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Cover Photo: In Dallas four persons out of every fifteen suffer a speech and/or hearing impairment. The Callier Hearing and Speech Center will be able to treat them; perhaps cure them; certainly help them. The Center, designed by Fisher & Spillman, Architects, is a "Texas Architecture 1968" selection. **TEXAS ARCHITECTURE 1968**

ARCHITECTS J. HERSCHEL FISHER, F.A.I.A. PAT T. SPILLMAN, A.I.A. What causes an infant to be born deaf? Why do old people develop hearing impairments? Can speech defects be corrected? What is the effect of noise on hearing? Must children be imprisoned in silence? Must man be doomed to ignorance because he cannot hear?

CALLIER HEARING & SPEECH CENTER

"Deafness is the most isolating of all handicaps." Helen Keller

"I have long been of the opinion that defects in hearing and deafness have seriously impaired or prevented persons so afflicted from realizing their fullest potentialities. If such handicaps were eliminated or the effects thereof mitigated, such persons could lead lives not only of greater value to themselves but also to their fellowmen." Preamble of the Callier Trust prepared by Mrs. Callier

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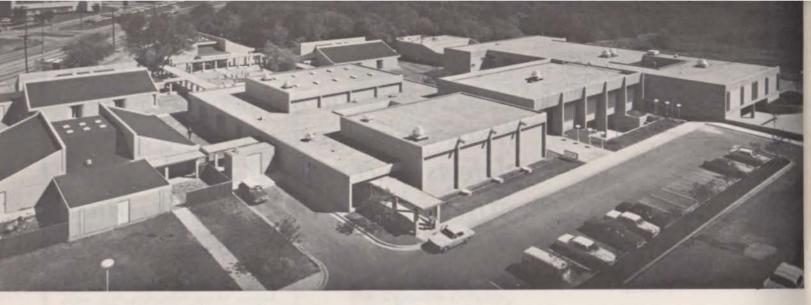
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The Director, Dr. Aram Glorig, states that the \$2.5 million Callier Hearing and Speech Center, located on a 5-1/2 acre site in the Dallas Southwestern Medical Center complex, includes eight interrelated units on two levels with 90,000 square feet of floor space and provides for the addition of a third floor. In an effort to completely deal with the problems related to communication disorders it is perhaps the first institution to consolidate, under a single roof and under one management, the following functions:

- -complete audiovisual laboratories -complete allpurpose photogra-
- phic laboratories
- -a non-echo chamber for experiments
- a reverberant chamber where echoes can continue for five seconds
- -eight soundproof testing rooms
- -equipment to test and diagnose hearing loss
- —an operating room where surgery can be performed on lab animals
- a speech therapy wing fully equipped for all types of communication disorders
- —a high-ceilinged room designed for research into the balance and mechanism of the ear
- -carpeted classrooms in the Pilot School wired with an antennatype system so that hearing aids pick up the spoken word clearly
- overhead observation rooms over each classroom with one-way mirrors enabling uninterrupted observation

⁻¹⁷⁰ eager students

Design aesthetics evolve from expressing the various functions and special requirements of the center. The clustered classrooms are located in the naturally wooded area and are scaled for children. A central all-purpose area is surrounded by classrooms with elevated galleries glazed with nne-way glass for observing instruction techniques. Deeply recessed floor length windows isolate noise, but provide visual contact with court yards.

Areas requiring the greatest sound isolation, due to critical research being conducted, are located on the lower floor. They are partially depressed into the ground, yet are provided some identity with the out-ofdoors through landscaped sunken courtyards.

The administration wing links the three major divisions, serves as a control element for the public at the upper level, but provides free circulation at the lower level during coffee breaks for staff, faculty, teachers and research personnel to fully exchange and explore ideas.

In the new Callier Hearing and Speech Center a balanced program of service, education, research and professional training will bring together for the first time "under one roof" medical and research leadership to work hand-inhand with teachers, counsellors, psychologists, and social workers. This combination can result in the first major innovations in more than a century to deal with and solve the agonizing problems of hearing and speech handicapped persona.

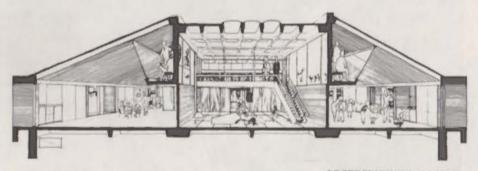
SERVICE

The Audiology and Speech Pathology Division serves 5000 to 6000 persons directly, accounting for several thousand patient visits each year. This Division provides otoaudiological evaluation with respect to diagnosis, communication potential, residual hearing, hearing aids, instructive therapy and training in supplementary communication methods.

Special diagnostic services are provided by this Division to otolaryngologists, pediatricians, general practitioners, neurologists, and other physicians.

Facilities include sixteen complete test units, twelve to be used in patient





OBSERVATION GALLERY





care and four for clinical research; two examination rooms equipped for complete ear, nose and throat examination; one special examination room for impedance and eustachian tube function measurements, as well as labyrinthine and fifth and seventh nerve function tests.

This Division also provides counselling services for the adult deaf who, for the most part, rely on manual communication which seriously restricts and limits their vocational and social opportunities. Personal, social and vocational counselling of the adult deaf is one of the most essential but least available services in the United States.

RESEARCH

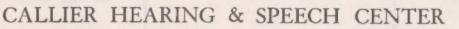
The Research Division engages in studies in psychoacoustics, speech science, neurophysiology, and microhistology. The importance of this work cannot be overstated. New knowledge in this area alone may save the hearing of millions. Basic research in auditory physiology, for example, has made it possible to restore bearing through the surgical replacement of the stapes, one of the three small bones in the middle ear.

Other basic research is now making it possible to compress high-frequency sounds so that they can be amplified and made potentially useful to individuals otherwise incapable of hear-









ing any sound above 1,000 cycles per second.

Patient, thorough, methodical and coordinated hasic research will undoubtedly find the answers to other questions. Work is underway, for example, to determine the causal relationship between environmental noise and hearing impairment.

EDUCATION

Pilot School for the Deaf, a 23-yearold institution, is a Division of The Callier Center and provides facilities and staff for pre-school, elementary and, eventually, secondary school education for deaf children.

Present enrollment can be expanded to 200. This size student body is considered essential for the full development and validation of new techniques and methods of education for the deaf.

A low student-teacher ratio, probably not to exceed six-to-one, is maintained. Facilities include provisions for research and development of new educational techniques with an emphasis on the maximum use of new audiovisual tools. The Pilot School Division teaches oral methods of communication.

Making use of The Callier Center's diagnostic and research capabilities, training for child and parent begins at infancy, an innovation used with spectacular successes in Europe and in a very few centers in the United States.

New techniques and methods are shared with other educational institutions. Indeed, the challenge of educating the deaf may create innovations applicable to the education of hearing children.



