in text and pictures.

—Merrill Windsor

These images accurately reproduce the original transparencies. (LEFT, ABOVE) A Sonoran Desert sunset. ALAN MANLEY (LEFT) Spring runoff in the Mount Baldy Wilderness. DALE SCHICKETANZ

LETTERS

YOURS SINCERELY

BREATHTAKING

I visited Arizona for the first time last year and it was literally breathtaking—so much splendor and beauty. I was afraid to breathe deeply lest it all disappear. Since that visit, a friend in Arizona gave me a gift subscription to your wonderful magazine and I look forward to each beautiful issue. You can be sure that I will not allow my subscription to your premium quality publication to expire.

Dot O'Briant
Laurinburg, NC

LONG HAUL

I thoroughly enjoyed the March issue, especially the Oatman segment in "Route 66." In 1936-37 I hauled gold ore from Searchlight, Nevada, to the Tom Reed Mine near there, a 200-mile round-trip and dirt road all the way. I also hauled to Chloride over Boulder (Hoover) Dam, which had just opened. The article brought back many memories.

Albert Huff
Marysville, CA

TRUTHFUL BRAGGING

My husband used to brag about Arizona so much that I just knew no place could be that great. Then we went there and I instantly fell in love with it. I'm always thrilled that you have articles on places we've been and was really delighted by the March issue with Oatman, London Bridge, and Kingman.

Mrs. Dicia Barnhouse
Churubusco, IN

SHARING GOOD FORTUNE

Last spring we had the good fortune to have a hummingbird build her nest on our wind chime. We remembered your article on hummingbirds, "Darting, Hovering Jewels of the Air" which appeared in the November 1987 issue, and wanted to share our photograph with your readers.

William and Laura Fields
Prescott, AZ

CONTINUING EDUCATION

I am 93 years old, so one year is all I am subscribing to for now. I have visited Arizona three times. Grand Canyon and San Xavier Mission are just beautiful and so are many other points of historical interest. Arizona is a wonderful state and *Arizona Highways* is the best magazine published. It's easy to read and educational.

Mary Markstrom
Cedarville, MI

The hummingbird as music lover.



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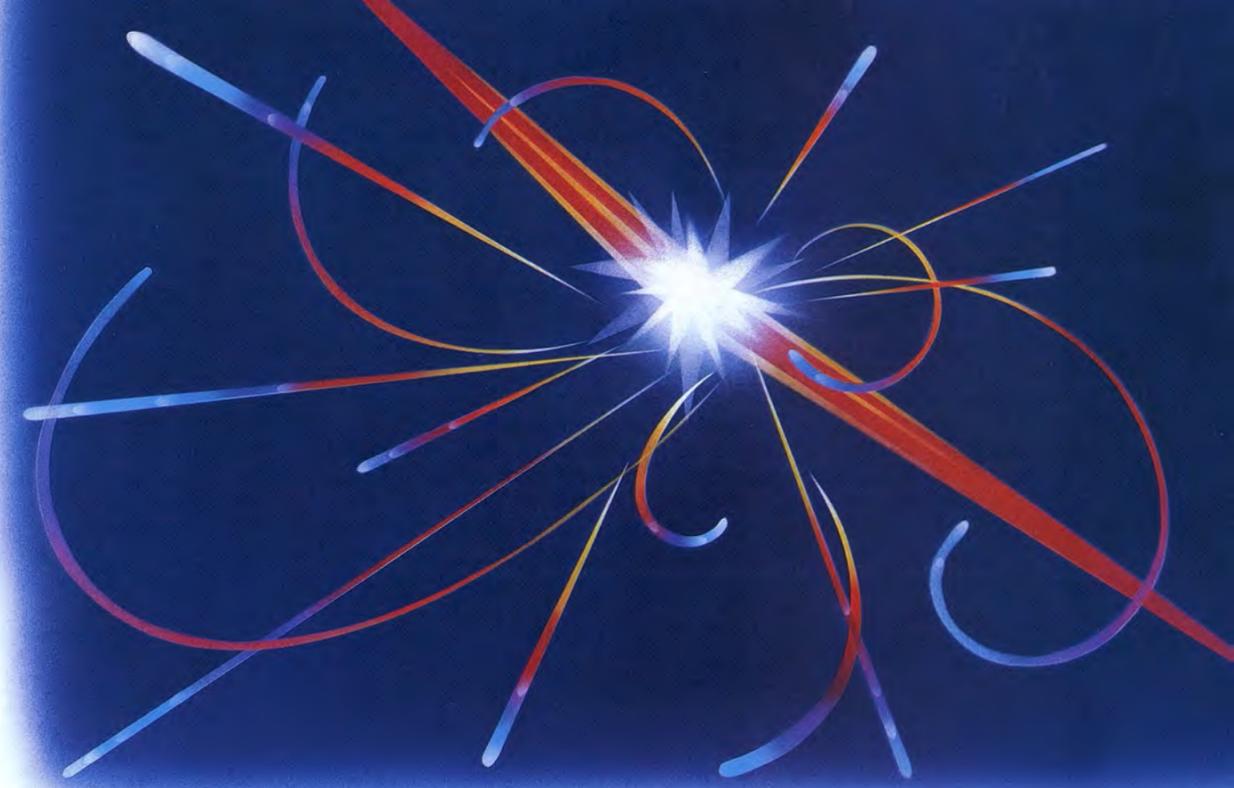
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Arizona's a finalist in the competition for the
**Superconducting
Super Collider**

TEXT BY TOM DOLLAR
PHOTOGRAPHS BY FRED GRIFFIN
ILLUSTRATIONS BY JIM CHERRY

From a few thousand feet up in a light airplane or helicopter, it will look like a small college campus nestled into the foothills of a low mountain range: a large administration building, a nearby cluster of smaller structures, parking lots, a few service roads, and landscaping that blends into the surrounding desert terrain. An alert eye, though, will notice other groups of modest buildings, spaced every 2.5 miles, moving in line into the distance and plotting a great arc as they march out of sight to encircle the adjacent peaks and rocky ridges.

From your moving eagle's-eye vantage,

(LEFT) *The Sonoran Desert southwest of Phoenix may soon become the designated site for the Superconducting Super Collider. When completed, the underground accelerator will be the world's largest scientific instrument. Total cost of the project is estimated at \$4.5 billion to \$6 billion.*

you discern that the extended arc forms a giant ellipse, 17 miles long, and that 14 miles across the ring from the "main campus" stands another group of buildings, similar in configuration but somewhat smaller than the main complex. And finally the arc swings around to complete its long circuit.

What you are observing from aloft are the surface elements of the largest scientific instrument on earth, the Superconducting Super Collider (SSC), as it will appear if built on the Arizona site proposed by the state's leading scientists, politicians, and civic and business leaders. The elliptical location rings the southern range of the Maricopa Mountains, about 35 miles southwest of Phoenix.

The action will be underground. Some 80 feet beneath the surface will lie a concrete-lined tunnel, 10 feet in diameter and extending 53 miles in its elliptical course. Inside, encased in narrow pipes wrapped in supercooled magnets, minute bunches of protons—propelled by the magnets—will race in opposite directions

at nearly the speed of light. At intervals along the way, in buildings called collision halls, the magnets will guide the speeding beams into head-on smashups of stupendous force, releasing energy measuring 40 trillion electron volts—20 times that achieved by the Tevatron at the Fermi National Accelerator Laboratory (Fermilab) in Batavia, Illinois, at present the world's largest atom smasher.

Although the batches of protons are so thin that, each time the beams are aimed at each other, only a relatively few particles will actually collide, still 100 million collisions will occur every second. Physicists monitoring the subatomic debris created by these collisions believe that the Super Collider will help them understand what happened during the biggest high-energy physics event of all time—the "big bang" at the moment the universe came into existence, some 15 billion years ago.

Ever since 1930 when the first particle accelerator, a cyclotron, was built by Ernest O. Lawrence at what is now the Lawrence Berkeley Laboratory in California, particle



(ABOVE) The SSC plan calls for a 10-foot-diameter, 53-mile-long tunnel following an elliptical course. Inside, two smaller tubes lined with supercooled magnets propel protons in opposite directions at nearly the speed of light. Where the two paths cross at intervals along the tunnel, the collision of protons will produce subatomic particles that physicists will study to learn more about the creation of the universe. (OPPOSITE PAGE) A portion of the proposed SSC tunnel will be constructed under the Maricopa Mountains of south-central Arizona.



acceleration has been the vanguard of high-energy physics research. Thus the state that wins the competition for the SSC will become the acknowledged mecca for particle physics researchers worldwide, and that state's stock in the scientific and intellectual community will soar.

"Having the SSC would raise the general level of scientific activity at our universities," says Dr. Peter Carruthers, chairman of the Arizona SSC Task Force's Technical Committee. "And inevitably it will pull along all other fields. High-energy physics is an elegant field that has always attracted some of the finest minds in science. And if you are the best in this field, then the general perception of overall quality goes up, so that even better people come in other disciplines as well. The poets will

profit from a more vigorous university." Last September, 25 states formally proposed to the United States Department of Energy 45 different sites for DOE's construction and operation of the SSC. Arizona submitted proposals for two locations—the Maricopa County site and another encircling the Sierrita Mountains south of Tucson. A select committee appointed by the National Academy of Sciences and the National Academy of Engineering was commissioned by DOE to evaluate the proposals and to pare the list to an unranked group of best-qualified sites. In late December, the committee chose eight for its Best Qualified List (BQL). Arizona's Maricopa County site was among them; the other seven were in New York, North Carolina, Tennessee, Illinois, Michigan,

Colorado, and Texas. New York has since withdrawn its site from consideration. The Department of Energy expects to announce a preferred site in November or December of this year. If the preferred choice clears the hurdles of further technical studies and a final environmental-impact review, it will be declared the winner in early 1989. Assuming adequate funding is provided, construction is scheduled to begin later in 1989, with completion targeted for 1995. Merely to be eligible for DOE consideration, proposed sites had to pass basic qualification screening on things like the proposing state's ability to provide clear title to the 16,000 acres of land required for the SSC; the ability to meet minimum water and power requirements; and the ability to

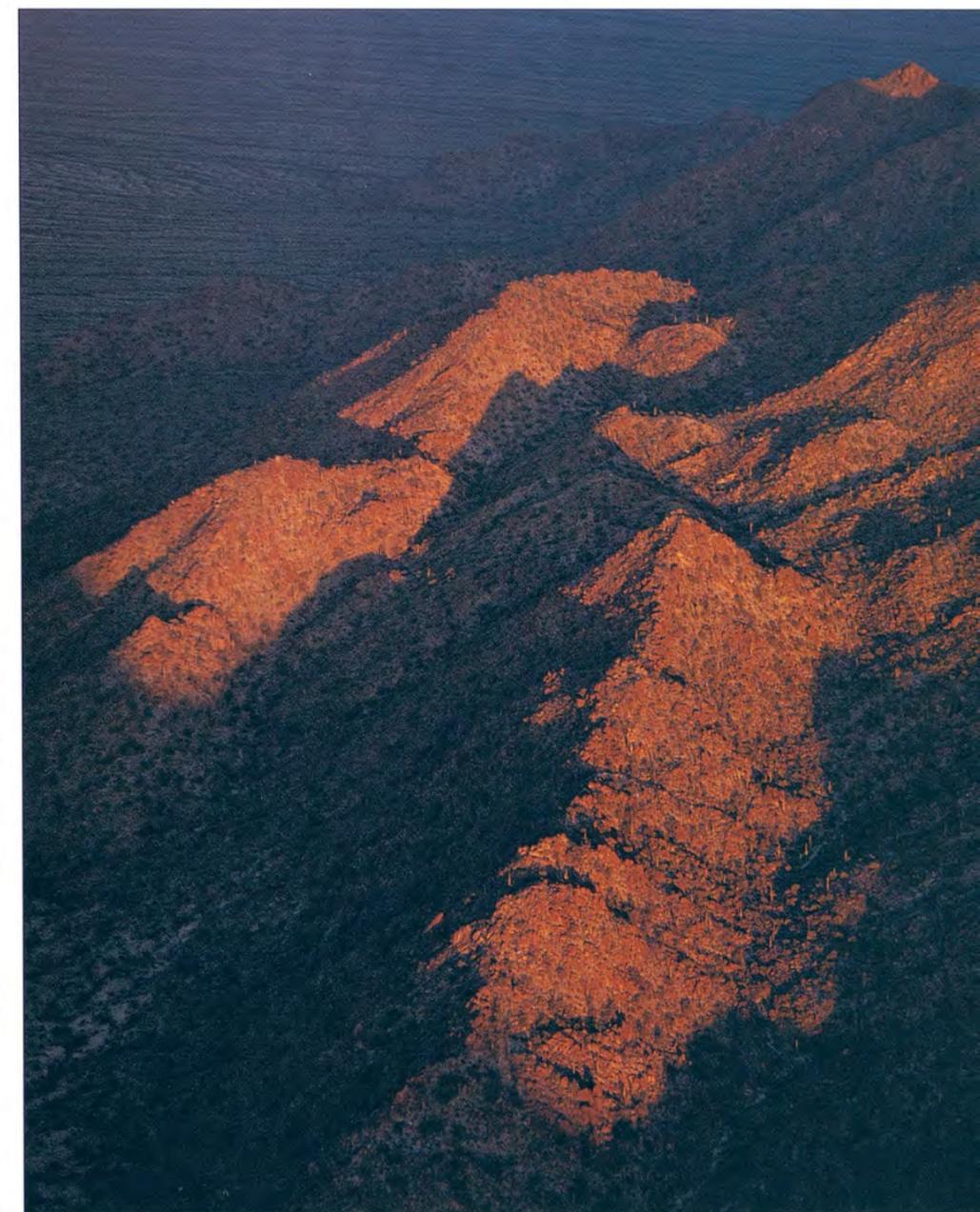
build the SSC without damaging the environment. The survivors of the "first cut" were next judged by a rigorous set of technical criteria. Arizona and the other BQL sites passed this second screening. The selection of the preferred site will largely depend on a number of technical factors and on the site's compliance with the National Environmental Policy Act as evidenced by a thoroughgoing impact study.

