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**The Florida Architect**

April  
1969



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**COVER:**

Last year Architect Sebastian Trujillo and his wife of Miami travelled to the Mexican lands of the Mayas, an area familiar to and much loved by many Florida architects. This month, as a departure from a regular architectural feature, is presented the story of their trip in words and pictures. The cover photo, a cornice detail of the House of the Turtles at Uxmal, and all others, were taken by the author.

# The Florida Architect



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# Wonders of the Yucatan Land of the Mayas

The Mayan were a paradoxical people. Their writing and hieroglyphic inscriptions were so complex that even today they have not been fully deciphered. They used a mathematical notation system more sophisticated than that of their European contemporaries and also discovered the principle of the zero. It is important to know that all of these intellectual accomplishments were arrived at independently. Yet, they worked with primitive stone, flint, and obsidian tools since they did not know of nor have any working metal tools. They were esthetically highly sophisticated; they made charming sculpture, pottery, and paintings. In the middle of the jungle they built, out of limestone, magnificent cities whose buildings were richly painted and decorated.

The areas which they developed were the northern and central Mayan areas, also called lowland areas (since the land was flat). To the north lie the Mexican states of Yucatan, Campeche, and Quintana Roo. In the central Maya area lie parts of the Mexican states of Chiapas, Tabasco, and Campeche and Peten in Guatemala. The southern Maya areas, also called highlands, consist of the mountainous region of Guatemala, parts of El Salvador, and parts of Honduras. We will be concerned with the northern Maya area and the state of Yucatan in particular.

Yucatan is a portion of Mexican territory that projects into the Gulf of Mexico. The land is flat with no rivers, lakes, ponds, streams, or swamps. Rain seeps through the porous limestone to form underground rivers. Once in a while this limestone surface will cave in and form an open well which is called a Cenote. Water, which was not readily available, was a vital element in Mayan religion. This element accounts for the repetition of the rain god chac masks bas relief which became a main design element in the development of their building facades.

Continued ➡



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by  
Sebastian Trujillo  
JUN 1969

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Queen of Uxmal

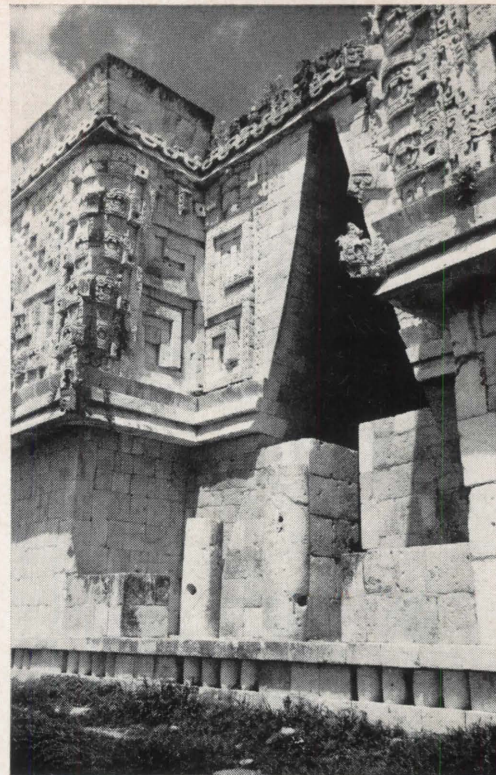




# Uxmal



Governors Palace



Governors Palace  
Door Detail

The meaning of the word "Uxmal" supposedly comes from the Mayan word "Oxmal," which means "three times built." Some archeologists and Mayan writers believe that the real name of the place is unknown and they claim that "Uxmal" was the name of a nearby Mexican hacienda. Uxmal belongs to a classic Mayan or pure Mayan period and the most important buildings were erected between the seventh and eleventh century, A. D. in Puuc style.

Puuc style is defined by the wall treatment. The wall is left bare of any decoration at the lower portion where the openings are. A Baroque wall treatment of decoration is, however, used in the upper portion, creating a very ornamented area above the medial moulding showing a great tendency to overcrowd the spaces.

A good example of Puuc style is the "Casa del Gobernador" or "Governor's Palace" (320' long x 40' wide x 26' high) which is set on the top level of specially constructed terraces. The lowest terrace measures 600' by 500' in area and 40' in height. As we approached the upper platform we could see and hear birds coming out of the doorways. They were



Governors  
Palace  
Superimposed  
Chac  
Masks  
on  
Corner





House of the Turtles  
Detail, Corbel Vault

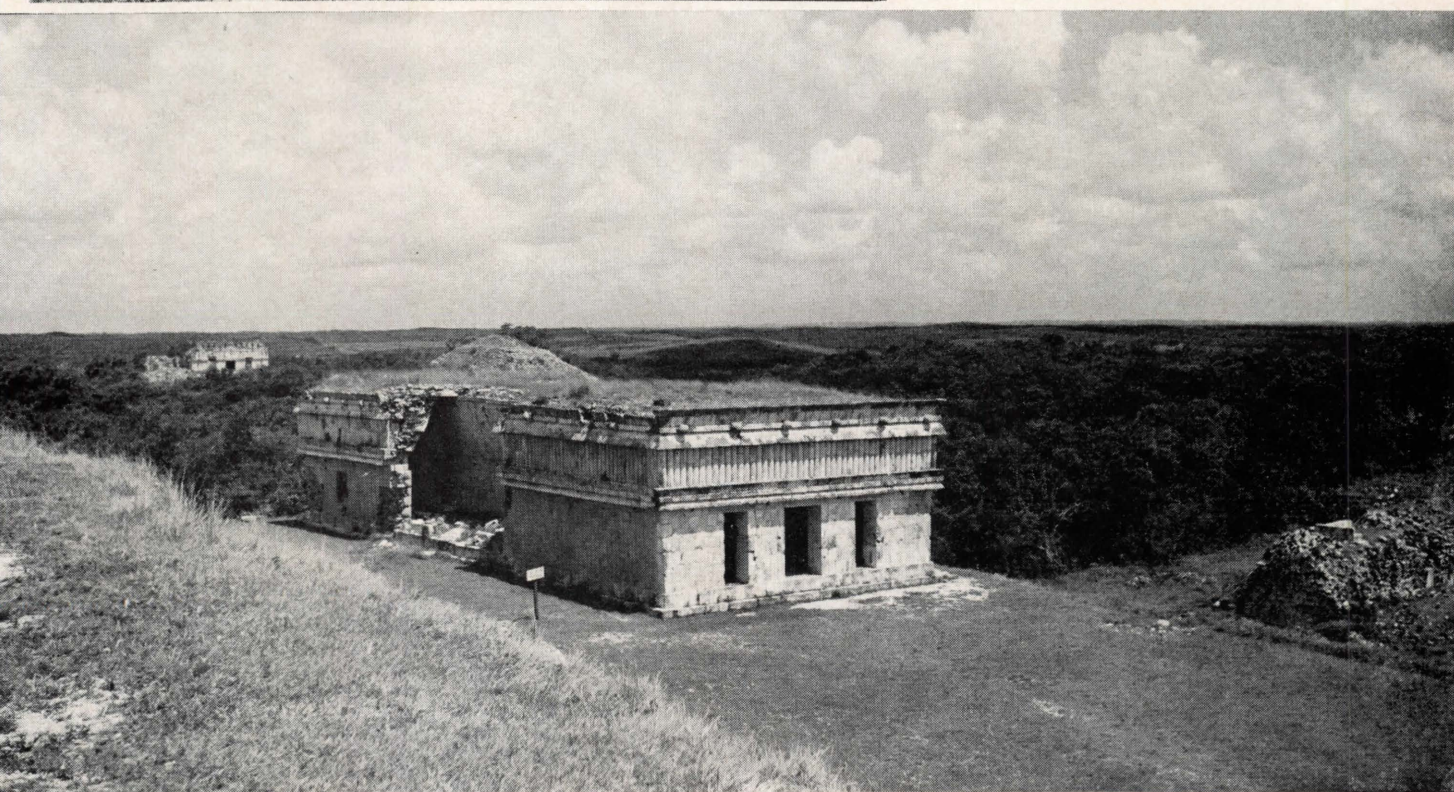
flying in all directions creating a charming feeling of repose combined with awe at seeing how the jungle so quietly embraced the buildings on a hot July morning.

The main design motif of the upper portion of the facade is the chac masks placed in a diagonal line combined with scrolls and latticework. Every piece is perfectly executed. By itself a piece would seem to have no meaning, but together with the others, they form a whole. In the corners the chac masks are superimposed. It has been estimated that about 20,000 individually cut stones form this fabulous facade. A type of cementing mortar was used to put each piece in place. The aggregate used for mortar was known as "sazhcab" (a soft marl) which is often found beneath the surface crust of the limestone.

A typical type of roof construction in the Classic Mayan Period is the Corbel-vaulted roof. It was used in every building in Uxmal. The walls at a certain height were sloped inward and capped with flat stones that could span the distance between the two walls. The Classic Mayan architect was more concerned with the exterior looks of his buildings than the interior spaces obtained by the use of Corbel-vaults.

