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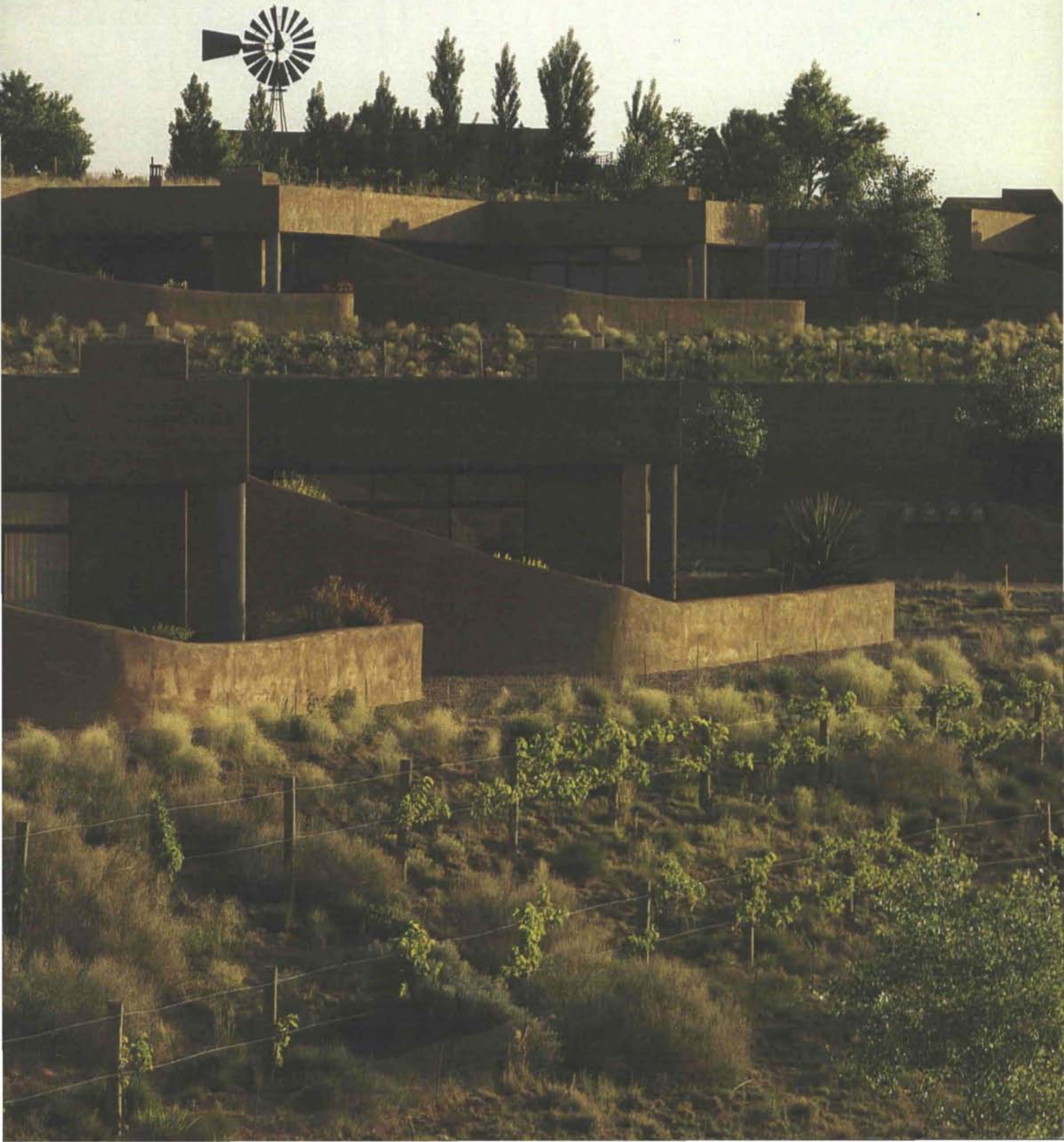

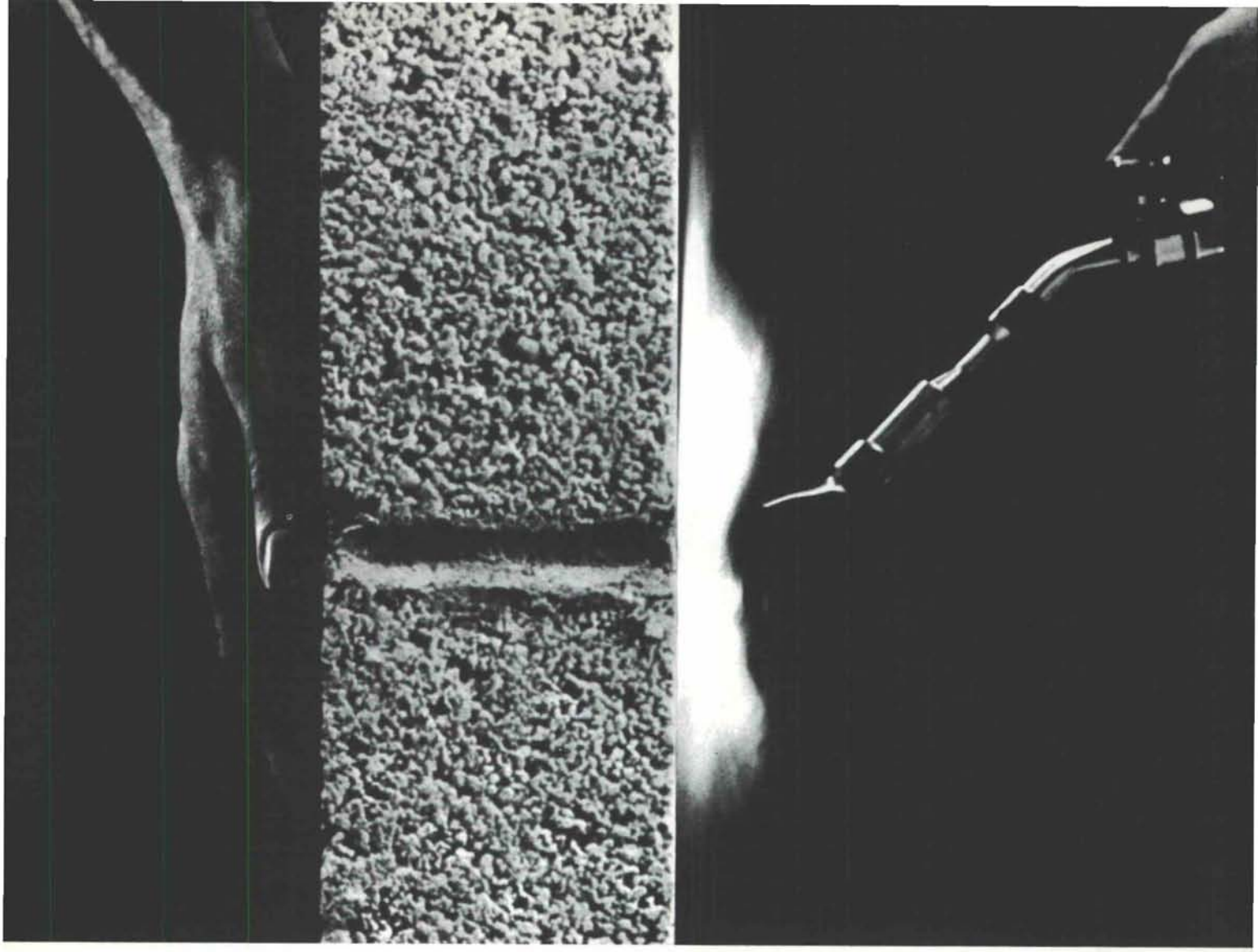

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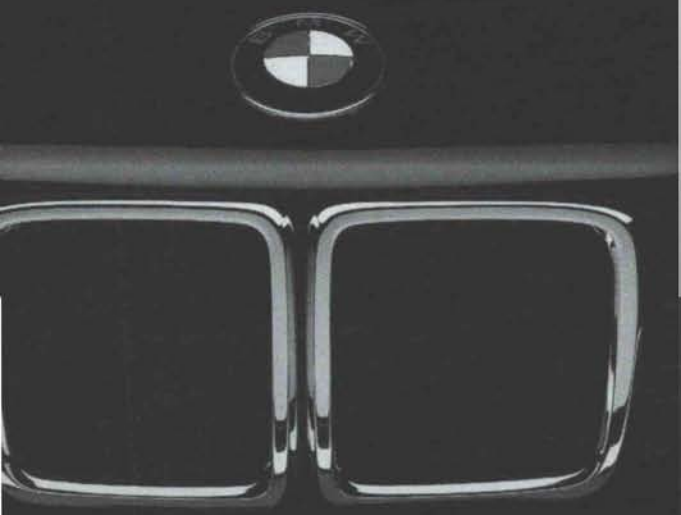

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• vol. 28 no. 4 • july-august 1987 • new mexico architecture

In this issue,

The author, T. Lindsay Baker, of the article on New Mexico Windmills (pages 11-15) is shown, above, 'rawhiding' the wheel of the 10-foot "Corcoran" windmill that was restored on the campus of New Mexico State University in Las Cruces.