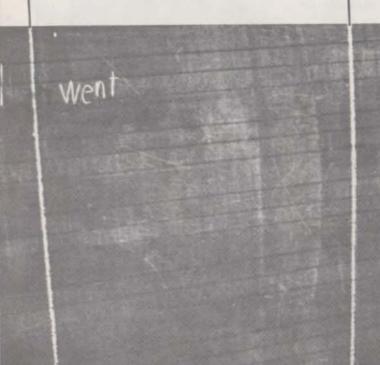


One third of the human brain is devoted to the accumulation and utilization of information gained through the auditory sense.

The deaf are deprived of access to it.

The problem is in breaking through to that huge, deprived area.

to (





"The problem we are tackling is not only a large one, but also an extremely important one. Without hearing, there can be no speech, and without speech there can be no civilation as we know it. If a breakthrough in the field of human communication is to come in our time, it will be a predictable result of the Callier idea wherein diverse skills will be devoted to the creation of new knowledge, techniques and treatment." Aram Glorig, M.D., Director, The Callier Center.

"URBAN SPRAWL"

Address by Archibald C. Rogers, FAIA, delivered at the AIA Component Editors' Conference in Washington, D. C.

Urban sprawl is simply going to be a takeoff point because I have no particular desire to belabor the unsatisfactory aspects of our environment of which that is one, but rather to use it in terms of an attempt at being constructive as to what I think we might attempt as a profession.

First of all, I think urban sprawl, which has been attacked by the architects primarily in terms of its esthetic lack, has many other and perhaps more serious aspects to it which go to the theme that I really want to talk about, which I have called in other circumstances the new architecture. It, for example, is totally inefficient economically in terms of the cost of the public intra-structure per unit—whether this is measured by hardware, such as utilities, or by the soft ware in terms of public service.

Secondly, it is totally against what I, personally, interpret as the American dream. This is a little hard to explain because very many people will justify our urban sprawl, particularly as one looks at the typical Cape Cod box subdivision as being at least an attempt toward the American dream, i.e. each person on his little half acre protected—a little country squire. I interpret the American dream quite differently. I'd say that the American dream, as I read the Constitution, is essentially freedom to move, freedom to pursue happiness in whatever particular arena one finds that pursuit satisfied. And, by that statement, I think one carries with it the right to display the emblems of wherever one is on the economic ladder.

We're not, as I interpret it, talking about an American dream which is stated as equalitarianism. Quite the contrary, we're always going to have, I believe, a lowest rung and a highest rung, the lowest perhaps being the poor but certainly above the subsistence level and the highest being as high as you want to go.

I think, secondly, as part of this American dream, we misinterpret the term "melting pot." This has been carried to the point where one assumes that in time our goal is to digest all of the different strains that have come into this country and all of the different traditions that exist here into some sort of homogeneous new thing. I think that suburbia as part of the urban sprawl speaks to these two misinterpretations. One, it denies the mobility aspect because you move, yes, from place to place, and maybe from community A to community B, one being more elite than the other. But, you really don't get anything very different in the way of an arena, and you don't have the options that you should have if you are really faithful to the theory of mobility in our country. You talk to the typical developer and ask him, "Why do you do such a low grade job?" and his answer is "because that's what the people want." You know it sells, and, therefore, *ipso facto* it's right. And, then you say, "But what options have you given the people?" Well, you have given them nothing.

What options do we give the person who can't really afford a car today to move around? Very little in terms of mobility. We also have tended to create a kind of a homogeneous physical statement of what one would assume would be the end product of the melting pot misinterpretation, which is to say that the goal and ideal of every American regardless of traditions, color, and economics, etc., is as expressed in our suburban enviroment. And so, I remember this rather touching episode where I had lunch some months ago with a fellow professional who is Jewish and we were arguing this theory of physical development, and I could see him getting redder and redder as he went through his martini. He said, "Damn it, Arch, I know this is wrong, but I've got to tell you how I feel." I said, "Go ahead, Bob, tell me how you feel." He said, "I'm drunk." And, he said, "I'm just not happy, really happy, and I don't feel right unless I'm living in a Jewish community. And I know that's wrong."

And so you go, you see, to the Negro ghetto with its problems and its particular life style which may be a transient one, and you say, "What do you want?" "I want what you-I want what the man's got." What "the man's got" is best expressed as suburia. But, what he really wants is a much better arena to play out his role in his particular life style. And so, then I come to the proposition that something very radically is wrong with our procedures and our mechanisms that are producing what we are now terming "urban sprawl," and that this "wrongness" goes far beyond the question of esthetics. This wrongness can be very greatly helped by our profession if we go deeper than the question of esthetics. I would like to talk to that point, bearing in mind that I am talking to those of you who are in positions to illuminate your own profession and its clientele in the localities from which you come, and I hope that you will be able to illuminate them along the lines I simply call the "New Architecture."

First of all, I'd like to describe briefly what I call the "Old Architecture," and in that I do not mean the recent past of traditional eclecticism I mean the current future, including some of our most heralded designers. The old architecture is, I think, essentially disconnected. This is not to say that there are not very beautiful buildings. First of all, they are disconnected obviously from their environment, physically in most cases, and are almost proud of that disconnection. They try to stand out and they want to be noticed. Secondly, they are disconnected from those who use or dwell in the architecture. There are many glaring evidences of this, the inhumanity of what's done-simply at the level, for example, of "O.K., so we're going to kill a couple of window washers a year, because we've opted for this kind of wall." I question whether that kind of wall is a justification for a couple of window washers a year-more importantly, the whole tragedy of our public housing, including some very well designed public housing by the measure of pure esthetic design.

Thirdly, I think it's disconnected from the real meaning of architecture as an art, and I think this disconnection is the most tragic, because I strongly believe that architecture is an art, is the most meaningful of the arts, and is at essence no different from other and freer arts. I think to suggest that the artist/architect creates only for his own satisfaction justifies only introspectively on the self justification of the Ayn Rand orange hero, that this is truly a total reversal of what art is all about. Obviously, we have seen it in other arts—in painting, sculpture and music, and yet to see it sort of feeding on itself, as it has today, to see it infecting our own profession, I think is perhaps the most serious area of disconnection in the old architecture.

I propose, therefore, that architecture really should be seen again, anew, as what it always has been, namely the greatest of the arts, not in terms of a greater artistic content, but in terms of its impact upon the viewer, the in-dweller, and its function as the mother of arts. I think, therefore, that the architect must understand that he works with a certain raw material; and, to say that he must understand, means that his clientele must also understand, that his raw material is essentially practical problem and practical solution.

Many of us assume, you know, once we have solved a problem, that's that. We're not artists at that point. Others of us, even some who are quite gifted, assume that we don't have to solve a problem, just do the art. So, if we look then at our particular raw material, what we're doing is not really very different from what a wood carver does as he addresses a block of wood with its peculiar grain. And, therefore, we must extract from the particular grain of our problem, its problem and solution as a wood carver must extract from his grain of wood a true artistic concept. We cannot expect a woodcarver to come in with a preconception and impose it on any block of wood he has. He would simply destroy his raw material. Yet, we accept as architects that Ed Stone has a particular preconception and it's perfectly proper for him to impose it on any problem regardless of the grain of that particular problem and solution.

