

**HD** *Challenge*

**LABOR LOOKS AT BREAKTHROUGH**  
**Views of Union Leaders**

**OPERATION BREAKTHROUGH**  
**The Scientific Approach**

**INDUSTRY HAS AN ANSWER**  
**Building: From Bedlam to Truck Bed**

**ADDITIONAL FEATURES AND SPECIAL DEPARTMENTS**

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# HUD Challenge

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

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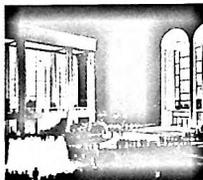
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## NEXT MONTH:

Legislation and Budget for improving the Nation's communities.

# looking ahead

## Defensible Public Housing

New York University is conducting an experiment designed to create a more homelike and safer environment in the city's public housing facilities. It is reported that about \$10 million of city and Federal funds will be spent over the next three years for the project. The project centers around the concept of "defensible space," the area inside or around buildings for which residents of any community feel responsible. Through design changes the experiment hopes to enlarge the perimeter of protective space beyond the usual boundary—the apartment door. In high rise buildings, for example, television monitoring equipment will permit residents to watch the lobby, elevator, or children playing below. In low-rise complexes, backyards will be sealed off and shared by eight to 12 families at minimal expense. Architect and planner Oscar Newman and psychologist Dr. George Rand developed the concept to be adapted to seven existing housing projects.

## Rehabilitating Homes and Prisoners

A move to rehabilitate both housing and people has been proposed by the District of Columbia Corrections Department. The plan would employ 40 to 50 inmates from the Lorton Reformatory who are skilled in building trades to renovate about 600 vacant and vandalized public housing units. Minority contractors will also be involved in the program coordinated with the National Capital Housing Authority and \$1.1 million in HUD public housing modernization funds. The inmates on the work-release program will be paid at union rates. If the project is successful, the number of people and projects will be increased.

## Wasting American Cities

American urban scientists are looking toward other nations for possible solutions to the problems of waste in American cities. At the annual meeting of the American Association for the Advancement of Science, they discussed the fact that American cities waste 96 percent of the water they use and 93 percent of their energy supply. While an American city generates a million tons of solid waste each year, it hasn't changed the method of collecting garbage for 50 years. In contrast, nations in Southeast Asia reuse waste materials, including human wastes, in pollution free cycles. And 10 years ago Swedish engineers developed a system now used to push garbage from houses to disposal points by vacuum pumps through a network of pipes.

## Open Space Proposal

A potentially far-reaching proposal for preserving prime agricultural land from urban development is being considered by the Town of Southampton, on the eastern tip of Long Island, N.Y., which contains 30,000 acres of rich farm land. The Town's master plan would permit a farmer to deed 80 percent of his land to a public trust. On the remaining 20 percent, as many clustered housing units could be erected as would have been permitted on the entire tract under present zoning regulations. It is believed that the developer would pay as much for the 20 percent as he would have for the entire farm. Meanwhile the farmer could continue to work his land and pay only a nominal rental fee. If the plan is approved, a 400-acre pilot project is anticipated for an area now zoned for one-acre residential use.

## Inner City Workshop for Architecture Students

A consortium of three Virginia universities is offering architecture students an innovative public service option in their fifth year of study. The inner city workshop in Portsmouth, Va., is designed to give students the opportunity to deal directly with people and their needs in blighted and deteriorating neighborhoods. The student architects are responsible for translating these needs into physical design relevant to the needs and views of the neighborhood's residents. It is hoped that this experience will help architects bridge the communications gap between agencies responsible for inner city construction and the citizens they serve. The pilot project involving 12 students is partially funded with a \$15,000 grant from HUD's Community Development Training Program; the State of Virginia is contributing an additional \$20,000.

## College Campus on Renewal Land

The Hillsborough Community College in Tampa, Fla., plans to construct a 30-acre campus on several parcels of cleared renewal land, which are intermingled with existing neighborhood structures in the Ybor City Renewal Project area. The idea is to "weave" the college campus into the Model Cities community with the least possible disruption to the neighborhood.

## Census Bureau Director Predicts

"It is likely that we will need about two million new dwelling units per year....Since we are heading into an era of newlyweds, much of the demand will be for private homes rather than apartments." **George H. Brown**

# LABOR LOOKS AT BREAKTHROUGH AND SPEAKS ITS MIND!

Operation BREAKTHROUGH was announced by HUD Secretary George Romney in May, 1969, as a program of wide scope aimed at improving the entire process of supplying quality housing in decent living environments for all Americans.

It aims not merely at hardware technology nor at housing for low-income families alone, but at many major objectives. Among these are:

- Supplementing our housing production to assure an ample supply for all people in the years ahead
- Modernizing zoning regulations to develop improved land arrangements that will yield sufficient living space for good environments
- Bringing into the housing business the full range of experts, including the best architects, planners, suppliers, engineers, industrial producers, financial institutions, property managers, builders, and developers
- Encouraging new techniques and materials
- Encouraging the development of programs on the State level that can use approaches developed in the national program
- Encouraging State and local activity that will provide for everyone to obtain housing where they want it, and the opportunity to live in an environment so satisfying that it encourages a sense of responsibility and satisfaction
- Expanding and seeking innovative financing methods, and recognizing that basic reforms may be needed in monetary and regulatory laws.

The success of Operation BREAKTHROUGH requires the active cooperation of private industry, consumer groups, sponsors and developers of housing, and government at all levels. One of the most important areas involved, one that will require great cooperation, is that of encouraging production and operating arrangements with our labor organizations in order to make more effective use of our full labor capacity at all skill levels and to overcome the existing, and worsening, shortage of skilled labor. Already significant is the constructive approach adopted by labor.

In 1969, for the first time, national unions representing carpenters, electricians, plumbers, and laborers signed contracts with a number of housing systems producers. These contracts cover both the off-site production facilities and the installation of the housing units at the building sites. There is every indication that organized

labor views a movement toward volume-produced housing as an inevitable consequence of the intensity of the housing crisis, and is prepared to move with it.

Some indication of the cooperation already being extended by labor is indicated in the following statements from President C.J. Haggerty of the Building and Construction Trades Department, AFL-CIO, and from the international presidents of the five unions involved, the Electricians, Plumbers, Carpenters, Laborers, and the Operating Engineers, prepared especially for this issue of *HUD Challenge*.

**T**he building and construction trades are prepared to build any type of building that the mind of man can devise and design.

We are bringing in illiterate and unskilled new men in significant numbers in some 60 areas of the United States and training them to use their brains and bodies. In fact, approximately 80 percent of all apprentices now in training are members of the building trades.

If the building and construction trades are not doing enough, which, I concede, is probable in view of the vast need, it is merely because we do not know what is enough and the Government doesn't know what is enough. No one really knows.