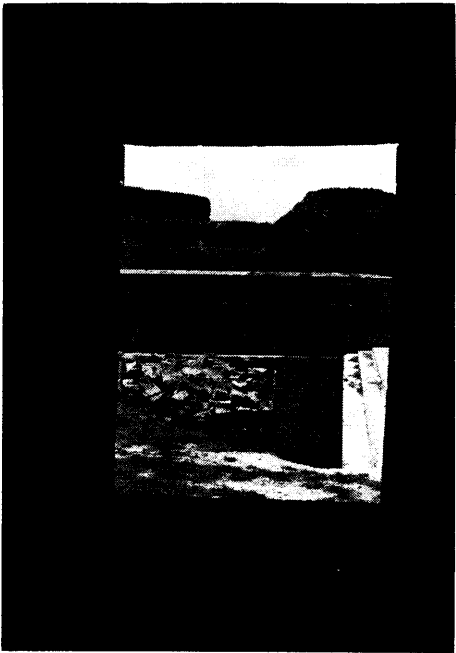
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House of the Turtles

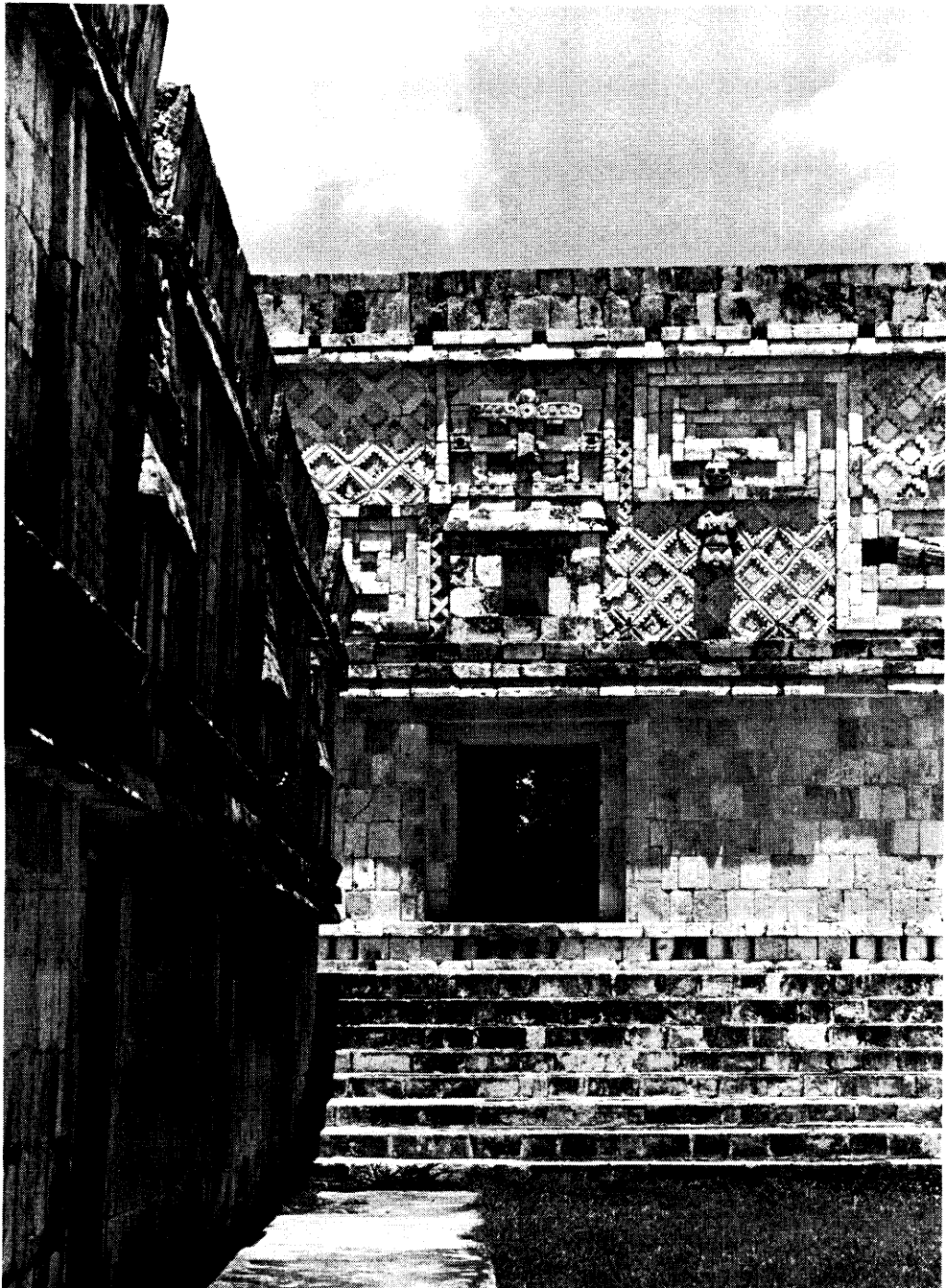




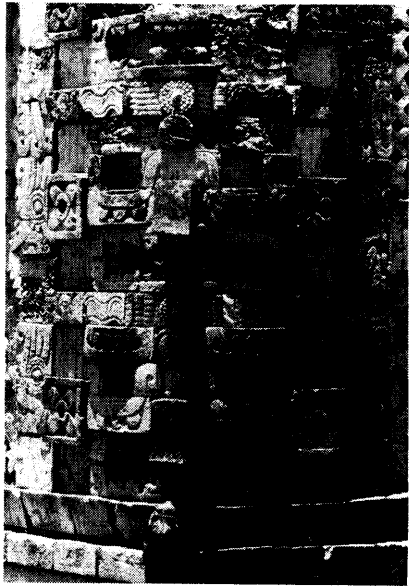
The  
Nunnery



The Nunnery



# Uxmal



Nunnery, Wall Detail





Nunnery, Entrance Gateway

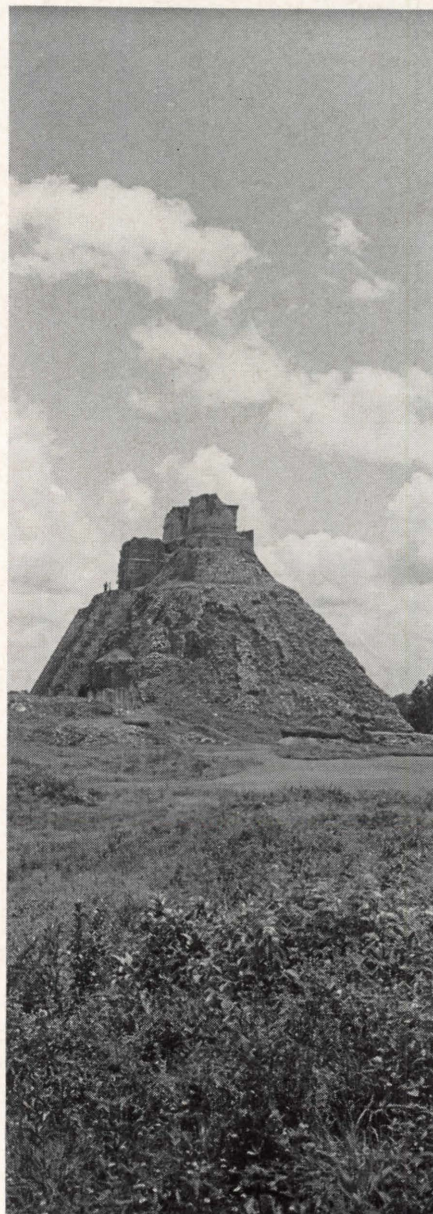
On a lower level of the same huge platform, a short distance northwest of the Palace is the "Casa de las Tortugas" or "House of Turtles." It is reminiscent of the beauty of a small Greek temple. The name was apparently derived from the turtles placed in the upper frieze above the doorways. Being an amphibian, perhaps the turtle was considered to be a deity by the Mayans, who were obsessed with water cults. This building stands nearly in the center of the ruins and from it to the north, on a lower plane, you see the "Casa de las Monjas" or "The Nunnery" and "The ball court" in between.

"The Nunnery" is formed by a group of four buildings around a central courtyard, 200 by 250 feet. The principal entrance is through a Corbel-vaulted archway. Once again, the mastery of design and expert workmanship can be observed in the delicacy of the cuts, latticework, scrolls, stone chac masks, etc. The inner facade is more elaborate than the outside with doors opening into the rooms in the four buildings. When the Spaniards discovered Uxmal this group of buildings reminded them of a monastery in their homeland. "The Nunnery," with all the cells around an open patio, does resemble an old world convent.

A short distance to the East of "The Nunnery" is "The Piramide del Adivino" or "Temple of the Magician" also called "Temple of the Dwarf." It has an almost elliptic floor plan and houses five temples built in different stages and styles. Although Uxmal has more ruins scattered around the same site, only the ones described are in good state of preservation.

Continued ➡➡➡

Temple of the Magician



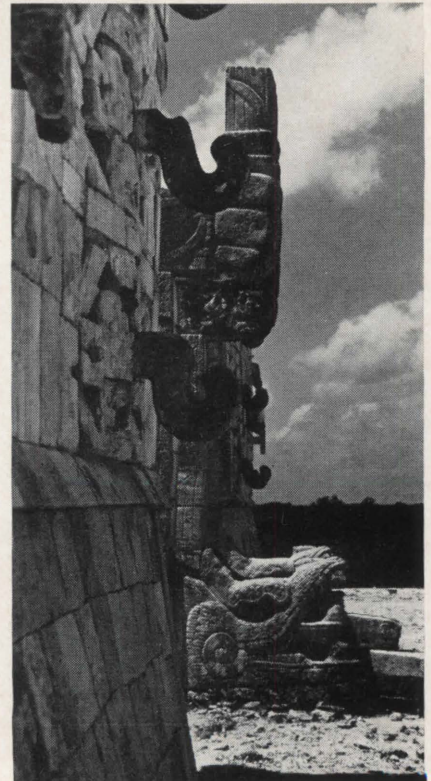


# Chichen-Itza

The Castillo



Temple  
of the  
Warriors



The other notable Mayan site we visited in Yucatan is "Chichen-Itza." The city was settled 800 years before Columbus discovered America by the "Itza" tribe of Mayans. Chichen, meaning "Mouth of Wells," was derived from "chi" meaning mouth and "chen" meaning well.