□ □ □ □

I report with joy that a grand and proper New Mexico party/celebration was held last May 24th at the Museum of International Folk Art. The gala affair was held to honor a citizen of Santa Fe. The 80th birthday of Alexander Girard, AIA, architect, designer and folk art collector, was the reason for the occasion. The party was made festive by entertainment, decorations and a 6′ × 8′ cake adorned by folk art figures grouped about a Mexican church made of pulled sugar and sugar dough. A fitting day for an honored architect.

□ □ □ □

A credit was missing from the Award winning Valencia Campus, UNM Landscape Architecture project reported in the 1986 Honor Awards issue (*New Mexico Architecture* March/April, 1987). While the Landscape Architects were listed correctly as Royston, Hanamoto, Alley & Abey, the Architects for the campus were not listed. *Barker Bol Associates and Jon Friedman Associates, a joint venture, were the Architects* for the Valencia Campus. We apologize for the oversight.

□ □ □ □

The cover of this issue of *NMA* was made possible through the generosity of the Ovenwest Corporation. The architect for the La Luz de Sol building was Barker Bol Associates; the General Contractor was Johnnie McDonald. *JPC*

(Cover — La Luz del Sol, North Coors, Albuquerque — © Robert Reck, Photographer)

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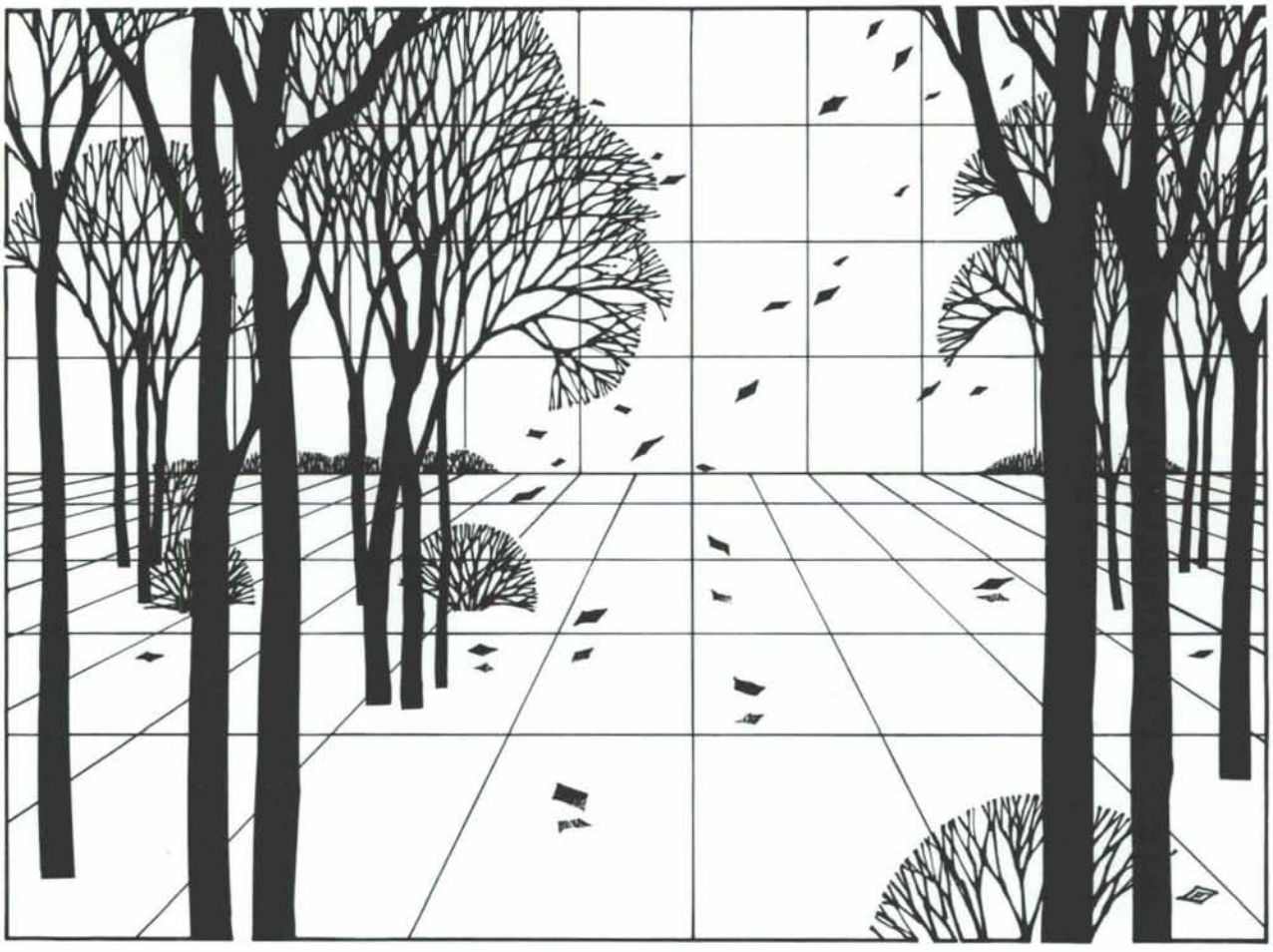

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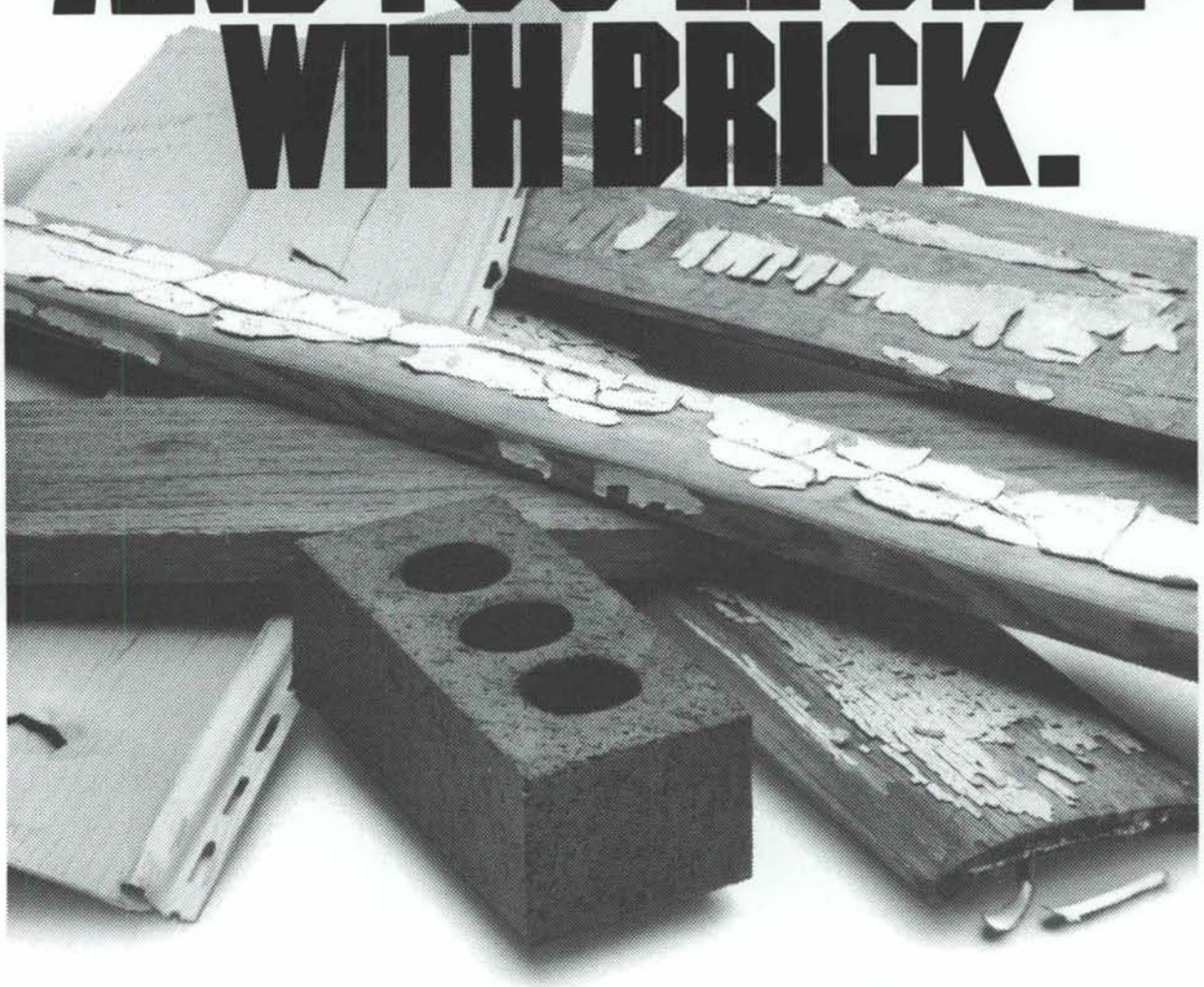

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MASON CONTRACTORS ASSOCIATION OF NEW MEXICO

ALBUQUERQUE PROJECT WINS AWARD

The Jaynes Corporation has been given the *General Contractor of Year Award* by the New Mexico Chapter, American Subcontractors' Association for a project "smoothly run with good supervision, timely pay estimates, responsiveness, and cooperation regarding change orders and back payments" in constructing the Promenade Shopping Center.