Arizona's chances appear to be excellent. In certain technical categories, namely geology, geotechnical engineering, and a record of achievement on grand-scale construction projects, Arizona is unsurpassed. And in a catchall category called "regional resources," encompassing such features as climate, natural beauty, recreational opportunities, culture and the arts, institutions of higher learning and research, transportation, housing, and schools—in short, "quality of life"—Arizona has much to offer, as anyone who lives here will readily attest.

The distinctiveness of the Arizona site begins with its geology. For two-thirds of its 53-mile path, the SSC ring would pass through a material called fanglomerate, a composition of cemented sediments resulting from coalescing alluvial fans. Because of its stability, fanglomerate can be excavated safely and rapidly using either of two well-established tunnel construction techniques. The first is cut-and-fill, which involves cutting a trench, laying in preformed tunnel sections, then covering; the second is mechanical tunneling with a tunnel boring machine, or TBM.

The remaining third of the SSC ring will burrow through bedrock using TBM methods exclusively. Arizona construction and mining firms lead the field in tunnel construction technology, having refined both cut-and-fill and tunnel boring methods on major projects such as the Papago Freeway drainage tunnels and the Central Arizona Project's 337-mile-long aqueduct from the Colorado River. Tests by geologists, hydrologists, and project engineers show that problems that can delay or stop construction, such as groundwater inflows, collapsing soils, and underground gases, are extremely unlikely at the Arizona site.

The dry, stable geologic structure, combined with the Arizona construction industry's specialized experience; an industrial supply and support system that includes concrete and aggregate materials, reinforcing and structural steel, heavy equipment, and machine repair; a skilled and available work force; and the benign climate, all indicate that the SSC can be built in Arizona faster than elsewhere, for less money, and with virtually no uncertainties about construction conditions and weather delays.



Although it is difficult to pin down exact numbers for costs and scheduling on a project of the SSC's magnitude, computer models designed by Arizona SSC Project engineers show that construction at the Maricopa site can be completed two years earlier than DOE scheduling models predict, possibly saving as much as a billion dollars.

Such savings in time and money suggest for the Arizona site a great advantage over the competition. If construction were delayed for lack of funds, for instance, or if DOE decided to defer construction a year or two while developing the technology for the vital superconducting magnets,

only in Arizona could the project still be completed by the target date.

Not to be overlooked is the flexibility to solve the unforeseen difficulties bound to plague any huge construction project: technical difficulties, equipment breakdowns, labor-management problems, or even bad weather. The ability to anticipate and contain or adapt to these factors is called risk management. With two years' margin at the Arizona site, DOE can construct a number of "fall-back" risk-management positions for problem-solving.

In selecting the Maricopa site for the Best Qualified List, the blue-ribbon panel pointed in particular to the responsiveness



(ABOVE) Easily accessible to both Arizona State University and the University of Arizona, the proposed SSC site covers 16,000 acres of desert land north of Interstate 8 and east of the town of Gila Bend.

of the Arizona proposal to environmental questions. Indeed, one of the strongest arguments for bringing the Super Collider to Arizona is that environmental studies thus far indicate that building the Super Collider here will have no negative impact on the environment. No watercourses will be interrupted by construction of the SSC, soil disturbances will be minimal, and there are no known federally listed threatened or endangered species of plants or animals living in SSC's path.

In fact, after prolonged cattle grazing, vehicular traffic, and cactus poaching, the environment at the Arizona site is already degraded. The SSC project thus has a unique opportunity to enhance the natural setting after construction, by salvaging and replanting native plants and by hydro-seeding—a revegetation process by which a slurry of mulch mixed with the seeds of native annuals and perennials is sprayed over the landscape. The Arizona site proposal also details plans for creating new riparian habitats with wastewater and runoff.

The question of water use is, of course,

critical in an arid environment. SSC Project hydrologist Steve Brooks reports that nearby sources of groundwater are more than adequate to meet the modest needs of the SSC for the next 175 years. SSC water use will be about the same as for a medium-sized Arizona cotton farm, approximately 4,000 acre-feet a year.

The most obvious general benefit for the state that wins the SSC is economic. DOE has estimated that the Superconducting Super Collider will cost more than \$4.4 billion to build, with total project costs, including research and development, approaching \$6 billion. Construction alone will create 4,000 jobs for a period of at least five years. State firms will receive construction and installation contracts; heavy equipment will be leased locally; cement, steel, and aggregate materials will be purchased from nearby sources; and service contracts for repair and maintenance will be awarded to in-state companies.

Once the SSC is in full swing, operating on an annual budget approaching \$300 million, more than 3,000 people will staff the facility—scientists, engineers, techni-

cians, computer programmers, maintenance workers, and support personnel. Add others involved in on-site ancillary efforts—graduate students, for example, and hundreds of visiting scientists and technicians—and the SSC site will be humming with activity.

High-tech support industries will settle near the collider to build and maintain its equipment. New technologies in sensing equipment, computers, superconducting materials, and magnets will develop, planting the seeds of new industries.

The boost to the winning state's economy will be enormous. The Division of Business and Economic Research at the University of Arizona estimates that between 1988 and the year 2000—if the SSC comes here—state personal income will increase by \$8.4 billion, employment increases will average 12,000 annually, and increases in state and local government revenues will be in the hundreds of millions of dollars.

But the state that walks off with the prize will of necessity offer as much to the scientific community and to the SSC as it stands

to gain. In addition to the technical qualifications discussed earlier, the winning state must offer an impressive catalog of features that fall under "quality of life." The chosen site, in short, will be a preferred place to live and work.

Here again, Arizona's position is strong. "The thing that will make this project so successful in Arizona," says Dr. Carruthers, "is that the finest minds in the world will want to come here, grow up with their families, develop their careers, make their discoveries in an environment that's pleasant, stimulating, and culturally diverse."

Scientists in considerable numbers are already drawn to Arizona from all over the world by Kitt Peak National Observatory, the Environmental Research Laboratory, and the Smithsonian National Observatory, all major scientific and research institutions. In Tucson, the University of Arizona, one of the "top-20" research universities in the nation, has earned special distinction in astronomy, optical sciences, arid lands studies, lunar and planetary studies, and applied mathematics. And its College of Medicine is internationally acclaimed for cardiac research and surgery and for research in cancer and gerontology.

At Arizona State University in Tempe, the sixth largest university in the United States,

outstanding research continues in high-resolution electron microscopy, medium-energy nuclear physics, environmental studies, automated engineering and robotics, solid state science, and energy systems.

The UofA has moved to expand its high-energy physics program by appointing Carruthers to head the department and by creating 16 new positions to be filled within five years. ASU has similarly committed to upgrading its high-energy physics program by the addition of eight new positions, according to Dr. Richard Jacob, chairman of the Physics Department and deputy chairman of the Arizona SSC Technical Committee.

When it comes to "regional resources" or quality of life, it may be the lure of Arizona's most attractive features—its wonderfully diverse natural beauty, recreational opportunities, cultural richness, and economic vibrancy—that will bring the SSC to the state.

Only Arizona can boast 22 units of the National Park Service, the Arizona-Sonora Desert Museum, Mission San Xavier del Bac, such fabled Western towns as Tombstone, Jerome, Yuma, and Bisbee, and countless other places of historic interest or natural splendor within a half-day's drive or less of the proposed SSC site.

Where else can you wander the Sonoran Desert in your shirtsleeves on a sunny winter morning and ski through aspen and pine forests that afternoon?

Resident symphony and chamber orchestras perform in Phoenix and Tucson, as well as opera, ballet, and theater companies. The dozens of museums and galleries in the two metropolitan areas include the renowned Heard Museum of Anthropology and Primitive Arts, the Arizona State Museum, several major art collections, and the Center for Creative Photography.

Arizona, sixth largest of the United States in area and 25th in population, is growing in number of residents at almost 4 percent annually as high-tech industries, construction, and tourism replace cotton, cattle, copper, and citrus as the foundations of the state's economy. The Superconducting Super Collider fits with Arizona's image as a center for important scientific research and its record of accomplishment on grand-scale projects.

With its distinctive physical, environmental, economic, social, and intellectual climate, Arizona is the ideal location for that scientific instrument of the 21st century, the Superconducting Super Collider. ■

Tom Dollar is editor for the Arizona SSC Project.

Arizona Highways Note Cards

Arizona Highways wildlife note cards are a colorful way to enhance your personal correspondence.

The front of each card features a full-color wildlife photograph, while the inside is reserved for your personal note-writing. The cards measure 4¼ by 5½ inches, folded. Each box contains 10 cards featuring two different photographs, plus 10 envelopes. \$4.75 per box.

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Box A: Rivoli's hummingbird is a summer visitor to the mountains of southeastern Arizona. Anna's hummingbird is a resident of the Phoenix and Tucson areas. #NOTS8



Box B: A young and quizzical Arizona burrowing owl. A nuzzling family of Arizona burrowing owls. #NOTS7





Hal Empie at 79

BY KAY MAYER



The red hair is white now, but the sidelong look as he waits for a laugh at the end of a story is as elfin as it ever was.

In his old "Norman Rockwell" eyeshade and painter's apron, he returns to the easel in his new studio in Tubac. He moves like a young man, and the years between our conversations drop away.

Perhaps only through clues in his paintings—or in his own bemused comments—might you guess that Hart Haller "Hal" Empie counted 79 birthday candles last March. "I've been around so long, ever'body looks familiar to me," he says with a laugh. "I think I've met ever'body at least once."

Certainly he's met almost everyone in his earlier, longtime haunts of Graham and Greenlee counties in eastern Arizona. Possibly most of the travelers, too, on U.S. Route 70 between Globe and the New Mexico border, because for 50 years Hal Empie combined his profession of painting with his profession of pharmacy in Safford, in Solomonville (now called Solomon), and later in Duncan in his Art Gallery Drug Store.

His light and spacious studio in Tubac is more than just miles distant from his first—a small square in the back of a drugstore—where he painted in 10- and 15-minute intervals between customers. Working seven days a week as he did, there was no other spare time.