In Chichen there is a mixture of Mayan and Toltec architecture. During the thirteenth century A. D. the leader of Mayapan, Hunnan Ceel, brought in the Toltecs, from Central Mexico, as allies to defeat the "Itza" and their leader "Chac Xih Chac." In gratitude, Hunnan Ceel gave them Chichen-Itza. Since then, until the middle of the fifteenth century, Chichen became un-Mayan.

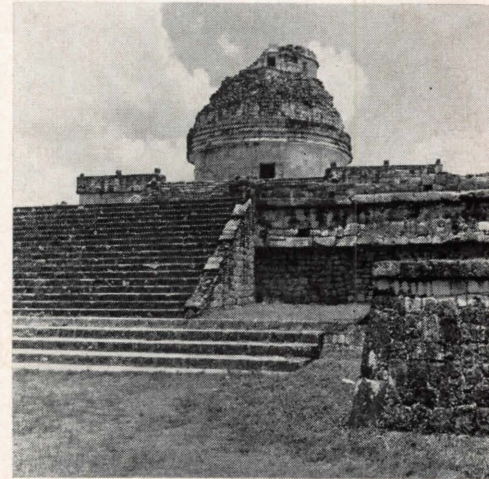
The first object you see in Chichen, on the left hand side of the road, is a terraced pyramid with stairways on four sides topped by a white limestone temple. This is the "Castillo Pyramid" of Kukulcan. Kukulcan (which has the meaning as Quetzalcoatl in Central Mexico) is considered as God, in Yucatan, and is represented by a feathered serpent. "The Castillo" has 91 steps in each stairway and is 75 feet tall. It has a square base, 180' x 180', with rounded corners. The main entrance is on the north side facing the Cenote, which is known as the well of sacrifice. The temple was carved in low relief and was originally painted.

To the northeast stands the



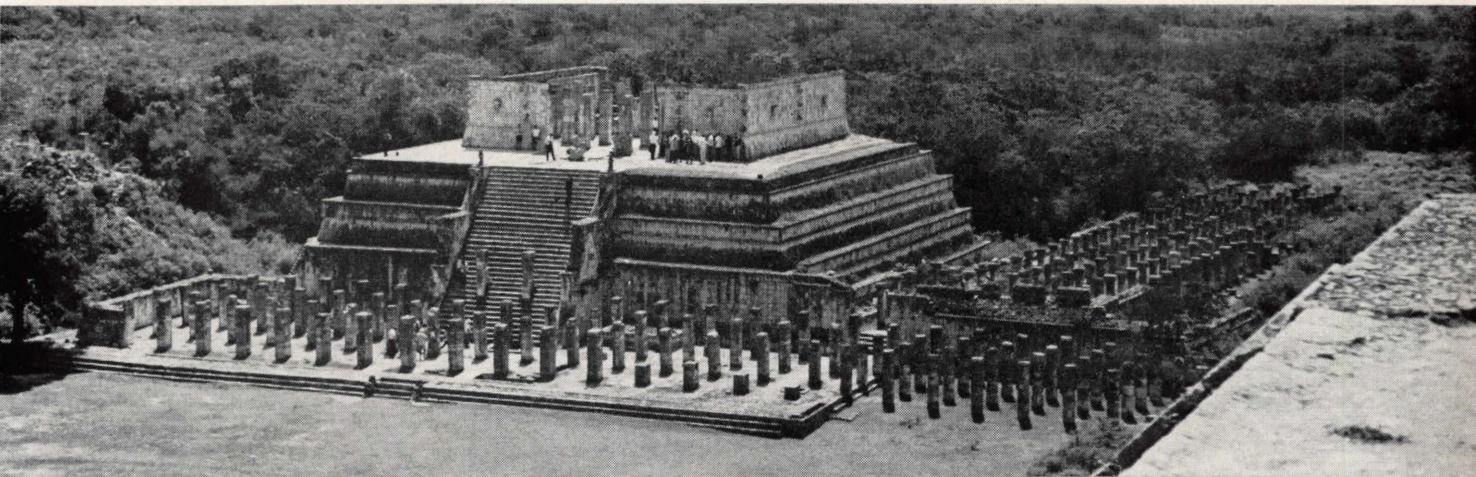


Temple of the Jaguars  
and Ballcourt



The Caracol

Temple of the Warriors  
1000 Columns



Column Detail



"Templo de los guerreros" or "Temple of the Warriors," embraced on west and south by a group of thousands of columns. At the end of the stairway there is a "Chac-Mool," a Toltec figure brought from Tula, Central Mexico. The Chac-Mool figures are reclining human figures with heads turned to the right or left, holding a stone plate in two hands resting on the abdomen. This position suggests that their function may have been to receive offerings.

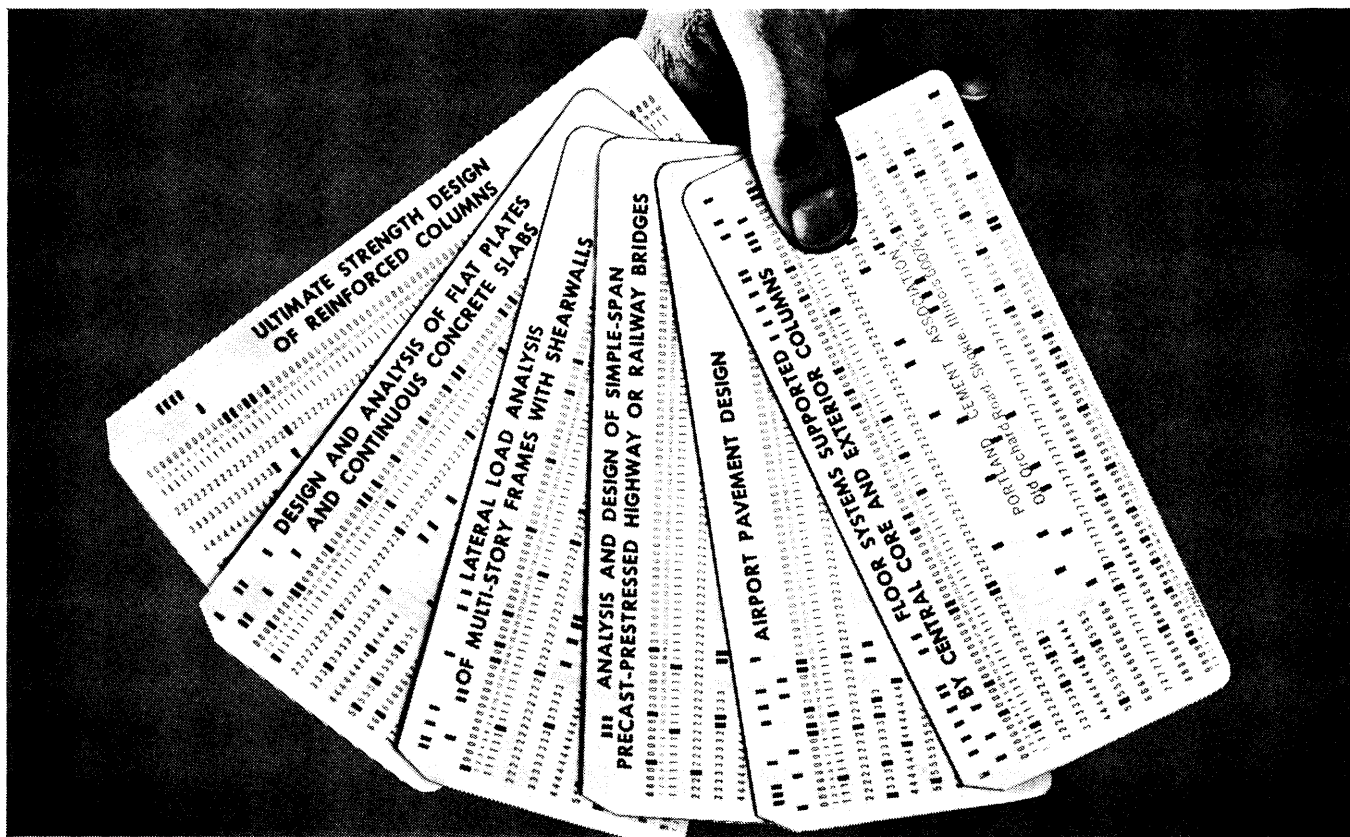
Behind the Chac-Mool is the main entrance to the temple, defined by two columns whose bases are heads representing rattlesnakes; with the column itself being the body of the serpent.

The "Ball court" is to the west side of the "Castillo" and it has three temples, the southern, the northern ("Temple of the Bearded Man"), and "The Temple of the Jaguar," on the eastern wall. To the east of the Ball court you find the platforms of the skulls, of Venus, of the Eagle and the Tigers.

To the other side of the highway lies the Old Chichen. It is pure Mayan. There are rain gods but neither feathered serpents nor Chac-Mools. The Caracol or observatory is most interesting; it has a spiral staircase inside. From the observatory you can see the Nunnery and a small building next to the Nunnery, named the Church.