The award-winning shopping center is located at 5200 Eubank NE in Albuquerque, New Mexico. This unique facility is owned by Spain, Ltd. and was designed by the architectural firm of Vogt and Byrnes, P.A. The Jaynes team leaders who made it all come together were Rick Marquardt, Estimator; Tom Krege, Project Manager and Doug Summers, Superintendent.

The focal point of this center is a large, colorful canvas-covered breezeway which, in addition to hosting a number of restaurants, provides an extremely pleasant outdoor eating environment. Located just west of the breezeway is another eating area which is centered around a fountain and contains several umbrella-covered tables. This entire area is bordered by flowers and encircled by several grassy, well-groomed planters.

The structure itself is faced with a dark red brick veneer and is capped by a parapet comprised of several bands of similarly colored stucco. Emerald green awnings were installed along the parking lot side of the portico, and run the entire length of the structure. These not only serve to identify the tenants, but also provide an interesting contrast to the deep reds of the brick and stucco facade.

It's clear that the architects who designed the Promenade Shopping Center paid a great deal of attention to detail. They have combined several different building materials and unique architectural features to produce a design which is both functional and attractive. Because of this project's unique qualities, Jaynes also had to pay especially close attention to detail, and they did!

RANCHING, CATTLE GUARDS AND WINDMILLS

Four Books reviewed by Carleen Lazzell

A Field Guide to American Windmills. By T. LINDSAY BAKER. (Norman: University of Oklahoma Press, 1985. ix + 516 pp. Illustrations, notes, appendices, bibliography, index. Cloth $65.00.)

T. Lindsay Baker, author of "New Mexico Windmill Towers as Vernacular Architecture" (pages, 11-15) has compiled an encyclopaedic work on American water-pumping windmills. Divided into two parts, The History of American Windmills and Windmill Identification, Baker's book is impressive in both the information presented and in its size.

For those interested in windmills, the bibliography, comprised of several hundred entries, will be extremely valuable, as Baker gathered documentation over a fifteen year period.

Not only does Baker give an indepth view of the first American windmills, he also discusses the evolution of the design of wooden wheel windmills, all-metal windmills and self-oiling windmills.

The Cattle Guard: Its History and Lore. By JAMES F. HOY. (Lawrence: University Press of Kansas, 1982. vii + 233 pps. Illustrations, notes, bibliography, index. Cloth $19.95.)

Jim Hoy spent his youth on a stock ranch in Kansas then went on to work as a rodeo hand and cowhand, thus giving him a first hand knowledge of the cattle guard.

His extensive research covers seventeen states and five countries with numerous photographs and contributions from hundreds of people. Used in this interesting book of eleven chapters were 75 photographs with three from New Mexico; including the oldest known photograph of a cattle guard. Contributions from 637 individuals were used, of which 15 are well known New Mexicans.

This book has a unique and humorous way of bringing to life an everyday item we all take for granted, "the cattle guard."

Historic Ranches of Wyoming. By JUDITH HANCOCK SANDOVAL. (Casper, Wyoming: Nicolaysen Art Museum and Mountain States Lithographing Company; Distributed by University of Nebraska Press, Lincoln, Nebraska, 1986. With essays by T.A. Larson and Robert Roripaugh. 97 pp. Cloth $25.00; Paper $15.95.)

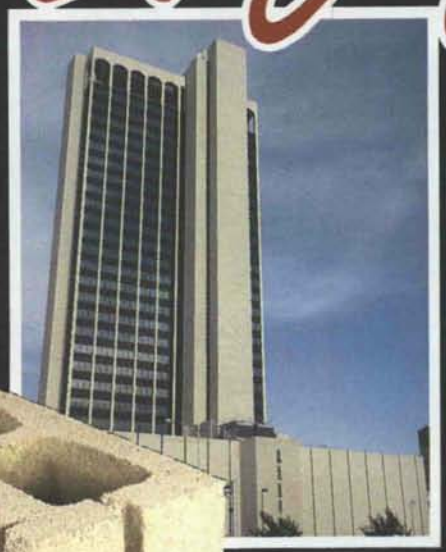
Judith Hancock Sandoval has assembled a very interesting collection of Wyoming ranch photographs along with the intriguing short essays on each which give an insight to establishing a ranch on the frontier.

The essay, "Ranching in Wyoming" by T. A. Larson, brought this reader back into the late 1800s with Mr. John Hunton and his effort to make something out of his life in Wyoming. It is unfortunate that Mr. Larson did not have room to print the full 50 year diary of Mr. Hunton.

Robert Roripaugh's essay on his family's ranch as it was thirty years ago with its ups and downs and a time and life style now almost gone is well worth the readers' time.

Old Ranches of the Texas Plains. Paintings by MONDEL ROGERS; Foreward by Mitchell A. Wilder. (College Station: Texas A & M Press, 1976. 124 pp. Cloth $35.00.)

Dazzling



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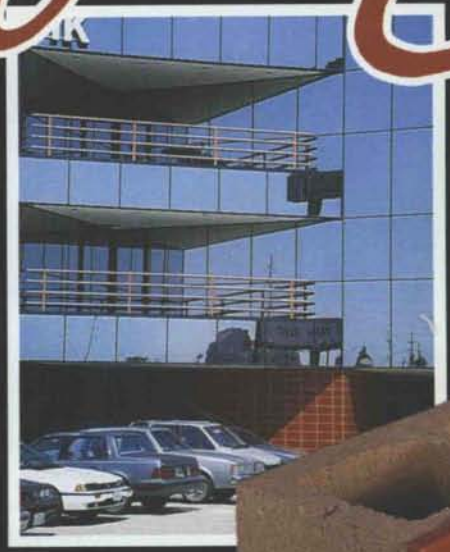

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NEW MEXICO WINDMILL TOWERS AS VERNACULAR ARCHITECTURE

T. Lindsay Baker

Anyone who has traveled the plains of New Mexico realizes that windmill towers often represent almost the only vertical elements of an otherwise horizontal environment. But, what about these towers? Do they constitute part of the architectural heritage of New Mexico? The answer, at least from this author, is an emphatic yes.

Windmills began appearing in New Mexico in substantial numbers in the decade of the 1880's, although a few probably were used earlier. The entry of transcontinental railroads to the territory in that decade opened the region to large volumes of manufactured goods which before had been available only in limited amounts. Before the coming of the railways, the cost of wagon freight in New Mexico had precluded the shipment to the region of all but the most necessary or expensive goods.

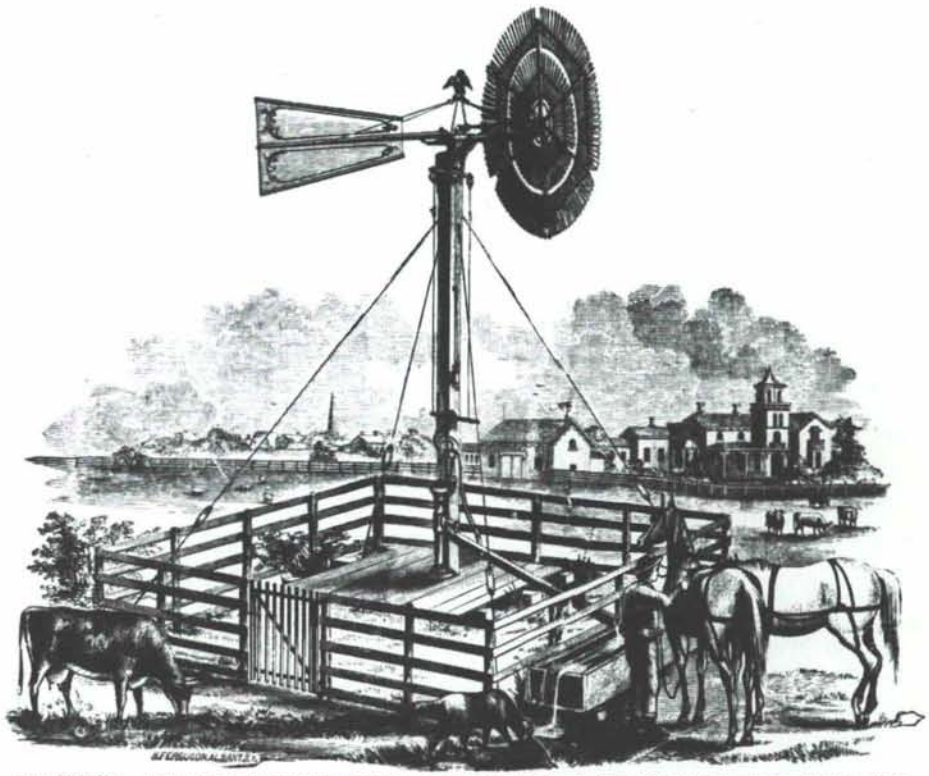
In order to survive in wind-swept New Mexico, windmills had to be self-governing. This means they automatically turn to face changing wind directions and control the speed of their wheels automatically in order to prevent destruction by centrifugal force.