Concentration came early. "Sometimes I'd have the picture clearly in mind, my brush all loaded, and here comes a prescription to be filled." He'd go out into another world, a realm of toothaches and ice-cream cones and hot-water bottles, and it might be the next day before he could return to his easel.

As Hal Empie speaks, he daubs at the oil painting before him, changing the position of the legs of a running horse, still making use of minutes though his interruptions now can be as many or as few as he wishes.

Earlier his wife, Louise, had been invited into the studio for a look at this painting he calls "Making an Honest Dollar," and commented that one of the horses in the scene was not running fast enough. "She was right. She helps me a lot," Empie says, "always has. I don't always agree, but much of the time she's right."

He mentions that they were kids together, had married young. He still remembers when her family, "the Reinhardts from Texas," moved in down the road. His home at the

(ABOVE) Artist Hal Empie at work in his Tubac studio. JACK W. DYKINGA
(LEFT) "The Man from Guthrie"; oil on board, 10 by 8 inches.



Illustrations and cartoons began Empie's artistic career, and his early Western-theme postcards (LEFT) were a commercial success. (BELOW) "The Stragglers"; oil on board, 14 by 30 inches.

time was a one-room adobe house near Safford. It shows up now and then in an Empie painting. "The floor was dirt, packed hard as concrete." The water source was an outside well his father had dug.

His father, Hart Dewitt Empie, who moved from New York State for medical reasons, had recovered his health by the time his son Hal was born in 1909. It was a quiet, happy time. The Indian troubles were past, and though Arizona was still a territory, statehood was to come in 1912.

Mostly self-taught, Empie began polishing his artistic skills at an early age. He didn't realize it at the time, but with his constant drawing, he was feeding a prodigious

visual memory. That process continues. He still makes regular field trips and returns with sketches. Yet he rarely refers to them. His paintings are all from memory or imagination. He says there's a scroll in his head he can unreel at will. "I can even look at faces up close, if I want to."

Through his on-the-spot drawings, the anatomy of his subjects is etched in his visual memory, and when he paints, he puts them "where the painting needs them. Besides," he adds, "I found out early that there is no creative satisfaction in copying. So I don't do it."

He turns from his painting, pushes back

his eyeshade, and looks out his studio windows through the golden light into the past. His memories are many and include watching the local militia when they entrained to counter Pancho Villa; crinkling his first one-dollar bill; riding with his family in his father's 1913 Model T Ford in the big parade on Armistice Day, 1918. "When the news broke that the war had ended, people left their homes to come together. They were rattling pans, tooting horns, laughing, crying; some were walking, some riding. They just kept coming until that parade stretched more than 20 miles, from Solomonville to Fort Thomas."

His first "serious" painting was done at



age 14 when he was working for Amos Cook in the Best Drug Store in Safford. Hal used poster paint and drew palm trees ("They were awful!") on the backbar mirror of the soda fountain. He added blue water and a sign, "Banana split 15 cents."

"I wasn't very good, but I wanted to be." He says he kept on painting signs and doodling animals all through high school and well past the time he took his Arizona Board of Pharmacy exams.

It was while doodling in Duncan in the mid-1930s that he created his first Empie Kartoon Kard. "I made a drawing in the proportions of a postcard—a man running across the desert. Hooked to the back of his pants was a rattlesnake. My caption read, 'Duncan, Arizona. Just rattlin' through.'"

He had 100 postcards printed, put them on the rack with the other nickel cards, "and the tourists just hauled them off." One night after the store closed, he drew another, showing a dog running across a flat desert, not a thing in sight except distant low hills. "I captioned that, 'I think that I shall never see anything as lovely as a tree.'" Again he gives me that sidelong look, and we laugh.

His cartoon business grew through the 1930s, '40s, and into the '50s, the drawings turning up in magazines, on war posters,

and in fund-raising pleas. An Empie Kartoon Kard was discovered in a hayloft in Italy during World War II, another under glass at the registration desk of a Tokyo hotel. "I ended with about 127 copyrights."

The Empie Kartoon Kards supported all three of the Empie children—Halene, Joel, and Ann—and put them through college. His youngest, who is now Ann Groves and his business manager, recently revived the cards. She said the original drawings have been divided between two archives: the Carnegie Library at Syracuse University, New York, and the Empie Collection at the Arizona Historical Foundation, Hayden Memorial Library, Arizona State University in Tempe.

Commissions began to come to the artist-who-was-also-a-pharmacist. In 1952 there was one for a mural in the Duncan High School cafeteria, in which he painted people of Greenlee County, the familiar land, and its historic procession of Indians, Spaniards, miners, farmers, and ranchers. "I painted on linen, a single piece that I stretched by myself," Hal remembers. "The painting measures 8 feet high, 27 feet long. Local people modeled for me. In the background are familiar landmarks like Vanderbilt Mountain and Steeple Rock. Took about 580 hours of work." He adds that when he saw it last, the mural still

looked fresh, and teachers continue using it as a visual aid.

Through the years, commissions and honors increased. His paintings are included in the permanent collection of the Carnegie Library at Syracuse University. The Arizona Historical Foundation has its special Hal Empie Collection at Arizona State University's Hayden Library. The Tucson Museum of Art includes several Empie paintings in its permanent collection, as does the George Phippen Museum in Prescott. He also has completed a series of religious paintings that are now in various churches.

Yes, he feels at home in Tubac, he says, because he's still in Arizona; but he does need to visit his beloved Gila Valley from time to time.

Asked about his plans for the future, Hal Empie says, "Every picture I do is one more inch toward my goal. Some day I'm going to do a really good picture—if the Almighty gives me time!" He pauses, looks around him and, as he gives me his sidelong look, adds: "Right now I'm as close to heaven as I want to be." ■

Free-lance writer Kay Mayer has written numerous articles on Southwestern artists and other topics for Arizona Highways.



(ABOVE) "Making an Honest Dollar"; oil on board, 24 by 40 inches.
(RIGHT) "A Day in August"; oil on board, 36 by 24 inches.





THE OLD WEST
PHOTOGRAPHY OF

DANE COOLIDGE

Armed with a camera as well as a pen, author Dane Coolidge spent years trying to supplant the myth of the West that *wasn't* with the reality of the West that *was*. In a career spanning nearly half a century, he produced 40 novels, five nonfiction books, countless articles, and an indeterminate number of photographs portraying an Old West in which historic realism takes precedence over romantic illusion.

His allegiance to the true West came as a by-product of personal experience. Born in Natick, Massachusetts, on March 24, 1873, Coolidge was four years old when his family relocated to Riverside, California. The second son of a farmer and a third cousin of the future U.S. President Calvin Coolidge, he spent his boyhood working on the family's small citrus ranch. When his

mother died in 1892, he became the family bookkeeper, leaving most of the manual labor to his father and older brother.

Coolidge's new duties left him time to cultivate such hobbies as reading (he was an avid connoisseur of Western "dime novels") and collecting specimens of flora and fauna. The latter experience provided, after he enrolled in Stanford University in 1894, a means for earning a livelihood. During leisure hours and summer vacations, he collected mammal and reptile samples for the natural history collections at his alma mater, the British Museum, and the National Zoological Park. His travels took him to isolated reaches of southern California, Nevada, Arizona, and northern Mexico. In the process he developed other skills, among them photography.

Edward Maslin Hulme was both a fan of

Coolidge's photographs and an early seer of the camera's ability to serve as a conduit for literary realism. The relationship between the two men was originally that of professor and student. Hulme, a renowned classical scholar and longtime chairman of the medieval and Renaissance history department at Stanford, taught Coolidge the historical value of lore and the importance of separating fact from fantasy in any research endeavor.

After graduating in 1898, Coolidge accepted a contract to study and collect fauna indigenous to western Europe. But his London base soon proved stultifying to the young man weaned on the open hospitality of the Far West. He then entered graduate school at Harvard, where he studied biology for a year; but this too became stifling, and he packed up his belongings and camera and headed west.

In 1906, Coolidge married Mary Elizabeth Burroughs Roberts, whom he had known in college. At the time of their marriage, she was an associate professor in sociology at Stanford, and would later chair the sociology department at Mills College. Berkeley, California, served as home base for the Coolidges, but they also owned a home in Superior, Arizona. The couple had no children, but enjoyed a close personal and professional relationship.

Coolidge's exodus from the East marked the beginning of his career as a professional writer. For the next four decades, he averaged better than a book a year, all centered upon activities, events, and people peculiar to the frontier. The information he acquired during his travels as a naturalist gave him an edge in re-creating the physical aspects of his setting, but his characters at first seemed to lack flesh and blood. So Coolidge set out to fill the gaps in his knowledge and understanding of human



Shipping cattle at Diamond
Bar Ranch, Hackberry,
1918

BY EVELYN S. COOPER

PHOTOGRAPHY COURTESY DANE COOLIDGE PHOTO COLLECTION, ARIZONA HISTORICAL FOUNDATION

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*The Duncan girls, Diamond
Bar Ranch, 1918*
◆◆◆



nature and behavior, establishing a pattern that became his modus operandi as a writer: research through direct experience rather than secondary sources; compilation of objective facts instead of imaginative tales; and photography in advance of any attempt to recapture an experience in words.

Arizona seemed a practical and intriguing place to start. After all, it was a traditional home of the cowboy, who epitomized (Coolidge felt) the traits and virtues that made the American West unique. He determined to share the cowboy's world. As a photographer, he joined roundups on

the massive Chiricahua Ranch along the Mexican border, the Diamond Bar Ranch to the north, the La Osa and Arivaca spreads southwest of Tucson, and several smaller outfits throughout the state. During the off-season, he journeyed to Payson, Prescott, and Tucson to watch stockmen demonstrate their skills at rodeos; along the way he talked to saddlemakers, frontier merchants, and ranchers.

A large measure of Coolidge's impact rests upon the fact that there were no other photographers concentrating on cattlemen in the West prior to World War I. Alexander

Forbes and a few itinerants around the turn of the century took pictures of drovers, but these images were little more than visual equivalents of the legendary heroes popularized by "gunsmoke" novels. Because Coolidge pursued the historic cowboy, his characters came in a variety of sizes, were proficient in a number of skills, and were not always glued to their gun belts. Their lives were inextricably tied to cattle, with boredom and isolation more common to their experience than dramatic adventures.

What Coolidge captured through the lens of his camera spilled over into his



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*Arizona Rangers with
Capt. Harry Wheeler,
Willcox, 1907*
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*Navajo portrait, Kayenta
Trading Post, 1913*
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writing. Roughly three-quarters of his works center upon some aspect of the stockman's life. The plots in his novels are various—wars between cattlemen and sheepmen, ranchers fighting poachers, drovers on roundups, and rugged individuals suffering the ravages of nature to carve out a place in the wilderness. Men fight more with curses than gunfire, and the hero does not always emerge victorious.

But Coolidge's interest in the cowboy did not deter him from studying other aspects of the West. During the early decades of this century, large-scale mining was replacing the individual prospector in laying claim to the earth's riches. Coolidge photographed mines in both Arizona and New Mexico, but his real focus was on prospectors. He traveled throughout the Southwest and braved Death Valley to record their faces and life-styles on film. The stories he heard, along with the photographs he captured, supplied material for three novels he penned lamenting the death of an old and worthy profession.

Another subject that did not escape his notice was military life on the frontier. He carried his camera to Texas, New Mexico, and Arizona to capture the daily routine of the soldier. Not surprisingly, the troopers, too, appeared in the pages of some of his novels.

There were times when Coolidge simply took pictures. During the Mexican Revolution, he made a powerful series of photographs of troop movements, military units, and civilian supporters. During a visit to the 12th Infantry camp at Nogales in 1912, he achieved a unique set of candid shots of Pancho Villa.

Throughout his career, Coolidge visited Indian reservations in both Arizona and Mexico. His photographs of Hopi snake dancers and priests, Navajo sheepherders,

and Yaqui families are among his best. A number of Native Americans subsequently appeared in his novels, in situations different from prevailing stereotypes. During the 1930s, Coolidge collaborated with his wife, Mary, on in-depth studies of the Navajo and Seri tribes.