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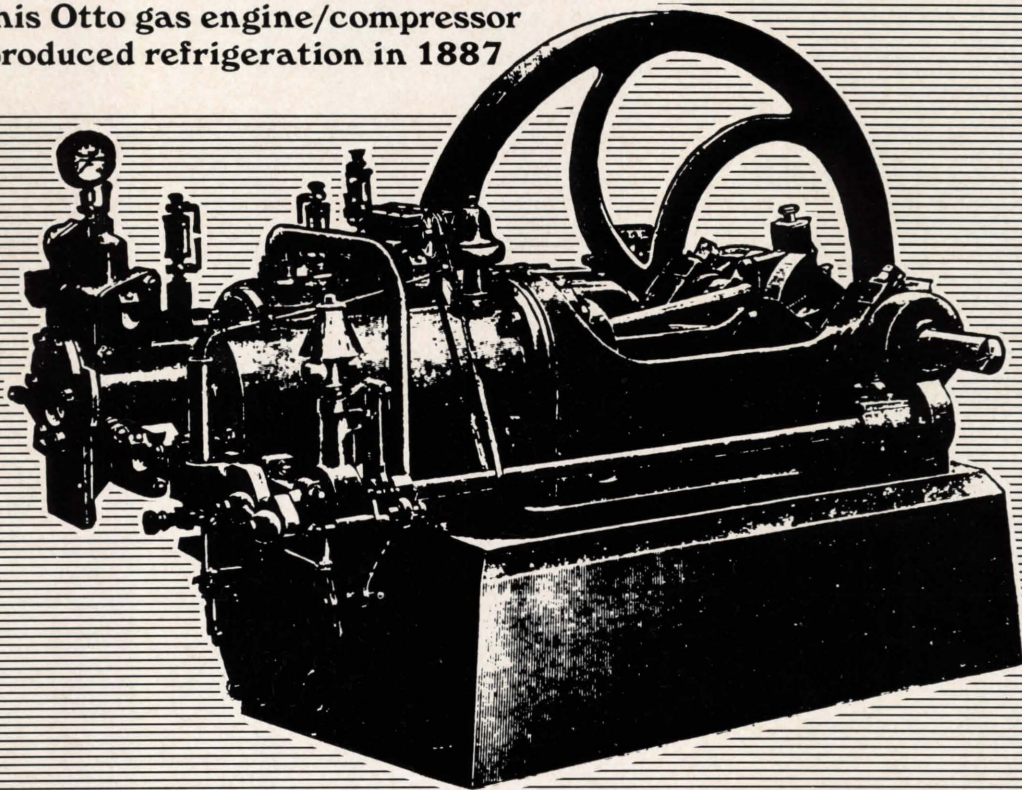


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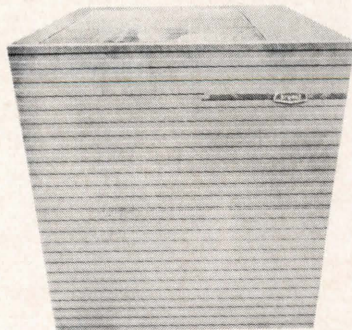
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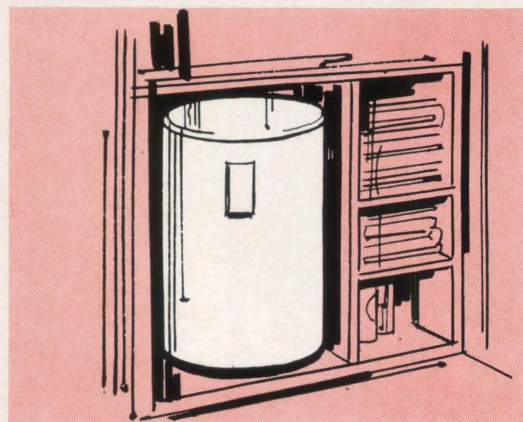
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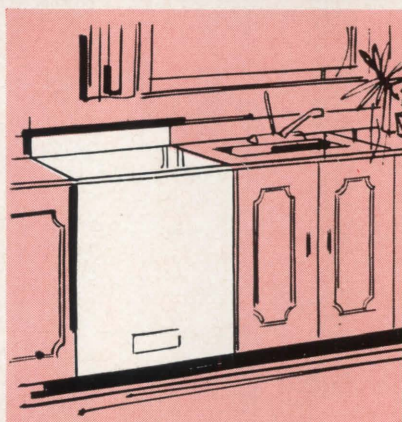
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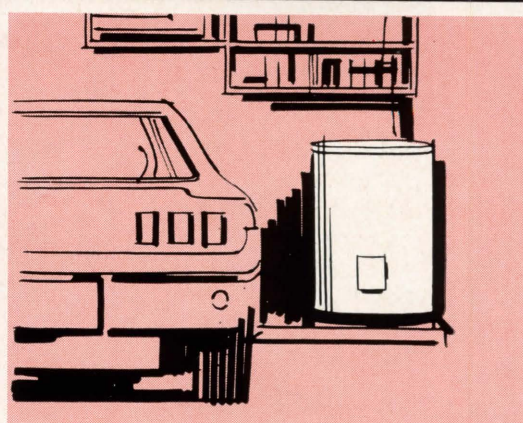
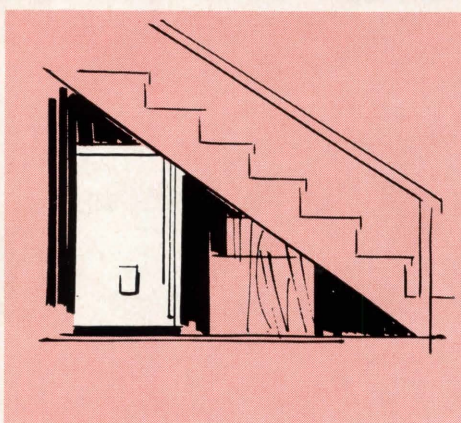
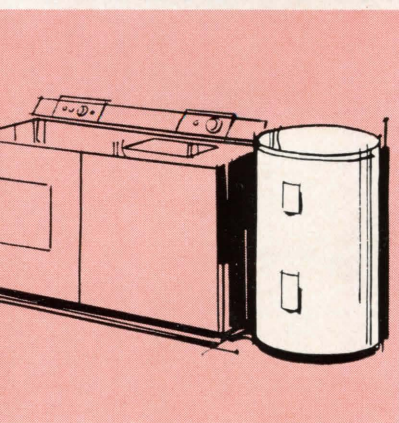
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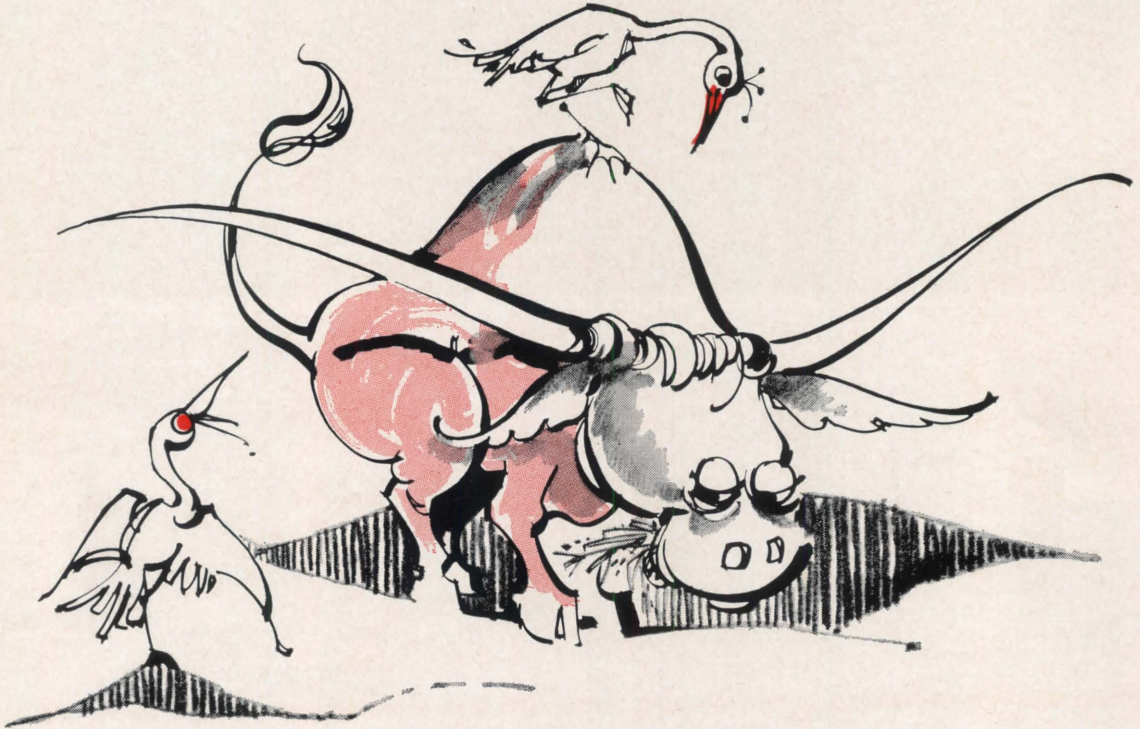
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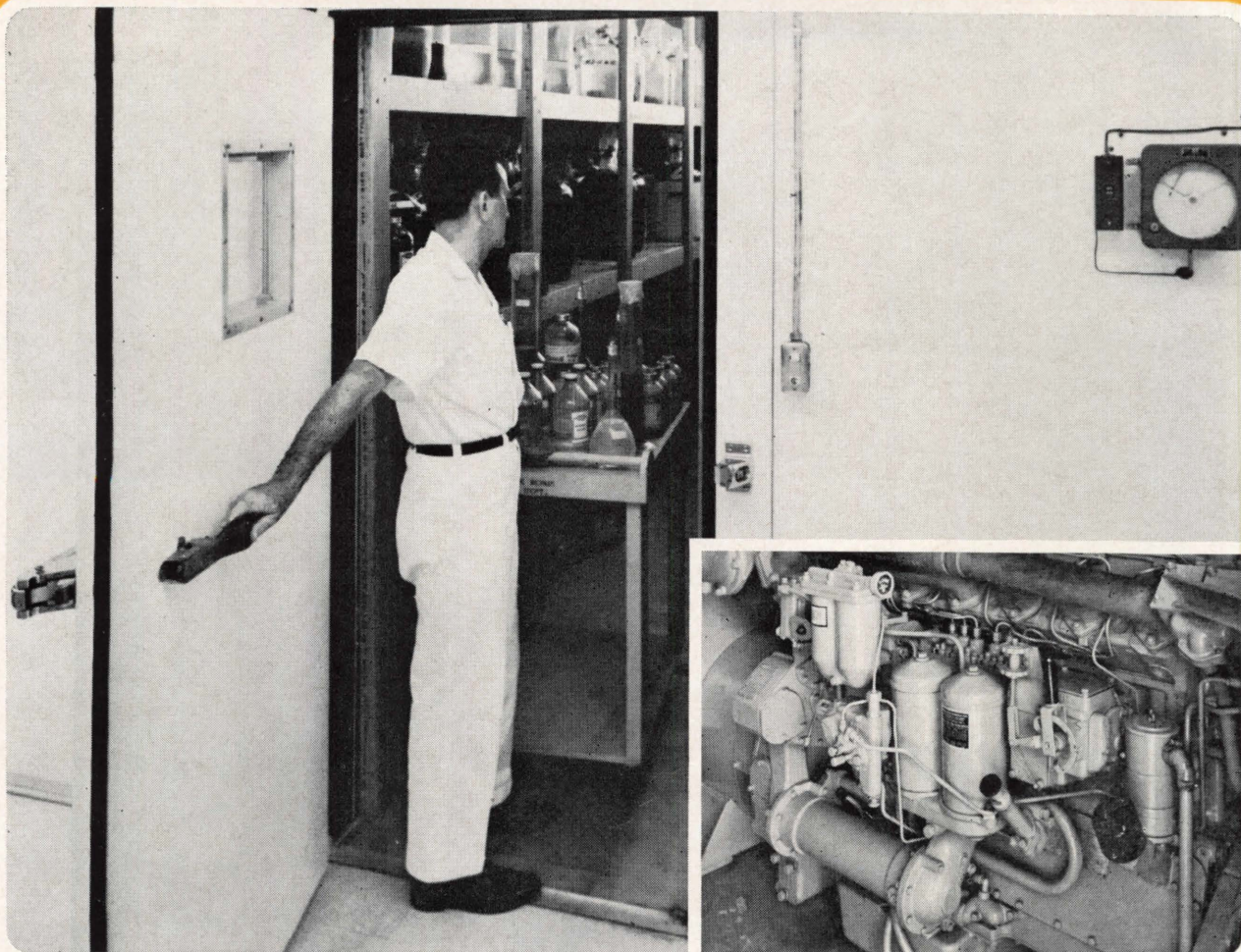
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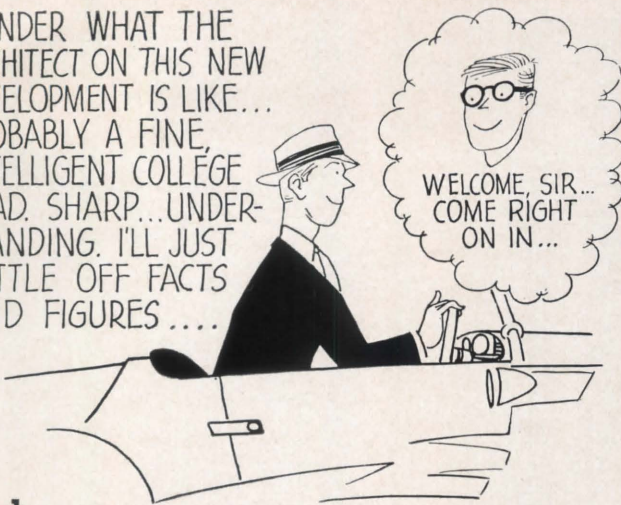
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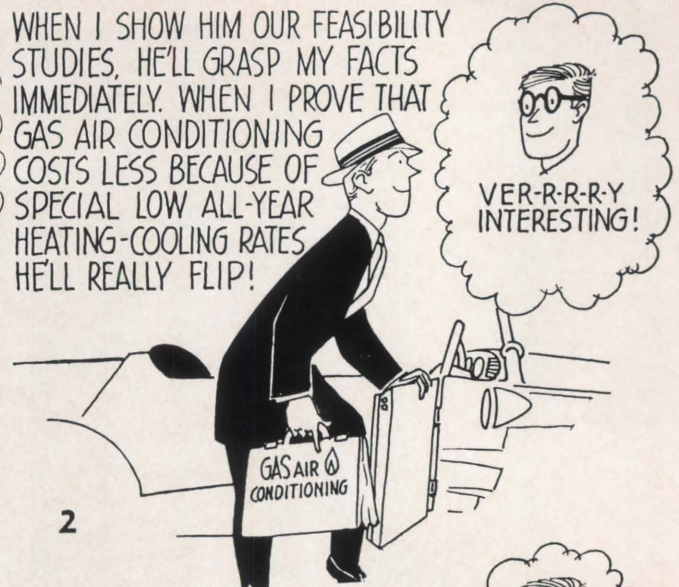
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1