Just as soon as programs are developed, the Building and Construction Trades Department, AFL-CIO, its 17 affiliated national and international unions, and its 3.5 million members are prepared to do the job and anxious to do the job.

It goes without saying that the Building and Construction Trades Department is for a meaningful "breakthrough" in the area of our prime interest, which also happens to be the major interest of the vast majority of the citizens of the United States.

Striving to build a better America is the foundation of the Department, the guiding light of its dedication. We want a BREAKTHROUGH!



C. J. Haggerty  
President  
Building Construction and  
Trades Department, AFL-CIO

The United Brotherhood of Carpenters and Joiners, the International Brotherhood of Electrical Workers, and the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada wholeheartedly support the Government's effort to meet the goal of a "decent home and suitable environment for every American family," promised by Congress in 1949.

Operation BREAKTHROUGH has a great potential for mobilizing Government and private initiative to resolve some of the production problems that stand in the way of meeting our urgent housing needs.

Because of our concern about the necessity for decent shelter for all our citizens, we have joined together to form the Tri-Trades Organizing Committee. Under this agreement, houses will be built in complete sections at the factory by members of our three unions. The houses will carry the Tri-Trades union label which will be recognized and accepted in every municipality in the United States and Canada.

When the first Tri-Trades agreement was signed in 1969, President Nixon applauded the approach as an important breakthrough to meet the country's housing crisis. Since then a number of other Tri-Trades agreements have been concluded.

However, all of us recognize that the housing industry cannot long continue to build houses unless there is an adequate market for them. Today all but a small fraction of our citizens are priced out of the housing market. Skyrocketing land prices and finance charges have all but killed the homebuilding industry.

Therefore we call upon the Government and the appropriate private sectors to bring the same bold social engineering to bear on solving these problems that they are exercising in the production field.

Unless the market for houses is expanded, economies of mass production cannot be put into effect, and advances in technology will be of no avail.

*M. A. Hutcheson*

M. A. Hutcheson  
General President

The United Brotherhood of Carpenters  
and Joiners of America

*Charles H. Pillard*

Charles H. Pillard  
International President

International Brotherhood of  
Electrical Workers

*Peter T. Schoemann*

Peter T. Schoemann  
General President

United Association of Journeymen and  
Apprentices of the Plumbing and Pipe  
Fitting Industry of the United States  
and Canada



C. J. Haggerty



M. A. Hutcheson



Charles H. Pillard



Peter T. Schoemann



Peter Fosco

The Laborers' International Union took a giant stride in organizing the prefabricated housing industry July 17, 1970, when General President Peter Fosco signed national agreements with six firms which are introducing European systems of factory-built pre-cast concrete housing to the United States and Canada.

In a ceremony and news conference at HUD offices in Washington, D.C., contracts covering all in-plant work were signed with:

- Ecology Development Corp. and American System Building, Inc., of Washington, D.C., and Florida System Building/Coignet, Inc., of Dade County, Fla., licensees for the Coignet (French) System.
- Jespersen-Kay Systems, Ltd., of Toronto, Canada, and Jespersen-Kay Systems, Inc., of Dade County, Fla., licensees for the Jespersen (Danish) System.
- Balco Building Systems, a division of M. A. Lombard & Son Co. of Alsip, Ill., licensee for the Balco (German) System.

According to *The Laborer Magazine*, the agreements represent another major breakthrough in the union's drive to open up employment opportunities for the membership in this growing field while at the same time helping to increase the supply of low-cost housing.

**T**he Laborers' International Union of North America stands 100 percent behind the Government's efforts to encourage the development of new methods of industrialized homebuilding and promote their use. We see the emergence of factory-built housing as a necessary means toward catching up with the Nation's accelerating housing demands.

Our country faces a housing crisis of the first order. Not only is there a shortage of adequate homes today, but it is estimated that an average of 2.6 million units will have to be built each year over the next decade if we are to provide enough decent, moderate priced housing for Americans in the years ahead.

Conventional construction methods must be supplemented if we are to build homes quickly enough and cheaply enough. It is time that we followed the lead of a number of other countries which have successfully dealt with housing shortages by applying mass production techniques to home building.

My organization became deeply involved in this area in representing our members both as workers and as citizens. Between 35 and 40 percent of our membership belong to various minority groups; these are the people who suffer the most from the shortage of adequate low and moderate priced housing, as well as from underemployment. By supporting industrialized housing, we can help open up new employment opportunities for our members and provide housing they can afford at the same time.

Toward this end, the Laborers' International Union and its affiliates, has committed \$10 million in pension monies to the AFL-CIO's Mortgage Investment Trust Fund, which uses these funds to promote home construction. And our organization has negotiated a number of national agreements with companies involved in the manufacture of prefabricated components for home building and firms engaged in complete factory systems building.

Through these efforts, we feel the interest of our members and all Americans is well served.

Peter Fosco  
General President  
Laborers' International Union  
of North America

**T**he value of Operation BREAKTHROUGH is not to be measured by "breakthroughs" in methods or techniques of building, but rather by the opportunity to rally all of the divergent forces in the construction industry to the cause of better construction at less cost. Except for modest modifications of basic concepts, all of the construction "know-how" involved in system building has been common knowledge in the industry ever since Grosvenor Atterbury did his remarkable work with concrete in the New York City area from 1910 to 1928.

The significance of Operation BREAKTHROUGH is that a series of modest pilot projects have successfully pulled together the owner, the financier, the architect, the local regulatory agencies, local real estate interests, contractors and construction unions into a rational approach to providing quality dwellings at less cost than they could be built using conventional methods.

The cost savings fall into three general areas—cost of materials, cost of labor, and cost of construction money. Reduction in cost of materials is realized because of the increased efficiency in transforming raw materials into usable components on a volume basis. Labor

costs are reduced because of the mass production of components in a "factory" setting and because of the reduction of hours required on site to assemble these components. Reduction in the cost of money occurs because of the decreased length of the construction loan by virtue of the early completion and occupancy.

These cost savings have one major impact on the Labor Movement. Everyone who pays rent or pays off a mortgage appreciates the social significance of more housing for less money. Every union breadwinner is buying or renting shelter, so quite simply, the trade unions recognize the significance of lower housing costs for themselves and for everyone else.

I feel that other effects of the building systems that are encompassed in Operation BREAKTHROUGH are of less importance than many people would have us believe. Among these benefits suggested is the delivery of large volumes of housing, and the country needs all kinds of housing. Our problem is aggregating a specific market for the specific product demonstrated in Operation BREAKTHROUGH. If a viable system emerges for guaranteeing a market for the increased housing units we expect from the successors to Operation BREAKTHROUGH, then the major impediment to large volume housing will be removed. This would be a huge step in the right direction, but is a change in financial arrangement, community planning and individual attitudes rather than any change in construction techniques.