The scholarly side of his nature found expression in three other nonfiction books, this time about cowboys. Written during the last decade of his life, these works convey Coolidge's wealth of knowledge about his favorite subject and illustrate the extent to which he relied upon photography to spur his memory. All of the photographs used for illustrations and many of the stories he recounted came from subject matter he had preserved on film 30 years before. At the time of his death in 1940, he was working on a similar account of the Mexican vaquero.

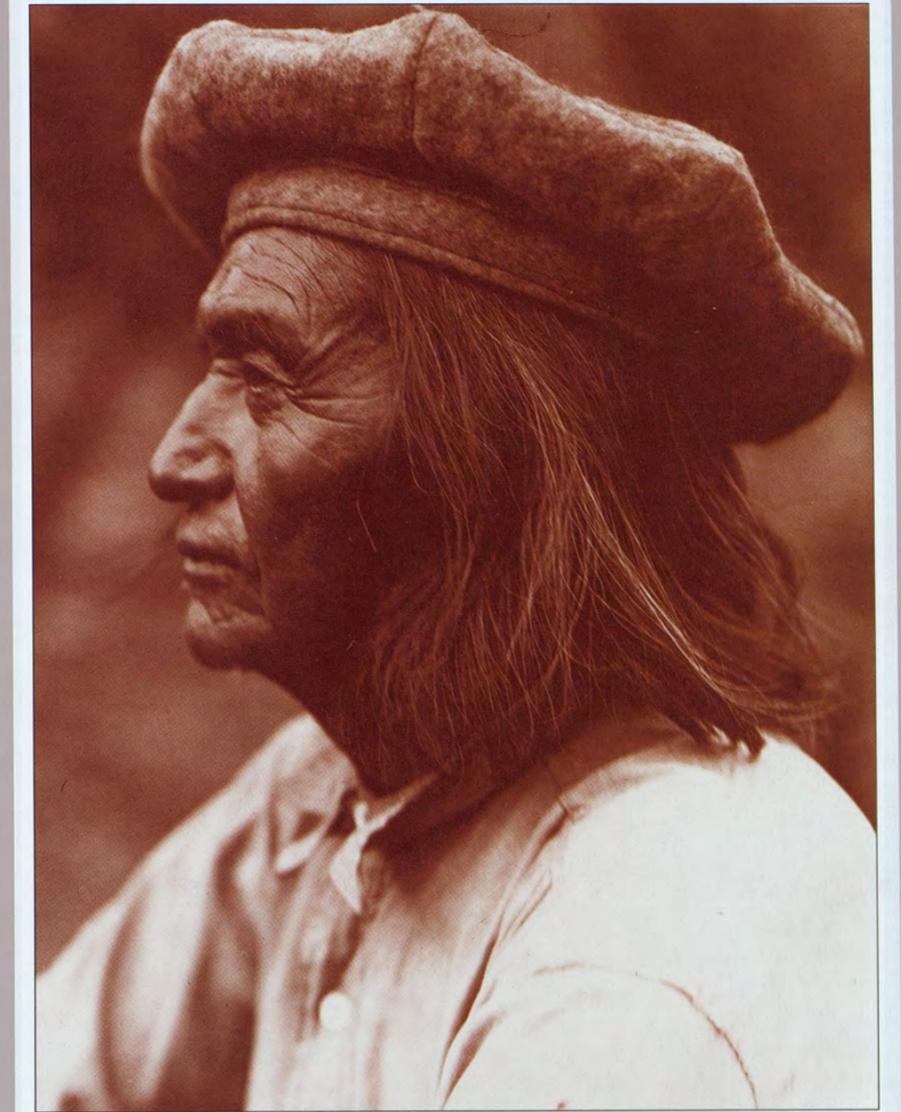
Coolidge was neither a literary genius nor a master photographer. He was an innovative realist who understood and appreciated the cultural components of the frontier West. With both words and pictures, he bequeathed an honest account of that West to posterity. ❏

Editor's note: The Dane Coolidge Photographic Exhibition will be touring Arizona over the next 14 months. For information on dates and locations, telephone the Arizona Historical Foundation, (602) 966-8331.

Evelyn S. Cooper is a doctoral candidate in history at Arizona State University.

Selected Reading

Three of Dane Coolidge's books, Arizona Cowboys, California Cowboys, and Texas Cowboys, have been reprinted by and are available from the University of Arizona Press, Tucson.



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Apache portrait, 1913
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BY SAM LOWE

Mountain stream, chocolate Niagara, scenic tributary. . . the

LITTLE COLORADO

R I V E R



(LEFT) Monkey flowers, Mount Baldy Wilderness. Here the Little Colorado begins its 350-mile-long journey.
LARRY ULRICH
In its northwesterly course, the river cuts through ancient rocks (ABOVE) where dinosaurs once roamed.
TOM BEAN

miles. As it winds its way toward the Colorado River, the Little Colorado gathers water from the Zuni River, flowing out of New Mexico, and from Arizona's Rio Puerco and Lithodendron Creek, along with a variety of other tributaries, mostly washes and small streams. On its twisting, turning journey, the river touches or passes near a number of Arizona communities, including Greer, Eagar, Springer-ville, St. Johns, Woodruff, Holbrook, Joseph City, Winslow, Leupp, Sunrise, and Cameron.

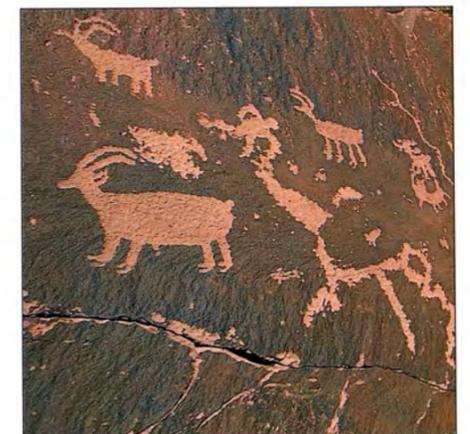
Its ancestry probably dates back to the Cenozoic era some 70 million years ago, when a great river drained the western Rockies, dropping downhill through what is now the Four Corners area. That prehistoric river used much of the channel of the present Little Colorado, but then it flowed toward the Rio Grande. Something, perhaps geologic upheaval or a massive lava flow, dammed the ancient river and created a huge lake over much of what is now the

The Little Colorado River has had several names. That is fitting, because it's a river of many faces and many moods. It begins as three mountain streams, and ends as a canyon-cutting tributary of the Colorado River in the Grand Canyon. The inconsistent flow along its course ranges from a mere trickle in late spring and early summer to a torrent of brown after summer thunderstorms or drenching winter rains. It has a drainage area of more than 20,000 square miles, but most of the time runoff is slight and it's only an intermittent stream.

The river originates on Mount Baldy in what used to be known as the Sierra Blanca. Now that range is called the White Mountains, and the three sources are known as the stream's east, south, and west forks. They join at a point south of Greer to form the river proper.

As the crow flies, it's about 200 miles from the river's headwaters to its mouth in the Grand Canyon. But if the crow walks along the riverbank, the distance is about 350

(BELOW) Along the old salt trail to the Little Colorado, ancestors of the modern Hopis left their mark.
TOM BEAN



Text continued on page 31

(FOLLOWING PANELS, PAGES 24 AND 25, 26 AND 27, 28 AND 29) Luxuriant wildflowers brighten grassy banks along the West Fork of the Little Colorado. On the way to join its mighty namesake, the river gambols past conifer-covered mountain slopes, crosses high desert, spills over the cliffs of Grand Falls, Arizona's Niagara, and cuts its own dramatic chasm before linking with the Colorado in Grand Canyon National Park.

LARRY ULRICH/DICK DIETRICH/JACK W. DYKINGA









(ABOVE) Gorge of the Little Colorado near its confluence with the Colorado River. PETER KRESAN

Text continued from page 23

Navajo Indian Reservation. When the lake waters finally receded, the channel remained, later to become that unusual phenomenon, a northerly flowing river.

It's not known who gave the river its first name, but the Navajos once called it Tol Chaco (Red Stream), suggested by its muddy floodwaters. Don Juan de Oñate, the first governor of New Mexico, came upon it in 1604 and dubbed it Colorado, the Spanish word for red. Later, in 1776, Father Francisco Garces encountered the river and referred to it as Rio Jaquesila (Unruly River) and also Rio San Pedro (River of St. Peter). Farfan named it Rio de la Alameda (Tree-lined River). Lt. Amiel W. Whipple in 1854 reported that it had been called the Flax River and was "lately known as the Colorado Chiquito" (Little Colorado), in obvious deference to the by-then-famous Colorado River itself.



(ABOVE) In the wake of a fierce rainstorm, sparkling runoff waters cascade from the mesas, creating flash floods in the channel below. TOM BEAN



The potential of the Little Colorado as a source of irrigation water was first explored by settlers in the 1880s. Heroic attempts were made to create a dam at Salado Springs near St. Johns, but it was washed out by a flood in 1905. Later another dam was built 12 miles upstream, but it too proved faulty and in 1915 "poured down death and destruction," causing a dam at Woodruff to burst. In 1917 a storage project once again was undertaken, and in 1923 the first water was delivered from Lyman Dam and its reservoir, now the site of a state park. Today there are five dams in use on the Little Colorado's main stream and five on its tributaries.

Despite its capricious ways, the Little Colorado also harbors places of beauty. Its canyon system is somewhat similar to parts of the Grand Canyon, much less extensive or massive but imposing enough to gratify modern-day explorers.

Perhaps its most impressive sight is at its very end: the view from Cape Solitude, 3,400 feet above the junction of the rivers. When not muddied by recent rains and runoff, the Little Colorado is a lovely pale blue where it meets the dark green of the Colorado, and the contrast is dramatic.

Southeast of Grand Canyon National Park, near Sunrise on the Navajo reservation, is another Little Colorado River spectacle: Grand Falls, where the channel abruptly drops 185 feet. Centuries ago when molten basalt blocked a canyon the river had cut through the plateau, the diverted water wore a second gorge nearly 60 miles long around the tongue of lava, then plunged over a high rim of its former canyon into its old course.

Viewing the falls in all their splendor, however, is only a once-in-a-while opportunity, for a full channel of water occurs infrequently. But after a heavy rainstorm upstream, the usually dry river roars to life bearing a turbulent, muddy flood, and the Grand Falls become a chocolate Niagara.

That's the Little Colorado—often engaging, potentially exciting, but somewhat fickle. ❏

Sam Lowe is a daily columnist for The Phoenix Gazette and a long-time contributor to Arizona Highways.

(OPPOSITE PAGE AND RIGHT) The Little Colorado joins the Colorado deep in the Grand Canyon. The brilliant turquoise of the smaller river—stained muddy brown after heavy rains—is created by mineral deposits along its course. About four miles upstream from the junction is the sacred formation Hopis call the Sipapu, a travertine mound through which their ancestors emerged into a new world. LARRY ULRICH/TOM BEAN



Arizona's Shrine of ST. JOSEPH

S It was early 1942 when Mary Wasson happened upon the newspaper article about Felix Lucero. He had appeared, it said, in Tucson the year before, ensconced himself in a tent under the Broadway Boulevard bridge alongside the Santa Cruz River, and proceeded to sculpture the Last Supper out of riverbed sand.

She examined the accompanying photograph of his creation. "I think," she said to her husband, "that we've found our man."

Only they hadn't. Months passed before they finally located him, anonymously washing dishes in a Tucson cafe.



TEXT BY ALAN WEISMAN
PHOTOGRAPHS BY JAY DUSARD

ST. JOSEPH Shrine of

Then there was the matter of convincing him to undertake what the Wassons had in mind. Lucero, a wiry descendant of Mayo Indians and a native of a Spanish-speaking town in southern Colorado, was terse and stubborn in English. "It's cold in Yarnell," he muttered at one point.

"Then we'll come for you when it's warm." An offer of room and board, plus more money than he was making as a dishwasher, finally persuaded him. So in June, Mary and William Wasson returned to Tucson and took Felix Lucero into the mountains of central Arizona. For years they'd had a vision, and they believed that the little sculptor was now going to fulfill it.

The community of Yarnell squats amidst colossal boulders heaped at the edge of an escarpment that rises above one of the broadest vistas in the American Southwest. Here the world suddenly plummets, dropping nearly 2,000 feet from high, grassy rangeland to flat Sonoran Desert. At the bottom, the vast plain appears in motion, a tan sea lapping against the granite, as layers of heat from the desert floor collide with the cliff and roll back on themselves.