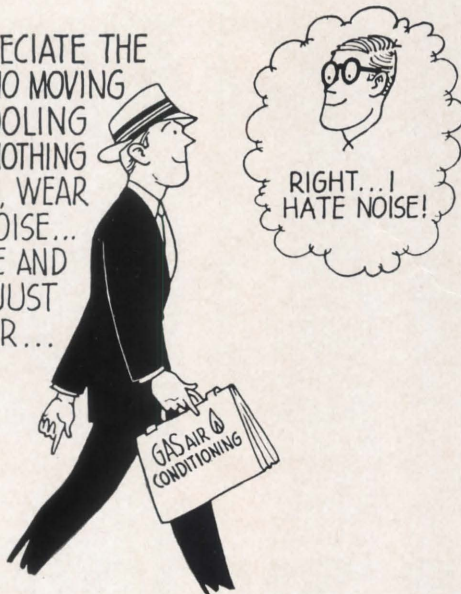
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2



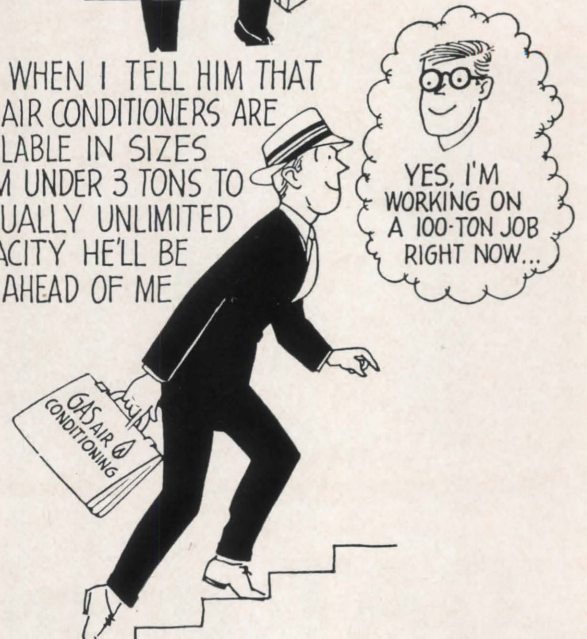
AND HE'LL APPRECIATE THE FACT THAT, WITH NO MOVING PARTS IN THE COOLING CYCLE, THERE'S NOTHING TO BREAK DOWN, WEAR OUT OR MAKE NOISE... SO MAINTENANCE AND SERVICE CALLS JUST AREN'T A FACTOR...

3



AND WHEN I TELL HIM THAT GAS AIR CONDITIONERS ARE AVAILABLE IN SIZES FROM UNDER 3 TONS TO VIRTUALLY UNLIMITED CAPACITY HE'LL BE WAY AHEAD OF ME

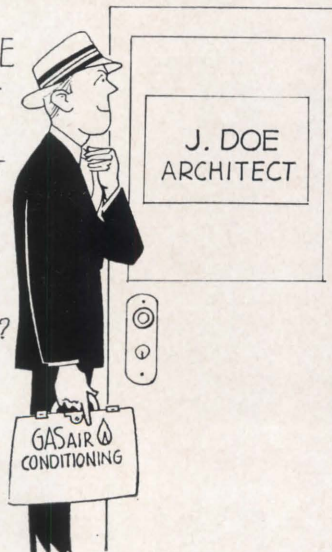
4



AND HE'LL FULLY REALIZE THE VALUE OF UNDERGROUND MAINS AND RESULTING DEPENDABILITY OF GAS SYSTEMS.