Other more provincial areas of promise to the construction unions are the possibility of year around work; the opportunity for supervisory positions at the factory and on the site and, speaking for the Operating Engineers Union; the expanded work opportunities for hoisting engineers in the assembly of modules and large prefabricated sections.

The success or failure of Operation BREAKTHROUGH will not be measured in new hardware or modular components, but in the ability of its sponsors and participants to give future direction to an industry that is today too fragmented, too decentralized, and too undercapitalized to meet the challenge for 26 million housing units during the 1970's. If we overcome our industry's many problems and put the goal of decent housing within the reach of all Americans, then—and only then—will Operation BREAKTHROUGH be a success.



Hunter P. Wharton  
General President  
International Union of Operating  
Engineers, AFL-CIO

**W**hile Operation BREAKTHROUGH has not yet made any significant dent in meeting the Nation's mounting housing needs, I still believe its potential for rapidly turning out good houses at reasonable prices remains great.

I am sure that once it hits its stride, this innovative concept will bring significant results. Standing in the way of the dramatic breakthrough which still is lying dormant in the program are such factors as exorbitant land costs, sky high interest rates, and many obsolete building codes.



Hunter P. Wharton

The International Brotherhood of Electrical Workers, joined by the United Brotherhood of Carpenters and Joiners of America and the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada, signed an agreement under which houses will be built in complete sections at a factory by members of the unions involved and be erected on the job site by all union labor, it was reported in the *Electrical Workers' Journal*, January, 1970.

Prestige Structures, Inc. of Charlotte, Mich., the employer, signed the agreement, which will apply to any additional production plants opened by Prestige in the United States or Canada. A Tri-Trades union label will be used on the homes and their components.

The Journal stated that this action is aimed at reducing the terrific shortage of decent housing for those persons in the middle-income bracket. These prefabricated homes, "modular" houses, are expected to sell in the \$16,000 range.

Signatories of the agreement for the unions were Charles H. Pillard, International President, IBEW; M.A. Hutcherson, General President, Carpenters; and Peter T. Schoemann, General President, United Association, and for the employer, Alan Ginsburg, President, Prestige Structures, Inc. Attending the press conference at the AFL-CIO Headquarters in Washington, where the signing took place, were HUD Secretary Romney, Under Secretary of Labor William Usery (a member of the Machinists Union) and other representatives of Labor and Government.

In a significant move to increase the supply of low-cost housing and to provide more employment opportunities for the membership, General President Peter Fosco of the Laborers' International Union of North America signed a national agreement with two manufacturers of prefabricated housing last March.

The agreement was signed with Leonard Perlmutter, President of Prestressed Concrete of Colorado, with plants in Denver and Pueblo, Colo. Mr. Perlmutter also represented the other employer, Mr. Jacob Whitlock, President of Midwest Prestressed Concrete, with plants in Springfield and Rochelle, Ill.

The historic signing took place in the offices of HUD Secretary George Romney, who has strongly urged labor and management to promote new techniques in housing construction so the Nation may solve its mounting housing crisis.

Labor Secretary George Shultz also attended. Both Cabinet officers praised the national agreement and paid high tribute to the LIU as a progressive organization.

As reported in *The Laborer Magazine*, April 1970, General President Fosco led an LIU delegation to the signing including General Secretary-Treasurer Terence J. O'Sullivan, Vice-President W. Vernie Reed, Vice-President Robert E. Powell, General Counsel Robert J. Connerton, Industrial Division Director Thurmon L. Radford, and Phil Kniss, President of the Colorado Laborers' District Council and Business Manager of Laborers' Local Union 720, Denver, Colo.

Secretary Romney said HUD was pleased with the national agreement and called it an important step in the drive to provide more volume-produced prefabricated housing. Housing officials have estimated the United States must build 26 million new housing units in the next 10 years to keep pace with the demand.

Both Secretaries Romney and Schultz paid tribute to the LIU for its extensive efforts over the years to promote training and education programs and job opportunities for its membership, many of whom are members of minority groups.

The utilization of industrial approaches requires two basic factors—large volume and substandardized product. Up to this point in time, large volume housing has taken place primarily in suburban areas rather than the urban areas. This has stemmed primarily from market place considerations; suburbia is where the demand has been, where the land has been, and where the lending institutions made money more readily available.

So utilization of industrial approaches has been spotty. Some utilization of component parts, precuts, panelization, sectional units, and modular units by large tract developments has relied on the assembly line approach to capitalize on all of the economies involved in the prefab plant.

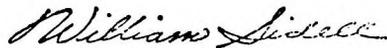
I sometimes wonder whether or not the industrial approaches to housing, when carried to the degree necessary to capitalize on the full economies, will be able to produce a standardized product which will stand the test of consumer acceptance.

The hope is that the current overall concept will put a desirable product mix on the site, together with a total community concept embodying various modern conveniences and facilities, and thus contribute a great deal to ultimate consumer acceptance of a standardized housing product.

The Brotherhood of Carpenters stands ready to meet our responsibility to our industry and to the society in which we live. It is on this basis that shortly after World War II we took what I believe was a realistic position when we determined that industrial approaches were inevitable for the construction industry, particularly in the housing field. So we decided not to fight their advancement, but rather to get involved and make our contribution to this industry. Since that time, we have been involved to the extent that we have hundreds of agreements in effect in component parts, precut, prefab, and modular housing plants all over this country and Canada.

The one thing which remains unchallenged in the entire housing picture is the ability of the construction industry to meet whatever demands for new housing the 1970's place on it.

The construction industry has the necessary know-how and imagination. The construction unions have the manpower and skills. All that remains is to somehow eliminate the drags on construction represented by unconscionable interest rates, soaring land costs, and other constraints which would be deterrents to either convention or industrial type housing construction.



William Sidell  
First General Vice President  
United Brotherhood of Carpenters  
and Joiners of America

America today is faced with a very serious housing shortage. The situation is very critical and if not remedied within a short period of time will mean that millions of families must continue to live in sordid unhealthy surroundings, which breed crime and welfare problems. At the present time, low-income workers cannot find decent or adequate places to live; also young married couples subjected to financing problems cannot afford to buy homes. American housing problems are many and are dragging the citizens of this country on a downward trend of living conditions.

The housing problem comes down to the questions, how can an adequate supply of new and decent housing be built for families with

low- or moderate-incomes, and how can the amount of housing be built to meet the population growth demands? Unless this question is answered in the very near future, bad living conditions will continue and the speculative residential building industry, now in an economic lull, will not be able to help overcome the extreme shortage of housing that exists today and the need will increase rapidly during the next decade.

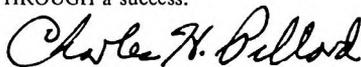
It has been proven that private enterprise cannot do the job of overcoming the housing shortage alone, neither can the local governments or even the Federal Government take on the tremendous task as separate entities and be successful in solving the problem. There must be definite long-term programs that will provide decent housing to those who cannot secure it through ordinary private channels. Financial, construction and management methods, new materials, new technology have to be considered.