I have just returned from a trip abroad and I had an opportunity to see some of the work in Moscow. I was amused by a rather cynical comment made by one of the intourist guides concerning the Stalin era of architecture. She pointed out five very large buildings, all of which looked alike, all of which looked like Moscow University, and she said, "Yes, that was the Stalin style, that building is Government offices, this is an apartment, and that is an industrial building." They were exactly identical.

If, then, we get back to this question of the true nature of our particular art, we can then see that the grains of our problem are obviously certain tangible things such as budget, site, etc. But, they are some very important intangible things. One of these intangibles is, of course, the personality of the artist. An imperative intangible thread, one that holds together and prevents total chaos, is the personality of our time. Whereas we now have chaos in terms of each individual architect only portraying himself in competition with others in the name of contemporary architecture in which he is supposed to have solved everything, I propose that we have individuality as the logical outgrowth of the individuality of the problem and solution, but continuity in terms of truly understanding our times. I think this is perhaps the most critical aspect we look at today as one of the key themes with our raw material.

I personally believe we are in a time of trouble as Toynbee would define it. This would, by his definition, be identified with a flight of power to the frontiers. If we look at western civilization, we see this. The United States is the duke of the western marches of western Christianity, reluctantly filling the role as the inheritor of Great Britain. With equal reluctance, I see Russia as the duke of the eastern marches, forced to defend a civilization it is officially opposed to. By Toynbee's definition, the two dukes are at each other's throats. True, there are other indicators too, but if this is right then what we are seeing is the death of a great age in our time. The converse of this is that we have the opportunity to participate in the birth of

"URBAN SPRAWL"

an equally great age. That birth is dependent upon, again according to Toynbee, creative response to challenge; and, I talk to our profession as a truly creative respondor. The age that's dying I believe to be the Renaissance. In architectural history I was taught that that the Renaissance died sometime about the time that Christopher Wren died. That was succeeded by something called Victorian—horrible, by eclectic Traditionalism—all creating the groundwork for modern contemporary.

I don't think that's true. I think today we are seeing in our contemporary architecture, as one facet of it, the death of the Renaissance with its particular philosophies and values. There are two clues to this; there are two terms, I think, which sum up the Renaissance values, and these terms could not have been coined in a prior age. One, Eldorado: the idea that society, man, with his technology and good heart and best intentions and resources, literally could build the ideal society, heaven on earth in our time. I don't think this pervades our society any longer, though it clearly has up through Lyndon Johnson.

Secondly, Eldorado: the concept, in addition to Utopia, that the individual could, by his own daring energies, discover his own pot of gold and thereafter reap the rewards of his daring and energy. This behind the whole westerly migration has gone on throughout the course of the Renaissance and only concluded in our time with the death of the West as a frontier, to be replaced by a sort of circular migration in which the rural poor leave their rural slums to move into the city thereby creating city slums; and the middle class leaving the city for the suburbs and driving out of the suburbs the wealthy suburbanites who go back to the farms—and of course, don't farm.

So, I think there are clues here that justify the statement that we are in a time of trouble. One of the obvious clues is simply the chaos of our own physical environment as we see it. But, I think it's more than just another time of trouble, and even that would be urgent enough, because we could begin to think then about the next great age which historians would equate with the Renaissance, and which, by Toynbee, would be given form as the frontier in the United States, our first golden age as a nation.

I think we're also, for the first time in the whole evolution of humanity, at a point of critical mass. As an architect, I tend to describe this graphically. If on the horizontal scale you put years as seconds and start about 1000 B.C. up to let's say 1970, and if on the vertical scale you register something called civilization power, just like horse power, but the power that happens when man with his hand power and mind power puts these two together as an individual and then adds these to similar combinations of other individuals in an organized society, and then adds both to the hand and the mind the tools of technology, what we see then is the starting of this sort of period—revolution, if you want to call it that.

The first one, or one of them anyway, was the urban revolution—about 3000 B.C. to about 600 B.C. (2400 years)— when true cities for the first time evolved, obviously a major increase on the scale of civilization power. Let's take another one, the industrial revolution, an equivalent period of time in terms of the changes that have been brought about. Call it, 1800 to 1930 (130 years)—an even greater increase on the vertical scale of power.

What are we in now? The cybernetic revolution, perhaps. The doctors would call it the chemical revolution, not because of medicines, but drugs. Maybe 30 years. You graph this and you find that as each revolutionary period compresses, you get almost a vertical statement in our time on the measure of civilization power. There are other evidences of this. We can speak literally today, for the first time, of destroying the world—not just, believe me, in terms of war.

The ecologists will tell you that they're very worried about what they call the greenhouse effect. This has puzzled me. What's that? Well, did you know that as we continue to generate carbon monoxide as part of the polutant offshoot of our technology and everything that we as architects are doing, that there may come a point in time, and it may happen soon, when a greenhouse effect appears, when there will be a sudden revolution which would either be a rapid increase in vegetation and a change in climate whereby the polar caps melt and the oceans rise and St. Louis would be totally under water, for example. Or conversely, there would be a total death of vegetation and the ice caps come down at which point St. Louis would be under ice. I said, "That's very interesting. When do you expect this to happen?" He said, "I don't know; we think it could happen in a matter of years." I said, "O.K., once this happens, how long does it take for the effect to appear?" He said, "a matter of months."

Now, I submit to you that these are serious, scientific types, that this again is clear evidence of the point we have reached which I will call critical mass. At this point, we then find that the consequences of this description of our time as we address it as part of that important aspect of every problem which we deal with in architecture, whether we are talking about the architecture of an individual building or communities, that we find this as the source of the great social and economic turmoil through which our society is going-not our society in this country, our society throughout the world. The Russians are facing the same dilemma which we are facing. They too have an affluent society. They too have racial problems. They too have urban problems. They too are facing the basic alternatives which we face, either change the system to fit the problem or try to put the problem back in the bottle. I, unfortunately, feel that they are trying to do the latter. If they do, I feel we are very close to World War III.

I believe, therefore, that the creative response requires that we address ourselves to changing the system to fit these new, revolutionary forces, and that we recognize that in changing the system we do not have the time to adapt. This is the other final particular attribute of our time. All times had their changes, very major changes. But, in prior times, there was lead time. It took three, four, or five generations before the change was clearly worked out. Today we see two or three changes, radical changes, within the life expectancy of one generation. This, incidentally, is why the doctors refer to this period not as the cybernetic revolution but the chemical revolution, because man is unable to adapt, and therefore is relying on drugs to do it. If then we come to the question of the new architecture, we are against this kind of a background having this kind of characteristics, and the very last aspect of it is form or design as we normally think of it.