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5



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# Technology Tackles Trash

How to Brighten the Dark Side of Dwelling

By EUGENE J. SOBEL  
President, Linden Corporation

Linden Hill, a beautiful resort-like apartment hotel just 25 minutes from the Nation's Capitol, has discovered a new and simple method of solving one of management's ugliest problems — "how to handle refuse."

On a 16-acre estate setting in Bethesda, Md., Linden Hill Hotel guests enjoy the services provided by an affluent society — golf, tennis, swimming, fine restaurants, and shops — and they consume their share of goods. Inevitably, they also generate the normal amount of trash, about 6 pounds per person per day on the average. In a year, according to government estimates, each of us disposes of about half a ton of paper, 280 cans, 160 bottles, 400 caps.

It adds up to a heap of rubbish and a heap of headaches; but not for tenants, nor for health inspectors, fire marshals, or air pollution control officials. Trash is management's worry.

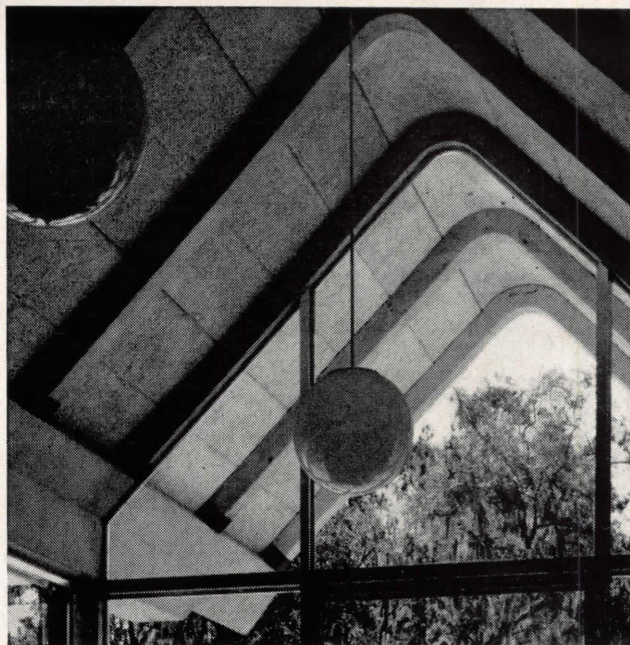
In recent years, John Boyd, an expert in once-favored incinerator disposal, set his inventive mind to creating new ideas in the processing of rubbish. For the past two years his results have been tested in dozens of high-rise apartments, garden units, hospitals, banks and even private homes.

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Continued on Page 19 ➡



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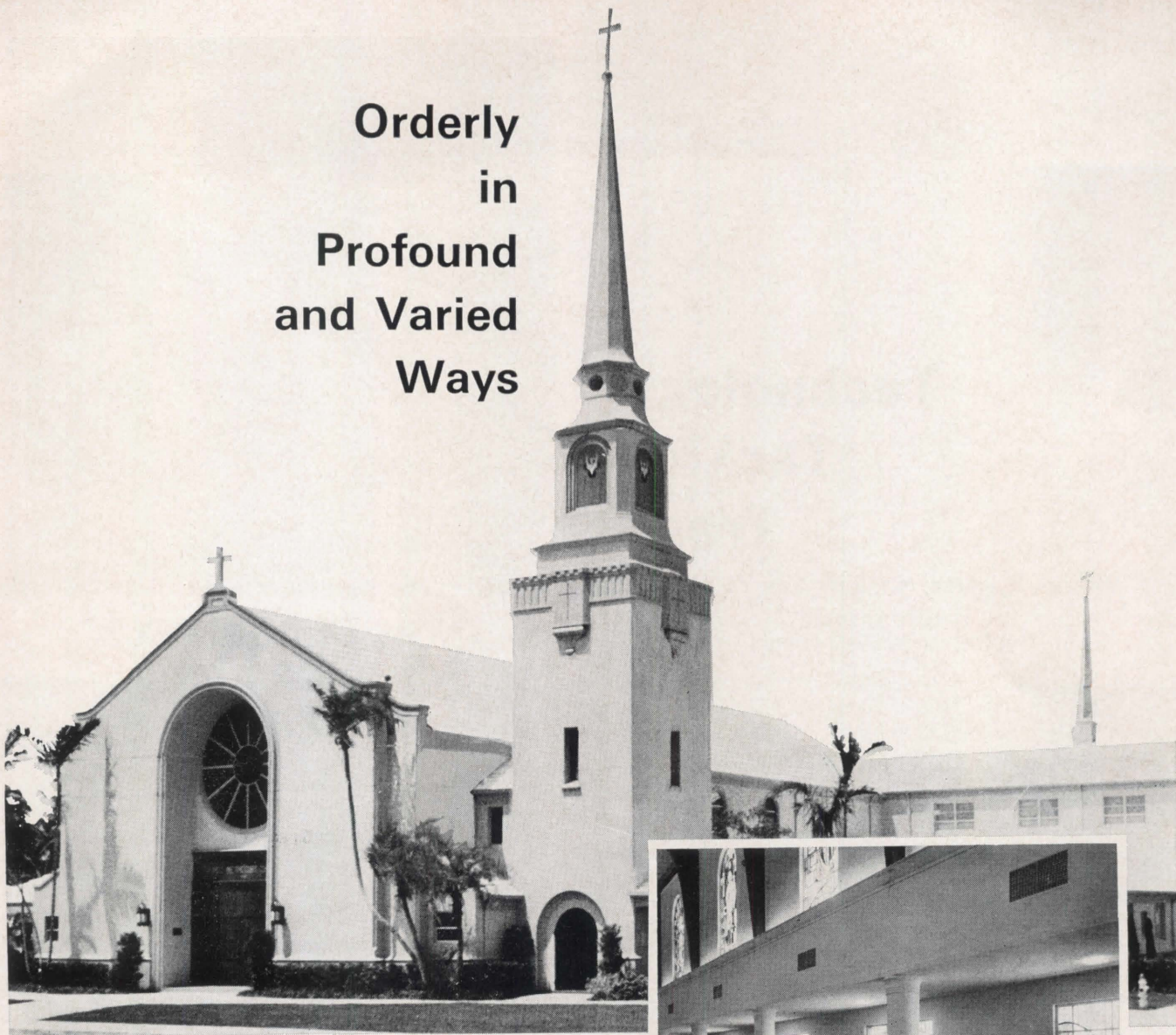
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The First Methodist Church, Hollywood. The architects were Start and Moeller; the builder was Terry Tower. Subcontractors and suppliers involved were Prosser Plastering, Larson and Acton Masonry and Adobe Brick and Supply Co.

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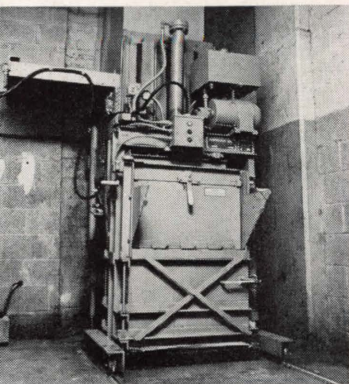
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PLANTS AND OFFICES IN TAMPA AND MIAMI



At the pick-up area, four to five carts daily awaited the trash hauler. They were not a pretty sight. They remained there dependent on the hauler's schedule, mechanical breakdowns, snow, or strikes. When the huge truck pulled up, the vehicle's special loading machinery lifted each cart and upended it into the hopper. Then, with a whine of the hydraulic conveyor, the orchestration began — popping bottles, rattling metal, exploding aerosol cans, crunching cartons. The truck drove off finally leaving a trail of papers, cans, and assorted debris. The result of our trash removal operation, as one tenant vigorously put it, was the daily creation of a small-scale slum complete with sights, sounds, and smells — all offensive.

Needless to say, this system was inefficient, inconvenient, undependable, and expensive. Costs ran us about \$3,600 a year for the trash collection alone!



After



With the Compackager PT1C30 installed, our trash room is clean, odor-free, and practically without fire hazard. There is enough room left over for storing more than a week's accumulation of trash, if need be. Thus, Linden Hill would have been unruffled by anything like New York City's recent garbage strike.

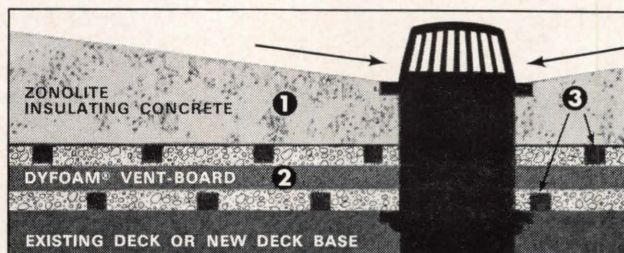
There is a new style of rubbish at Linden Hill these days. It is packaged trash. Neat plastic wrapped cubes about the size of a two-drawer file cabinet each contain the daily trash of 50 units. Our daily quota, five to six packages, can easily be handled by one part-time maintenance man using a hand cart. Our newly replastered and repainted corridors are a delight.

The pick-up area is kept neat and clean, since trash hauling has been simplified. Our trucker makes biweekly visits using an ordinary flat bed truck. He loads the cubes without special machinery. There is no spillage, no noise, no odors, and no complaining tenants.

The secret of our success is the Compackager which compresses trash quietly under hydraulic pressure. Cans, bottles, cartons and paper are crushed into a solid mass one-tenth the size of loose trash. The Compackager has made it possible for us to reduce a mountain of trash into a manageable molehill.