The International Brotherhood of Electrical Workers (IBEW), AFL-CIO, in reviewing Operation BREAKTHROUGH, sees the great potential that this demonstration program has to bring new and better concepts, along with more production and employment opportunities to the residential construction industry.

The IBEW, realizing that BREAKTHROUGH cannot solve all the Nation's housing shortage problems, does believe that the program will bring the private sector, Government, and organized labor into a closer relationship on developing systems that will lead to opportunities for stimulated interest in the markets for volume production of housing.

The IBEW will continue to support the programs that will give Federal planning and financial assistance for economical improvements in housing and living conditions for the citizens of this country.

A nation can have no greater asset than a good home for every family. Give a family a good house and you have taken a first step in lifting them to a higher level. The IBEW will certainly do what it can to make Operation BREAKTHROUGH a success.



Charles H. Pillard  
International President  
International Brotherhood of Electrical Workers

**F**or more than a generation, adequate housing has been America's greatest unmet need. As a result, millions of families have been deprived of the type of housing needed to sustain a proper home life.

It is obvious that we must find ways to provide enough adequate housing or there will be a serious deterioration in the American way of life. This grim alternative is not acceptable to any of us.

Therefore, the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada believes that efforts to vastly expand the Nation's homebuilding capabilities should be given the highest priority.

"Operation BREAKTHROUGH" of the Department of Housing and Urban Development is a resourceful and imaginative attack on one aspect of the problem that has caused our massive housing deficit. The United Association hails the research and development efforts of Breakthrough and its goal to increase the output of housing units in the United States.



William Sidell

A joint news release by the United Brotherhood of Carpenters and Joiners of America and Stirling Homex Corporation hailed the signing of a national labor agreement last June for the erection of manufactured housing.

The release stated that the mass production and erection of manufactured housing on a broad national scale moved into high gear with the signing of the history-making agreement between the Nation's largest building trades union, and the country's leading producer of "Instand Housing" units.

The national labor agreement between the UB of CJ and Stirling Homex was announced jointly by Maurice Hutcheson, General President of the United Brotherhood of Carpenters and Joiners of America, the 900,000 AFL-CIO organization, and David Stirling President of Stirling Homex Corporation of Avon, N.Y. It covers building construction operations already underway in several major locations in the United States and makes possible the rapid extension to thousands of other locations."

The contract provides that the union will furnish competent journeymen within its jurisdiction during the course of erection and completion of what has become known as "Instant Housing" projects whenever needed and on a nondiscriminatory basis to erect Stirling Homex housing modules anywhere in the country. Stirling Homex also agreed to recognize the jurisdiction of the union and will not subcontract work within the union's jurisdiction which is to be performed at the job site except to a contractor who holds an agreement with the union.

The United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada, AFL-CIO, and American Standard, Inc., on Feb. 2, 1970, signed an unprecedented agreement, representing a dramatic move to increase the volume of available housing.

The joint release of the United Association and American Standard stated that in the agreement with American Standards, Inc., one of the largest manufacturers of plumbing fixtures and fittings in the nation, the United Association for the first time gave its approval for plumbing fabrication in a factory using the labor skills of UA members.

The agreement was signed in the office of HUD Secretary George Romney, with General President Peter T. Schoemann signing for the union and W.R. Perry, General Manager, Mechanical Systems Department, signing for the company.

UA members will both fabricate and assemble a prefabricated plumbing system developed by American Standard. The current system is called "The Component Plumbing System" and includes the piping, fixtures, and fittings for bathrooms and/or kitchens as used in modern American homes. Except in certain exceptional situations, the system will be distributed through American Standard's normal channels of distribution.

Late in 1969, the United Association joined with the United Brotherhood of Carpenters and Joiners of America, AFL-CIO, and the International Brotherhood of Electrical Workers, AFL-CIO, in an agreement with Prestige Structures, Inc., for the factory fabrication of modular homes—an agreement that also was hailed by Secretary Romney.

Everyone realizes, however, that there is no simple cure-all for our national housing shortage. The ills of the industry are very complicated and the cure must attack all the causes—not merely treat a few obvious symptoms.

The Nation has the ability to produce houses. But factors that have nothing to do with production have contributed to pricing houses out of the reach of the people who need them most.

In the past five years, the median selling price of a new home rose by 50 percent, more than double the rate of increase in the cost of living and nearly twice as much as the rate of growth of average weekly pay.

In 1965, the median price of a new home covered by a conventional mortgage was \$22,700. In 1970, it had risen to \$33,700.

By contrast, the gross weekly earnings for a worker with three dependents averaged \$121.07 in November 1970.

The emphasis, therefore, must be put on providing a market for housing so that the economies of mass production can be brought into play.

Although the cost of labor has risen along with every other factor that goes into the price of a house, the actual percentage of labor costs has declined. Figures published by the National Association of Home Builders show that on-site labor costs were cut by almost 50 percent between 1949 and 1969—going from 33 percent of the price of a home to 18 percent. Therefore, advances in production will not have a significant impact on reducing the price of houses.

We must find ways to make a similar reduction in the cost of other factors that have pushed up housing prices. We must find ways to lower interest charges and to either reduce the cost of land or make our land use more efficient.

The housing shortage is an enormous problem with serious social costs. But the United Association has every confidence that this shortage can be solved if we apply the necessary determination and concern.

"Operation BREAKTHROUGH" is a beginning. We call upon all segments of our society to participate in the needed effort to redeem the promise of making decent houses available for all our citizens. We pledge our commitment and expertise in working to achieve this goal.

☪



Peter T. Schoemann  
General President  
United Association of Journeymen and  
Apprentices of the Plumbing and Pipe  
Fitting Industry of the United States  
and Canada

# editor's notebook

The second stage of the functional alignment of HUD began March 1; all community development assistance functions were grouped under one Assistant Secretary and all community planning and management functions under another. Assistant Secretary Hyde now heads Community Development, which includes Urban Renewal, Model Cities, Water and Sewer, Rehabilitation Loans, Neighborhood Facilities, and Public Facility loans. Assistant Secretary Jackson, while continuing as General Assistant Secretary, heads Community Planning and Management, which includes Comprehensive Planning, Workable Program, Community Renewal, New Communities.

FNMA has completed a record year in which it issued commitments to purchase over \$8 billion in FHA and VA residential mortgage loans. This provided financing for almost 500,000 housing units during the year, of which over 200,000 units were for low- and moderate-income families.

The Minneapolis, Minn., LPA reports tax revenues from its 20-block downtown Gateway Center Renewal Project have hit the \$2.5 million a year mark, an increase of 350% over the total annual taxes produced by the area in 1958 when redevelopment started. At that time the rundown project area was producing only \$554,199 in annual tax revenues. Another big increase in tax revenues will occur in the project area this year as work progresses on a \$38 million bank building now under construction. Eventually, the LPA expects the annual tax revenue increase in the Gateway area to exceed 850%.