First of all, it accepts that the architect is an artist and therefore somewhat a servant to his raw materials. He is a releaser, and understander, an interpreter of latent concepts and must express these. An important part, then, of his raw material is the end user. Therefore, the architect and his client need to recognize that they, too, are servants, both of the end users, and this is an important aspect of understanding his problem, and designing from this understanding.

Thirdly, he should recognize that the idea of change is so important and so unpredictable that he no longer can program a building and design it and have any hope of a realistic economic life for such a single purpose building. We, therefore, think more in terms of an arena wherein change can occur—a school, for example, that could become a factory or a factory that could become a school, or a department store that could become housing. We cannot look beyond two or three years and know with any confidence what is going to be required by the physical plant that we are building. A penalty we pay here is clearly the penalty of a satisfactory piece of sculpture. And yet, we're not sculptors. If that's what we want to do, let's do it. We cannot do this with architecture as I see it. Finally, I think the architect should recognize the catalytic effect of the design and decision making process itself. You've all perhaps had experiences with this. If we leave our ivory tower and go into the real world, work with a real client, the real user, let him participate with us at the level of design decisions and force him to make his commitments as we go through the large to the small of the detail scale of design alternatives, something happens to him and perhaps to us also.

I remember a personal experience with a very difficult project for a very wealthy congregation of a church, a very traditional congregation. In the end, I believe a very fine piece of architecture came out of it. The Rector of that congregation, however, to this day when you discuss it, gets all excited; and, yet, he never talks about the architecture, and you get a little discouraged. What he talks about is what happened to his congregation, because at the far end of this process there was a new congregation. A second illustration of this is the Metro North situation in New York, East Harlem. They chose to fight city hall to hire an architect to help them simply on the issue of high rise public housing which they needed in a fairly typical slum. Four years later they won their battle to a certain extent-these are no longer 20-story buildings, they are 12-story, I think. The quality of the design, even by a very gifted designer, Bill Conklin, I don't think is terribly exciting, but that community has been re-born. They refuse to let you call them a ghetto and they have organized themselves, they govern themselves, and whatever happened in the way of architecture is somewhat immaterial to the other achievement.

These, then, are the kinds of dimensions of the new architecture which are very different from anything that we were ever taught starting out in our collegiate curriculums. I think it very clearly then defines the new architect. The new architect must obviously be as gifted a designer as possible, but he must also be the manipulator of environment. By this I do not mean physical environment; I mean the milieu within which he must work. He must be the creator of an environment, of a climate that permits good design, and then he should go-for-broke as a designer. Today we are much too concerned with the individual piece of sculpture and we are very angry about the unresponsive milieu in which we work, but we do not try to change the milieu.

So, I would submit as this nation addresses itself as the duke of the western marches to whatever this great new age will be, if we can somehow get through this period of criticial mass, the architects' profession, if it can see itself in this light, perhaps may turn out to be the redeemer of our nation and the redeemer, by definition, therefore of western civilization. Needless to say, all of us would spend a great deal if we could feel we could have a meaningful role in a new golden age, the first golden age in a physical sense. And, yet, I think perhaps we have a more important role to play. I talk, as I am talking to you, to others, other professional groups, but also to politicians. I find them very responsive. No architect has ever talked to them, you know, really, except to berate them about fees or procedure or something, and I get the feeling that in a terribly specialized society, in which everybody has a label, including architects, that we are one of the sources of generalism in the country.

I think there are others, philosophers, theologians, perhaps, but I think we are one of the few, because we cannot specialize, even though we would like to, because architecture requires knowing so much about so much just to produce that end piece of sculpture, even under the terms of conventional architecture, that you do become a generalist. I think that as artists we are inevitably generalists, but I think the most important fact is that our generalization applies to the physical environment of our country, and that this is both in terms of end product and in terms of the process required to create a milieu in which this process works, the battleground on which this nation will fight the challenge with creative or uncreative response. I think we can all identify the uncreative responses that we see. I don't mean to be critical of any party to it, but you can clearly see this in a school fracas in New York City—two totally frozen positions, both totally negative, both, in my judgement, totally obsolete, and yet by certain internal definitions both right, and therefore unreconcilable.

This, then, becomes our true mission, and I would like to leave you with a final aspect, a purely personal one, of the art of architecture, or the art of the new architecture. I do not believe that the artist by any label is a great self-justifying hero. Quite the contrary, I think he has always been the visionary, the seer, the prophet, and the arts have always predicted history, just as the ferment in the freer arts predicted our current situation today, about 50 years ago. I believe, with Maritain that art is a very fundamental aspect of human life. It is far more than the icing on the cake which the affluent society at some point, like today, begins to afford and consume.

I think art is essentially a communion between eternity and time, applied to all arts including architecture. If one put it in a different way, and said that to which we refer as "Works of Art" is the offspring of a wedding between time and eternity, then we should be able to identify the characteristics of the parents and I think we can. The temporal parent, I think has four characteristics as expressed in the art work and I don't mean these as definitions of good art versus bad art, but sort of that which is and that which isn't.

First, I would say is comprehendability, that is, the ability of the viewer, the in-dweller, to grasp the work of art, to comprehend it. Secondly is uniqueness, or individuality, even from the hand of the same artist, a different quality in each work of art. Thirdly is power, power perhaps to move you to hate it or to love it, but not just nothing. Finally, the fourth characteristic is the characteristic which sort of welds all of these things together, and it is integrity in the little sense, not honesty, but in the sense that you cannot subtract from, or add to, the essence of the art work.

I think to, in effect, justify my statement that these are the temporal characteristics, a psychiatrist would probably use almost these four terms describing in very rude essence the human person: individuality, obviously, no one in this room is precisely like anyone who ever has been or ever will be; power, definitely, in a theological sense, free will; integrity for sure, or you wouldn't be here, you would be in a booby hatch; and, comprehendability, definitely, we each can comprehend. There is but one characteristic of the eternal term. This is what Maritain calls Poetry, capital "P." This is the characteristic of the mysterious language of art. Therefore, the temporal characteristics simply describe the vessel, and within that vessel flows an eternal communication, a subliminal, mysterious, timeless message-subliminal in the sense that it's not necessarily the literal meaning of the words in a poem; there is something between the words that is this message.

Well, what does that have to do with a new age and the crisis today. I think a great deal. Without knowing why this is so, I believe this is what art is. It must have an important purpose. There must be an essential element to this, as the message flows to the artist as a conduit, through his work of art which stands after him, to an end viewer or in-dweller. If this is so, if this importance is so, there is no art which is as important as architecture. A book you can open or close. A hi-fi you can turn on or off. Our architecture, as expressed in our physical environment, is with us always, for better or for worse. This is a very difficult attempt to define a very difficult role in which I think is a tremendously important profession. Call it new architecture, call it urban design, call it perhaps, best of all, art. This is what I would like to say in response to the term "Urban Sprawl."