Self-governing windmills had their origin in New England. A Vermont-born Yankee mechanic, Daniel Halladay, invented and patented the first commercially successful self-governing American windmill in 1854. In that year he began manufacturing the machine and soon was followed by others.

With the availability of railway transportation, distributors began shipping large numbers of windmills to New Mexico a century ago. The mills were used not only on farms and ranches, but also to provide domestic water to urban dwellers.

A typical early New Mexico windmill user was Iaasc R. Birt of Lordsburg. On September 12, 1886, he wrote to the Springfield Machine Company in Springfield, Ohio, the maker of his new mill:

> We attached "Leffel" Wind Engine to-day to a two inch pump set at the bottom of a well 200 feet deep, and it hoisted the water with ease in a very light wind. I do not hesitate to say, it is the best mill ever invented. Your Catalogue says it is a self-regulator, but I see no way it would blow out of gear unless it blows off the tower. How do you make it a self-regulator?



Farm Wind Mill,—Its Erection and Application Illustrated. Manufactured by Empire Wind Mill Manufacturing Co., Syracuse, N. Y.

*Engraved view of one of the early windmill towers consisting only of an upright timber with guy wires. From Empire Wind Mill Mfg. Co., Syracuse, N. Y., **Descriptive Catalogue...** (Syracuse: Daily Journal Presses, [1870]), in Library of Congress.*

The next day, after the winds grew stronger, Birt wrote the maker the following note:

> In my letter of yesterday I requested instructions how to make the "Leffel" Engine a self-regulator. To-day a gale of about 40 miles per hour demonstrated to us that the "Leffel" is an excellent self-regulator. We need no instructions in that direction.

In order for a windmill to be effective, it must be erected on some type of tower. The earliest towers were little more than vertical wooden uprights supported by guy wires and occasionally by diagonal wooden girts. Such designs obviously had inherent weaknesses, and none of them are known to have survived.

The next towers to appear were more like those we know today. They were composed of four wooden legs stabilized with horizontal and diagonal wooden girts and supported firmly on anchor posts. In arid areas such timber towers may be found even today in large numbers.

After the arrival of the railroads, wooden towers could be built comparatively cheaply. Windmill erectors on the southern Great Plains built such towers at the turn of the century for a dollar a foot when the materials were provided. Even as recently as the 1930's they were com-

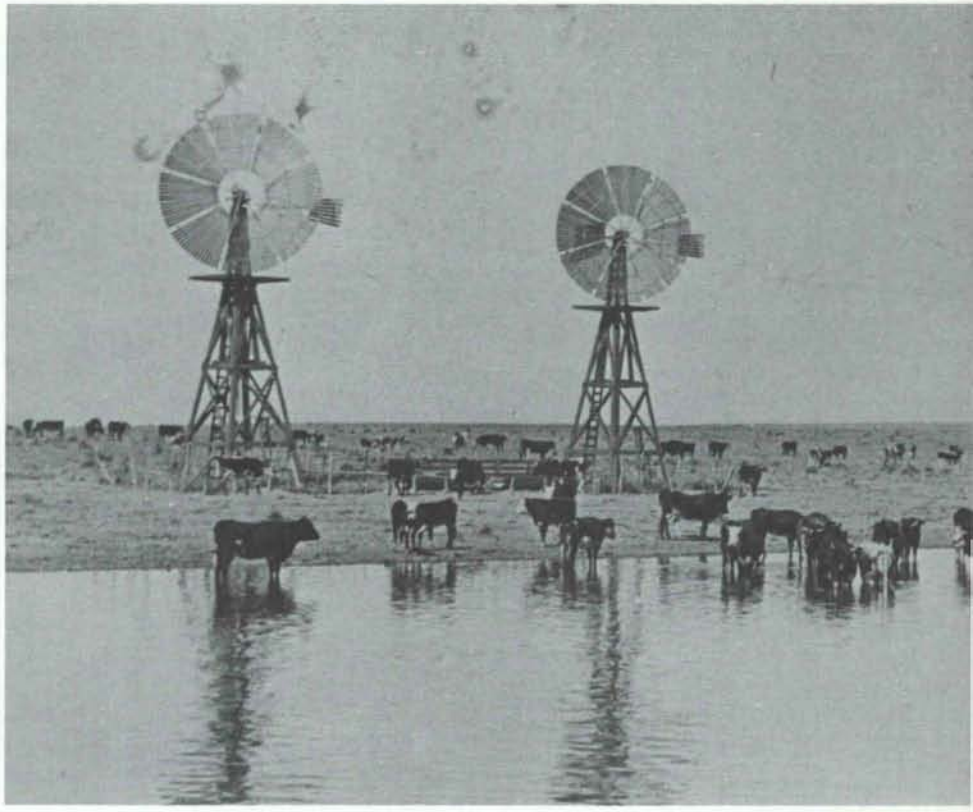
*T. Lindsay Baker is the Curator of Agriculture and Technology at the Panhandle-Plains Historical Museum in Canyon, Texas. He is the author of a dozen books on the history of the American West, among them **A Field Guide to American Windmills** (Norman: University of Oklahoma Press, 1985), and publishes the quarterly **Windmillers' Gazette** magazine.*

paratively inexpensive, with a twenty-four-foot tower costing about thirty dollars to build. With present-day prices for lumber, however, the traditional wooden towers now cost about the same as factory-made prefabricated steel towers.

Wooden towers were assembled laying on their sides on the ground. After they were built, teams of draft animals or trucks with cables raised them to their vertical position. Often the erectors raised the towers with the windmills, or at least their heaviest parts, in place atop the towers.

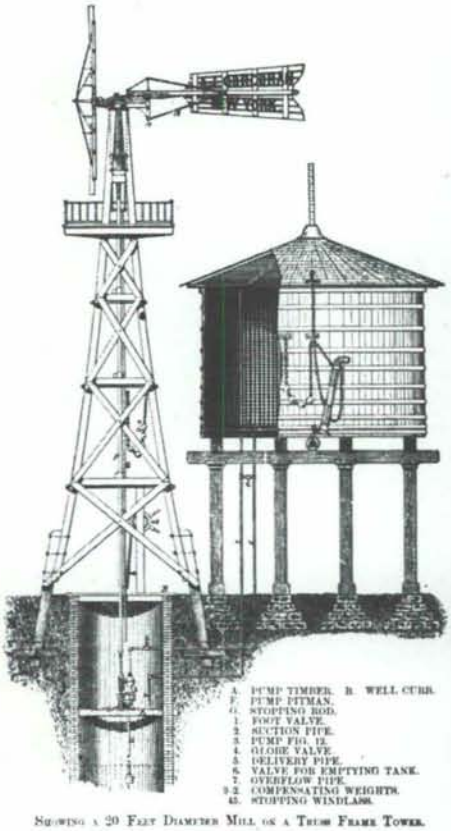
Wooden derricks served their purpose well in the semiarid Southwest, but the more humid climate in the East caused the towers in that part of the country to deteriorate comparatively quickly. Eliminating this difficulty and at the same time creating a new market for the manufacturers came new steel towers in the 1890's. Soon these towers were galvanized, making them virtually maintenance-free.