Operation BREAKTHROUGH officials have awarded contracts for the detailed design of total energy plant and pneumatic solid waste collection systems. HUD's Environmental Factors and Public Utilities Division, in cooperation with the National Bureau of Standards and the Environmental Protection Agency, will use the Jersey City and Memphis BREAKTHROUGH sites to test various applications of the new systems. Designed to replace the multiple energy systems in use today, the total energy method will utilize waste heat from its electrical generating equipment to provide potable, hot water; heating and cooling; in addition to the regular electrical requirements. The pneumatic solid waste system will use a vacuum system to suck all garbage from regular gravity chutes to a central compaction point. These new developments are in keeping with BREAKTHROUGH's determination to advance housing-related technology as well as actual housing production.

A number of housing authorities have organized tenants to provide mutual security on a volunteer basis. For example, between 1,000 and 1,500 tenants are serving on security patrols in New York City housing projects. In Omaha, Nebr., tenants have formed a block mutual protection association to keep a helpful eye on their neighbors' homes and to report any suspicious activities to the local authorities.

Through mid-1970 cities or towns under 50,000 population accounted for 35% of public housing units, 52% of urban renewal projects, and 83% of water and sewer projects.

It is a misconception that all the housing built under the programs of HUD is for poor, black families. Seventy-seven percent of these units are occupied by families in the \$5,000 - \$10,000 annual income range, 89% of these are white and 83% are in service trades or professions.

Peter Hills Monroe has been appointed a Special Assistant to HUD Under Secretary Richard C. Van Dusen. A native of Grosse Pointe Farms, Mich., Mr. Monroe attended Williams College, Exeter College of Oxford University in England, and Harvard Law School.

Theodore R. Britton, Jr., President of the American Baptist Management Corp. of New York, N.Y., was appointed HUD Deputy Assistant Secretary for Research and Technology.

Willis R. Goldbeck, formerly a correspondent for *Time* magazine, has been named a Special Assistant to Harold B. Finger, HUD Assistant Secretary for Research and Technology.

HUD Secretary George Romney announced the appointment of George J. Vavoulis, Minnesota State Commissioner of Manpower Services and former Mayor of St. Paul, Minn., as Administrator of HUD's Chicago Regional Office.

Warren P. Phelan, Administrator of the Philadelphia Regional Office, has been awarded the Pennsylvania Association of Housing and Redevelopment Authorities' Distinguished Service Award for 1970, a Man of the Year Award from the Human Rights Commission of the City of Philadelphia, and a citation from the Philadelphia Commission on Human Relations for efforts at bettering the lives of fellow citizens.

# OPERATION BREAKTHROUGH

## The Scientific Approach

by Harold B. Finger/Assistant Secretary for Research and Technology



*Harold B. Finger, is HUD's first Assistant Secretary for Research and Technology. Mr. Finger is responsible for all of the Department's research activities, including Operation BREAKTHROUGH. He came to the Department from the National Aeronautics and Space Administration where he had served as Associate Administrator for Organization and Management. Prior to his appointment as Associate Administrator for Organization and Management, Mr. Finger served for seven years as Manager of the Space Nuclear Propulsion Office, a joint NASA/Atomic Energy Commission organization to develop and test nuclear propulsion systems for space rockets.*

If we are to talk of using a scientific approach to solve the urgent problems of the housing shortage, we must first understand what makes up that approach. We must first define our terms.

The scientific method consists of a systematic process of research in which a problem is identified, relevant data and analysis results are collected, a theory or hypothesis is formulated from all the data, and the hypothesis undergoes actual testing to determine its validity.

Research, vital to the entire method, is a systematic investigation of a subject in order to discover or revise facts, theories, hypotheses, or applications. When combined with development into "research and development," more commonly known as "R & D," it includes carrying the work to initial prototype applications; creating models to discover whether problems will occur in final, full scale operating systems; and providing solutions in advance of volume production.

In short, having collected all possible data, completed all the analysis, and combined all the known elements with the best thinking, a new or improved idea evolves, and is tested as fully as possible under actual conditions.

### Guiding BREAKTHROUGH

This scientific method is indeed the approach that has been used in Operation BREAKTHROUGH, HUD's program to show the way to adequate housing, in good living environments for all Americans.

This scientific approach has guided and is guiding Operation BREAKTHROUGH through its first two phases which include the overall housing systems design, development of the prototype (sample) houses in prototype (model) residential communities, and the third phase which is aimed at putting the successfully demonstrated approaches into full scale applications toward the attainment of the housing goals.

In the BREAKTHROUGH program the scientific approach has been used since Secretary George Romney



Groundbreakings for Operation BREAKTHROUGH prototype housing have taken place throughout the country. In Kalamazoo, Mich., four shovel fulls of dirt were turned by (from left to right) Francis P. Hamilton, Mayor of Kalamazoo; Michigan Governor William B. Milliken; HUD Secretary George Romney; and Bert L. Smokler, President, Bert L. Smokler Co., joint Site Developer with The National Corporation for Housing Partnerships.

first described the concept of Operation BREAKTHROUGH in May, 1969. It has included analyzing the housing problem and defining basic causes, theories, and hypotheses for the inadequacies in the housing system. It has been simultaneously developing a research, experimental approach on a scale large enough to demonstrate what can be done under altered (i.e., improved) conditions, and at the same time developing a network of State and local governmental organizations, combined with industry, labor, and community groups, to disseminate the information and results in such a way that the improved processes can be quickly applied everywhere in the Nation.

That is the normal approach that has been used successfully in past programs of Government research and development for its own use—(typically, in the defense program and in the space program). And that is the approach we think will also succeed in Operation BREAKTHROUGH, which is aimed at providing benefits to all Americans through encouragement of improved methods in the housing business, that is, in the private sector.

But Operation BREAKTHROUGH also includes technology under the broad definition of technology as “the sum of the ways in which any social group can provide itself with the material objects of their civilization.” In this sense, technology is not the material goods, but refers to the methods for providing those material benefits to our society.

All of these definitions apply to Operation BREAKTHROUGH and have led to the broad scope of the program. The idea that Operation BREAKTHROUGH is

only a program to develop new hardware technology, or solely to provide housing for the poor, or only a program to develop factory production methods, is a greatly oversimplified notion and fails to comprehend all the numerous, vital activities and objectives of the program, and their interrelationship and interdependency.

Nor is this oversimplification confined only to the shorthand of even sophisticated publications. It occurs even in the shorthand used by HUD itself.