Up top it is cooler; red-tailed hawks take free glides on thermals, and frequent gusts kick brush along U.S. Route 89, Yarnell's main street. A gold mine, now depleted, created the town; today, barely a thousand people live here in houses squeezed into the complicated terrain, and the sound of rising wind is more prominent than that of civilization.

But half a mile away from the center of town, beginning in a glade of cottonwoods and black walnut trees, even the wind stills. The leaves settle, and the earth catches its breath. Calls of mockingbirds, cardinals, and quail blend to a choir's hum. Owing to some gentle mystery, here nature collaborates with humans who come to immerse themselves in a juniper sweetness, to transmute worldly tensions into prayer.

This is Arizona's Shrine of St. Joseph. His

tall image, as Felix Lucero eventually conceived him, stands at the base of a winding, ascending stone stairway, greeting visitors who come for undistracted contemplation of the redemption symbolized by the life of Christ. The son whom Joseph hoists in his arms is still a boy, the cross he holds a visual echo of his earthly father's hammer and framing square. Along the path set into the oak and acacia-covered hillside that rises above them, gleaming white representations of the adult Jesus portray the journey from the Garden of Gethsemane to Calvary.

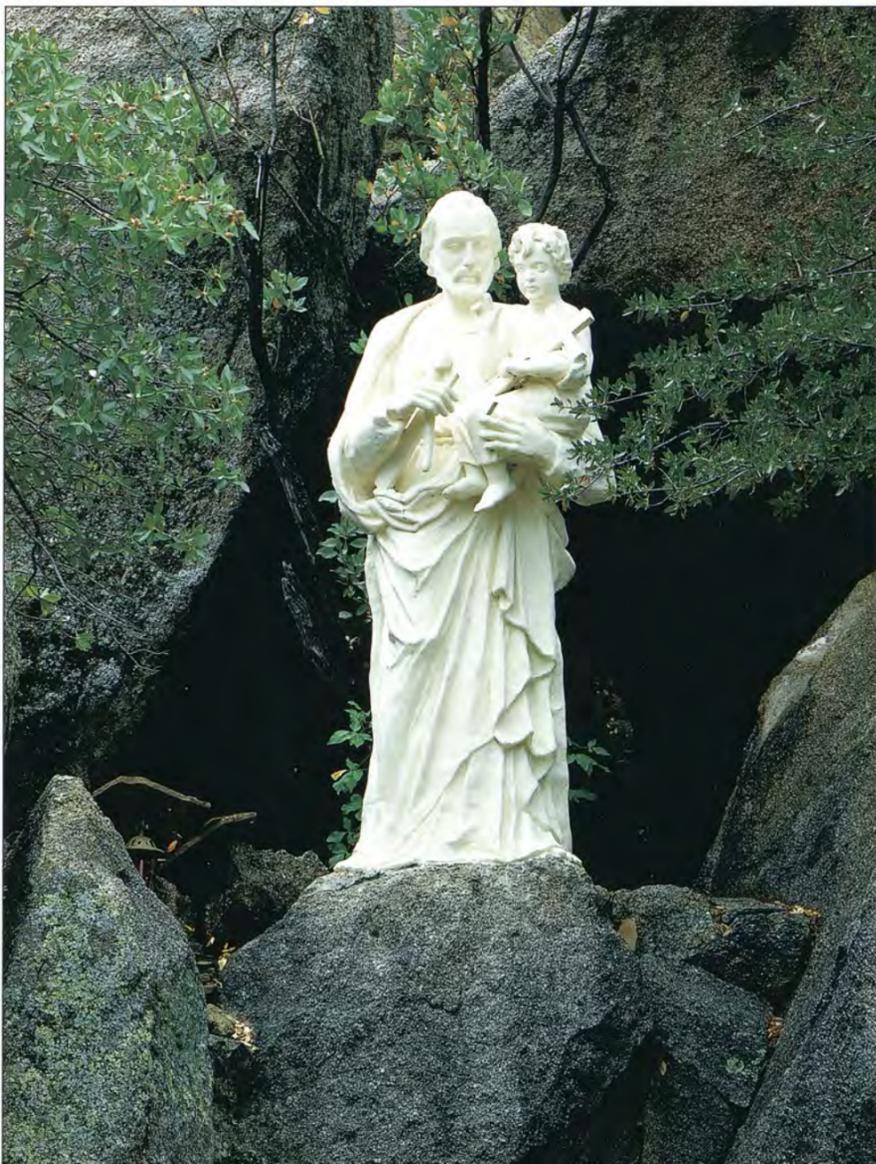
The shrine was conceived during the Great Depression as a symbol of reassurance, personified by Joseph, head of the Holy Family. But in response to a world war, it expanded far beyond its original

concept, growing straight up the mountain. And recently it has spread below, across the tiny stream its founders dubbed the Brook of Cedron, on a mission to extend its blessing from Arizona to the Third World.

William and Mary Wasson, who donated the land, belonged to the Catholic Action League, a group organized in the 1930s to aid the poor. William Wasson had worked in banking and real estate and had once been approached to run for mayor of Phoenix. Instead, he and Mary, a pianist and published composer, dedicated themselves to charity, housing many homeless unfortunates under their own roof. In 1937, they and other league members decided to build a retreat away from the urban trauma of the Depression. Because Joseph was a

(PRECEDING PANEL, PAGES 32 AND 33) Rays of sunlight penetrate Christ's tomb, illuminating the sculpture of the Sorrowing Mary and Jesus in repose.

(BELOW) Statue of St. Joseph, symbol of reassurance, stands among boulders and acacia trees at the base of a stone stairway leading up a Yarnell hillside.



workingman, he was chosen as a symbol with whom all classes could identify.

That summer they camped out in Yarnell and held a box social, raising \$32 toward a statue. That was hardly enough for alabaster; so they engaged a retired plasterer from Phoenix to try an economical shortcut. He poured a large block of concrete, which he chipped until an image emerged. It was, recalled Mary Wasson, "not perfect, perhaps, but very strong and appealing." Phoenix artist John Coghlan softened whatever imperfections there may have been by painting it, and it was set in place alongside a thicket of mountain mahogany.

By 1938, when they held their first pilgrimage, their concerns had grown beyond economic woes, and the people who came to meditate and sleep outdoors prayed for peace in Europe and Asia. Eventually, the league decided that the shrine must also memorialize the sacrifice of the soldiers who were giving their lives to purify the world.

William and Mary Wasson pondered over what would be appropriate. With their teenage sons, Bill and Barney, they tramped up the hillside behind the statue of St. Joseph. Wasson, who had studied commercial art, began to sketch an idea. The boys, long accustomed to sharing their bedroom with a stream of needy strangers, watched and accurately foresaw the formidable quantity of rocks and underbrush their summers would henceforth be dedicated to removing.

The memorial to the ultimate sacrifice the soldiers were making would replicate the Stations of the Cross. The Last Supper, the Vigil in Gethsemane, the Crucifixion, the fallen Jesus in the arms of the Sorrowing Mother, and Christ laid in the tomb would be portrayed by life-sized statues. Wooden crosses would line the path, bearing plaques and Gospel verses to depict scenes along Jesus' journey to glory. Mary Wasson pored over the Scriptures, choosing wording from the King James version and avoiding references that might cast blame on Jews. The message of the shrine, she insisted, must transcend sectarianism.

And the sculptures had to be exquisite. But how could they afford a professional artist when donations arrived at the rate of a sack of cement at a time? The cost of marble was prohibitive; the blue granite of Yarnell was far too hard to carve, and no one had heard of any lesser material that was sufficiently durable. They had to find someone versatile, ingenious, and willing to create beauty out of whatever their transparent budget could sustain.

Enter Felix Lucero, who had labored for



(ABOVE) Yarnell's Stations of the Cross, conceived as a memorial to servicemen killed in World War II, were fashioned by sculptor Felix Lucero from slabs of concrete. The high-relief panels were mounted on wooden crosses that line a path at the Shrine of St. Joseph.

holy wages all his life. When he was just an infant, his mother had died. He was a sickly child, and his grandparents vowed in church that if he were healed he would become a priest. But Felix decided early that art, not the cloth, was his calling.

He made an instant spiritual compromise the day he found his World War I battalion surrounded by Germans. Within minutes, all but 10 were wiped out. Their officers were dead, and Felix was chosen to lead. His promise under fire to the Almighty was to devote the next 20 years to sculpturing images of the Savior if the soldiers somehow got out alive. They lay among bushes, waiting until dark to begin crawling back toward headquarters. At one point, Lucero slept, dreaming that the artillery glow had coalesced into a brilliant vision of Jesus. When he awoke, the shimmering light remained. In an illuminated rapture, he followed it, leading his men to safety.

He passed the next 19 years roaming Europe, re-creating his battlefield image of Christ from media ranging from marble to wax. The 20th year found him back in the United States, fulfilling his promise with the group sculpture, "The Last Supper," in the Tucson riverbed. But God, he learned, wasn't through with him yet.

He had never tried reinforced concrete before, the material league members had concluded they could afford. His first efforts cracked or simply crumbled. "Not going to work," the moody artist grumbled.

Mary Wasson consulted a concrete expert. "It's impossible," he agreed. "Concrete dries too fast. You'll never get the parts to stick to each other."

"Let's assume," she countered, "that it's impossible, but you were going to do it anyway. Suppose you were building a bridge and the cement ran out. How could you fix it so you could add on more bridge later?"

ST. JOSEPH Shrine of

The expert supposed that he would drive steel reinforcing rods into the soft cement and somehow keep the exposed end moist, perhaps by covering it with wet blankets, so the concrete wouldn't set and new portions could be tied on with less danger of cracking. Thus ensued many journeys to the Phoenix dump, from which were rescued tangles of wire, former car parts, bolts, and nails. Eventually, the statues Lucero formed from white Portland cement were nearly solid scrap metal inside. He laid wet gunnysacks over the unfinished portions and soaked them through the night. The Wasson boys hauled cement and water by pack burro up the path that was climbing ever higher.

Lucero became obsessed, wielding his trowel like a scalpel, letting his beard grow until he resembled an apostle. As he completed sculptures, he painted them with white cement-hide, but often he broke up his work and started over. The image had

to be exactly what he'd seen on the battlefield. Midway through the Way of the Cross, he paused to redo St. Joseph (the original is buried near its base). Inspired by Lucero's passion, young Barney Wasson wired some steel together and began shaping a statue of Our Lady of Fatima for the family garden.

Lucero completed the Sorrowing Mary and Jesus in the tomb, for which the workers dug a cave into the hillside. Some claim that the death-form he created is neither dead nor a statue, as it appears to breathe.

He saved the Crucifixion for last. Twice he destroyed it before it was finished—on a Good Friday. Complaining of the cold, he returned to his Tucson riverbed. Shortly thereafter his tent caught fire and Felix Lucero died, never seeing the work he considered his masterpiece set into place among the massive granite boulders of Yarnell.

More than 40 years later, the statues remain, testament to what faith can create from humble materials. Seasons have passed. Barney Wasson became a professional artist devoted to the liturgy, designing church interiors and baptismal fonts throughout Arizona and beyond. His brother, Bill, became a priest, pastor to a marketplace parish in Cuernavaca, Mexico. When an orphan was caught one day stealing from the poor box, he remembered his family's example and took the boy in.

Word got around; more homeless urchins arrived, coming off the streets to live with the gringo priest who was adopting orphans. Over the last 33 years, more than

7,000 formerly abandoned children of Mexico and Central America have been reared by Father William Wasson. His family, *Nuestros Pequeños Hermanos* (Our Little Brothers and Sisters), is considered the largest orphanage in the world.

A few years ago, he decided that there was something more he could do, and subsequently he established a school for his orphaned Latin American children at the shrine in Yarnell.