Some of the initial metal derricks, unlike those which we know today, consisted of wrought iron skeletons reinforced by steel cables under tension. Known as "cable towers," they were unsuccessful attempts



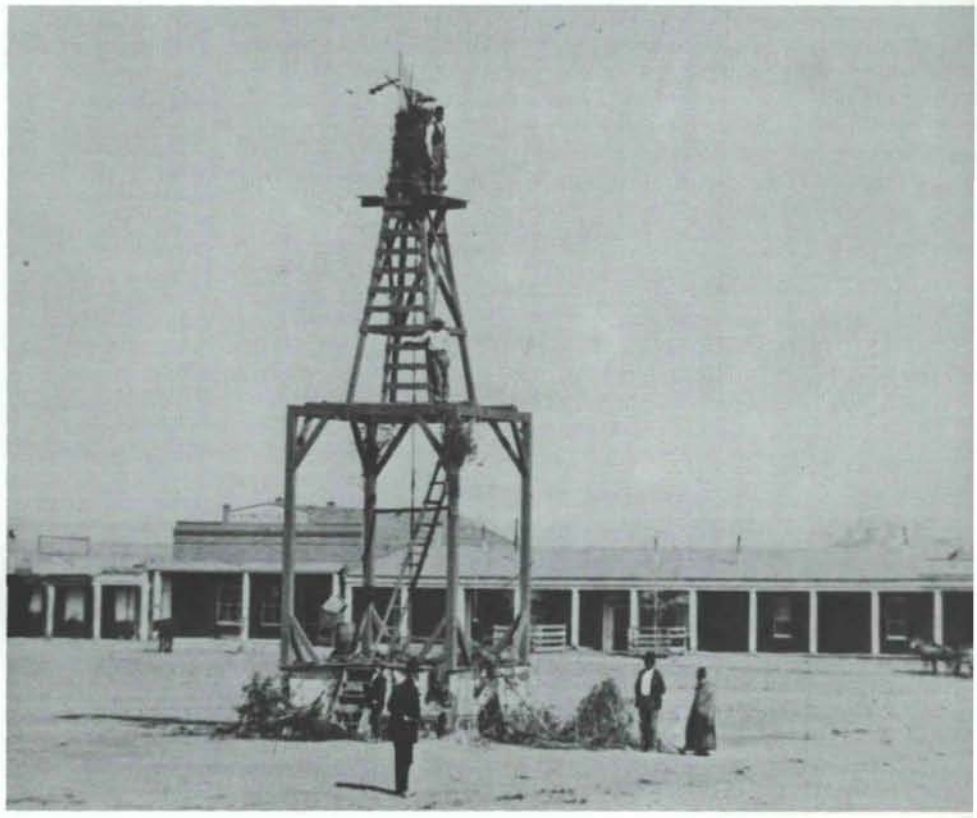
Two "Railroad Eclipse" windmills on telescoped wooden towers at Twin Wells in eastern New Mexico early in this century. Courtesy Garnet Brooks, Shamrock, Texas.

*A manufacturer's diagram of a recommended wooden tower to support its windmill. From Andrew J. Corcoran, **Complete Catalogue**...(New York: Voegele & Boeger, Printers, 1878), p. 33, in F. Hal Higgins Agricultural History Collection, University of California at Davis, Davis, California.*



Showing a 20 Feet Diameter Mill on a Truss Frame Tower.

The windmill tower gallows which once stood on the plaza of Old Town in Las Vegas, New Mexico. Courtesy Carl Coke Rister Papers, Southwest Collection, Texas Tech University, Lubbock, Texas.



at finding an economical means for designing and building towers.

Most of the steel windmill towers of the late nineteenth century were very similar to those which we see and use today. They were (and are) made from either three or four angle-steel legs to which were added a variety of braces. The bracing usually consisted of angle steel horizontal members and diagonal braces made from steel rods, steel straps, heavy galvanized wire, or combinations thereof.

Steel windmill towers are designed either to be built up from the ground one piece at a time or to be assembled laying on the ground (as the wooden towers) and then raised after assembly. Makers of each style claimed the superiority of its designs, but there was little difference in terms of durability after they were erected.

Although in theory the towers with three legs, which employ the strength of triangles, should be stronger, most ranchers in the West preferred those with four legs, ignoring engineering principles.

If a windmill tower is built up from the ground one piece at a time, the erector must find some means for raising the windmill itself to the top of the tower. Until recent times this meant the use of a gin pole placed near the apex to raise the heavy parts to the top of the tower for assembly. Since World War II most windmill men have used hydraulic telescoping booms for this phase of erection.

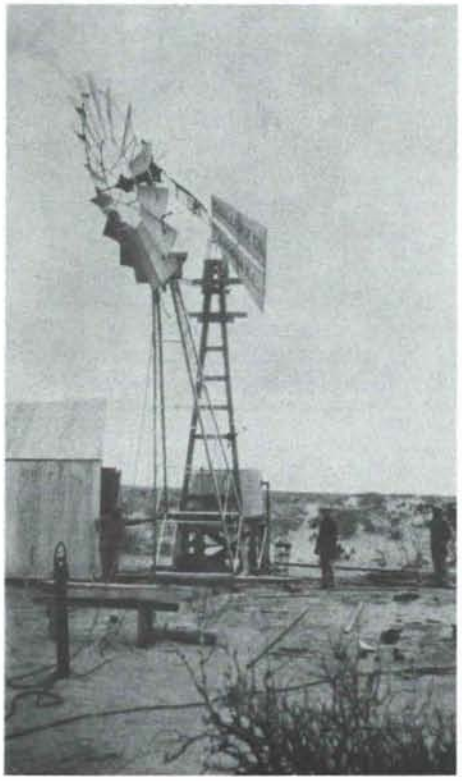
Geography dictates much concerning tower design and size. On the level plains, where there are no obstructions, in theory a tower needs only to be about twenty feet tall. Since the pipe used in the wells ordinarily comes in twenty-foot lengths and because during pump repairs this pipe must be withdrawn from the well, most windmill erectors build their towers somewhat taller to facilitate removing the twenty-foot lengths of pipe during well service. Consequently the average height is about thirty feet.

If a well is located in a low place, such as a stream valley where the water table is more shallow, it is necessary for the windmill tower to extend fifteen to twenty feet above the general ground level. Otherwise the mill will not receive enough wind to operate efficiently.

When a windmill is erected at a farm or ranch headquarters, it is important that the tower stand at least fifteen to twenty feet above any surrounding trees or buildings. This obviously is important so that the mill will receive enough wind to function, but the added height is equally important to protect the mill from dangerous ground turbulence around the obstructions during high winds.

Raising a steel tower with large "Challenge 27" windmill in southern New Mexico half a century ago. Courtesy B. H. Burdick, Sr., and Panhandle-Plains Historical Museum, Canyon, Texas.

A crew from the Burdick & Burdick Co. of El Paso, Texas, raising a steel tower and "Challenge 27" windmill near Las Cruces in the 1930's. Courtesy B. H. Burdick, Sr., and Panhandle-Plains Historical Museum, Canyon, Texas.



Today often one sees windmills surrounded by clumps of trees. When the wells were drilled and the towers erected, the trees most often did not exist. Over the years, however, leakage of water around the well has permitted the growth of the vegetation, which may even threaten the windmill and tower which through the years had encouraged its growth.

Very specialized towers were required for the lare-diameter "railroad-style" windmills which once were used on the New Mexico plains in large numbers. These mills, usually sixteen or more feet in diameter, originally evolved for use pumping water for steam locomotives and thus were termed "railroad" mills.

Towers for these especially large mills were made to withstand the extreme stresses and strains to which their mill were subjected. They were made from particularly heavy timbers. Since most standard towers could not provide sufficient clearance for the wheels on the large-diameter railroad-style mills, special "telescoped" towers were built to support them. Upward from the superstructure of the major towers, smaller "telescoped" towers extended to support the mills proper. Because special skill was required for the fabrication of these towers, the manufacturers occasionally even sent factory representatives to supervise their construction and erection.

Many of the new windmill towers that are appearing in New Mexico today are fabricated by local windmillers and well servicemen. From a distance they look like other four-leg steel towers, but on closer examination one sees that they are built from welded steel pipe. In semiarid New Mexico, where little moisture can accumulate inside the pipes, such towers should last for decades to come.

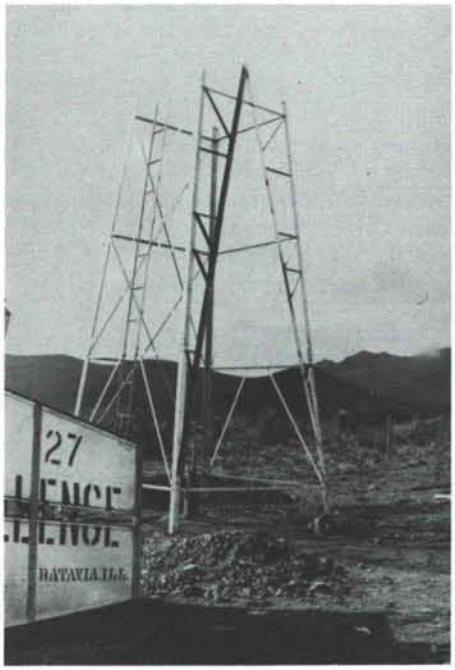
A small but increasing number of windmills in New Mexico have been placed on monopod steel towers during the past two decades. They are usually built from cast-off oil field pipe which has been firmly anchored in the ground adjacent to wells.

