

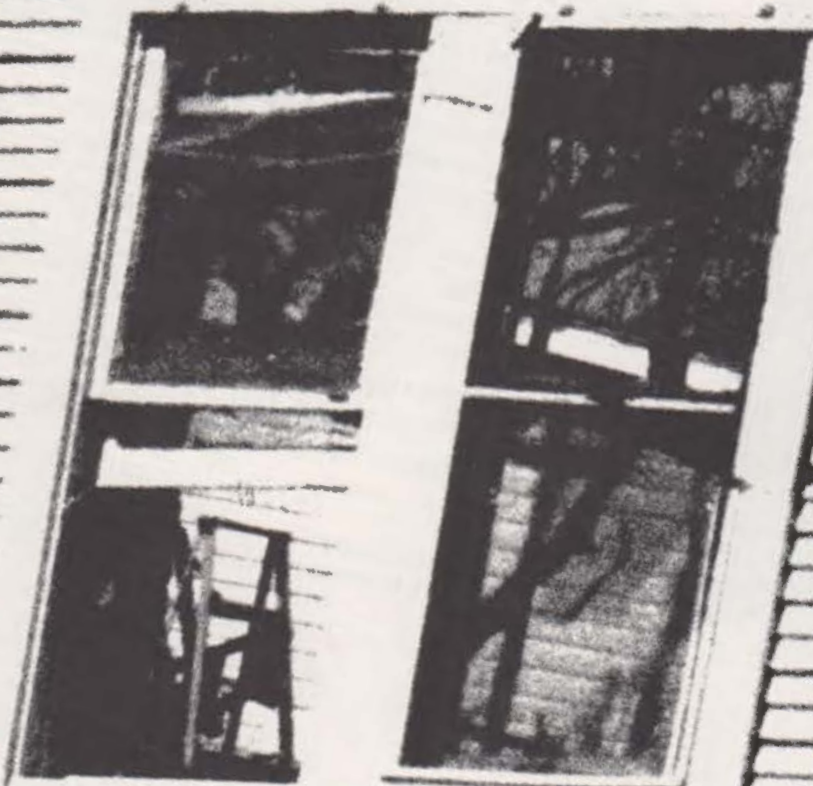
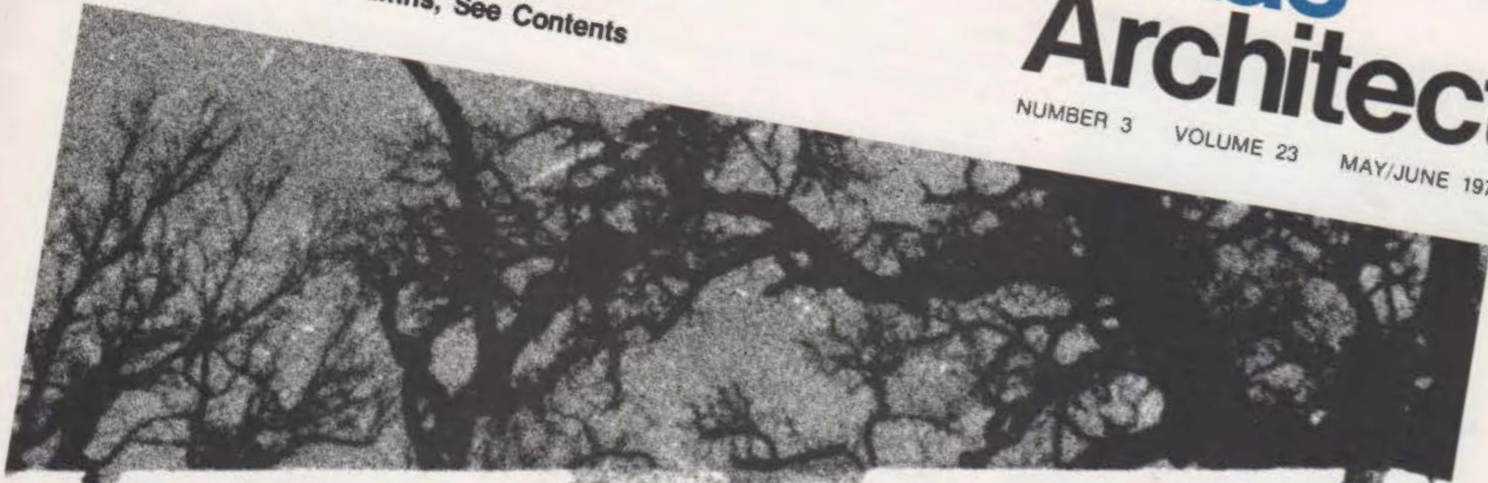
In this issue:

- Disaster Action in Action
- Tornado-Safe
- Appetites and Attitudes
- The 1890's in El Paso
- Eight Texas AIA Fellows

Plus new regular columns, See Contents

Texas Architect

NUMBER 3 VOLUME 23 MAY/JUNE 1971



Contents



Disaster Action in Action .. 4

When Hurricane Celia stormed across Corpus Christi and the Texas Gulf Coast in 1970, she knocked out power, leveled homes and docks, destroyed high-rise buildings, and took the lives of twelve Texans. Speedy restoration was possible because of organized counseling, damage assessments, and plans of action proposed by a group of involved Texas architects. A state-wide plan to aid in the aftermath of natural disaster, adopted by TSA in 1971, was first able to show its capabilities after recent tornadoes struck Burnet and Hubbard.



Tornado-Safe 9

Are tornado-resistant structures economically feasible? New information on wind force magnitudes in tornadoes has been developed in the last few years. This has changed some long-standing notions about "tornado-proof" design. The author discusses the dynamics of a tornado, explores relevant concepts of structure and design, and includes facts from recent findings.



Appetites and Attitudes 13

What is the role of the architect in today's society? How does one actively bridge the traditional gap between the "real world" of experience and the "theoretical world" of the classroom? These were some questions discussed by architecture students at the TSA/ASC barbecue and campout in New Braunfels.

In The News 17

Bringing the 1890's Back to El Paso 21

Eight Texas Architects Are New AIA Fellows 25

Letters 30

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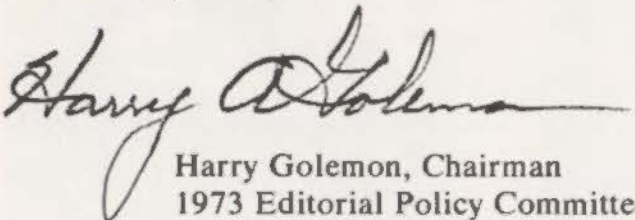
With this issue, the Texas Society of Architects presents a bright, new face for its official publication. We hope that our membership, our other readers and our advertisers will like our new look. We are excited.

As you read this issue, we hope that the changes we are making will appeal to you from a visual standpoint. But our further hope is that you will also notice other changes, more subtle, but really more important.

For 23 years, we have been a publication oriented more toward structures — individual buildings — rather than toward architecture as it relates to the total environment. And we have tended to feature architecture more than architects.

Now we plan to focus on the men behind the structures — architects and their clients who shape our man-built environment — and on our profession as it relates to the world in which we live. This means speaking on issues, dealing with such topics as overall land use, space planning, ecological factors of design, and legislation affecting these issues. At times, some of you will not agree with everything we say. Please know that we do not expect you to. We do hope that you will study what we do say and relate that information to your own experience. This is the essence of communication — and this is what *Texas Architect* is attempting to do.

The Editorial Policy Committee of the Texas Society of Architects has worked hard and put a great deal of thought into the graphic design and editorial philosophy of the new *Texas Architect*. We now have a Letters to the Editor section. How about your opinions? We would like to hear from you.



Harry Golemon, Chairman
1973 Editorial Policy Committee



Disaster Action in Action

It was another lazy Texas summer in July, 1970. Tourist trade was good on the Gulf. Beaches were packed. Corpus Christi looked forward to one more month of vacation time. But out in the Atlantic, a wet gust of wind had begun to earn a name for itself — tropical storm Celia. And by August 1, the beach party was over.