Every year, 36 of the youngsters arrive for intensive English language studies to enhance their chances of finding jobs in their home countries. They helped to build their school and dormitories, and now take care of the shrine. Some work in the gift shop, which features artifacts from Mexico, El Salvador, Honduras, and Haiti; proceeds go to needy children in those countries. Early mornings, they worship in the outdoor sanctuary, accompanied by the mockingbirds, often encountering deer and javelina. At times they are joined by their American priest father, who passes on a legacy of sharing to them.

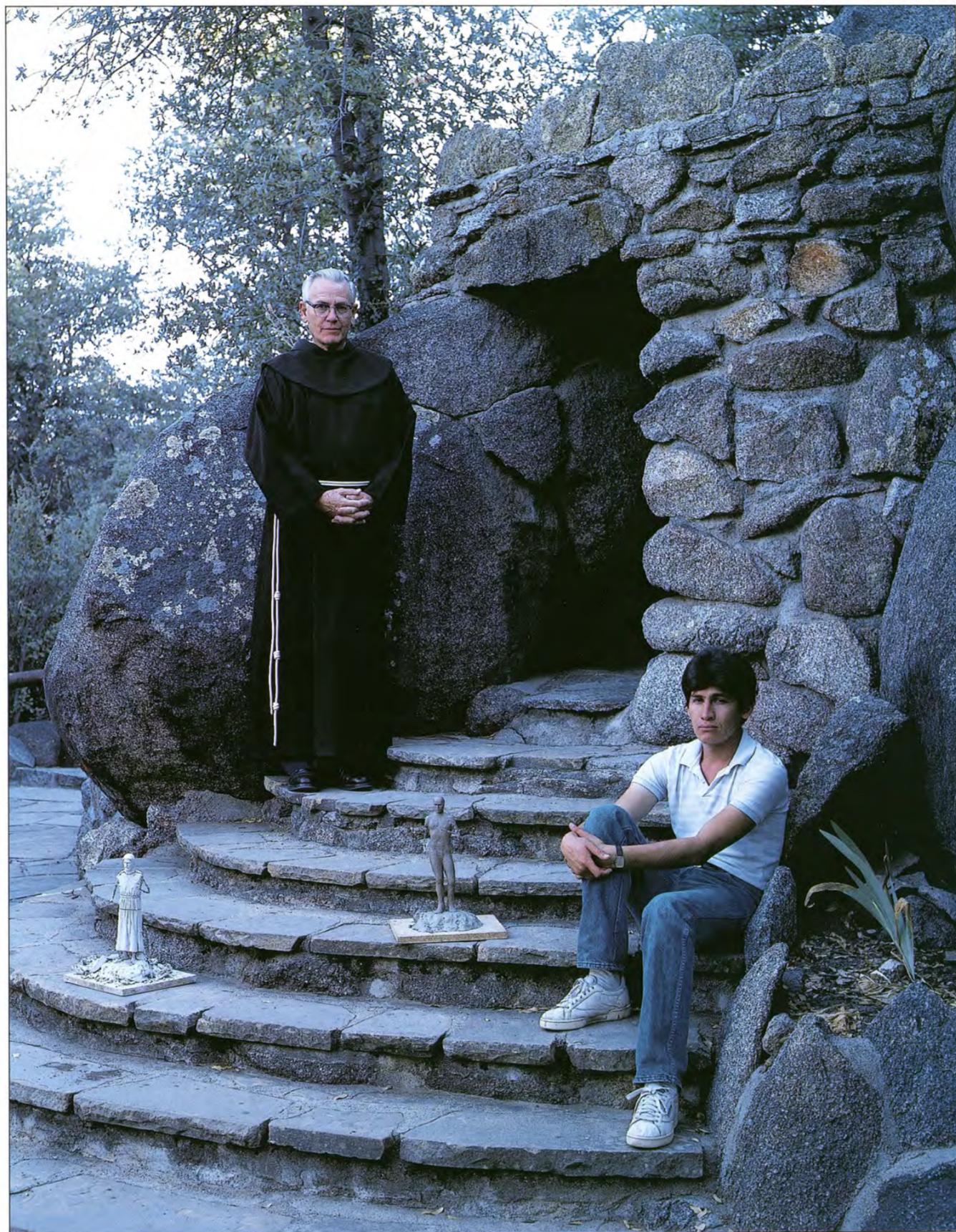
For decades, thousands of visitors of all creeds have come to reflect along the quiet paths of the Shrine of St. Joseph; now, they are invited to linger and share a meal with children of the Third World. "The shrine," Barney Wasson observes, "began during a time of need. Then it became a war memorial. And now it has returned to its original emphasis: charity."

Below the tomb of the fallen Jesus is a small garden. As the meaning of the shrine has come full circle, so, too, will its symbolism be completed. Carlos Ayala, one of a family of eight orphaned children from the village of Tilzapotla in central Mexico, was seven years old when he and his brothers and sisters came to Father Wasson. Eventually he received scholarships in painting and sculpture, graduating with honors from Mexico's Instituto de Bellas Artes. Now he is in residence in Yarnell, designing a statue to represent the Resurrection. It will portray Christ as a gardener, surrounded by examples of life continually being reborn.

"Faith," explains Father Wasson, "grows from simple pleasures: from the consoling company of nature and God's creatures, from clouds floating like prayers through sunlight. From children. The shrine offers an opportunity to share such faith. It transcends the borders we construct within and without; it brings us, and God, closer together." ❏

Alan Weisman teaches at Prescott College. He and Jay Dusard are author and photographer of La Frontera: The United States Border With Mexico, published in 1986 by Harcourt Brace Jovanovich.

(BELOW) Lone figure of Jesus at the Last Supper sits surrounded by natural beauty.
(RIGHT) Years ago Father William Wasson took in a family of eight orphaned Mexican children. Today one of them, Carlos Ayala, has come to Yarnell to create a new statue for the shrine.





*Not all the attractions at this
Wonder of the World come to you
by courtesy of Mother Nature ...*

Architectural Treasures of the Grand Canyon

Until statehood arrived in 1912, Arizona was a sparsely populated territory perceived by the outside world as 114,000 square miles of creosote and caliche. It has come a long way since then. But as a result of its late-breaking development, much today has an aura of newness. So it is easy to understand why what remains to be seen

of the romantic past, such as a scattering of old structures, is held in high regard.

Yet many of these are almost unknown or unacknowledged by the general public. Such a group of historic buildings (defined in this case as those 50 years old or more) exist in northern Arizona, all but ignored because of their location: at the edge of the

Grand Canyon. In this, the most extraordinary environment on earth, any building must take a backseat to the surrounding scenery. Yet just one of them—El Tovar Hotel—if located in Phoenix would be the city's showplace, a testament to gracious living in the early days. Or if in Prescott's another Canyon legacy—Buckey O'Neill's

Overshadowed by the grandeur of the surroundings, some unusual and impressive architecture graces the Grand Canyon. (LEFT) Lookout Studio, perched on the South Rim, once housed the photographic enterprise of Ellsworth and Emery Kolb, early residents and explorers of the Canyon.

(BELOW) Described as "the most expensively constructed and appointed log house in America," El Tovar Hotel, the architectural crown jewel of the Grand Canyon, was completed by the Fred Harvey Company in 1905. Designed to be attractive but not imposing, distinguished but not distracting, El Tovar was built of native stone and Douglas fir logs shipped by rail from Oregon.



TEXT BY MAGGIE WILSON ■ PHOTOGRAPHS BY RICHARD MAACK



The lobby sets the tone of rustic elegance at El Tovar. Architect Charles F. Whittlesey included roof gardens, a "great hall" dining room overlooking the Canyon, art galleries, a solarium, numerous fireplaces, and hot and cold running water.

Cabin—would be a highlight of guide-historian Melissa Ruffner Weiner's walking tours into Arizona's past.

Other old Canyon edifices—Phantom Ranch, Bright Angel Lodge, Grand Canyon Lodge, for instance—would also be traffic stoppers and objects of school tours, were they located anywhere else in the state.

Singly and together, such buildings are elements of an important chapter of human history in the Grand Canyon region, a drama enacted on an incomparable stage. And the stage itself, never a mere setting for the story, is a compelling participant capable of molding and coloring the human cast of characters. The Grand

Canyon itself, in the classic tradition of Greek theater, is the true protagonist of the drama.

When President Theodore Roosevelt visited the Grand Canyon in 1903, he concluded, "I hope you will not have a building of any kind, not a summer cottage, a hotel, or anything else to mar the wonderful grandeur, the sublimity, the great loveliness and beauty of the Canyon. Leave it as it is.... Man can only mar it."

But his "no buildings" hope was not to be. Two years before his visit, the first Santa Fe Railroad train had chugged around the head of Bright Angel Trail on the South Rim, and a new period in the history of the

Grand Canyon had begun. The railroad brought visitors; visitors needed food and accommodations. Grand Canyon Village sprang up near the railroad depot, and many of its buildings are now part of a historic preservation district administered by the National Park Service. Among them: El Tovar Hotel, completed in 1905 by the associates of Fred Harvey, who had opened Harvey House restaurants at intervals of almost every hundred miles along the Santa Fe's main line from Kansas westward. Old-timers have said Teddy Roosevelt used his influence to assure that Harvey would erect something attractive but not imposing, distinguished but not distracting.

Harvey's architect, Charles F. Whittlesey, designed the structure to combine the qualities of "Swiss chateaux and castles of the Rhine." But he used native boulders and huge Douglas fir logs and timbers imported by rail from Oregon to do it. The building extends 325 feet from north to south, 218 feet from east to west, and rises four stories on the south end, three stories on the north.

The handsome hotel looked old and dignified the day it was completed; it still does. Its construction cost \$250,000, and Whittlesey used part of the money to stain exterior walls and shingles, blending them into the surroundings.

El Tovar was a marvel of 100 sleeping rooms (42 had baths), wide porches, and roof gardens; a huge dining room styled after a Norwegian great hall, which overlooked the Canyon (and was staffed by the famed Harvey Girl waitresses); a small 15th-century dining room; several art galleries where works of such landscape painters as Thomas Moran, W. R. Leigh, and I. E. Couse were sold; a music room with a decor of gold and old ivory; a ladies' lounge, a club room, an amusement room; a solarium and a grotto; the Rotunda and the Rendezvous Room. And El Tovar offered such rare turn-of-the-century amenities as hot and cold water, steam heat, electric lights, and, in the office, telephones. Furnishings of public rooms relied heavily on oak and leather; there were massive animal heads and a plenitude of fireplaces.

El Tovar, named after a Spanish explorer, became the proudest jewel of the Fred Harvey chain, but Harvey himself never saw the fulfillment of his vision of rustic elegance on the South Rim; he died before it was completed. Built to rival the great resorts of Europe, El Tovar has been described as "the most expensively constructed and appointed log house in America."

Today, after several renovations and compliance with stricter fire codes, the 83-

year-old structure maintains its comfortable country-house atmosphere. But its room rates have risen from the original \$4 to about \$90 and up (view suites: \$200).