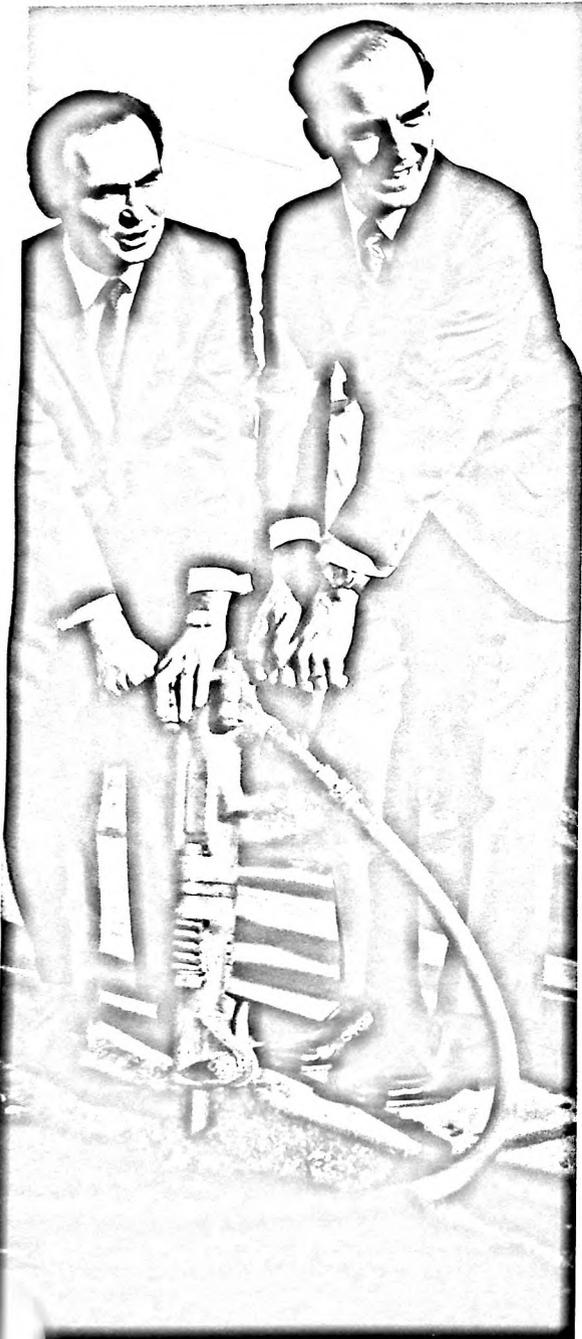
### Generating Change

Operation BREAKTHROUGH is actually aimed at generating a process of change, improvement, and modernization of the entire business of housing, for the benefit of all the Nation's people. Indeed, the very existence of the program encourages, spurs, even goads all elements of the housing business to seek improvement and advanced thinking.

It is aimed at speeding the changes needed in every element that affects housing, so that we can be more confident that we will be able to provide 26 million additional housing units in this decade. That works out to about one house every 10 seconds—a surprising statistic but certainly within the realm of our national capability.

In our analysis and the earliest descriptions of Operation BREAKTHROUGH, we emphasized that improvements were needed in:

- providing competitive opportunities for alternative building materials,
- reducing the thousands of building code variations nationally,



- increasing housing productivity,
- overcoming unreasonable zoning restrictions on land use and housing diversity,
- using the full labor force more effectively,
- improving labor practices,
- eliminating arbitrary industrial preferences written into building codes,
- improving government programs and procedures that were designed for traditional building,
- changing consumer attitudes about factory-produced housing,
- encouraging opportunities for a good living environment for all people,
- developing testing methods to assure high quality of housing,
- encouraging development of a state capacity for housing concerns within its jurisdiction,
- bringing more highly capitalized organizations into housing,
- improving overall management methods,
- generating acceptance by financial institutions of change in the entire field of housing production,
- and still others.

These are all important elements of BREAKTHROUGH and any simplistic effort to describe it as any one of those elements, or even a few, is a failure to understand the magnitude and scope of the program.

#### Coordination and Cooperation

Even I oversimplify when I describe Operation BREAKTHROUGH as "an effort to improve the entire process of housing—including the methods by which we produce and provide that housing to all our people." But I always add that accomplishing that goal requires improvement in production, materials, performance criteria, design, land use, site planning, marketing, financing, community attitude, and overall management.

The broad goal of change that is required in the housing process cannot be accomplished without the full collaboration, the wholehearted cooperation of all levels of Government, industry, labor, and community groups. The process must include, from the very start, the designers, architects, land planners, material suppliers, builders, production people, engineers, financiers, mortgage people, lawyers, marketers, and management experts.

We think we have succeeded so far. Operation BREAKTHROUGH is currently in the construction phase of approximately 2,900 prototype housing units in model residential communities across the country. As we move into initial volume production, we are cautiously confident in the results of the scientific approach coupled with the dedication of all those who have worked on the program. They will bring us a long way toward providing that "decent home in a good environment for all of our people." ☪

Harold B. Finger, HUD Assistant Secretary for Research and Technology, and Washington Governor Daniel J. Evans break ground for the Seattle Operation BREAKTHROUGH site. The Seattle site is divided into two sections, one downtown and the other in King County.

# CONTROL ROOM



The masses of information used in connection with Operation BREAKTHROUGH activities are coordinated in a systematic, efficient management technique known as "project" or "systems management" in Operation BREAKTHROUGH's Program Control Room. The rapid collection and dissemination of information at this centralized location helps program people working on parallel activities to keep abreast of developments in their own field and in related activities.

The Program Control Room is a dynamic center where visual displays show vital statistics and trends necessary in the decision-making processes. Current program costs, schedules, performance, and other information are used by various levels of management to help identify current project status, potential problems, and future planning goals.

Key personnel from both HUD Washington and field offices as well as participating contractors hold frequent status review meetings in the room to discuss project problems, progress, and required decisions, and to identify appropriate courses of action.

The Control Room facilities also serve as a major information source for people who are new to the program or recently moved into different stages of program activity.

It serves as a rapid, concise vehicle for helping to understand the present and plot the future for Operation BREAKTHROUGH. □

**1****INDIANAPOLIS, IND.**

42.9 acres, part of former State Mental Health Farm

TYPE: 310 UNITS\*

SFA  
SFD  
MFLR  
MFMR

**SITE DEVELOPER:**

Urban Systems Development Corporation of Arlington, Va., and College Park Corporation of Indiana

**SITE PLANNER:**

Skidmore, Owings, and Merrill of Washington, D.C.

**2****JERSEY CITY, N.J.**

6.35 acres at the intersection of Newark Avenue and John F. Kennedy Blvd., one block from Journal Square

TYPES: 530 UNITS\*

MFLR  
MFHR

**SITE DEVELOPER:**

Volt Information Sciences, Inc. of New York, N.Y.

**SITE PLANNER:**

David A. Crane—Architects, Planners 1316 Arch St., Philadelphia, Pa.

**3****KALAMAZOO, MICH.**

33.8 acres on a plateau overlooking a lake in Spring Valley Park

TYPE: 225 UNITS\*

SFA  
SFD  
MFLR

**SITE DEVELOPER:**

Bert L. Smokler & Company of Southfield, Mich., and National Corporation for Housing Partnerships of Washington, D.C.