Four hundred miles south of Mobile, Alabama, the winds were blowing with hurricane force at 115 miles per hour. By 9:00 PM, August 2, Celia was 265 miles

Assessing damages in the wake of the Hubbard tornado are (left to right) Louis Holman, Hubbard Reconstruction Committee chairman; architect Don Dillard, president of the Waco AIA Chapter; Jay Leon, husband of Hubbard Mayor Roberta Leon; and Daryl Barrett, of Waco's Urban Design Center.



southeast of Galveston, moving west northwest at 12 miles per hour. Folks on the coast had weathered two hurricanes in the last decade. Carla, in 1961, had left 46 dead and \$408 million damage from 175 mph winds and 15 foot tides. Beulah's visit, just three years before, had left 15 dead and 500 million in damages. It wasn't easy to forget.

As Celia stormed her way across the Gulf, the Texas coast from Rockport to Port Arthur was on the alert. The Texas Department of Public Safety, Civil Defense Units, the Red Cross, and Salvation Army all expected the worst. Houston prepared to shelter a potential 100,000 refugees as coastal towns were evacuated.

As fate would have it, only the southern tip of the alerted area had cause for alarm. An unexpected shift in direction sent Celia slamming into the Texas coast at Corpus Christi. Aransas Pass, Gregory, Ingleside, and Portland — across the bay from "The City by the Sea" — were virtually demolished in the 145 mph winds and drenching rains. And hardly a structure in the city of Corpus Christi was left unharmed by the storm.

Accounts told of Celia's might. Glass, debris and fallen power lines littered the streets. Boats were lifted completely out of the Marina almost into the downtown section. Dozens of mobile homes dotted the area, tossed about and split open on

Residents talked about the might of the rumbling tornado that left their town in shambles, revealing a feeling of hopelessness in the face of reconstruction. Disaster Action team members listened and sympathized, but set about the business of assessing damages and helping with plans for a new city.



their sides. Oil tanks stood like "half-squashed dixie cups." The city's shiniest high-rise office building, a 19-story wedge of steel and glass, looked like a sieve. A dozen counties were declared to be in a state of disaster.

Twelve Texans had lost their lives. Nine thousand homes were destroyed and 14,000 damaged severely. With more than half a billion dollars in damages sustained, the coastal region was left in shock.

Local architects weren't trying to play the role of heroes in this tragedy. Their own homes had been hit, like almost everyone else's. And certainly they were disheartened at the widespread destruction of buildings — their own contributions to the community. But as early as the day following the storm, they were out helping neighbors, relatives and clients by inspecting homes and property for safety and by assessing damages. Need for this service was of course excessive, and word of the architects' cooperation spread quickly. There was an immediate need for organization to answer the resulting deluge of requests for architectural counseling.

This wasn't the first time Texas architects had served their community in the time of disaster. Just three months earlier, following a Lubbock tornado that virtually destroyed a 25-square mile area of that city, local architects helped inspect damages and prompted the city council to appoint a rehabilitation task force responsible for recommendations regarding immediate and long range planning. And coastal architects had long seen the need for some form of service-rendering mechanism designed to function during the aftermath of natural disaster. But it took Celia to provide the necessary impetus.



Emergency planning meetings were held by the Corpus Christi Chapter of the American Institute of Architects and representatives of the chapter attended similar sessions with offices and members of TSA in Austin. Developing from these planning sessions was an operation, functioning in Corpus Christi somewhat as a community design center, known as the Redevelopment Assistance Center (RAC). Its immediate goal was to provide assistance with assessment of damages. Cost estimates were needed for insurance claims and for obtaining federal assistance in the form of long term, low interest loans from the Small Business Association (SBA).

Architects from around the state answered the call for volunteers to man the center. Brawley King, with the approval of his firm in Houston — Caudill, Rowlett, Scott — arrived in Corpus Christi two weeks after the storm hit and served as temporary director of RAC for the next three weeks. Meanwhile, Alan Taniguchi, then Dean of the University of Texas (Austin) School of Architecture, was instrumental in arranging for advanced architectural students to participate in the volunteer effort. Students from both Texas and Rice Universities were permitted to volunteer for work at the center, obtaining college credit or project data while serving the needs of the stricken area. Corpus Christi architect Les Mabry was appointed as a temporary University of Texas faculty member in charge of the student program and later donated his salary to RAC. Both word of mouth and the mass media publicized the center's activities.

By August 17, RAC was a successful working organization soon to be in-

corporated by the State. Hundreds of damage survey requests were being processed by the volunteers, and the total would reach well into the thousands. The SBA praised the efforts of RAC, saying that the damage surveys had saved untold thousands of man hours and had expedited the processing of individual loans by several weeks.

After this initial recovery period, the center remained in operation to provide multi-discipline rehabilitation planning advice and counseling for neighborhood groups and coastal bend communities. Much of the work was done by architectural students, some of whom stayed with RAC for two semesters. Local professionals continued to donate their time and supervision.

It was success with Corpus Christi's RAC that led to plans for statewide application of the concept through the facilities of TSA. Architects were convinced that disaster restoration procedures generally needed improvement, that rehabilitation should produce a better environment than that existing before the disaster. It was felt that the statewide network of TSA Chapters would provide an excellent framework for a tax-free mechanism through which the design professionals and allied groups could respond to the restoration needs of any community in Texas.

TSA officials appointed a seven-member task force, with Brawley King as chairman, and charged them with developing "a TSA plan for action for future disaster affecting community life." The result was the incorporation by the State of Texas in July, 1971, of TSA Disaster Action, Inc., a non-profit, wholly owned subsidiary of TSA.

The Board of Directors for the corporation is composed of the nine members of the TSA Executive Committee, with terms of office running concurrently. The real core of the organization, however, is the Disaster



The home of Mrs. Willard Norris was one of many ripped apart by the Burnet tornado. "It was like a freight train," Mrs. Norris recalled. "We're just lucky to be here today." Austin architect Chuck Stahl takes a close look at the structural damage.



Action Committee, appointed annually by the TSA president. This committee, consisting of a chairman and six members, works in conjunction with the liaison appointee of each Chapter President. The desired result is an organization which, though virtually dormant most of the time, is capable of going into immediate action.

Disaster Action's capabilities went untested during the first 20 months of its existence. Though it looked good in theory, no one knew how well the plan could be implemented during an actual disaster. But this spring proved to be a thorough first test of the organization's capacity for action.

During the pre-dawn hours of March 10, thunderstorms hovered over a 150-mile wide strip of Central Texas. At 4:10 AM, a tornado dropped into the sleeping town of Burnet, population 3,200, sixty miles northwest of Austin. The twister swept through more than a mile of the business district and adjacent residential areas, leaving 200 structures damaged or destroyed in a swath 300 yards wide. Miraculously, no one was killed and only a few were injured. But two hours later, five lay dead in the Hill County town of Hubbard, population 1,500. The thunderstorm had spawned another tornado above the eastern edge of McClennan County which leveled about a dozen homes in isolated dips before blasting into the small town, 29 miles west of Waco. Whirling winds destroyed or damaged half the structures in Hubbard. A hundred people were injured.

Little more than a month later, disaster struck again. On Sunday, April 15, a pre-dawn tornado smashed into the west side of Plainview, a panhandle town of 20,000. A man and a little boy were killed from flying debris; 26 others were injured.

The damage figure for all three towns exceeded seven million dollars. In each instance, the suddenness of mass destruction had left citizens dazed. They were grief-stricken by death and suffering, discouraged by the awesome task of rebuilding. City officials, who in many cases neglected their own losses in the interest of the community at large, saw smooth-running city governments transformed into chaos. Establishment of any type of relief agency under these conditions would require efficiency and organization. But Disaster Action, stirred from a state of "sunny day" dormancy, succeeded in meeting the test.

On the day after the Burnet tornado, when security measures had been lifted, a Disaster Action inspection team toured the stricken area to assess the damage and if deemed necessary, to offer services to community officials. The team, composed of TSA Executive Director Des Taylor, and Austin architects Jay Tonahill and Ray Payne, saw the seriousness of the damage and made initial contact with city officials. Chuck Stahl, of the Austin AIA Chapter, took additional teams to Burnet later in the week and coordinated efforts of Disaster Action volunteers. Initial skepticism of "outsiders" on the part of the city government was overcome by a vote of confidence from SBA representatives, who recalled the architects' efforts in Corpus Christi. A schedule of volunteers from the Austin Chapter answered all requests for assistance in damage assessment.