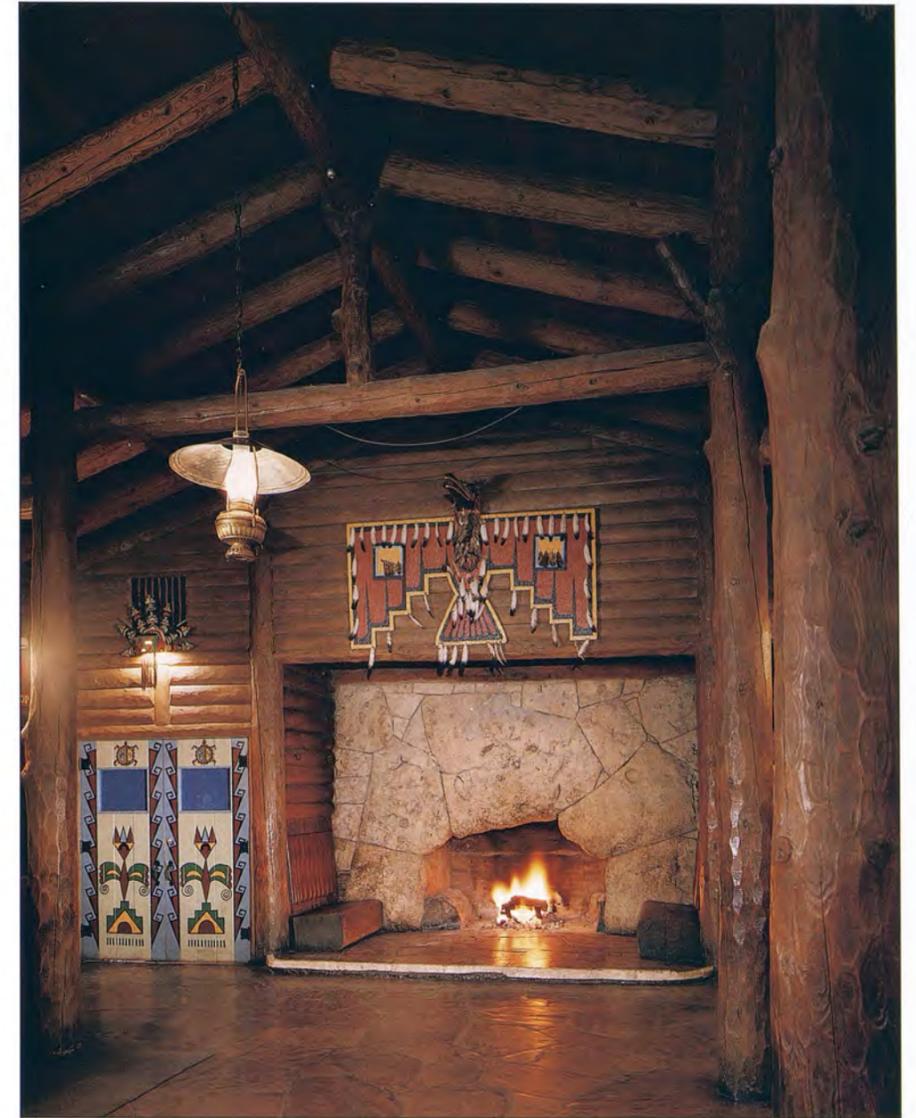
Bright Angel Lodge (it was originally called Bright Angel Camp and later Bright Angel Hotel) was a single cabin surrounded by tourist tents in 1895, when it was operated by J. Wilbur Thurber, self-styled "gentlemanly" driver hired by a Grand Canyon stagecoach line. The stages originated in Flagstaff, Williams, or Ashfork; the trip to the Canyon cost passengers \$20, a fee they often felt was owed to *them* after jouncing over the rutted roads.

The coming of the railroad put Thurber out of the stage business; the opening of El Tovar put him out of the lodging business. The Santa Fe Railroad bought the property, and the Fred Harvey Company reopened Bright Angel in 1905.

By 1910, Mary Elizabeth Jane Colter had joined the Fred Harvey Company as architectural designer and interior decorator of the firm's various developments across the Southwest. At the Grand Canyon, she devised a master plan for the firm's future developments.

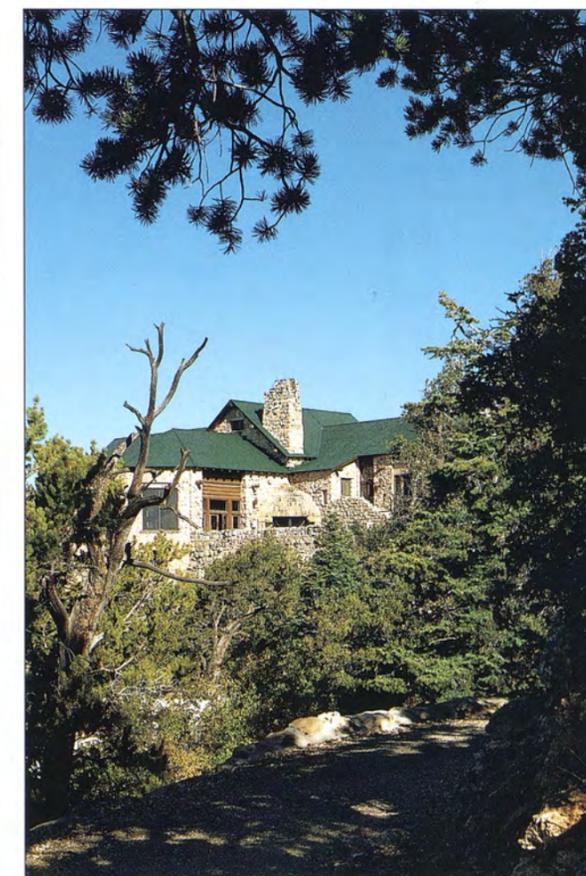
Colter is remembered by associates as a small, chain-smoking woman "with piercing violet eyes and hair that was never combed...who was outspoken and sometimes even cruel." A dedicated career woman during a time when such women were oddities, she became steadily more imperious during her 38 years with the company and 20 projects of her creation. Though she didn't win any "Miss Congeniality" titles from her male work crews, she did earn their grudging respect. When

Text continued on page 44



(ABOVE) At Bright Angel Lodge the main fireplace, constructed of native stone from the Canyon, throws welcome warmth into the lobby.

(LEFT) Now part of Bright Angel Lodge, Buckey O'Neill's Cabin is the oldest Canyon structure extant. O'Neill, who became a famous sheriff and mayor of Prescott, used the cabin in his gold prospecting days in this vicinity. He later volunteered for duty with Theodore Roosevelt's Rough Riders in the Spanish-American War and was killed by a sniper's bullet at the age of 38.



Rising from a cliff of Kaibab limestone amidst the secluded serenity of the North Rim, Grand Canyon Lodge is surrounded by 140 guest cabins. Built in 1928, then gutted by fire, the lodge was rebuilt in 1936. At an elevation of 8,000 feet, the Kaibab Plateau and North Rim experience extreme winter weather. The lodge and surrounding area are closed in mid-October and reopen in mid-May.

Text continued from page 41

she died in 1958 at the age of 88, her legacy was the philosophy that buildings must be in harmony with the history and environment in which they are placed.

While Colter is responsible for the designs of Hopi House, Lookout Studio, Hermit's Rest, Phantom Ranch, and the spectacular Desert View Watchtower, it was Bright Angel Lodge, completed in 1935 as a replacement for the original Bright Angel, that became her ultimate Grand Canyon achievement. (See *Arizona Highways*, May, 1984.)

Because the lodge was to be more moderately priced than El Tovar, she called for its main building to be constructed of stone and logs in pioneer style. A fireplace in the lobby bore a huge wooden thunderbird, an Indian symbol for powers of the air; Colter viewed it as the "bright angel" of the sky.

The main lodge was surrounded by individual cabins of adobe, log, or stone. Appointments included such memorabilia as Pancho Villa's sombrero, pioneer stools and chairs brought overland in covered

wagons, a crude rocking horse once owned by the first pioneer child born in Arizona, a seven-foot-tall Jenny Lind wooden cigar-store figure, kerosene lamps with opaque glass shades, bathtubs on legs, and Indian arts and artifacts.

Colter also preserved and utilized two modest buildings of historic import, Red Horse Station and Buckey O'Neill's Cabin, both of hand-squared log construction.

The O'Neill cabin, oldest surviving structure on the South Rim and possibly the first ever built there, was Buckey's base during

his prospecting days in the 1890s. Later he sold his claim and cabin to a subsidiary of the Santa Fe Railroad.

Buckey, whose nickname came from the gambling term "bucking the tiger" (betting recklessly in faro), had been a reporter, editor, author, probate judge, superintendent of schools, militia officer, businessman, miner, sheriff of Yavapai County, and mayor of Prescott before he went to Cuba with Theodore Roosevelt's Rough Riders. He lost his life to sniper fire the day before the famous charge up San Juan Hill. At the Grand Canyon, he is memorialized by O'Neill Butte, which towers above the Kaibab Trail.

Phantom Ranch, at the bottom of the Canyon, is reached only by legs—yours or a mule's—via the Bright Angel or South Kaibab trails from the South Rim or the North Kaibab Trail from the North Rim. The buildings of stone and wood were built by the Fred Harvey Company in 1922 as an overnight lodging for hikers and mule-train riders. Mules still transport all supplies. The ranch nestles beneath a canopy of green cottonwood trees, a welcome sight for eyes reddened by the austere rock vistas.

Grand Canyon Lodge, built on the Canyon's North Rim by the Union Pacific Railroad in 1928, is a handsome structure of Kaibab limestone that seems to rise out of the cliff on which it stands. Guted by fire, it was rebuilt in 1936.

Because of the North Rim's isolation, development there lagged behind that of the South Rim, and its accommodations are still much more limited. The higher elevation and heavy snowfalls cause roads and facilities to be closed from mid-October to mid-May.

In 1987, in recognition of "their exceptional value to the Nation," several edifices in Grand Canyon National Park were designated national historic landmarks: El Tovar, Grand Canyon Depot, Grand Canyon Lodge (with its 140 surrounding cabins), Grand Canyon Power House, Grand Canyon Park Operations Building, Hopi House, Lookout Studio, Hermit's Rest, and Desert View Watchtower.

The edifices of the Grand Canyon are major artifacts of human history in log and stone. They were the products of railroads, but the last train made its run to the South Rim in 1968. One reaches the Canyon today by car, bus, or airplane. For those who get there, the quest for perspective goes on—and the amazing Canyon keeps right on upstaging the remarkable feats of construction that have risen around it. ■

Maggie Wilson, now a Phoenix free-lance writer, is a former columnist for *The Arizona Republic*.



Exacting attention to detail is the hallmark of Mary Elizabeth Jane Colter's full-scale replicas of Indian architecture at the Grand Canyon.

Hopi House (ABOVE) on the South Rim and Desert View Watchtower (OPPOSITE PAGE) on the East Rim Drive are typical of structures built by the Hopi Indians and by Pueblo peoples along the Rio Grande River.



JAMES TALLON

The Overlooked Lookout

The Desert View Watchtower at the Grand Canyon, a structure that seems to breathe antiquity, must surely be "the most looked from but least looked at" architectural wonder around.

The product of Mary Elizabeth Jane Colter, an architectural designer for the Fred Harvey Company, the tower required three long years to build. It was finished in 1932 at a cost of \$70,000.

Seventy feet high, 30 feet across at the base, 24 feet across at the roof line, the watchtower originally was intended to provide an extraordinary rest stop for tourists, where complimentary coffee, tea, and orange punch would be served before the 26-mile return trip to Grand Canyon Village. Of course, it was also designed to provide a climaxing view.

But the view—a 360-degree full-color panorama of the Canyon, Painted Desert, Coconino and Kaibab forests, and the San Francisco Peaks—proved so overwhelming few visitors really rested. The coffee got cold, the tea got cold, and the punch got warm.

The passage of more than half a century has changed very little: the sturdy old structure continues to be overshadowed by the splendor of the surrounding countryside, and only a rare few people give any thought to the tremendous amount of effort and dedication poured into its creation.

In terms of basic research alone, Colter spent weeks scouring the Four Corners country for ruins of ancient watchtowers, which she would carefully study before selecting such features for her re-creation as tapered windows, ornamental designs, and the T-shaped doors that were unique to these buildings.

As she explored site after site, she observed that a ceremonial chamber, or kiva, was usually built adjacent to the Indian tower; so she made sure she added one to her design, complete with the typical log roof.

Creating a structure that would accurately mirror those of the past meant also that every stone used in building the tower must be hand-selected, just as the ancients would have done; no stone's shape was allowed to be altered, for fear tool marks would be apparent and break the historic illusion.

Once the tower was completed, the eminent Hopi artist Fred Kabotie was invited to decorate the interior. His authentic paintings were criticized by some of his fellow Hopis for "showing too much."

The ancients who built the watchtowers of old were farmers, and some theorists say the towers were used for storage, becoming citadels when the tribes were threatened. Others suggest they were astronomical observatories, where seasons for planting and harvesting could be accurately determined.