Howard R. Barr received a Bachelor of Architecture degree from the University of Texas. He was a member of Tau Sigma Delta, National Honorary Society; and Sphinx, University of Texas Honorary Architectural Society.

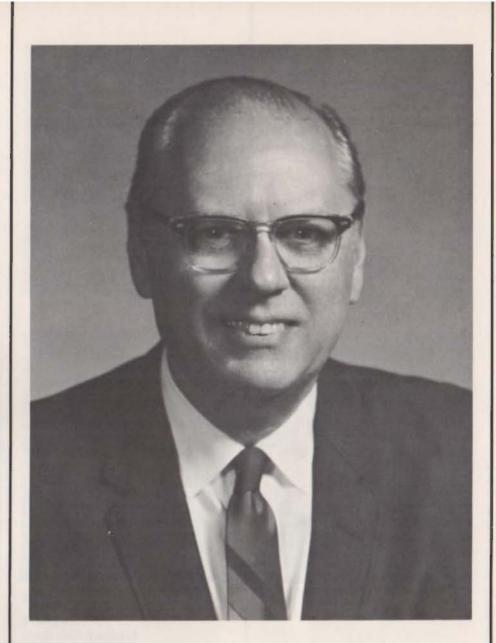
He is registered to practice architecture in Texas, Louisiana, Kentucky, Canal Zone, District of Columbia; and holds a National Council of Architectural Registrations Boards certificate.

His activities include: Past President, Austin Chapter, American Institute of Architects; Director and Secre-tary-Treasurer, Texas Society of Architects; Director and President, Texas Construction Council; Architect Member and Secretary, Texas State Board of Plumbing Examiners; Member, Texas Society of Architects-Texas Society of Professional Engineers Joint Committee; President, Austin Kiwanis Club; Member Citizens Committee on Health and Hospital Needs, Austin; Director, Community Council of Austin and Travis County; Director, First Federal Savings of Austin; U.S. Naval Reserve, Lt. Cdr.; Director, Austin Chamber of Commerce.

Howard Barr has practiced architecture in Austin since 1939. He has personally directed many major projects for such clients as Texas Department of Public Safety, Austin; Jefferson Chemical Company, Austin; Copolymer Rubber and Chemical Company. Baton Rouge, Louisiana; First Federal Savings of Austin; The University of Texas; Federal Aviation Agency, Canal Zone and San Juan, Puerto Rico; Texas Highway Department; City of Austin, Texas.



AIA



HOWARD BARR, AIA

PRESIDENT OF THE TEXAS SOCIETY OF ARCHITECTS 1969

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JANUARY, 1969

THE ARCHITECT ON STAGE

Address by George E. Kassabaum, FAIA, President of the American Institute of Architects, to the XII Pan-American, Congress of Architects, in Bogota, Columbia.

In the great drama of the world-wide urban crisis, the role to be played by the architectural profession remains to be fully developed. Auditions and try-outs continue to take place with the result that the role itself is constantly re-written.

Much remains in doubt, but we can be certain of a few things. One is that this drama, no matter what it's final form, will be a "people's drama." Our challenge is that there presently is no director, and we have not yet found a producer.

The architect, can play an important role in this drama. It is still not clear that he will.

My principal concern as President of The American Institute of Architects is to bring my country's architects to the center of the urban stage so that they may help shape the unfolding drama.

The architect's role in this drama must be formed with great care. We are dealing with people, and so we must make sure that our scale of values is correct.

But to me, it is vital that the architect play an important role in the play. Architects have much more to contribute than clever, two-dimensional patterns called plans, or imaginative dreams presented in exciting drawings, or new concepts of living that require the immediate destruction of what is good from the past, or disruptions of patterns of living that have gradually developed over the centuries. The architect's major contribution may well be the very basic one of understanding the user's needs, and, insofar as these needs can be met by things that man can build, satisfying them.

In my country we are now realizing that billions of dollars and years of time have only created ugly and unsatisfying projects, because these projects were developed by wellintentioned but remote persons deciding what was good for the people who would eventually use them.

You and I would not try to design a paper mill without first getting a thorough understanding of the client's need. For some reason, however, we might feel qualified to design a 500-unit housing project for people whose incomes are much lower than ours and who, therefore, have needs and desires different from our own.

We have confused the sponsor with the client, and this confusion has resulted in rejection rather than appreciation. Successful projects cannot be done "for" someone else. They can only be done "with" the help of the users.

The architect is best qualified to understand this urban design requirement—and it is an essential understanding.

The urban crisis is truly a world-wide upheaval, and though it may differ from one nation and region to another in its structure, texture, and degree of gravity, everywhere it springs from the same causes. It springs from the confluence on the city in modern times of large numbers of poor, under-educated and usually unwanted people, together with the city's inability, and sometimes unwillingness, to assimilate or provide for them. It springs, too, from the increasing dissatisfaction of the poor with the growing gap between themselves and the affluent. And, in a related manner which many of us do not yet fully understand, it springs from a widespread dissatisfaction of people in many circumstances with the institutions which until now have shaped their lives.

We all must learn together, from the experiences, the successes and failures, of each other, and so I would like to tell you of a few of the things we are doing in the United States.

There are many intriguing parallels and contrasts between the urban problems of the United States and those of other countries of this hemisphere.

The United States and most Latin American nations have serious housing problems. Though our housing problem is not so severe as that in several countries of Latin America, and though the industrial capability of the United States should make it possible to solve our housing problem faster than some nations, our housing problem is just as tenacious as yours. Many of the reasons for this are presently beyond the reach of architects and city planners. One of our most successful mass home builders has said rather plaintively that no matter how hard he tries, he cannot build a home that can be bought by a man who has no job. Also, we all have transportation problems, and they are getting worse, instead of better. With few exceptions, the cities of both South and North America do not meet the transportation needs of their inhabitants. In the United States, we have staked almost everything on the automobile—a convenient but most inefficient, expensive, and wasteful mode of urban transit. Now we are dismayed at the economic and social cost of highways, but we cannot divorce ourselves from them—they will not go away. Thus the United States is now faced with the enormous task of adapting cities and highways to each other.

We all have a need for more and better facilities to move people and goods within and between cities. If we have learned anything in the United States from our urban transit experiences, it is that good urban design requires the complete integration of transportation with housing, schools, office buildings, parks and the life of the community. In the United States, the architectural profession is only now beginning to insist that it has a major role to play in the design of transportation corridors and facilities.

We are finding the multi-disciplinary design concept teamwhich Miss Barbara Ward has called the "most exciting pattern of work to emerge in this century" and exciting vehicle for achieving this integration. Such an approach to urban design places the architect, as leader or member, on a team composed of disciplines representing many viewpoints.

A number of such design teams are at work now in our cities, seeking to make the urban highway serve as shaper, rather than destroyer, of the city. On these teams, architects are working with engineers, planners, landscape architects, sociologists, psychologists, industrial designers, economists, real estate experts, lawyers, and other professionals.