Disaster Action Committee Chairman Brawley King of Houston, and Dave Carnahan of the Waco AIA Chapter, went to Hubbard March 12. A brief tour of the damaged area revealed the need for architectural assistance. Their offer of help was warmly received by the mayor and

Hubbard's downtown sector was hit hard. Some businessmen would have to start all over again. During those first days of confusion, they were pleased to have free consultation with architects to determine just where they stood and, in beginning afresh, where they might want to go.

city councilmen. Two days later, set up with national relief agencies in the basement of a local church, Disaster Action volunteers were being swamped with requests for general counsel and damage surveys. Carnahan and Doug Hearn, TSA director from Waco, coordinated the efforts of Chapter volunteers, who were still on the job a full month after the tornado struck.

In Plainview, architect John Kerr laid the groundwork for architectural counsel from the Lubbock and Amarillo AIA Chapters in an April 18 session with the Plainview City Council. The Lubbock Chapter's Disaster Action liaison, Robert Rapier, reported that Plainview officials offered the necessary space and even the assistance of city personnel to help implement the service. News media assisted with publicity. By the time Bob Messersmith and Frank Wilson, the first volunteers, were on the job, they had all the damage survey requests they could handle.

Founders of Disaster Action have been pleased with its performance this spring. No one was eager for the test to come, but it was inevitable that eventually it would. Architects, as active members of the local community, have always practiced their profession in the context of social responsibility. Now it is certain that, when nature has shaken the man-built environment, architects have a dependable vehicle through which to exercise this responsibility. Now there is a statewide mechanism ready to spring into immediate action — disaster action.

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"Conventional buildings with wood frame and masonry structures cannot resist loads different from vertical. Resistance to lateral sways has been an accidental byproduct."

Tornado-Safe

By Michele G. Melaragno

Although tornadoes are observed at any time of the year, their frequency varies considerably from a minimum in January to a maximum in May. The rate of occurrence is not constant but increases sharply in March. With the approach of Spring, therefore, another so-called "tornado season" begins, which will bring damage and death to several people. The annual losses are high, with averages of \$75 millions of damage and 125 deaths,¹ and peaks as high as 516 deaths in 1953.²

Tornadoes have occurred in almost every state of this country, but in some states the incidence is much higher than others. First on the list is Oklahoma with an annual mean of 8.8 tornadoes per 10,000 square miles. Kansas is next with 6.4, then Indiana 6.1, Iowa 4.5, Nebraska 4.4, Missouri 4.2, Illinois 3.9, Texas 3.9, etc.² Tornadoes are not limited to the United States but occur in many countries of Europe, Asia and Australia. Although they are less frequent than in some areas

of the United States, they can be equally if not more destructive.³

For many years scientific information on qualitative and quantitative characteristics of tornadoes was incomplete and inconclusive. Consequently people believed (including architects and engineers) nothing could be done to prevent or alleviate the losses and human suffering.

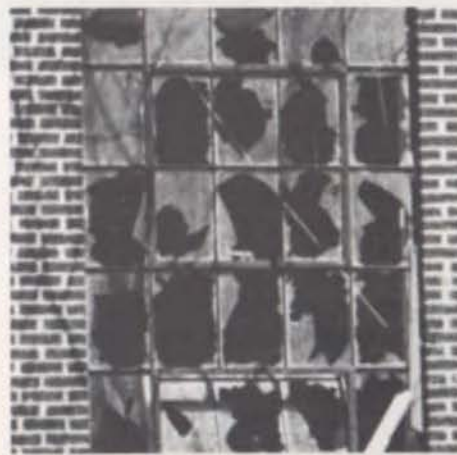
Although the problem still persists, scientific knowledge on the subject has increased considerably in the last few years especially in the fields of meteorology and fluid dynamics. The majority of the research work clearly indicates that the forces expected in tornadoes are much lower than previous estimates.

A better understanding of the order of magnitude of the forces can be derived from the following: in the past, wind speeds were assumed to be between 300 and 500 mph, which, neglecting the shape

of the building, produce forces of 230 to 640 psf. Present estimates instead include maximum wind speeds of 200 mph i.e. 102 psf pressure. These new figures put structural design in a completely different perspective where now tornado-resistant structures appear to be feasible not only from a technical but also from an economic point of view.

A tornado is basically a column of air that rotates (usually counterclockwise) around an approximately vertical axis while it travels over the ground with speeds varying from zero to over 60 mph. Its diameter varies from a few feet to over a mile (one and half miles in the Lubbock tornado of May 11, 1970), while its average lifetime is about 20 minutes. Inside the column at the center there seems to be a zone of perfect quiet

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as in the eye of hurricanes. Moving radially away from this central zone, the rotatory speed increases to a maximum and then it decreases to zero at the edge of the storm. This type of rotatory motion is known in fluid dynamics as a vortex. Since there are various types of vortices, the one that seems to represent the true tornado is the so-called Rankine's Vortex, named after the scientist who first demonstrated it.

Air in the vortex has also a vertical motion that is not well known. Some theories propose one upward flow while some others propose two concentric flows, one rising and one descending. However these motions appear to have relatively small consequence in the determination of tornado forces near the ground.

Buildings and other obstacles stricken by tornadoes are subjected to wind pressure and battered by flying debris. In addition they tend to explode outward because the atmospheric pressure inside is higher than the pressure outside. The wind force, previously identified on the order of 100 psf, implies a series of design considerations that go beyond the scope of this discussion, however, this is essential for the design of tornado-resistant structures. What does this value mean? A load of 100 psf applied vertically on a floor is a usual practice in some cases (live load specified in most building codes for public places), but when applied horizontally on walls, it is much higher than other conventional forces (wind pressure usually applied in design is 15 or 20 and even as high as 30 psf.)

Can conventional buildings resist such loads? For small structures like typical residential buildings in the United States, the answer can be furnished by the nuclear experiments conducted in Nevada in 1953 and 1955. These tests demonstrated the vulnerability of ordinary wood frame and masonry buildings to pressure forces of 245 psf acting perpendicularly to walls, floors, roofs, etc., and further show that seismic-resistant structures built with reinforced concrete panels can survive such forces with only small damage to doors and windows. Because of the analogy between

With an average of 3.9 tornadoes per year, Texas ranks eighth in the nation in the number of "twisters" striking within its boundaries. This spring, the tornado damage figure for the state reached around \$10 million.

nuclear blasts and tornado loads, the results of the Nevada tests can be applied to tornadoes as well.

There is no wonder that conventional buildings with wood frame or masonry structures cannot resist loads different from vertical. Traditionally, home builders have followed empirical rules which did not consider other forces but gravity, while the resistance to lateral sways was an accidental byproduct. On the contrary, earthquake-resistant structures, which are particularly designed according to detailed code specifications, have the typical characteristic to resist horizontal forces. The strength of these buildings is mainly achieved by connecting together all their components (footings, bearing walls, partitions, floors, etc.) so that they act as one structural unit. Thus, the efficiency of this system is very high because lateral strength is achieved from the geometric properties of the new assembly without the use of any additional member.

Wood frame buildings can be designed for tornado-resistance by taking advantage of the diaphragm action of stud walls and floor systems. The diaphragm design utilizes the strength of the sheathing which is usually disregarded in conventional frame buildings. The sheathing, in fact, is not cladding a structural frame, but, together with it, forms a continuous rigid box in the same manner as the metal skin of aircrafts contributes to the structural strength of the whole craft.

Several publications prepared by the American Plywood Association⁴ can assist the designer for a better understanding of the diaphragm action and the calculations of the diaphragms themselves with their connections.

Unlike small buildings, modern tall ones are particularly designed for wind forces. In fact, because of their light weight, slenderness and flexibility, these structures must depend on other means for achieving lateral resistance. The most common structural systems include: rigid frames, braced simple frames, shear walls and combination of these. Although these systems also can be efficient for tornado wind forces, the basic behavior assumptions must be well checked against unwanted stresses which may occur when structures undergo large displacements as would be expected during tornadoes. Often torsional stresses can be induced

when the wind resultant and the reaction do not lie on the same vertical plane. An example of this was reported by a recent study on a 21-story building damaged in the Lubbock tornado of 1970.⁵

Expected pressure reductions in the core of tornadoes are estimated in the order of 1/10 of an atmosphere, i.e., a pressure of 200 psf on the surfaces of an unvented building. This value is twice that of the wind pressure previously seen. Fortunately it can be eliminated by allowing air to escape from the building through properly installed vents at the same rate that the pressure outside falls. The required vent area is found to be directly proportional to a shape factor and the volume of the building, but inversely proportional to the local speed of sound and the time in which the pressure drops. Since the pressure change can be the most critical loading condition, it is of vital importance that the vents are of adequate size and do not fail to operate. Therefore, design should be very simple in order to minimize the chances of malfunctioning.