Perhaps the most exceptional use of a New Mexico windmill tower took place in Las Vegas a century ago. There a tall wooden windmill tower was erected over a well near the center of the plaza in Old Town. It had an unusually designed base, which doubled as a gallows. A writer in 1880 noted in an account of Las Vegas that the tower was the location of a "horrible sight this Spring, as on the night of February 9th the vigilantes hung one cowboy to the windmill, and laid his two companions out beneath him, riddled with bullets, because of their murder of Joe Carson, a few weeks previous." Another local resident later remembered that on one occasion when he went to his law office early one morning he saw "three outlaws hanging on this tower."

Early-20th-century advertisement for "Goodhue" steel windmills and towers, which featured the company's own "windmill insurance policy." Courtesy Panhandle-Plains Historical Museum, Canyon, Texas.

For over a century windmill towers have constituted an important part in the built environment of New Mexico. With continuing need for their services in more remote areas coupled with increased energy awareness, windmills and their towers should remain part of the state's heritage of vernacular architecture for many years to come. *T.L.B.*

Typical turn-of-the-century advertisement for windmills and steel towers. Courtesy Panhandle-Plains Historical Museum, Canyon, Texas.



Building a steel tower up one piece at a time in the Guadalupe Mountains of New Mexico/Texas in the 1930's. Photograph courtesy B. H. Burdick, Sr., and Panhandle-Plains Historical Museum, Canyon, Texas.

Use of a gin pole to lift windmill components to the top of a tower. Courtesy B. H. Burdick, Sr., and Panhandle-Plains Historical Museum, Canyon, Texas.

Century-old engraving showing a typical wooden windmill tower from the 1880's. From **Factory and Farm** *(Chicago), VI, No. 1 (15 January 1880), p. 25, in Library of Congress, Washington, D.C.*

SUGGESTED READING ON WINDMILLS AND WINDMILL TOWERS:

Baker, T. Lindsay. ***A Field Guide to American Windmills.*** *Norman: University of Oklahoma Press, 1985.*

Hays, Dick, and Bill Allen. ***Windmills and Pumps of the Southwest.*** *Austin, Tex.: Eakin Press, 1983.*

Windmillers' Gazette *(quarterly magazine on windmills and wind power history), P.O. Box 7, W.T. Station, Canyon, Texas 79016.*

Arizona Red, Flagstaff's Sandstone Industry

by Pat H. Stein

In 1892 the eyes of Albuquerque focused on the new building at the southwest corner of Gold Avenue and Fourth Street, for the activities to be conducted in it would shape the city's future. The building would house the Commercial Club (Fig. 1) (forerunner of the Chamber of Commerce,) a booster organization founded to attract and hold residents and capital investment. Replete with sumptuous meeting rooms, a dance hall, parlors, and business offices, the edifice was designed to host events to "boom the town." Through the turn of the century the Commercial Club would sponsor social events, business functions, and publications to promote the climate, cultural assets, and business potential of the city. The Commercial Club Building soon became a focal point for the community by virtue of its very architecture. Composed of a vibrant red sandstone, the building seemed to glow with its own light. The booster association could not have chosen a better medium to symbolize the energy, prosperity, and drive of this frontier city.

The construction material was sandstone from Flagstaff, Arizona Territory. The sandstone industry rose from the ashes of a series of fires that plagued Flagstaff in the 1880s. Located in the largest continuous stand of pine in the world, Flagstaff had a cheap and abundant source of lumber. But, as fires in 1884, 1886, and 1888 leveled block by block of frame structures, Flagstaff residents chose materials other than wood in rebuilding their homes and businesses. Brick became a popular alternative, and was shipped in and manufactured locally.

But there was another material, one that was as durable and attractive as brick, and that could be found literally at the town's doorstep. That material was Moenkopi sandstone, also called Arizona Red or Flagstaff Red sandstone. Known to local builders from the early 1880s, Moenkopi sandstone was first used for foundations rather than entire buildings. By the late 1880s, however, the flame-resistant material formed the main fabric of Flagstaff's new hotel, general store, and train depot.

The source of the sandstone was a high-grade deposit one mile east of town. In the mid 1880s an entrepreneur named Charles Begg became interested in the deposit and began to develop a quarry there (Fig. 2). In 1887 Begg patented the quarry and the 160 acre parcel in which it lay. He immediately sold the property, stone, and right to quarry the stone to a California businessman named L. H. Padgham, who retained Begg to be general manager.

Figure 1. Commercial Club, southwest corner of Gold Avenue and Fourth Street, Albuquerque, New Mexico. Architect - Jesse M. Wheelock; Builder - Strong & Hesselden. Constructed 1892 - Demolished 1953. (Albuquerque Museum Photoarchives)

The quarry began to expand its field of operations under the new ownership. The local newspaper reported that manager Begg made frequent and extended trips throughout the Southwest on business connected with stone contracts. A perceptive reporter in March of 1888 wrote that Begg had just returned from Southern California "looking as though he had enjoyed his visit." Indeed, he had. Begg had struck a major coup for the business: he had secured the contract to provide stone for the Los Angeles County Courthouse (Fig. 3).

As the first large-scale shipment of Moenkopi sandstone outside Arizona Territory, the Los Angeles County Courthouse contract marked the beginning of the boom period in Flagstaff's stone industry. And large scale it was: some 500 boxcar loads of the stone were to be shipped from the quarry to the building site over the course of the next two years. To prepare to process this volume of material, Padgham wrought many changes in his business. With associates Libby Hibben, W. H. English, and S. B. Hibben, Padgham formed the Arizona Sandstone Company, with corporate headquarters in Santa Ana, California. He appointed his brother, A. J. Padgham, a Southern California jeweler, to be company president. A capable businessman, A. J. Padgham further promoted the stone by exhibiting samples in trade centers throughout the West. The new president immediately hired 20 additional quarriers and traveled to Cincinnati to purchase state-of-the-art equipment for working the Flagstaff deposit. It may have been during his Ohio trip that Padgham became acquainted with a young Scottish quarryman who came highly recommended by his recent employer, the Cleveland

Pat Stein is an historical archeologist living in Flagstaff, Arizona, and working for the Coconino National Forest. She became interested in Moenkopi sandstone while working for Janus Associates, Phoenix, on a National Register of Historic Places nomination for the Flagstaff Multiple Resource Area.