**SITE PLANNER:**

Perkins and Will—Architects, Planners, Engineers  
309 W. Jackson Blvd., Chicago, Ill.

**4****MACON, GA.**

50 acres on Chambers Road

TYPE: 300 UNITS\*

SFA  
SFD  
SFA/D  
MFLR  
MFMR  
MFHR

**SITE DEVELOPER:**

Fickling and Walker, Inc. of Macon, Ga., and National Corporation for Housing Partnerships of Washington, D.C.

**SITE PLANNER:**

Reynolds, Smith and Hills  
4019 Boulevard Center Dr., Jacksonville, Fla.

**5****MEMPHIS, TENN.**

16 acres located in the Court Avenue urban renewal area in downtown Memphis, near University of Tennessee Medical Center

TYPE: 470 UNITS\*

SFA  
MFLR  
MFHR

**SITE DEVELOPER:**

Alodex Corporation of Memphis, Tenn.

**SITE PLANNER:**

Miller, Wihry & Brooks  
1387 S. Fourth St., Louisville, Ky.

**6****SACRAMENTO, CALIF.**

30.3 acres at 57th and Broadway, about 4 miles southwest of downtown Sacramento

TYPE: 400 UNITS\*

SFA  
SFD  
MFLR  
MRHR

**SITE DEVELOPER:**

Campbell Construction Company of Sacramento, Calif., and National Corporation for Housing Partnerships of Washington, D.C.

**SITE PLANNER:**

Wurster, Bernardi and Emmons, Inc.  
1620 Montgomery St., San Francisco, Calif.

**8**

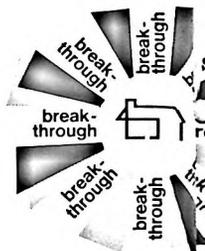
KING COUNTY, WASH.

SEATTLE, WASH.

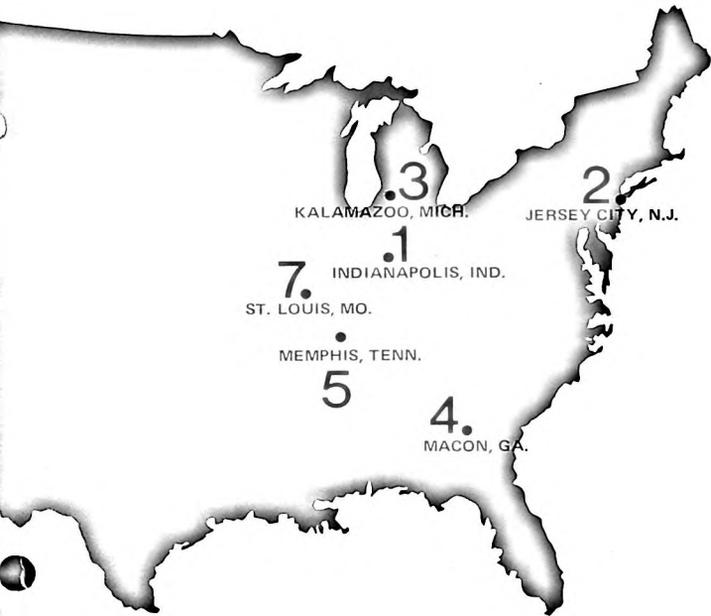
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**.6**  
SACRAMENTO, CALIF.

OPERATION  
**break**



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# Breakthrough sites

Shown on the map are the locations where HUD is building Operation BREAKTHROUGH housing units. The program is HUD's major research and demonstration program to improve the entire process of housing, including the methods by which we produce and provide that housing to all our people. It aims for improvements in production, materials, performance criteria, design, land use, site planning, marketing, financing, community attitude, and overall management, and requires maximum cooperation of all levels of government, industry, labor, and community groups, and the constant services of experts in every phase of the building industry.

## 7

### ST. LOUIS, MO.

7.6 and 7.9 acres in the Mill Creek urban renewal area in downtown

TYPE: 460 UNITS\*

- SFA
- MFLR
- MFHR

**SITE DEVELOPER:**

Millstone Construction Inc. of St. Louis, Mo., and Millstone Associates Incorporated of St. Louis, Mo.

**SITE PLANNER:**

Hellmuth, Obata and Kassabaum, Inc. 315 N. Ninth St., St. Louis, Mo.

## 8

### KING COUNTY, WASH.

35.9 acres at 124th Ave. N.E. and N.E. 144th St.

TYPE: 175 UNITS\*

- SFA
- SFD
- MFLR

**SITE DEVELOPERS:**

The Boeing Company of Seattle, Wash.

**SITE PLANNER:**

Eckbo, Dean, Austin and Williams 145 Mission St., San Francisco, Calif.

## 9

### SEATTLE, WASH.

1.8 acres in the Yesler-Atlantic Neighborhood Improvement Project in the downtown section

TYPE: 75 UNITS\*

- SFA
- MFLR
- MFMR

**SITE DEVELOPER:**

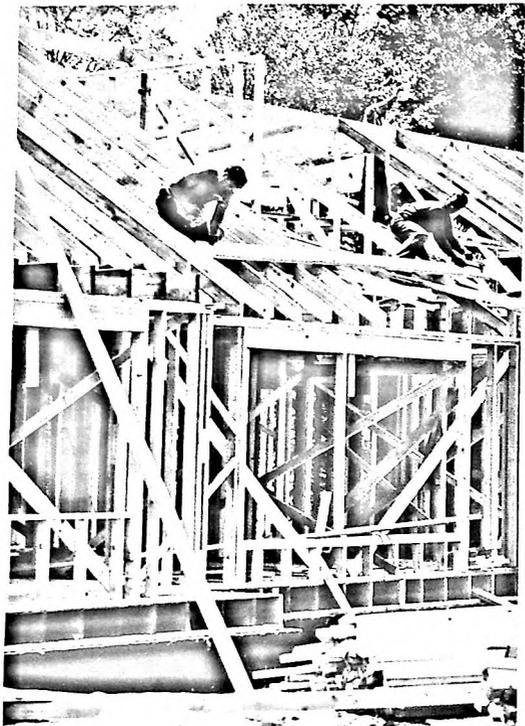
The Boeing Company of Seattle, Wash.

**SITE PLANNER:**

Building Systems Development, Inc. 120 Broadway, San Francisco, Calif.

### Legend

- \*Approximate numbers
- SFA Single family attached
- SFD Single family detached
- SFA/D Single family semi-attached
- MFLR Multi-family low rise
- MFMR Multi-family medium rise
- MFHR Multi-family high rise



Within the next generation, the United States must complete a building job at least equivalent to what has been accomplished during the past 200 years. It has been estimated that this construction will cost \$200,000 a minute for the next 30 years. The cost is not unreasonable. It is a cost this nation can afford if it receives honest value on the dollar.