Are tornado-resistant structures economically feasible? To answer this, one can summarize as follows. The wind pressure has been indicated to be high, but within the order of conventional loads, while the pressure differential can be eliminated by venting the building. Earthquake design criteria have been proven by the Nevada tests to be effective for pressure much higher than expected in tornadoes and are therefore recommended. Small wood frames can be strengthened by diaphragm action without appreciable cost, while other methods involve the use of additional structural elements such as concrete shear walls⁶ or steel braces.

A recent study on a wood frame residential building, reinforced with X steel braces, indicates that full protection can be secured with an additional cost of 19%.⁷ For tall buildings, their ability to resist common wind forces can be equally effective for tornado winds as well, providing that secondary stresses are not allowed. Generalizations of cost estimates are not possible because of the large variety of building types and degree of protection. On the basis of what has been discussed, there seems to be a number of evidences to assume that tornado-resistant structures are economically

feasible, just as years ago it was concluded for earthquakes.

¹Data from the Environmental Data Service, ESSA, applicable to period 1955-1969 and reported by Edwin Keesler, *Tornadoes*, Bulletin of the American Meteorological Society, Vol. 51, No. 10, October, 1970.

²U.S. Department of Commerce, NOAA, Severe Local Storm, *Warning Service and Tornado Statistic*, 1953-1969, NOAA/PI 70014, 1970.

³An example is the tornado which occurred at Dacca, East Pakistan, April 14, 1969; there were 600 deaths and 5,000 injured.

⁴Noel R. Adams, Plywood Shear Walls, American Plywood Association Laboratory, Report 105.

John R. Tissel, 1966 Horizontal Plywood Diaphragm Tests, American Plywood Association Laboratory Report 106.

J.M. Carney, Hurricane-Resistant Plywood Construction, Presented at the ASCE Structural Engineering Conference, Miami Beach, Florida, Jan. 31, Feb. 4, 1966.

⁵The Great Plains Life Building consists of a rived steel frame coupled with a stiffer elevator and stair shaft. Although the wind velocity was estimated to reach 220 mph at the top of the building, the cause for the plastic deformation of the frame is attributed to the coupling of frame and shaft which produced torsional stresses.

Kishor C. Mehta, James R. McDonald, Joseph E. Minor, Albert J. Sanger, Response of Structural Systems to the Lubbock Storm, Texas Tech. University Storm Research Report 03, Dept. of Civil Engineering, October 1971, pp. 26, 43.

⁶Michele G. Melaragno, Dwelling Structures for the Great Plains. Semester Review, Oct. 1972.

⁷Sherman Zachary, Residential Buildings Engineered to Resist Tornadoes and Hurricanes. Paper presented at the XXII International Astronautical Congress in Brussels, Belgium, Sept. 20-25, 1971.



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APPETITES AND ATTITUDES

Bad weather wasn't specified in the design concept, but fog, mist and an occasional Texas cloudburst failed to dampen the spirits of 150 architecture students and a few soggy professionals who gathered for a barbecue and campout April 14-15. Jointly sponsored by TSA and the AIA Association of Student Chapters, the event brought architecture students from schools across the state to the muddy K&L Ranch campgrounds north of New Braunfels for what was lightheartedly termed a "lesson in survival."

The semi-constant downpour, which developed into a torrent early Sunday

morning, provided a dreary spring setting for even the hardiest campers. A campfire couldn't have survived and the rainsoaked ground was too wet for sleeping bags or tent pegs.

Among the events slated by ASC Regional Director Martha Bennett and others was an old-fashioned "go-fly-a-kite" session, which was waterlogged from the start. The volleyball court turned from green grass to brown mud. ("It was heavy," they said.) The swimming hole was too cold. And UT students' inflatable structure proved uninflatable — a failure of fanpower rather than manpower.

But beer and barbecue there was — enough, even, for those outdoor appetites. And the anticipated rap sessions among students from various schools were unhampered by the umbrella weather.

As students gathered, conversation inevitably floated into the subject of architecture. Adding a bit of journalistic prodding, the TA took this opportunity to make an assessment of what future architects are thinking about the state of their chosen profession and what it takes to get there.

What students are thinking, logically enough, largely concerns the educational



John Moreland: "Problems with the architectural profession are inseparable from the state of our culture."

Tony Schirripa: "Design is everything."

Larry Olson: "Design concepts are no good unless they can be implemented in the form of finished construction."

process that now dominates their lives. And when representatives of different schools get together, variations in educational philosophy often surface in the course of conversation. "Design is everything," said fourth-year student Tony Schirripa, an atypical Aggie who

heads the ASC at Texas A&M. "After a full course of study in architecture, a student should come out as more of a designer than a draftsman."

Third-year student Larry Olson, chapter president at Texas Tech, countered with the idea that if either aspect of architectural education should receive more emphasis, it is the more basic skill of drafting. "Design concepts are no good unless they can be implemented in the form of finished construction," he said. "The conceptual part of architecture is no more important than those working drawings."

To Fay De Avignon, now in her second term as national president of ASC, it is not so much an either-or proposition — both design and technical skills are important. "It is disturbing to me that so many students feel they must come out as designers or nothing at all," she said. "People should accept it if design is not their thing. Part of the trouble with architecture today is that design is often not left to those who can do it best." She agreed with John Moreland, now fourth-year student at the University of Houston, that drafting is important as "a communications medium."

In her travels as ASC president, Ms. De Avignon has seen a trend, at least among younger architectural students, toward increased concern for what she calls "professionalism." She explained that the trend runs counter to emphasis over the last few years on peripheral fields such as the behavioral sciences — away from emphasis on a cure for society's problems and toward mastery of architectural skills per se. "Architectural education has been so general," she said, "with just a spattering of knowledge about a lot of different areas. What the new trend calls for is the type of educational experience that would enable a student to move right into the profession with a minimal amount of adjustment." As a result, more and more students are favoring work-study programs which enable them to get first-hand experience in the field to compliment their course work.

But Pat Davis, Central Area Director for ASC, who is in his fifth year at the University of Texas at Austin, added it would be "a little rash" to minimize the value of course work. Having had "real world" experience as an intern, he maintained that there is a need for the type of

classroom information often hastily labeled as being "theoretical" or "impractical."

There does seem to be some basis, however, for criticism of the classroom situation. Most of the students agreed that part of the gap between themselves and practicing professionals exists in the very figure expected to bridge that gap — the professor. Davis says some faculty members have not had enough actual experience to convey to students what architecture really is. And some, he says, have entered the teaching field after becoming disenchanted with the profession, bestowing their own dissatisfaction upon students. Olson sees the need for professors to "keep in better touch with what's going on in the real world of architecture" so that what students learn in class will have practical application to the needs of the profession. Schirripa added that part of the problem lies in restrictions imposed on the amount of outside work architectural professors are allowed to do.

Discussion of architectural education also revealed differing opinions about time spans of various degree programs and possible combinations of education and professional experience during the eight years required for certification as an architect. Schirripa, for example, advocates the liberal four-year non-professional degree coupled with the option for an additional two-year graduate program. "With the more liberal four-year plan, the student at least has a degree to show for his four years," Schirripa said. "He doesn't, at that time, have to be committed to architecture, per se, if somewhere along the way he has discovered it's not for him." Other students favor the "five-one" plan, which provides a professional degree after five years, with the option of an additional year of graduate work. In either case, the consensus of opinion was that a first degree should be followed by some working experience before entering a graduate program.

But an overriding consideration, which partially accounts for differing educational philosophies, was the question of what architecture really is. What is the role of the architect in today's society? It was obvious from the students' comments that their own ideas

had changed during the course of their education; motives prompting their decision to enter the field often did not coincide with current aims. And their concepts of what architects have made of the profession often clashed with their ideas of what the profession *should* be.

"Students usually have some totally inaccurate concept of what architecture is when they first decide to pursue it," said Ms. De Avignon. "They think in terms of drawing boards and blueprints, and of course there is a lot more to it than that. They really aren't even informed enough to do a good job of planning their education." Her own first interest in the profession came from a basic love for beautiful things, for good form. ("There's part of the frustrated artist within me," she said.) But now she also emphasizes the aspect of communication with people — transforming their needs into ideas, and into physical structures.