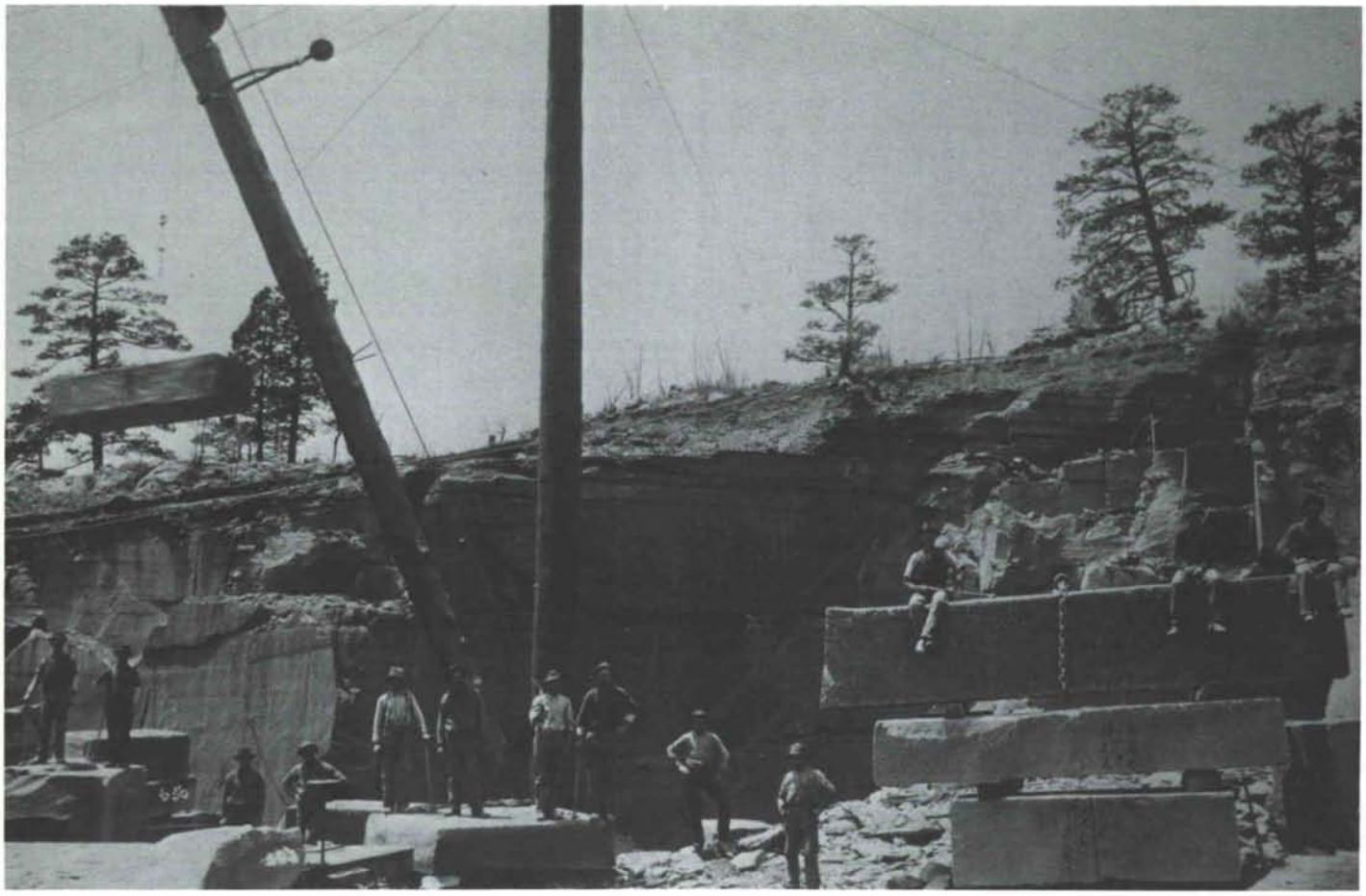


Figure 2. The Flagstaff quarry of the Arizona Sandstone Company, ca. 1890's. (Special Collections, Northern Arizona University, Flagstaff)

Stone Company. In late March of 1888, Padgham recruited the man, David Mitchell, to be operations manager of the Flagstaff quarry.

Mitchell was able to extract the stone systematically and in huge quantities, and it was under his management that the industry thrived. Megaliths as large as 36 by 16 by 12 feet and weighing as much as 730 tons were split from the deposit by means of explosive charges inserted in drill holes. Stonecutters then reduced the megaliths to blocks of 30 tons that were hoisted by either of the quarry's two steam derricks. During the peak period of the quarry, ca 1888 to 1910, the output was about four boxcars per day. The cost to clients ca 1897 was 35¢ per cubic foot for mill blocks "in promiscuous sizes", plus a sawing fee of 25¢ per cubic foot. In the 1890s, the stone industry ranked second only to the lumber industry in revenue generated for the town.

Mitchell's quarry provided not only a great quantity but also a high quality of the stone. Newspaper articles touted Arizona Red as a stonemason's dream:

> "The stone is a beautiful...sandstone, rather soft when first taken from the quarry, but hardens upon exposure to the air. It has been sufficiently tested to show that it is one of the finest building stones ever found."
>
> "Arizona sandstone resists a strain of 5,800 pounds to the square inch, which will stand the weight of the stone in a column over a mile high without crushing...Owing to its fine texture and to its being void of sharp grit, Arizona sandstone has very few equals for ease in working. It has no superior for fine carving, admitting of very heavy relief and presenting clean, sharp edges. It is without doubt the best sandstone in the United States for figure carving."

Given these attributes and Mitchell's capable management, stone from the Flagstaff quarry became a highly-prized construction material of the American West. A railroad spur connected the quarry to the Atlantic and Pacific Railroad (later the Santa Fe) track in Flagstaff, and thence to cities throughout the West. Among the many buildings to be constructed of Arizona Red were H. C. Brown's Palace Hotel in Denver, the N. T. Armijo Building in Albuquerque (Fig. 4), the Spreckels Mansion in San Francisco, the Oregonian Block in Portland, the Los Angeles City Hall, and the Sacramento Post Office.

Mitchell's work force, which numbered as many as 80 men, consisted largely of stonecutters from Scotland and England. A settlement the size of Flagstaff grew at the quarry, where workers lived with their families or resided in a boarding house for single men. Life at the quarry was punctuated by occasional tragedy, such as the 1894 death of a Nova Scotian and the 1908 injury of an Italian, both the result of falling rocks. In 1909 Mitchell himself was the victim of an industrial accident when a derrick gave way and caught him under it. Miraculously, Mitchell sustained only bruises and a broken leg, but the incident appears to have hastened his retirement. In 1910 the master quarryman, then 50 years old, left Flagstaff to turn full attention to his Buena Park, California, ranch.

The departure of David Mitchell marked the beginning of a period of decline for the Flagstaff sandstone industry. A crisis

Figure 3. Los Angeles County Courthouse, ca. 1890. The Moenkopi sandstone was from the Flagstaff quarry. (Special Collections, Northern Arizona University, Flagstaff)

precipitated in 1910 when some Los Angeles contractors were unable to pay the Arizona Sandstone Company for materials delivered, forcing the latter to take out a large loan. When creditors called the loan, due a year later, the stone company was unable to pay. The quarry changed hands twice in the following year before it was repurchased by its company president.

As the company faced financial difficulties, demand for the stone declined. There is some evidence to suggest that a California stone producers' bloc successfully lobbied against the import of non-native sandstone, hereby cutting one of the company's prime markets. And architectural styles were changing: the Romanesque buildings that had lent themselves so well to execution in cut red sandstone were no longer in vogue. The

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technology of poured concrete and concrete block construction had progressed to the point where these materials could be used far more economically than Moenkopi sandstone.

After 1910 the main client for Flagstaff sandstone became the Northern Arizona Normal School (now Northern Arizona University, Flagstaff). Started in 1894 as a reform school, the facility used Moenkopi sandstone in the construction of its first building, Old Main. Continued use of sandstone in the twentieth century gave the campus a unified architectural appearance. Today NAU North Campus contains the largest assemblage of Moenkopi sandstone buildings, its structures spanning the period 1894 to 1948 and representing a variety of architectural styles. NAU also has the distinction of having the last building to be constructed of Flagstaff sandstone, the Science/Forestry Building, erected in 1948.

The quarry saw little activity in the 1920s. A decade later, the Great Depression brought work there to a standstill. The industry experienced a brief period of hope, however, as work relief programs of the 1930s were set in place. In 1935, the Public Works Administration provided funding for the construction of the Normal School's North Hall (Fig. 5), built of Moenkopi sandstone. A second public works program, however, took an unusual course. When plans were announced in 1935 to build a Federal Building/Post Office in Flagstaff, the original specifications called for the structure to be a brick with a partial facade of Indiana or Texas limestone. Congresswoman Isabella Greenway and Senator Henry Ashurst saw the project as a means to stimulate local industry, and pressured the government to change the specs to allow bidders to substitute Moenkopi sandstone for nonnative limestone in their proposals. The government acquiesced, as use of local materials could be expected to lower the range of bids. The contract was awarded to Robert McKee of El Paso, who subcontracted with an Illinois company to do the stone work. The subcontractor found that the most expedient way of obtaining Moenkopi blocks at that time was to ship them from a building that had recently been razed: the Los Angeles County Courthouse. In Flagstaff the salvaged blocks were laid with their natural planes oriented in the wrong direction. The rock spalled and was replaced in the 1940s with Coconino sandstone, which has a pinker hue.

In 1938 the quarry and larger parcel in which it lies were sold to J. Howard Nickerson, a Cape Codder with speculative ventures in the West. Nickerson was joined a year later by his daughter, Virginia and her husband, Joseph Reid. Neither Nickerson nor the Reids were quarriers, and their interest in the property lay mainly in real estate development. During the Second World War the Reids donated the quarry equipment to the war effort. The metal derricks, rails and other stock were melted and recycled into armaments.