In the City of Baltimore, an architectural firm is leading a design team that is designing a 20-mile stretch of highway through the city. This firm's job is to be both a preserver and a creator of urban form. It must place the highway so that it destroys as little of Baltimore's urban fabric as possible. Just as importantly, it must at the same time encourage the proper development of a major part of the city that will be contiguous with the highway-schools, housing, commercial centers, and other structures.

In Brooklyn, New York, another architectural firm has undertaken to lead a design team in the development of an entire "linear city." This venture has been estimated to cost one billion dollars.

The multi-disciplinary design concept team is unquestionably a break-through in modern architectural practice, not only because it leads us into doing new and important things, but also because of what it has already taught us about the other half of the urban design problem—the need for a suitable client.

In the United States, urban development and renewal have been critically hampered by the fact that no single governmental agency, and not even a single government, possesses the resources and unified responsibility to carry out such large-scale projects. Our American government exists in multiples—municipal, county, state, and federal. To make matters worse, separate agencies—again stratified into the various levels of government—concern themselves with housing, with highways, with urban renewal, with schools, with parks—and so on. Too often, each jealously guards its own funds and builds its own specialized projects often with little consultation with the others.

This means that the potential clients for a large-scale urban project may include any number of public agencies, as well as many private individuals and organizations. Each agency has limited authority but relative autonomy within its own field of operation. Thus the design team, regardless of the logic and brilliance of its concept, is unable to present it to anyone with the overall authority to act upon it. So a new client must be created for this purpose.

The logical solution to this problem, and one that we are pursuing, is the creation of a broadly-based design review committee or a special developmental corporation. This new client should be made up of representatives of public and private groups involved in the project. It should have the authority to act as a body in approving plans and, most importantly, pool the funds of the various agencies for a single, coordinated, large-scale, multi-purpose, redevelopment project. In this fashion a mechanism can be created by which all elements of the community can participate in the process of urban design.

Still another problem common to most of the Western Hemisphere is that of controlling and guiding land use for the benefit of the community. The masses of poor people "squatting" in and around many cities of Latin America on land that is not theirs are in part a reflection of this problem. And so are the millions of poor people who are now massed in the urban ghettos of the United States.

We in the United States are now relearning some lessons of our early days which we never should have forgotten—that community needs over-ride the speculator's privileges. In the beginning of our nation, we planned and built on this philosophy, and villages were designed and constructed where the community's needs came first. Many of these towns and villages still grace our land, and it is the strength of their urban plans rather than the design of the individual buildings in them, that is responsible for their enduring beauty.

But in the quick growth and expansion of the United States, these lessons were forgotten. Now they must be recaptured if the urban environment is to be improved. In the United States, we must undertake the delicate task of balancing the rights and needs of individuals with those of the community. This is a philosophic, social and political problem. It is also an architectural problem, and it is a difficult one to solve. Unlike the surgeon who is free to treat the appendix ruthlessly in order to improve the patient's general health, the architect cannot simply say that the community should ride roughshod over the individual. The rights, desires and needs of both must be reconciled so that our designs may be accepted by the maximum number of citizens.

We have come to recognize that zoning restrictions are no substitute for creative planning, and may in fact restrict it. Thus we must seek flexible master plans of development for urban areas, and they must be subject to periodic, objective review and revision. Also at issue in the United States are the subjects of regional planning transcending traditional political boundaries, and the creation by public authorities of "land banks" from which land may be drawn by private developers whose plans fit the area's needs and programs.

At present, without a workable public consensus and policy on land-use, urban design in my country is handicapped. We do have outstanding slum clearance and urban renewal projects, and exciting "new town" developments, but there would be many more of them, and they would be much further along, if public policies regarding zoning, land taxation, regional transportation, and master plans of development had been clarified.

Adding to the difficulties I have mentioned, is the problem of government attitudes toward development projects, particularly "new towns." Our federal government long ago established programs of financial incentives to builders of single-family homes, but it does not extend these benefits to the many facilities and amenities needed to create a community. Thus the exceptional developer who wishes to create a coherent village or town must be prepared to make a heavy initial investment in community facilities and amenities from which he will receive little return until all of his houses are sold.

All of these urban problems—housing, slums, transportation, land control—are more or less common. They bind us together in our consideration of the urban crisis, and as architects they give us a common set of tasks to accomplish before we can take a leading place in the cast of the urban drama. These tasks can be summed up, I believe, in five words—understanding, relevancy, involvement, competence, and leadership.

By understanding, I mean that architects must strive to broaden and deepen their knowledge of the urban situation—knowledge of the needs of the people whose revolt has created our present crisis, as well as why those reasons are operative.

At its convention this year, The American Institute of Architects took a step which will add to our understanding of urban problems. The convention approved establishment within the Institute of an Urban Affairs Center to provide information and guidance to the profession.

By relevancy, I mean that architects must take special care to see that the public knows of and understands our concern with, and contributions to, urban affairs. We must make certain our communities understand why, in the face of social chaos, we architects keep drawing their attention to the need for order and beauty and other "intangibles," as well as the inadequacies of houses, streets, parks, and stores. To many it may seem that we are much like someone who is attempting to interest a drowning man in a lecture on water pollution. But our message is real and urgent and essential. The connection between spiritual poverty and environmental poverty is real and important and the architect is best qualified to make this connection manifest.

By involvement, I mean that architects must find ways --untraditional and perhaps even surprising ways-of wielding influence within their communities and of bringing their abilities to bear on community problems. They must become men of action. They must get involved in civic affairs at all levels, and in politics. The architects of many Latin American nations have a better record in this regard than we do in the United States. I congratulate you for the honor you have thus brought our profession.

The necessary involvement of the architect as a professional in community affairs is receiving much of our attention. Recognizing that the traditional client-architect relationship is not applicable to many urban problems, we are going beyond it in search of service. The multi-disciplinary design concept team is one such effort. Also, the AIA is now actively fostering the creation of "community design centers" through which architects particularly young architects-can work with individuals and ghetto groups that normally would not have the advantages of the services of our profession. In these centers, we are prepared to offer needed services even if the client is unable to pay for them. Another community involvement sponsored by AIA makes the architect into a "catalyst" for urban design. At the request of a city or town, the Institute will send an "urban design advisory team," made up of architects from outside the locality, to make an on-the-spot evaluation of problems and needs, and present that evaluation publicly for the community's consideration. The work of these teams has been very effective in drawing public attention to urban environmental problems, and in some cases, the commu-nities have been led to seek professional urban design services from local architects.

By competence, I mean that architects must constantly re-evaluate and improve their education and training—to keep abreast of design, technical and management innovations. In the United States, we are not only concerned with the education of new architects, but also with the reeducation of old ones. The AIA has sponsored a \$100,000 study of design education. The report recommends many changes in the way we train architects and other design professionals. In times of rapid change, the continuing education of architects already in practice is of increasing importance, and the Institute is now considering ways of fostering it.