Schirripa and Davis attributed their initial interest in architecture to influence of their fathers, both of whom were builders. But both students admitted their first concepts of the profession were somewhat shallow. "I was interested in building, but knew from watching construction workers that I didn't want manual labor," quipped Schirripa. "So I decided to be an architect." Davis said that, like many students, he first went into architecture because of prestige — its "stud connotation." "But now," Davis said, "I don't think the prestige, or even the money, is all that important."

What Davis *does* consider important seems compatible with priorities of other students and delimits an area of concern they have for the state of the profession. "The important thing is to maintain high ideals, to keep from copping out," Davis said. He pointed to the race for "making the buck" as a source of ills in the profession. "People with money are actually telling the architects how buildings should be built. Sometimes you just have to look at what they are wanting and say, 'That's not right for people.'"

Other students were caught up in the same idea. The catch word is "humanization." Citing unnatural enclosures, visual clutter and windowless buildings as symptoms of a malady within the profession, Houston's John Moreland pointed out the need for people-oriented

architecture. "Architects are dealing with people's lives," he said. "They must be perceptive enough to realize the implications of environment on human beings." He reiterated the idea that architecture is largely controlled by money and competition and suggested that many professionals are playing a "fashion game." The result, he said, is emphasis of magnificence over functionality. "You need a few Eiffel Towers scattered about, but not everywhere," he said. "Architecture doesn't necessarily need to be grandiose to be good." Moreland attributed this "misemphasis" to a natural inclination for men to seek fame and remembrance. "After all, we don't glorify the thatched house, the market place — where people live and roam day by day," he said. "It's the pyramids that go down in history."

Ms. De Avignon re-emphasized the need for humanization in design, asking, "Why is so much public housing the same when people's backgrounds are not? Designers are not responding to special needs." She pointed out that although bureaucracy or a housing developer may control the money and influence the design, the real client is the tenant who must live with poor design day by day.

But in assessing faults with the profession, Ms. De Avignon places perhaps more emphasis on what she terms a general lack of communication. It exists, she says, between students and professionals, citing the fact that vast amounts of research done by students in course work goes unnoticed and unused by practicing architects. It exists between architects and related specialists, she maintains, pointing out that even on campuses the arts of landscaping, interior design, city planning and architecture often are separated administratively and physically. And she sees a gap between the architect and his community. "There needs to be a major attitudinal change within the community," she said. "A prime responsibility of the architect, and one which is being neglected, is to communicate to the public the need for an architecturally sound environment."

In her estimation, the profession needs more idealism. "Architecture is a service," she said. "Second-rate, environmentally disastrous construction may be profitable, but it's not service. Architects must be sensitive enough to the needs of people and must have



Fay De Avignon: "Designers are not responding to special needs."

Pat Davis: "I don't think the prestige, or even the money, is all that important".

enough pride to come up with the best possible design solution for people."

Though students were frank in discussing faults with the profession, they didn't attribute them to any basic malevolence among architects, but more to social conditions of the times. "Society, in this fast-paced, commercialized age of suburbia, has simply developed what I see as a false system of values," Moreland said. "Problems with the architectural profession are inseparable from the state of our culture."

"Architecture is trying to change," Davis maintained. "But it is bound by the economic structure of things."

Students even admit that their criticisms of the profession may sometimes constitute an "ivory tower" viewpoint. "Things could well be different when we get into the real-world profession," they say. But, if idealism has a fighting chance in this world, they'll make that difference themselves.



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In the News



Houston architect John M. (Jack) McGinty was elected a Vice President of the American Institute of Architects at the Institute's national convention in San Francisco May 7-10.

McGinty, a principal of The McGinty Partnership in Houston, is currently president of AIA's Houston Chapter and chairman of two TSA task forces — Land Use Policy and Prairie View A&M, formed to implement the establishment of an accredited school of architecture at the college near Houston.

He was one of four delegates to the USSR last year and formerly taught architectural design at the University of Houston and Rice University. McGinty founded Houston Urban Bunch and Houston's Community Design Center. He has served in various capacities with TSA, and while serving as a White House Fellow from 1967-68, he assisted Secretary of Interior Stewart Udall.

McGinty received a B.S. in Architecture from Rice University and M.F.A. in Architecture from Princeton University.

His statement of philosophy for the election was: "The public issues of the seventies — energy, growth, cities, people — are the businesses of architecture. How well we meet this challenge depends greatly on how well AIA serves, supports and strengthens the capabilities of its individual and component members."

Texas architectural education took a stride forward in April with the initiation at the University of Texas at Arlington of a master's degree program in architecture.

The six-year program, which will be offered beginning in September, is the only such degree plan in north central Texas. Harold Box, architecture department chairman, said UTA opted for the master's degree approach rather than the five-year professional degree plan because, "We think we can produce a better trained person with a broader background curriculum." He added that the six-year plan affords more opportunity for specialization and puts the student one year closer to completion of the eight-year period of education and apprenticeship prerequisite to registration as an architect in the state of Texas. Formerly, UTA offered only a non-professional four year liberal arts degree in architecture.

Box, a partner in the Dallas firm of Pratt, Box and Henderson, designed such well-known buildings as the Apparel Mart, the Quadrangle and the Dallas Garden Center. Since he joined the faculty in 1971, the architecture department has grown to an enrollment of 570 majors, the largest undergraduate architecture program in the Southwest. This fall, he expects an enrollment of 600 undergraduate and 30 graduate students.

Teaching at UTA reflects Box's philosophy that students should participate in a wide variety of activities that make them better aware of their surroundings. Box believes that an architect has a responsibility for his environment. "What we live in, what we drive through, what we experience each day — all this can be determined in great part by an architect. A challenging future lies ahead for the architect who wants to shape his environment in a positive way."

A fellow in the American Institute of Architects, Box has called upon his colleagues for assistance. In addition to the department's 14 full-time faculty members, an equal number of practicing architects in the Fort Worth/Dallas area teach part-time at UTA.

The department currently offers programs in architecture and interior design, and will expand its curriculum to include city planning, urban design and landscape architecture.

Prominent Houston architect Albert S. Golemon was elected Chancellor of the College of Fellows of the American Institute of Architects at the national AIA convention in San Francisco May 7-10. As chancellor, Golemon will coordinate the activities of the approximately 1,000 AIA members who have been awarded the "Fellow" designation.

He is a senior partner and a founder of the Houston-based firm Golemon & Rolfe, established by Golemon and Walter T. Rolfe in 1946. The firm conducts a general practice, with departments in commercial, medical, educational, government and master planning. Completed projects to the firm's credit include the Houston Intercontinental Airport terminal buildings; the FBI Academy, in Quantico, Va.; Houston's St. Joseph Hospital; and Hillcrest 635, a large office park in Dallas.

On the drawing boards are such projects as the Neurosurgery Center for Houston's Methodist Hospital, an international ter-

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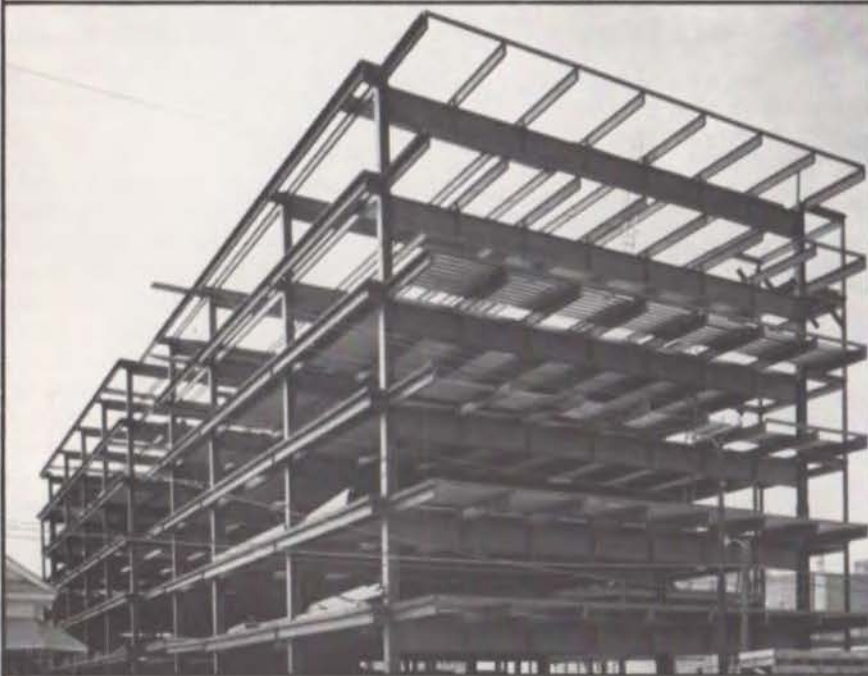
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A native of Alabama, Golemon was graduated from Auburn University in 1924 with a B.S. in Architecture. He received his Master of Architecture degree from Massachusetts Institute of Technology in 1925 and the Diploma in Architecture from Ecole des Beaux Arts, Fontainebleau, France in 1927.