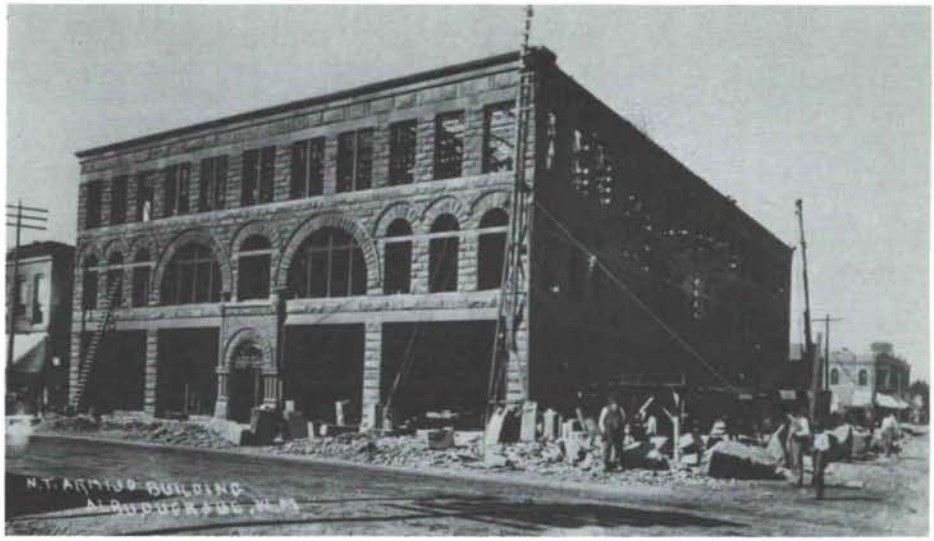

Figure 4. N.T. Armijo Business Block, northwest corner of Railroad Avenue (now Central Avenue) and Second Street, Albuquerque, New Mexico. Architect - Jesse M. Wheelock; Builder - Berardinelli & Palladino. Constructed 1892 - Demolished 1969. (Albuquerque Museum Photoarchives)

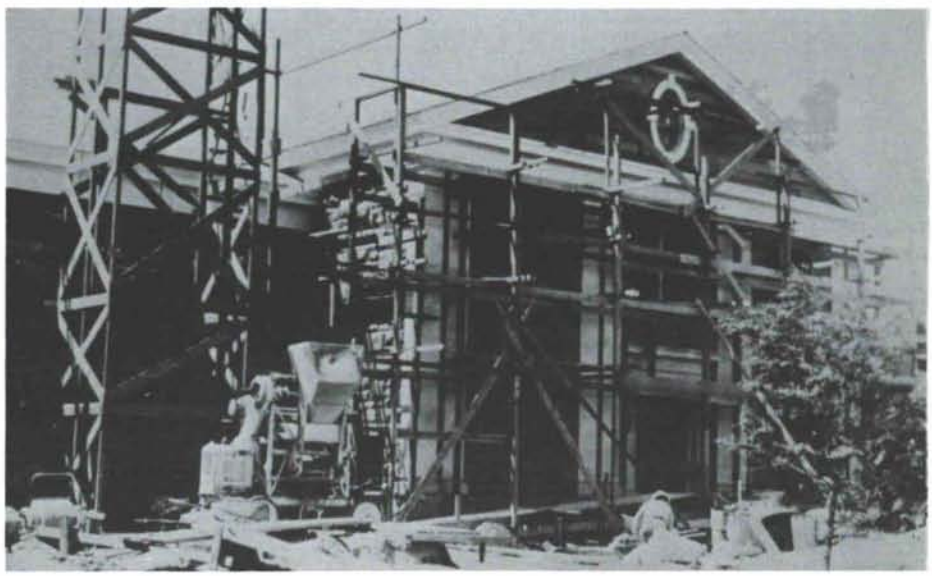

Figure 5. North Hall, Northern Arizona Normal School (now Northern Arizona University) during construction, 1935. This Public Works Project attempted to stimulate the local sandstone industry during the Depression. (Special Collections, Northern Arizona University, Flagstaff)

In the last two decades, the extraction of stone from the Flagstaff deposit has virtually ceased. NAU bought stone several years ago to repair the front steps of Old Main. The last time rock was quarried was in the late 1970s when the Santa Fe Railroad shipped three carloads for repairs at a Chicago station: the rock was used for a bench in the ladies' restroom of the LaSalle Street Station.

The great stone industry that was once so vital to Flagstaff's economy is today remembered by few local residents. To those townsfolk who recall the quarry, still fewer realize the extent of its architectural legacy, that its rock traveled from the grand ballroom of a club in Albuquerque to the restroom of a Chicago train depot. And, like Albuquerque's Commercial Club and N. T. Armijo buildings (demolished ca 1953 and 1969, respectively), the structures themselves are one by one falling victim to the bulldozer and wrecking ball, one by one disappearing.

P.S.

JOHN McHUGH SUFFERS STROKE

John McHugh, FAIA, one of Santa Fe's most prominent architects, was struck down, but not out, by a stroke on July 5th. Undergoing therapy at Saint Josephs Hospital in Albuquerque, John is now on the way to recovery. Even in adversity his wit did not leave him. We all wish him well.

In a recent article in the Santa Fe *New Mexican* he was quoted as saying, "I enjoy being an architect so much. I feel sorry for anyone who isn't one". Well, if all were architects, what would there be for us architects to do? John, we expect you back to do more architecture for those unfortunate ones who are not architects.

JPC

Continued from page 9

The saying "pictures speak louder than words" holds true in the case of the book of 79 paintings of ranch houses on the Texas Plains. The artist, Mondel Rogers, strongly influenced by Peter Hurd, usually paints with a watercolor air brush technique, although some of his paintings are egg tempura on gesso background. The 79 paintings featured in this book are all from the Texas Panhandle: Panhandle Plains, Staked Plains and Rolling Plains regions. Mondel, in the introduction, gives credit to New Mexican sheepman for building the first permanent structures in the western Panhandle. For those who cherish the old ranch architecture, this book is a must.

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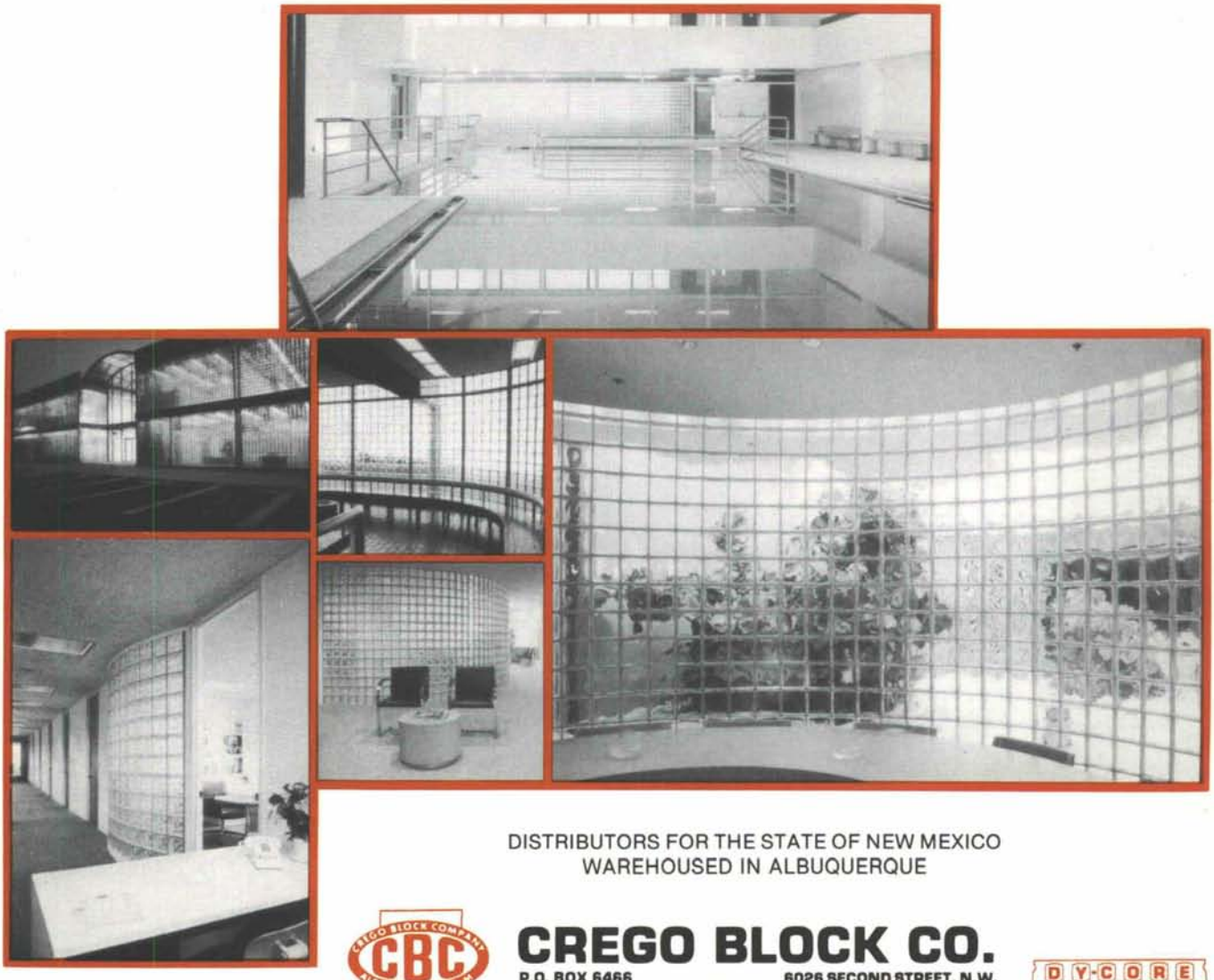

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