Significantly, reducing the size of our trash has also reduced our dollars and cents cost. This saving is a substantial dividend on top of the new system's obvious superiority over the old method. For example, we lease the Compackager for \$130 a month. Trash hauling costs less than \$100 a month. Thus, the entire operation runs almost \$1,000 less a year than we formerly had been spending for trash hauling alone. ■

## New double-insulated Dyzone roof deck is self-venting



**1** On top, a layer of seamless, permanent Zonolite lightweight insulating concrete that can be sloped to drain easily and economically, so leak-making puddles and ponds don't stay on the deck.

**2** Below, Dyfoam Ventboard. It's composed of Dyfoam expanded polystyrene boards sandwiched between laminating material. The insulating concrete combined with Dyfoam Ventboard gives you economical U values down to .03.

**3** Vents are built right into the Dyfoam Vent-board. Water vapor passes through the laminating material into the vents, and is channeled out to the edges of the roof.

No joints, no tape, no adhesives, no vapor barrier are needed with the new Dyzone roof deck. A thin slurry of Zonolite insulating concrete serves as the bonding agent between deck and structure.

Zonolite roof decks can only be applied by applicators we have trained and approved. Upon completion, the decks are certified to meet specifications.

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In the fall of 1968, Pancoast/Ferendino/Grafton/Architects of Miami (now Ferendino/Grafton/Pancoast), Consulting Architects to the Dade County School Board, published a brochure on School Costs. This is a reprint from an article in the February 1969 issue of *Electrical Consultant* based on that brochure. The subject remains timely in view of recent strikes and subsequent construction cost rises throughout Florida.

## School Construction Costs Studied

An examination of the rising costs of school construction is the subject of an attractive brochure from Pancoast/Ferendino/Grafton/Architects, of Miami, Florida. An elementary school design constructed three times in two years tells a graphic story of the rising school costs. The first school, with construction completed in April, 1966, cost a total of \$621,473. The second school, constructed in January, 1967, cost \$661,200, and the third school constructed in June, 1968 cost \$710,000.

One reason for some price variation was that the site costs varied in part due to differences in site size. However, the first school included rough-in plumbing for a future dental clinic not planned in the second and third schools. The second and third schools include less kitchen equipment than the first school, and the third school was built with different construction carpet costing less than that in schools one and two.

Andrew J. Ferendino, FAIA, Architect to the Board of Public Instruction, Dade County, stated that, "although all segments of the economy are experiencing concern with rising costs, we in the public school business are concerned with costs as they relate to requirements for better design, better construction, and more maintenance-free buildings. These are initial investments which result in greater eventual savings by reducing repairs and expensive alterations and by increasing the efficiency of people using the buildings. But these eventualities are somehow lost sight of in the struggle for minimum budgets occasioned by massive backlogs in construction needs."

John Avant, chairman, School Building Committee, South Florida Chapter, AGA, pointed out that in 1966 and 1967 new 3-year contracts calling for wage increases upwards of 30 percent for skilled labor and as much as 60 percent for unskilled labor. This reflects the overall picture of inflation in the economy and is passed along in terms of rising building costs.

The Marshall Valuation Service Cost Estimator lists the costs of schools in the Dade County area at \$12.00 to \$17.00 per square foot. The same source indicates that the national average for school costs, exclusive of building equipment and kitchen equipment is \$19.00 per square foot. These figures reveal that compared to the cost of school No. 3 at \$15.53 per square foot, Dade County, in

spite of rising costs, is getting exceptional school buildings at a relatively low price.

By building compact buildings, major spaces have been drawn together in new schools. Circulation spaces have been reduced in length and gross square footage, and widened for multiuse. The result has been shorter utility runs, less demand for mechanical space, and more efficient use of the site.

Effective use of land is particularly important as good sites become less available—requiring the purchase of smaller sites at ever-increasing prices.

### Elements of good design

Through efficient utilization of spaces, flexible space, which may be expanded or reduced at will by the employment of light or movable barriers, makes possible an immense diversification of activity without the requirement for increased space and without the creation of spaces which will lie unused for large portions of the day.

Careful control of design has made it possible to create air-conditioned buildings at a cost which is competitive with similar buildings that are not air-conditioned around the state and the nation. This has made possible a reduction in maintenance costs and an increase in morale and efficiency of students and teachers working in the building.

Statistics from Pancoast/Ferendino/Grafton concerning how the building dollar is spent indicate that 41.5 percent of the total amount is spent for the basic building structure including walls and partitions. Fifteen percent is spent for air-conditioning, nine percent for electrical installations, seven percent for site work, seven percent for floors, six and one-half percent for plumbing, five percent for roof and ceiling, three and one-half percent for equipment, one and one-half percent for painting, and four percent on miscellaneous.

Dr. William B. Field, Supervisor of Educational Facilities, Dade County Schools, had the following comments regarding the repeating of school plans. "Questions regarding the advisability of reusing plans are usually motivated by the desire for a final 'Yes' or 'No.' As is usually the case in these matters there is no "final" answer; however there are guidelines for decision-making.



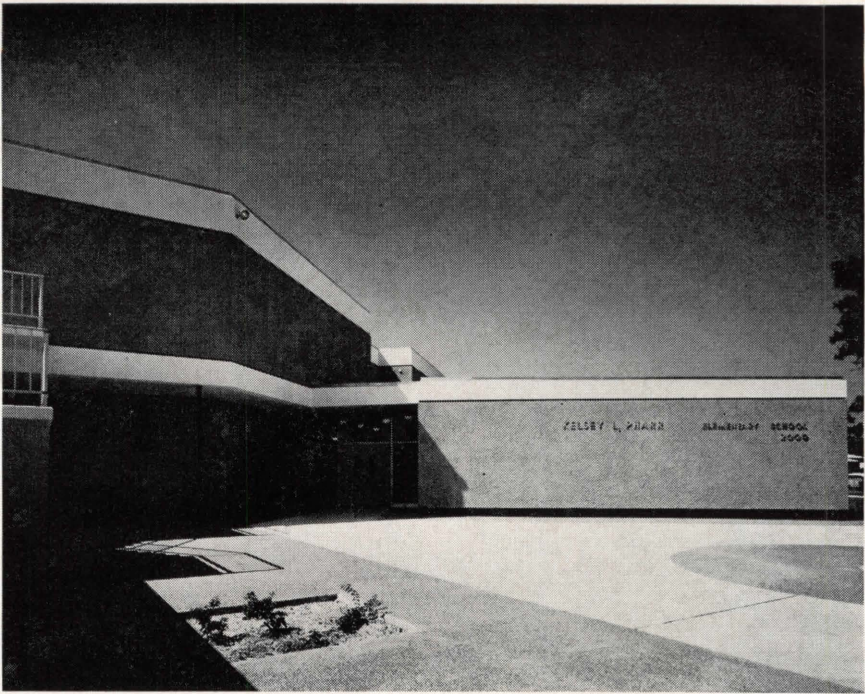
"If thoroughly adequate planning time and personnel have been available and the reuse of plans is for an educational program similar to the original school, and both are constructed in close time proximity, there are advantages to be gained. The number of detail errors can be materially reduced, the time lapse considerably shortened between decision to build and occupancy of the building, and architectural fees may be reduced. Basic design errors, of course, are retained. If adequate planning cannot be performed on the new building, it is obvious that the reuse of an adequately-planned building will have a better statistical chance of fulfilling its obligations."

"If there is a time lapse of as much as a year between the completion of a set of plans and the decision to reuse the plans, advances in school program requirements and advances in architectural research will have offset the advantages listed above. Chances are that beyond that time limit the decision to save architectural fees amounting to approximately 1 percent of the building cost must be weighed against the loss of educational opportunity to the entire student body over the life of the building. Too often, the decision is made on the basis of expediency rather than upon the basis of current educational requirements."

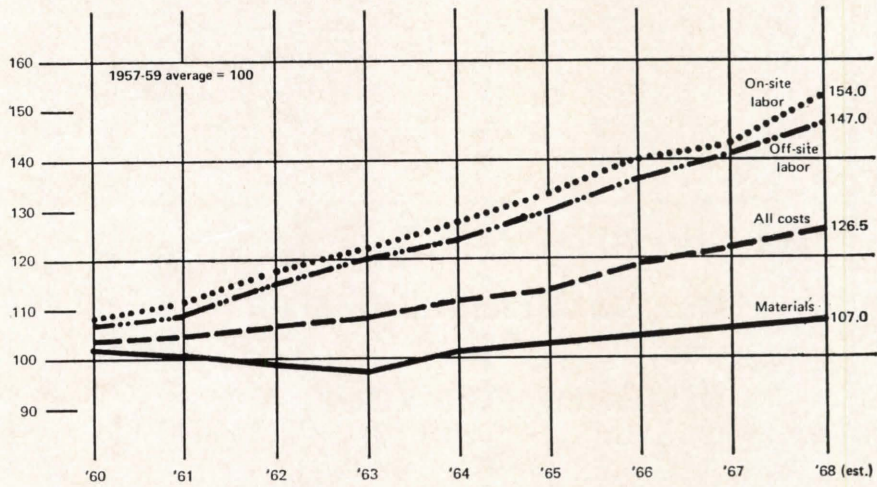
Commenting on the same topic, Mr. Ferendino reported that "as an architect, highly concerned and involved in the creative process, I tend naturally to reject expedient solutions which are often advanced in support to reuse or duplication of plans. When social needs, educational programs, and environmental requirements are similar for two proposed buildings, and when there is no significant time lapse between construction dates, the decision to reuse plans is a matter of common sense rather than an expediency."