Golemon has been active in various civic organizations as well as local, state and national elections. He is a nationally recognized judge of architectural design and the allied fine arts.

Preston M. Geren, Jr., Past President of the Texas Society of Architects, has been appointed to the board of directors of the Lone Star Gas Company in Fort Worth.

Geren has served in virtually all offices of the Fort Worth Chapter of AIA and is now a member of the Mayor's Committee for Public Improvements, the Streams and Valleys Commission, and the Trinity River Association Executive Committee.

He serves as vice president of both the Texas Architectural Foundation and Fort Worth Progress, Inc.

Pedro Aguirre, Jr., a partner in the firm of Aguirre & Dabney, has been elected to a position on the Dallas City Council.

Active in civic affairs, Aguirre has been praised by fellow architects for his "very personal involvement." His additional present civic activities include participation in the Greater Dallas Community Relations Commission, School Board of Diocese of Dallas, Board of Directors of the Office of Mexican-American Affairs, and the Board of Directors of the National Center for Housing Management in Washington, D.C.

San Antonio architects have awarded posthumously a special "community excellence" citation to their late colleague, Gilbert Garza.

His widow, Mrs. Olivia Garza, accepted the award at the San Antonio Chapter of AIA awards banquet May 4.

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Architect Louis Daeuble, whose dreams and designs became La Villita, with wife Margaret — his favorite client and backer — at her dress shop, a highlight in the shopping complex.

Bringing the 1890's Back to El Paso

In the shadow of El Paso's skyline lies an architectural commemoration of an age gone by — a cluster of rustic boutiques and restaurants known as La Villita.

Proceeding along Oregon Street, between Wyoming and Missouri, passersby are struck by the quaintness of this one half city block. Its 24 "old town" establishments comprise a shopping village reminiscent of the late 1890's, when Pancho Villa roamed the country and the railroad came "bustin" through. People who prize America's heritage, who appreciate reminders of the past, never fail to be impressed.

El Paso architect Louis Daeuble of the firm Carroll, Daeuble, DuSang and Rand is just such a person. And of course his interest in the past centers around historical architecture. This



The shops and scenes — the bright face — of La Villita today enhance the charm of the architecture of an earlier age.

interest came into play a couple of years ago as he and two acquaintances, J.M. Connell and Charles B. Hammond, talked about an old part of their city threatened with destruction in the wake of downtown expansion. Mustering the support of seven other interested citizens, they launched plans for renovation and preservation of the area occupied today by La Villita.

Located adjacent to the downtown business district, La Villita is a convenient shopping and tourist center, as well as a composite historical landmark. Buildings existing on the site prior to the beginning of construction were refurbished and utilized as part of the basic pattern for development. Other structures of historical significance, including the cupola atop the gazebo, were moved

onto the site and rebuilt, saving them from inevitable demise. And new buildings, designed to be compatible with existing structures, were built to complete the village's 20,000 square feet of rentable floor space.

In keeping with the basic aim of historical authenticity, aged brick was selected as the primary building material for buildings, walls and pavement. Other choices such as adobe, stone and plaster were deemed stylistically appropriate, but brick had become the dominant building material with the advent of the railroad. (It was shipped from points as far away as St. Louis more economically than wood could be obtained for construction use in West Texas' hot, dry climate.)

The wide archway, which occupies the former site of Mrs. Pancho Villa's house, enters into courtyards accenting the Spanish tradition. Wrought iron adorns windows and stairways. An old carriage sits motionless in the sun. Shop-

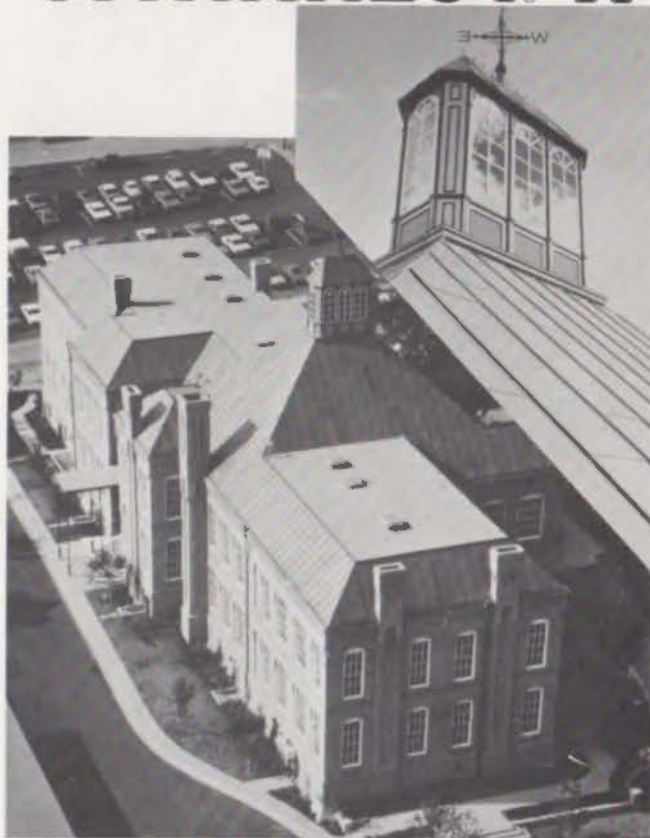


Images of La Villita, a refreshing mixture of the old and new, linger in the memories of those passersby who happen through the wide archway of the shopping village.

pers seem content strolling beneath gnarled trees, left standing as living links to times past. But no one is happier about La Villita than Louis Daeuble whose interest in the past is where it all began.

La Villita, a project of the El Paso firm of Carroll, Daeuble, DuSang and Rand, received a Texas Architecture 1972 Honor Award.