Today, there are several modern structures at Desert View, including a trading post and a grocery store. But the watchtower and the kiva remain just as they were when architect Colter stood back and "viewed with pride" in 1932. ■

— James Tallon



ARIZONIQUES

ILLUSTRATION BY
KEVIN MACPHERSON

EXCAVATING ELDEN PUEBLO

Tucked between U.S. Route 89 and a trailer park on the outskirts of Flagstaff, Elden Pueblo, a village occupied seven centuries ago by the Sinagua culture, sits in a partially excavated condition. The ruin serves as a public archeology project overseen by Peter J. Pilles, Jr., of the Coconino National Forest and members of the educational staff of the Museum of Northern Arizona. It offers opportunities to laymen willing to spend from a single day to two weeks working beside professionals to uncover Arizona's ancient past.

Originally excavated in 1926, the

site served as the impetus for the founding of the museum. Flagstaff residents cringed as they watched hundreds of beautiful artifacts being shipped off to the Smithsonian Institution, and reacted by forming the local Museum Foundation as a repository for pieces of the area's prehistory.

Since 1978, when re-excitation began, volunteers have been working to restore the ruin. Opportunities to take part are expanding this year with programs planned for schoolchildren, families, and serious amateurs.

For a schedule of programs and a list of nearby accommodations, write to Ann Walka, Director of Education, Museum of Northern Arizona, Rt. 4, Box 720, Flagstaff, AZ 86001.

—Diane Nichols

COURTHOUSE TRANSFORMATION

On the third floor of the Cobre Valley Center for the Arts, Superior Court judges once deliberated matters civil and criminal. For the new arts center in Globe, Arizona, occupies the old Gila County Courthouse at the corner of Broad and Oak streets.

Recently a volunteer army of craftspeople, artisans, and artists, funded by block grants and donations, renovated the handsome old building. They pulled down partitions and removed false ceilings to reveal Corinthian columns, wainscoting, and stately vistas through graceful arches. A wide staircase marches to the upper floors, its banister clad in copper from the nearby Old Dominion Mine. The result is a lovingly restored landmark that now houses not only a community arts center but also a gallery and crafts shop, a bookstore, Globe's Downtown Action Program offices, and a performing arts theater.

"It's appropriate," remarks Bob Hutchinson, manager of the Downtown Action Program. "Back in the 1930s, when nobody had any money, everyone in town would come to the courtroom and listen to trials as a form of entertainment."

For information on events, activities, and hours at the Cobre Valley Center for the Arts, telephone Hutchinson at 425-9340. —Vicky Hay

BUGGING TUCSON

One day last fall, fire ants invaded a new Tucson museum. They were welcomed.

The museum is Sonoran Arthropod Studies, Inc., a nonprofit center for the study, exhibition, and elucidation of the bug world. One morning museum workers arrived to find a line of *Solenopsis xyloni* marching into the wasps' exhibit and stealing food. Rather than destroying them, the staff supplied the ants with glass cages, their own food, and a path to their nest outside. It was a lesson in creative coexistence.

SASI is the creation of Steve Prchal, a self-educated entomologist who worries about our attitudes toward insects and arachnids—which, along with tasty crustaceans, compose the phylum *Arthropoda*. "Kids start out with a natural interest in arthropods," Prchal says. "They develop negative attitudes after they bring a bug into the house and an adult says, 'Get that thing out of here!' We're trying to do the opposite with this museum. As people acquire appreciation and respect for arthropods' roles in the world, they develop an improved environmental and conservation ethic."

SASI currently offers a dozen exhibits of live insects and educational projects. This is just the museum's larval stage. Prchal plans to move his new enterprise to the Tucson Mountains. There it will also have a garden designed to facilitate visitors' observation of plants, insects, spiders, and birds in their interdependent relationships of breeding, preying, and pollinating.

Museum membership is \$15 a year. Write to Box 5624, Tucson, AZ 85703, or telephone (602) 884-7274. The museum, now located at 2437 N. Stone Ave., is open noon to 5 P.M., Thursday through Saturday.

—Laurence W. Cheek



PSEUDO SAGUAROS

Don't be misled by tourist brochures and Hollywood Westerns that sprinkle saguaros through New Mexico, California, and Texas. The giant cactus that bears Arizona's state flower is unique to the Sonoran Desert and, with very few exceptions, grows nowhere but in Arizona and Sonora, Mexico.

The reason? Temperature, mostly. As a subtropical plant, freezing temperatures are the saguaro's greatest natural enemy. These thorny giants can't survive at higher elevations, preferring the warm desert.

The saguaro's range extends from the Hualapai Mountains near Kingman in the north, to the Gila Mountains of Graham County on the east, to the Cerro Masaica of Sonora in the south. Only on the western fringe of their range do saguaros creep outside the Arizona and Sonora habitat.

There, along the Colorado River and in the Whipple Mountains southwest of Lake Havasu, a few wayward saguaros survive in California.

—David E. Brown

JUNE CALENDAR

June 4 and 5, Prescott. Territorial Days and Folk Art Fair. The celebrated Sharlot Hall Museum presents the 15th annual gathering of weavers, spinners, soapmakers, horse-shoers, and other old-time crafts specialists. Telephone 445-3122.

June 17 through 19, Flagstaff. Pine Country Rodeo. Top competitors of the Professional Rodeo Cowboy Association fill the Fort Tuthill rodeo grounds with three days of action-packed Western entertainment. Telephone 774-4505.

June 24 through August 4, Flagstaff.

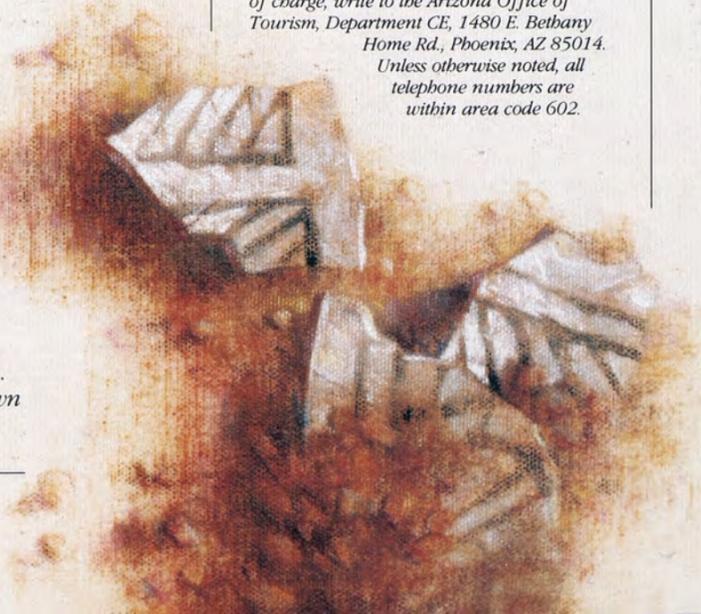
The Coconino Center for the Arts hosts the annual Native American Arts Invitational Exhibition, presenting the finest in Indian arts. The opening weekend features Native American cooking, crafts market, traditional dances, poetry, and music. Telephone 779-6921.

June 25 and 26, Page. The sixth annual Indian Market and Pow Wow features more than 150 artists and their works, traditional costumes and dances, native foods, plus a number of stars of network television. Companion events include a mountain man rendezvous June 24, 25, and 26, and a chili cookoff June 26. Telephone (602) 645-2404 or (818) 508-1706.

June 25 and 26, Payson. Country Music Festival. Outstanding fiddlers, pickers, and buck dancers from all over the Southwest perform beneath the pines. Telephone 474-4515.

Edited by Robert J. Farrell

For a more complete calendar of events, free of charge, write to the Arizona Office of Tourism, Department CE, 1480 E. Bethany Home Rd., Phoenix, AZ 85014. Unless otherwise noted, all telephone numbers are within area code 602.



BOOKSHELF

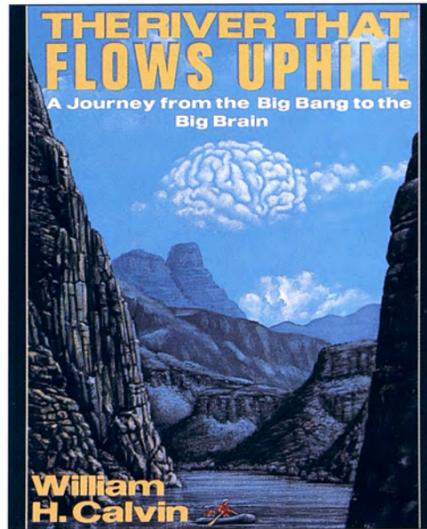
BY BUDGE RUFFNER

THE RIVER THAT FLOWS UPHILL: A JOURNEY FROM THE BIG BANG TO THE BIG BRAIN, by William H. Calvin. *Macmillan Publishing Company*, 866 Third Ave., New York, NY 10022. 1986. 528 pages. \$26.50, hardcover, postage included. *Sierra Club Books*, 730 Polk St., San Francisco, CA 94109. 1986. 528 pages. \$15.95, softcover, postage included.

A glance at the title of this book gives the prospective reader only a vague idea that its contents deal with one of Arizona's greatest attractions—the Grand Canyon—and with a most exciting scientific and intellectual discussion of the evolution of life. *The River That Flows Uphill* is both a history of this process and a journal of a 225-mile rowing trip down the Colorado River through Grand Canyon.

Author Calvin, a neurobiologist at the University of Washington in Seattle, writes cogently about many aspects of biology, geology, anthropology, and scientific philosophy. He begins with the "big bang" theory of the origin of the universe, and then discusses the ascent of life, culminating in our own species. He also considers the future of our planet, besieged as it is with complex environmental and social problems. And he achieves this in the readable tradition of such scholars as Stephen Jay Gould and Carl Sagan.

What makes the story come alive is not only Calvin's style but also his stage: the matchless evolutionary textbook of the Grand Canyon. What better place than this great chasm whose "wilderness setting," writes Calvin, "so epitomizes



the lives experienced by our ancestors and acquaints us with those ... circumstances for which evolution shaped us."

And so, as his boat carries him through the geological ages, he describes his voyage and what he sees day by day throughout the two-week trip—rock formations, rapids, plant variations, lower life-forms such as lizards, prehistoric Indian ruins. This is accomplished with some of the best descriptive prose this river runner and book reviewer has ever read about the Colorado.

Interspersed with the record of his voyage, Calvin in precise counterpoint carries on a lucid conversation with his fellow travelers about the course of evolution—on the unpredictability of the process, the gaps in the fossil record, the specter of nuclear winter—as he, and we, think about how we have come to be on that river of time.

The title? The back eddies of the Colorado River sweep upstream, a metaphor for evolution "like a river that flows uphill, hoisting itself by its own bootstraps to ever-fancier innovations."

Reading this powerful book reminds one of what Frederick Dellenbaugh, artist and boatman of Maj. John Wesley Powell's 1871 voyage through Grand Canyon, wrote 80 years ago: "As for us, we appeared ridiculously inadequate. We ought to have been at least 20 feet high to fit the hour and the scene."

—Robert C. Euler

TRADITIONAL BASQUE COOKING: HISTORY AND PREPARATION

by Jose Baria Buska Isusi. *University of Nevada Press*, Reno, NV 89557. 1987. 205 pages. \$21.45, hardcover, postage included.

The well-regarded University of Nevada Press has featured the Basque Book Series among its other distinguished publications. To be complete, any series dealing with these robust people must include the culinary accomplishments they have brought to tables far from their homeland. The American West has been the beneficiary of the Basques'

work ethic and their renowned hospitality. In our own Arizona, the Basque families of Echeverria, O'Haco, Charlebois, Manterolla, and Poquette are but a few of the many who have sustained our society with the gifts of their own. *Tiuro* (fish stew), *cordero al chilindron* (lamb in chilindron sauce), and *sopa con ajo a la vasca* (garlic soup Basque style) are some of the gastronomical gifts within this handsome book. Anthropologists tell us that all cultures offer food and drink to their guests. None does it better than the Basques.

(RIGHT) "Mount Sinyala, Grand Canyon #2," by Cymbia Bennett; acrylic on canvas, 24 by 18 inches. Having lived at Grand Canyon, and now a resident of Sedona, Bennett has been inspired by the canyons of Arizona for more than two decades. A simplicity of style and effective use of color and light make her work immediately recognizable. (BACK COVER) Picture-perfect view of Arizona's most visited landscape from Grand Canyon Lodge, one of the Canyon's "architectural treasures." See page 38.

RICHARD MAACK