By leadership, I mean that the architect must show an eagerness to play a formative role in his community's affairs. We can no longer wait for a client to come to us and present a design problem. We have an obligation to discern the problem first in many cases, develop the solution, and then seek out the client, public or private.

If we do all these tasks well, then we will have earned the right to a prominent role on the stage. More importantly, we will be prepared to take advantage of such a role.

I have said that the urban crisis presently is a drama without a director and not much of a script. To many people, this kind of endeavor may seem likely to result in a poor production. But I believe that the actors in the drama, responding to the audience, can shape the play into something meaningful and important, and that the architect has the obligation to make the effort to be an important member of the cast, if not the director. But it is up to the architect to make a place for himself. Others will not do it for him. It is up to him to decide that he belongs at center stage, not in the wings, not in the audience, but onstage, creating and contributing his unique and relevant talents to the solution of our urban problems-talents that are sorely needed if our cities are to become pleasant and exciting places for people places in which people can enjoy working, playing and living. After all, that is what urban areas are all about.

CONSERVATION AND THE ENVIRONMENT

What are the views of the Republican party on conservation-environmental issues. What programs and action can we expect the Republican administration to initiate? The following are planks taken from the Republican Party Platform and from Richard Nixon's major speech on natural resources in Portland, Oregon.

FROM THE REPUBLICAN PLATFORM

NATURAL RESOURCES (full text)

In the tradition of Theodore Roosevelt, the Republican Party promises sound conservation and development of natural resources in cooperative government and private programs.

An expanding population and increasing material wealth require new public concern for the quality of our environment. Our nation must pursue its activities in harmony with the environment. As we develop our natural resources we must be mindful of our priceless heritage of natural beauty.

A national minerals and fuels policy is essential to maintain production needed for our nation's economy and security. Present economic incentives, including depletion allowances, to encourage the discovery and development of vital minerals and fuels must be continued. We must recognize the increasing demand for minerals and fuels by our economy, help ensure an economically stable industry, maintain a favorable balance of trade and balance of payments, and encourage research to promote the wise use of these resources.

Federal laws applicable to public lands and related resources will be updated and a public land-use policy formulated. We will manage such lands to ensure their multiple use as economic resources and recreational areas. Additionally, we will work in cooperation with cities and states in acquiring and developing green space-convenient outdoor recreation and conservation areas. We support the creation of additional national parks, wilderness areas, monuments and outdoor recreation areas at appropriate sites, as well as their continuing improvement, to make them of maximum utility and enjoyment to the public. Improved forestry practices, including protection and improvement of watershed lands, will have our vigorous support. We will also improve water resource information, including an acceleration of river basin commission inventory studies. The reclaiming of land by irrigation and the development of flood control programs will have high priority in these studies. We will support additional multi-purpose water projects for reclamation, flood control, and recreation based on accurate cost-benefit estimates.

We also support efforts to increase our total fresh water supply by further research in weather modiThe United States has dropped to sixth among the fishing nations of the world. We pledge a reversal of present policies and the adoption of a progressive national fisheries policy, which will make it possible for the first time to utilize fully the vast ocean reservoir of protein. We pledge a more energetic control of pollution, encouragement of an increase in fishery resources, and will also press for international agreements assuring multinational conservation.

We pledge a far more vigorous and systematic program to expand knowledge about the unexplored storehouses of the sea and polar regions. We must undertake a comprehensive polar plan and an oceanographic program to develop these abundant resources for the continued strength of the United States and the betterment of all mankind.

TRANSPORTATION (excerpt)

Our metropolitan transportation systems—the lifelines of our cities—have become tangled webs of congestion which not only create vast citizen incovenience, discontent and economic inefficiency, but also tend to barricade inner city people against job opportunities in suburban areas. We will encourage priority attention by private enterprise and all levels of government to sound planning and the rapid development of improved mass transportation systems. Additionally, in the location of federal buildings and installations and the awarding of federal contracts, account will be taken of such factors as traffic congestion, housing, and the effect on community development.

CITY AND COUNTRY (excerpts)

We must bring about a national commitment to rebuild our urban and rural slum areas.

For tomorrow, new cities must be developed—and smaller cities with room to grow, expanded—to house and serve another 100 million Americans by the turn of the century.

The need is critical. Millions of our people are suffering cruelly from expanding metropolitan blight—congestion, crime, polluted air and water, poor housing, inadequate educational, economic and recreational opportunities. This continuing decay of urban centers—the deepening misery and limited opportunity of citizens living there is intolerable in America. We promise effective, sustainable action enlisting new energies by the private sector and by governments at all levels.

Success with urban problems in fact requires acceleration of rural development in order to stem the flow of people from the countryside to the city.

Air and water pollution, already acute in many areas, require vigorous state and federal action, regional planning, and maximum cooperation amony neighboring cities, counties and states. We will encourage this planning and cooperation and also spur industrial participation by means of economic incentives.

Richard M. Nixon - Conservation & Environment

Richard M. Nixon's major conservationenvironment speech was made at Portland, Oregon. He coupled the subject with education, calling the speech "Natural Resources and Human Resources."

He noted that Congress called for spending cuts of \$6 billion. He said the President should set his own priorities for sectors to be pared, but added: "Among those that should escape the budget knife are appropriations for conservation and education, for the preservation of natural resources and for the development of human resources." He called these the "growth stocks of America" and investments which will determine "the quality of life."

"In these troublesome, anxious times there is a tendency to take these resources (land, forests, lakes, rivers, deposits of minerals, oil and gas) for granted—but we cannot afford to make this error." He said that in spite of our other, higher priority problems, "we must find the time and energy to preserve and improve our heritage and prepare to hand it over to future generations in better condition than it came to us."

Nixon added: "In terms of quantity, the U.S. is blessed with an almost overflowing abundance. In spite of persistent dire warnings of severe shortages from the voices of the past, our level of natural resources continues to be more than adequate, and it is likely that they will continue to remain so.

"Advances in agricultural technology have all but removed land as a limiting factor on food production. The products of our new technologyplastics, metals and synthetics—have reduced the demand for forest products, and it is now estimated that our forests are expanding 60% faster than we are cutting them. The built-up areas of the U.S. still only cover 3% of our land. "The development of new energy sources...and the improved use of our old energy sources...can ward off any further energy crisis. Our improved capacity to process low-grade mineral ore makes it unlikely our supply of metals will become inadequate. Our water supply is adequate—if we make efficient use of it. The nature and size of our natural resources is not likely to put any limitation on the growth of the U.S."

"Every day our air becomes more choked with dust and chemical fumes; our lakes, rivers and even our oceans become more polluted and unfit for drinking or recreation; our parklands become less adequate to serve the needs of our population.

"The quality of our living environment particularly in our cities—is becoming increasingly unpleasant and dangerous. The pollution of the 1960's stems primarily from our failure as a nation to counter the side effects of our incredibly expanding technology."

Nixon called for more sophisticated procedures to prevent people from poisoning our air or fouling our waters. "Some of these problems spill over traditional political boundaries, and we must rightly consider the desirability of regional and federal approaches.