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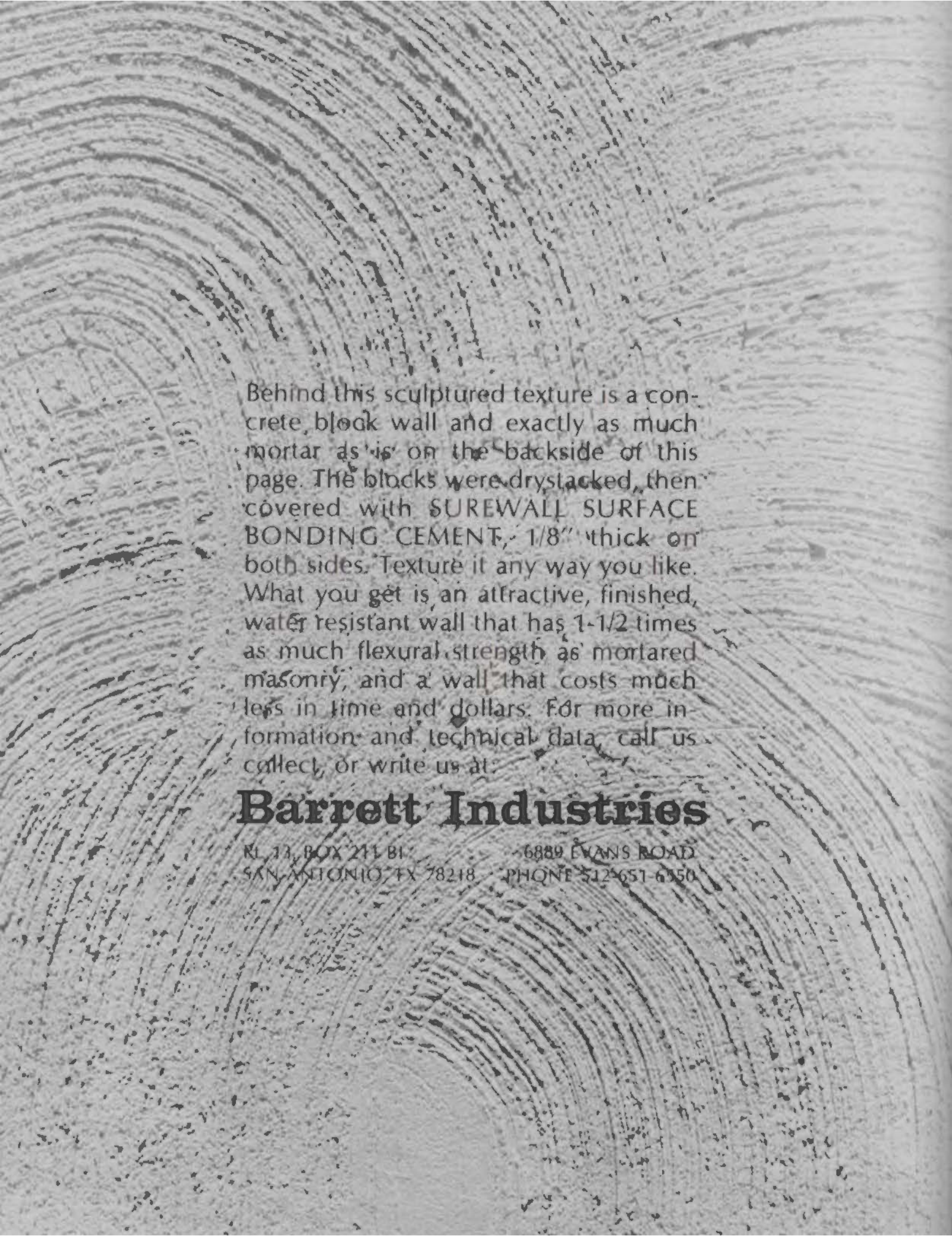
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Eight Texas Architects are New AIA Fellows

Eight Texas architects were among 64 AIA members installed in the Institute's College of Fellows at the national convention in San Francisco May 7-10. Appointment to the College is a lifetime honor bestowed for outstanding contribution to the profession. Advancement of the new Fellows brings the number to little more than a thousand out of 24,000 AIA members.

All AIA Fellows may use the initials FAIA following their names to symbolize the esteem in which they are held by the profession. Apart from the Gold Medal, which may be presented each year to one architect from any part of the world, Fellowship is the highest honor the Institute can bestow on its members.

Selection of the 64 new Fellows was made by a jury composed of the following Fellows of the Institute: Gerald M. McCue, Berkeley, Calif., chairman; Lathrop Douglass, New York City; George E. Kassabaum, St. Louis; Mark A. Pfaller, Milwaukee; M. S. Smith, Raleigh, N.C.; William T. Wiener, Shreveport, La.; and J. Harold Box, Dallas, attending alternate.

The Texans appointed to the College this year are: Edwin Goodwin Jr., Charles E. Lawrence, and Herbert Paseur, all of Houston; Nolan Elmore Barrick, Lubbock; Preston Murdock Geren Jr., Fort Worth; Lockett Brooks Martin, San Antonio; James Pratt, Dallas; and Richard Edwin Vrooman of College Station.



Edwin Goodwin Jr., Houston
Charles E. Lawrence, Houston
James Pratt, Dallas

Edwin J. Goodwin Jr., is described by colleagues as an architect "born to the profession." Though he determined at an early age to become an architect, he was dissatisfied with the curriculum of the school of architecture in which he enrolled after his discharge from the Army in 1946. He withdrew after a year and, with the encouragement of established architects, enrolled in a government-sponsored, on-the-job training program in 1947. He

Nolan Elmore Barrick, Lubbock
Preston Murdock Geren Jr., Fort Worth
Lockett Brooks Martin, San Antonio

received his professional license in 1951, and by 1955 had become a partner in the Houston firm of G. Pierce, Goodwin and Flanagan.

Goodwin is primarily responsible for architectural commissions that have brought the firm 29 local, state, and national awards for excellence in design. Among his major works are the University Center at the University of Houston, Brookhollow

Herbert Paseur, Houston
Richard Edwin Vrooman, College Station

Complex of office buildings for Humble Oil & Refining Company, Houston State Psychiatric Hospital, and the First National Bank of San Angelo, Texas.

Charles E. Lawrence is senior vice president of Caudill Rowlett Scott (CRS), a Houston-based architectural firm with offices in other major U.S. cities and Beirut. Lawrence has been influential in determining the firm's design policies for more than 18 years.

Specific projects he has designed have received eight national awards and eight state awards. They include the Jones Hall for Performing Arts at Houston and Thomas Hall for Performing Arts at Akron, Ohio; the Institute of Texas Cultures at San Antonio; the Houston Light & Power Energy Control Center, the Texas A&M Nuclear Science Center, and the College of Petroleum and Minerals in Saudi, Arabia.

Lawrence is the design partner for his firm of the large complex in downtown Houston

that consists of a 1,000-room hotel, a 47-story office building, and a 3,000-car parking garage.

Lawrence's design for St. Joseph's Academy in Brownsville 17 years ago was cited in an annual competition sponsored by a national architectural journal. His responsibilities and professional acclaim have steadily increased since then.

C. Herbert Paseur played a leading role in a 1970 reorganization of Caudill Rowlett Scott in which the firm took a step into public ownership, a new direction in the practice of architecture. It established CRS Design Associates, Inc., a system of companies involved in environmental design.

As president and chief executive officer, Paseur has formed a new affiliate providing construction management services, acquired a Los Angeles firm specializing in tunnel design and heavy construction and merged a Houston computer services company with CRS's existing computer operations.

Growth of CRS began well before the reorganization. In the five years following Paseur's appointment as managing director, it tripled in size, an expansion recognized by the AIA last year when it conferred on CRS its annual Architectural Firm award.

Some architects believe the corporate practice Paseur established foreshadows significant management changes in a profession whose members have historically tended to practice as individuals or in partnership.

Nolan Ellmore Barrick of Lubbock, has been chairman of the Department of Architecture of Texas Tech University for the past 20 years, and has served concurrently as supervising architect for the university's \$40 million building program.

Barrick has been credited by fellow architects for work that helped bridge the gap between practitioner and educator in Texas. He was one of three architects named to the Advisory Committee to the State Building Commission, a body that evaluated designs submitted for commission approval.

A three-member panel from three other Texas AIA chapters chose Barrick's design of his own residence in Lubbock for an

Award of Merit in 1969. He was the designer of a medical clinic in Brownfield, Texas, in 1970, and the University Christian Church in Austin, in 1954.

He is a member of the Lubbock Urban Renewal Board; the Urban Redevelopment Design Commission, and the public affairs committee of the Lubbock Chamber of Commerce. He is chairman of the Commission on Redefining Zoning Categories.

Preston Murdock Geren Jr.'s Fort Worth architectural firm is responsible for winning buildings throughout central Texas. Among these works cited for excellence are Robert E. Lee High School in Midland, Texas, Bank of North Texas in North Richland Hills, the Student Center at Southwestern Baptist Theological Seminary at Fort Worth, and the American Airlines Stewardess College at Fort Worth.

Geren's office, established by his father in 1934, has also received acclaim for work done in joint ventures with firms from outside Texas and is currently associate architect, with Helmuth, Obata, Kassabaum and Brodsky, Hopf and Adler for the Dallas-Fort Worth Regional Airport, now under construction.

A member of the Fort Worth Chapter, AIA, since 1949, he has held the offices of Chapter President, vice president, secretary and director. He was president of the Texas Society of Architects in 1972.

L. Brooks Martin of San Antonio has combined in his career a wide range of building designs, research efforts, historic restoration, teaching and writing.

His major works include 64 separate projects, including campus designs for three universities and educational facilities on those campuses. One of those designs was for the new St. Mary's University at San Antonio, developed from the university's academic blueprint.

As a member of the staff of Southwest Research Institute, Martin developed techniques for the effective use of lightweight materials in hostile environments. These techniques were used in Thor missile shelters and in structures for the Distant Early Warning System, the communications networks in the arctic for alerting the military in case of attacks from the north. He has led other research efforts in

the development of a modular school-construction system and was among early users of total energy systems.