"However, where different areas of the community call for different kinds of educational planning and/or architectural solutions, there is little justification for reuse of school plans."

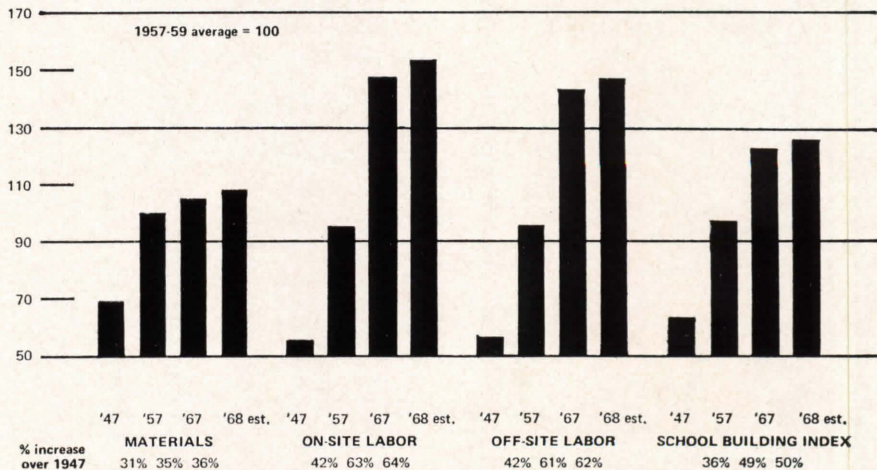
"Because construction methods, materials, and equipment improve and change as rapidly as educational requirements," he added, "you cannot pull a 3-year plan off the shelf and pretend to perform a service. Today's enlightened school planning must acknowledge this and recognize the different alternatives available in order to bring the finest educational facilities to all people."



**Effect of labor and materials on construction costs**

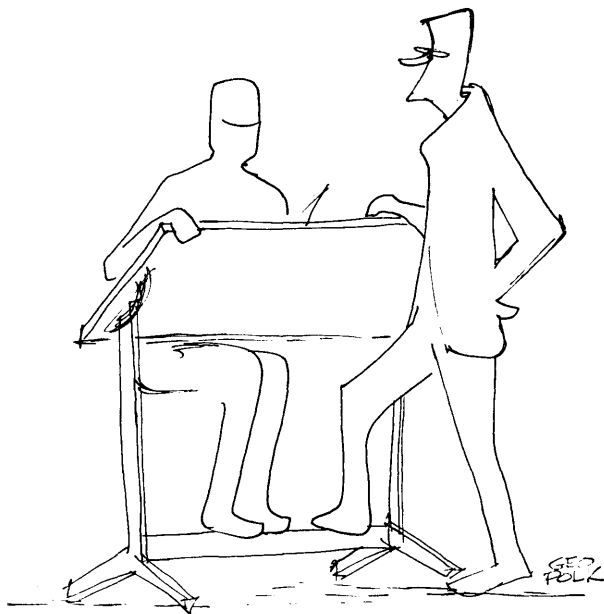


**Trend in public school building costs index**



The cost-of-building index is an analytical device developed for School Management magazine as a measurement for rising school costs. The years 1957-59 were taken as a base and assigned a value of 100.





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# Students

For the second straight year a University of Florida student has won a \$1,500 scholarship to spend the summer at Fontainebleau School of Fine Arts in Paris, France.

Greg Uzdevenes, a fourth year architectural student from Gulf Breeze, near Pensacola, won the scholarship on the basis of a design for a hypothetical educational center for Gainesville.

The scholarship program is sponsored annually by the Portland Cement Association for student architects in the United States and Canada. Last year's winner from the University was Charles Zieger of North Miami Beach.

Uzdevenes, one of eight winners in the international contest, will leave June 26 for a 10-week stay at the Fontainebleau.

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# AIA News Service

## Trends

The Washington watch to determine Nixon Administration stands and policies on housing, Model Cities, New Towns, real estate taxes, and urban transit continues. Bureaucrats say they don't know yet the future of Kennedy-Johnson policies or what Nixon substitutes will be. HUD Secretary George Romney said the Johnson's Administration goal of six million units for low and middle-income families in the next 10 years is "unrealistic." Later the former auto man altered his tune somewhat and said he wants housing pushed by attracting the giants of American industry. Nixon budget includes \$675 million for Model Cities and no money for new cities to enter program plus \$1 billion for urban renewal, \$100 million for rent supplements.

Transportation Secretary John Volpe has cheered rapid transit fans by stating he supports a separate trust fund for transit and realizes fares cannot support it. How much money Nixon can provide for transit is, however, questionable in view of inflation and Vietnam.

AIA backed Model Cities, Urban Renewal, Rent Supplements, and a trust fund for transit.

Housing Outlook Cloudy: March housing starts showed a decline as did building permits, the Census Bureau reported. Yearly adjusted rate is now running 1,539,000 units compared to January's rate of 1,878,000. And the decline will continue, says the National Association of Home Builders, because of higher costs of mortgages.

Meanwhile, construction costs continue to climb faster than general price increases.

Associated General Contractors president Carl M. Halvorsen warns of "runaway inflation." Average wage increase of 13.4 per cent was noted in 50 settlements so far this year, he said.

AGC backs use of unskilled workers for some construction jobs, arbitration of wage disputes in government jobs.

AIA Board of Directors at April meeting endorsed bill by Florida Sen. Edward J. Gurney (R. Fla.) which would prohibit product boycotts by unions. Introduction of new materials is vital to stabilizing house prices, says AIA.

HUD Undersecretary Floyd Hyde, former Fresno mayor, tells Georgia Tech students and architect Garland Reynolds, AIA—in Washington area for a look at Reston and Columbia—he supports Model Cities. But Nixon economists warn cost could run to \$27 billion just for first 150 cities that got planning money. Only nine cities so far have received money to start building.

## Man's Living Space

Protection of the ecology and a decent habitat for man continues to grow as bipartisan, multi-interest issue.

Conservative Daughters of The American Revolution strongly endorsed laws to obtain clean air and water, warned Americans are "endangering the balance of nature" in heedless urban growth. DAR resolution came at national convention in Washington, D.C., in April.

New Interior Secretary Walter J. Hickel when asked about Democrats on his Advisory Board said, "I don't care if they're asking for just blue sky; I'm ready to go after the money for them."

Nathaniel A. Owings, FAIA, and on the Hickel Advisory Board, said, "Politics don't matter when you're talking about environment, what we'll see and breathe for years to come." AIA Committee on Urban Design suggests new national policy on urbanization to halt haphazard growth.

## Lumber Prices

Alarming lumber price increases are under scrutiny by Congress, lumber industry, home builders, AIA, and others. Prices increased as much as 90 per cent in one year in some parts of the nation, witnesses told the Senate Banking Committee. Sen. John Sparkman (D. Ala.) has introduced National Timber Supply Act of 1968 which could give the National Forest Service up to \$300 million more a year to better manage the huge Federal timber holdings. Arthur W. Greeley, associate Forest Service chief, estimated better roads alone could save half the 10 billion board feet lost each year because of dying trees and lack of thinning.

## Convention Peek

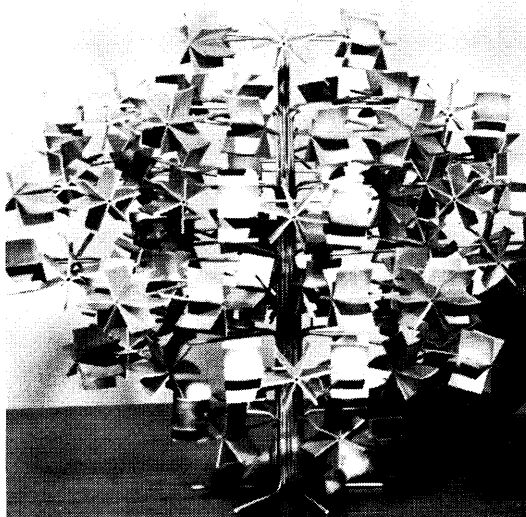
Watch for two unusual news breaks at the big 1969 AIA/RAIC Convention in Chicago, June 22-26. Students will discuss what's bugging them about AIA, the design of cities and buildings and other relevant issues Sunday, June 22 at a special "dialogue." Meeting will place top AIA officials and student leaders in a rare public exchange of views.

An intriguing look at the links between environment—including buildings—and disease will be given by Montreal's Dr. Hans Selye and Chicago's Dr. Bruno Bettelheim. Both are world experts in this field. Dr. Selye will be the Purves lecturer. Dr. Bettelheim will appear during Architect's Day at the Merchandize Mart Sunday, which draws many conventioners.



Miami-Dade Jr. College Library  
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10



It's a what? Why, it's a "sound-fountain" of course — intended to help ease one of man's environmental problems.

This free-form arrangement of water pipes, aluminum paddle-wheels and musically-tuned vibrator fins shown in the artist's conception above was designed by Ohio State University architectural student Gerald D. Runkle. Designed to mask out with splashing water and musical chimes the undesirable background noises that plague so many urban places, it won Mr. Runkle this year's \$5,000 Reynolds Aluminum Prize for Architectural Students. The 22-year-old collegian, who plans to do architectural work abroad for the Peace Corps after graduation this June, says his design can be made to any size and form, but he believes it would be especially suitable for small urban parks.