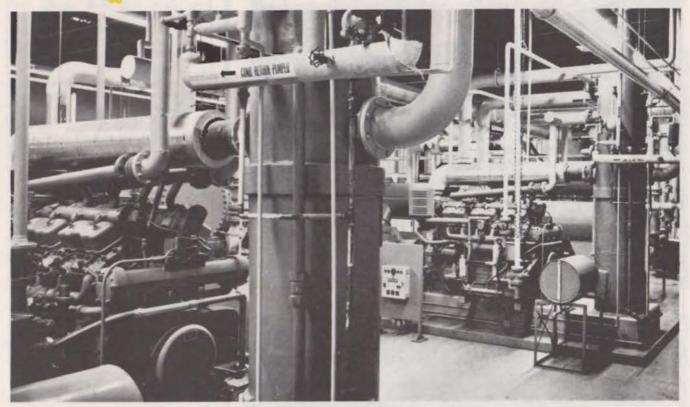
"We need to develop objective standards of environmental quality, and effective, fair means of enforcing them. We need to match advances in technology with advances in government."

Nixon also referred to the complex problems of the cities in a statement to the Republican National Convention's Committee on Resolutions on Aug. 1, 1968: "They are problems of human concentration, with all the abrasive frictions that occur when many people of diverse backgrounds occupy a small place. Increasingly, they are problems of the physical environment we all share congested streets, fouled air and polluted water."

And, he added, they are problems of the future because, "when we look toward the year 2000, we see that the population of our cities will have doubled; this means we will need as much *new* city by then as we have *old* city today."

Nixon spoke of the need for "tax incentives and credit incentives to bring to bear upon America's unsolved problems the power of individual initiative and of private enterprise. We can build the housing we need for the urban poor, we can clean up the air above our cities and the water around them—if we get into action the engine of private enterprise that already has performed so many miracles to produce America." TEXAS POWER REPORT

Two Cat G398 Engines were installed to drive two 600-ton refrigeration units. In addition, exhaust heat operates a 300-ton absorption unit to bring cooling capacity to 1500 tons.



HOW TO CLIP 20% FROM OPERATING COSTS!

■ A vital part of the development program of St. Mary's University in San Antonio was the power plant. Every new building in the rapidly expanding educational complex includes up-to-the-minute equipment the heating and air conditioning center is no exception.

A study of a variety of methods and equipment focused attention on gas-fueled internal combustion engines. Analysis of benefits and costs forecast savings of about 20% over electrically driven equipment.

Analysis of various brands showed Caterpillar-built engines could deliver maximum dependability with minimum costs.

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Architect: Wilson, Morris, Crain & Anderson Structural Engineer: Walter P. Moore General Contractor: P. G. Bell

BANK OF HOUSTON selected for AISC Architectural Award of Excellence

One of 15 buildings selected from 158 entries, the Bank Of Houston received the 1968 Architectural Award Of Excellence, sponsored by the American Institute of Steel Construction.

NATIONAL AWARD WINNER FEATURES

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The Award Citation (in part) reads:

"This is an attractive and well detailed building. The two-way truss design of the roof presents an attractive pattern in exposed steel and creates a highly versatile column-free interior."

Another example of Mosher's Award Winning Dimensions In Steel.



MOSHER STEEL COMPANY THE Texas Architectural Foundation offers scholarships in architectural education and sponsors research in the profession. Contributions may be made as memorials: a remembrance with

purpose and dignity.

TEXAS ARCHITECTURAL FOUNDATION 327 PERRY-BROOKS BUILDING AUSTIN

Swanson, Hiester, Wilson, Boland

Swanson Hiester Wilson Boland Architects of Corpus Christi, Brownsville, and Dallas have announced the appointment of Larry L. Claycomb to a partner of the firm.

Claycomb attended Texas A & M University and received his bachelor of architecture in 1962. He has been associated with Swanson Hiester Wilson Boland the past three years and has been involved with several of the firm's major building projects.

Goleman & Rolfe

Albert S. Golemon, Senior Partner, Golemon & Rolfe, Architects, has announced ten new partners and associates.

The four firm members advanced to partner are J. William Frye, Jr., Coordinator of Medical Facilities Projects. Melvin L. Hildebrandt, Director of Project Development, Stayton Nunn, Jr., Coordinator of Educational Projects, and Ralph A. Zander, who is now serving as Project Manager for Houston Intercontinental Airport and is Coordinator of Commercial and Airport Projects.

J. D. F. Boggs, Jr. and Thurmon E. Jacks are new senior associates. The four new associates are Michael C. Farley, L. David Godbey, R. Lynn Hanson and Keith J. Simmons. NORTHEAST TEXAS CHAPTER AWARDS PROGRAM





roland chatham, photographee

Four Texas Buildings have been given awards for excellence in design by the Northeast Texas Chapter of the American Institute of Architects.

The Northeast Texas Chapter of the American Institute of Architects encompases an area of twenty-three Texas counties extending from Texarkana on the north to Lufkin on the south and from the Louisiana border on the east to Palestine on the west.

> CARGILL THEATER, longview allen & guinn

PEOPLES NATIONAL MOTOR BANK tyler, texas

e. davis wilcox associates



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alexander geores, photographer

NORTHEAST TEXAS CHAPTER AWARDS PROGRAM

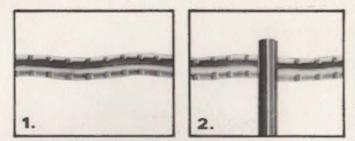
TECHNICAL-VOCATIONAL BUILDING tyler junior college

e. davis wilcox & associates

1600 COMMERCE BUILDING dallas, texas

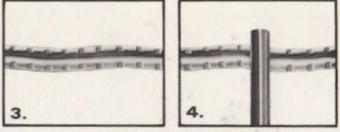
wilson, morris, crain & anderson

TEXAS ARCHITECT



Strongwall's special design grabs hold of mortar four ways for the strongest bond available... with over 300% more gripping power than plain reinforcing. Quality mortar cannot be effective if your reinforcing material doesn't do its job. MidSTATES Strongwall Masonry Reinforcing is engineered to grip mortar better, four ways.

1. Strongwall side rods are knurled on four sides. The rough, indented surface gives better bonding power... better gripping. 2. Cross bars are welded over side rods as recommended by National Bureau of Standards



and Corps of Engineers allowing mortar to flow around reinforcing. **3.** Side rods are also deformed with a series of 10-degree bends which work together with knurling to give Strongwall its superior grip. **4.** Cross bars extend ½ inch beyond the side rods giving more bonding surface and distributing stresses more evenly across the weld. For full details on MidSTATES STRQNGWALL LADDER TYPE MASQNRY WALL REINFORCING, send for our illustrated catalog. Truss type reinforcing is also available. Write for complete information.

STRONGWALL Reinforcing Grips Masonry Walls Four Ways!