Martin was a visiting critic in design at the Harvard Graduate School of Design, and has lectured at Boston Architectural Center, Texas A&M, San Antonio College, and St. Mary's University.

In 1970 Martin received the AIA citation for excellence in community architecture for his work on the San Antonio River Bend project. In 1959 the Institute gave him a national journalism award for his work as architectural editor of *La Prensa*, a bilingual weekly newspaper in San Antonio.

James Pratt of Dallas has been in the practice of architecture for 16 years, and has been active in a wide range of educational and public service activities while receiving local, state, national, and international awards for design.

In 1957 he received second prize and recognition of the jury for the Enrico Fermi Memorial in Chicago in an international competition that attracted 355 entries from 25 countries. Other awards include the grand prize of \$10,000 in the 1959 national Matico Competition, "Better Living for Middle Income Families," a special citation from the American Association of School Administrators for the Children's Development Center in Dallas, and awards from the Texas Society of Architects for a church in Mesquite, Texas, and the Great Hall of the Apparel Mart in Dallas.

Since 1956 Pratt has been president, vice president, and chairman of the membership committee of the AIA's Dallas chapter. He was co-author of a "Study of the Texas State Capitol" for the Texas Society of Architects and of the State Building Commission's report to the Legislature on campus expansion in 1959 and 1960. He helped provide several of the concepts presented in the chapter's publication, "Designs for Dallas."

Pratt collaborated on "A Study of Downtown Dallas," a three-year study that resulted in an exhibition and film, and on the Greater Dallas Planning Council exhibition, "The Better/Best Dallas." From 1968 through 1970 he was a member of the task force on higher education of the Goals for Dallas program.

Richard Edwin Vrooman is a Texas A&M University professor and the organizer and first dean of Bangladesh College of Architecture & Planning at East Pakistan University of Engineering in Dacca, in a region which had virtually no architects. (The country became Bangladesh in 1971.)

As chief architectural adviser for a program in Dacca conducted by Texas A&M under sponsorship of the U.S. Agency for International Development, Vrooman began East Pakistan University's first bachelor of architecture degree program and saw the first class graduate in 1966.

He designed the concrete and brick building that houses the school, using techniques that adapt the building to such

climatic conditions as intense heat and monsoon rainfall.

Vrooman had taught at Texas A&M's School of Architecture from 1949 until he left for Bangladesh. He returned to the College Station University in 1968. Besides teaching classes in design, he organized courses in "The Arts and Civilization," and won the Faculty Distinguished Achievement Award for teaching in 1972.

In 1952 he was awarded second prize in competition for design of Memorial Center at Southmost College in Brownsville, Texas. In 1955 he won first prize in a competition for the design of All-Faiths Chapel at Texas A&M, a building completed in 1957.

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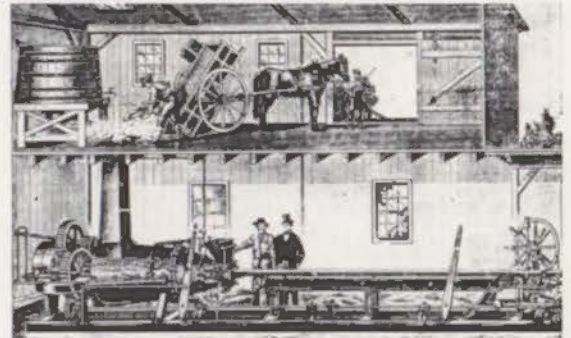
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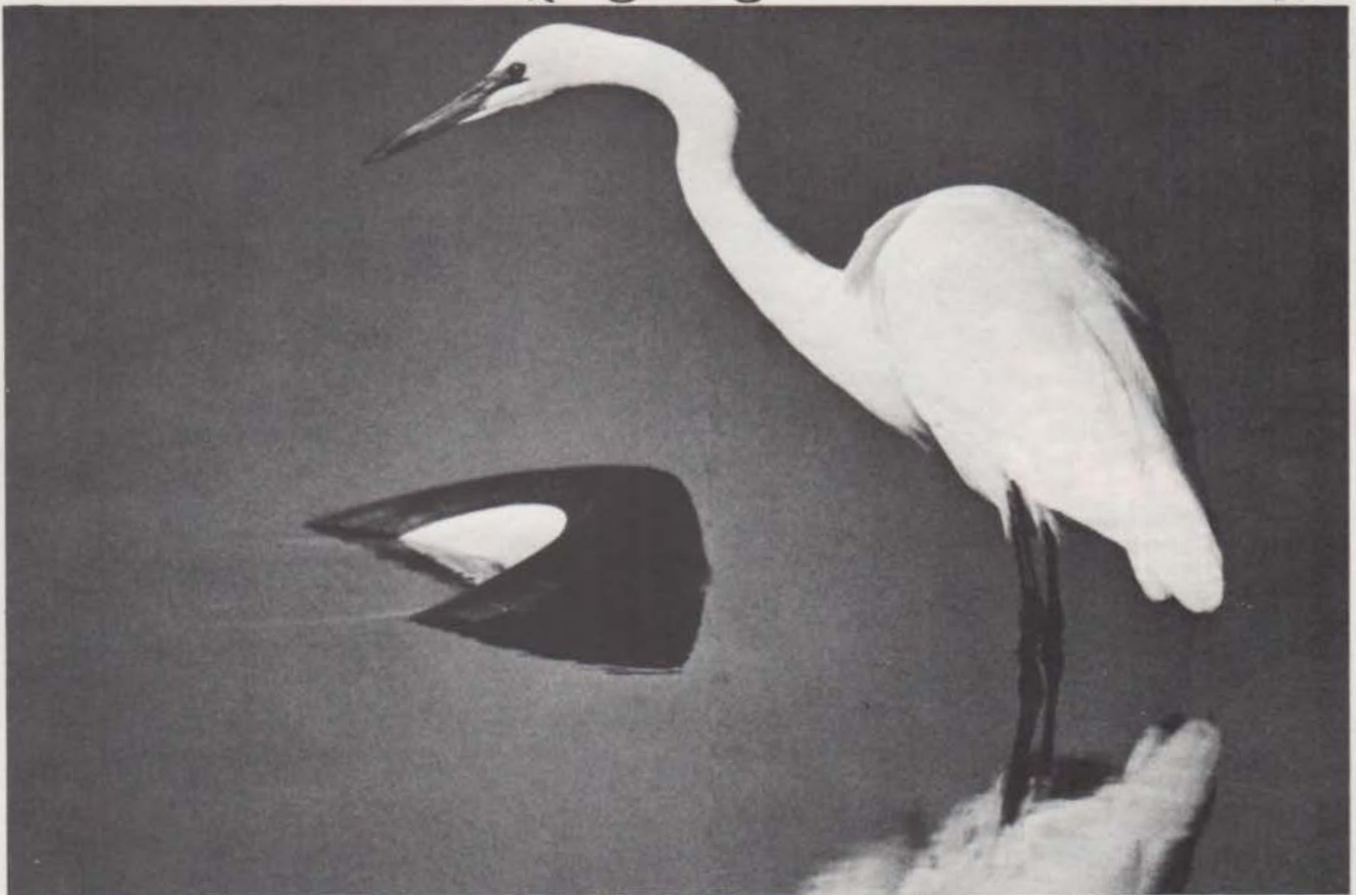
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The egret and the 8.55 x 15 4-ply nylon cord fish.



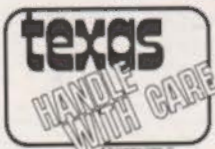
One summer, after 30,000 or so miles on the highways of Texas, an 8.55 x 15 4-ply nylon cord tire went flat. His owner rolled him into a lake.

The tire determined he could begin life anew in the water. He swam about, looking for other abandoned tires who might have adapted to lake living. Alas, not knowing the territory, he swam too close to shore and got lodged in the mud.

An egret happened upon the scene. "What are you doing?" the bird inquired.

"I decided to become a fish," the tire answered. "But I am stuck in the shallows. And now the sun is blistering me. I do not think I was fully prepared for this experience."

The egret thought for a moment. "Neither," he mused, "was I."



MORAL: A worn-out tire cannot hope to start life over as a fish.

Take it home and dispose of it properly. And didn't your mother ever tell you it's not nice to confuse egrets?

A fable for our time from the Texas Society of Architects