# BUILDING: FROM BEDLAM TO TRUCK BED

By  
Douglas Grymes, President  
Koppers Company, Inc.

The timetable is not unreasonable if we can organize to get the job done. This would require focusing on the ultimate customer, the family or business that will pay for the building. This is a rational marketing approach somewhat alien to the chaotic building industry.

Unfortunately, past track records don't give much reason for optimism.

When we ask, "Where does the building industry stand right now?" we must realize that neither the word "stand" nor the word "industry" are honest words in the context of building.

The building industry does not *stand*. It *reels* under the impact of all the forces that affect it. Building is not an industry like food or automobiles or chemicals. Building is many businesses, each scrambling for a bigger share of the take from every building project.

Each new building contains scores of products selected from the thousands available from hundreds of major building product producers. Each building product may reach the building site through one of many sales outlets. The products manufacturers must communicate with all types of builders.

Any new building is fortunate to be erected with less than a score of craft unions involved.

The real estate agency gets involved at both ends of the building operation—selling the land and later selling or renting the structure.

Throughout the involved process, retail and commercial officers of banks and savings and loan companies follow a building's progress with all-consuming interest.

Perhaps all of this attempted profit-taking by so many participants explains adherence to the principle of building stick-by-stick and stone-by-stone. The only surprise is that a building gets built in spite of it—all and that anybody can afford it.

The company I have been with for over 35 years, Koppers Company, Inc., realizes about 20 percent of its sales from architectural building markets. We make building products, but we are builders, too. Koppers engineers and erects massive steelmaking complexes on a turnkey basis. Many of these projects in emerging nations of South America and Eurasia include the building of whole towns to house a labor force that must be trained to operate the plant.

## Problems of Rebuilding

When we consider the problems faced in projects like this, neither I nor my associates can understand why the rebuilding of the United States should present so many seemingly insurmountable problems. The nation already has the production capability, the work force, and more than enough technology to do the job fast and efficiently. What remains to be overcome are the problems of a so-called mature society—time-worn customs and closed minds, senile codes, financial hardening of the arteries, and a cost-price pressure to which every segment of the building industry has contributed.

While in the past two decades the accomplishments of the building industry far outweigh its failures, perhaps

its biggest failing has been a certain ruthlessness with which the industry has sought its goals. Often the building industry has looked at building as an end in itself as it ran roughshod over people.

During this period, all segments of the industry have enjoyed the luxuries of higher wages, profits, and prices. Industry built traditional structures under traditional codes with traditional labor practices and, in most cases, made a lot of money. In this process, the buyer was forced to pay a lot more money than he could afford. He spoiled builders by continuing to pay their asking price. This was especially true in homebuilding.

Perhaps the construction industry can justify higher building costs but economic analysts don't find the same justification. They point out that the consumer now spends 23 percent less of his rising income for the food he eats at home than he did in 1950. He spends 19 percent less for clothing. But he spends 30 percent more of his increased income for shelter. In other words, not only is he spending more for shelter but spending a much higher percentage of his income.

To a government planner analyzing the total economy, the housing industry obviously has represented runaway inflation. The housing industry needed deflating and it got it. The industry may deplore the deflation, but isn't it deserved?

## Cooperation Necessary

Each segment of the construction industry has been willing to blame the other segments for a greater share of rising costs. Manufacturers of building products are not highly vulnerable to criticism. As labor and raw material costs rose, they absorbed many of the increases through production efficiencies. But there is little record of these manufacturers attempting to convince the builder that production efficiencies through automation at his end might absorb some of his rising costs, too. Hammers and trowels continued to work overtime at inflated craft rates. Every product in America except the modern building increasingly turned to mass production as a partial solution to rising costs.

Throughout the last decade, the small homebuilders' share of the market has decreased because he could not or would not take advantage of any pre-assembly and the average buyer couldn't afford the luxury of custom service.

At the same time, sales of mobile homes have increased dramatically in the past two years, until mobile homes now house three percent of our population. HUD estimates that by 1980, 10 percent of our population will be sheltered in mobile homes. In 1970, close to one out of every three families moving into single family homes will move into a mobile unit.

These figures should tell us something. They told HUD something. If the mobile home, a manufactured product, could serve the \$15,000 and under market so well, what could it contribute to higher priced homes? Operation BREAKTHROUGH may give us the answer.

## Significant Development

HUD's consortium for Operation BREAKTHROUGH is possibly the most significant development in the housing industry in this century—perhaps any century.

Operation BREAKTHROUGH can be faulted only for its title. The word "Breakout" would be a much better term because the construction industry is not breaking through a barrier built by somebody else, but out of a box it has built around itself.

Every segment of the building industry has helped to erect the box and to make it escape-proof—physically, psychologically, and economically.

Until HUD funded the effort, no element of the building industry was ready—and most were not able—to make an investment that would have to overcome resistance from every other element in the building industry.

While it provides permanent housing for the below \$20,000 a year market, it can also show builders of higher priced homes a more efficient and cost-saving way to go. Operation BREAKTHROUGH, with the force of the Federal Government behind it, can create a competitive climate that will winnow out the chaff among producers of building products. Operation BREAKTHROUGH can force a change in labor utilization. Operation BREAKTHROUGH can make more housing available within the limits of FHA-VA programs. Finally, HUD will demonstrate again that Government, which represents the public, will move in when private business leaves a big enough vacuum long enough.

For all its merits, Operation BREAKTHROUGH presents an interesting irony. It forces the traditional building industry to recognize the production efficiencies of the mobile home producer. The industry can no longer turn up its nose at his methods and products. HUD has made the mobile home producer more legitimate than his impressive sales record ever could.

## Custom Built Modules

Operation BREAKTHROUGH will not eliminate the custom-built structure. Many home owners and developers of commercial buildings will want a special flair. There can likely be no modules for sports arenas, symphony halls, churches and other relatively specialized buildings. Although the custom market will not disappear, manufactured shelters will provide much of the industry's sales growth and let it increase volume with a more limited product line.

As the manufactured house concept takes hold, building product manufacturers can concentrate sales efforts on roughly a hundred fabricators nationwide. Few major metropolitan areas could support more than one or two fabricators.

There will be labor dislocations as many craftsmen move from the job site to fabricating operations. Genuine skill will be even more important to the fabricator than it is to the builder today.

Nobody should have to defend Operation BREAKTHROUGH. But if any defense is necessary, the building industry should be on the front line of the effort. As salesmen of the American business system, building products producers can hardly criticize the concept that puts mass production to work in an area of greatest need and greatest neglect. If there are any initial bugs in the process, and there may be many, they should not affect the future of the concept or the HUD project.

Henry Ford's first assembly line had its shortcomings, but it produced a good product at a price that dropped lower each succeeding year. Eventually, he offered more colors than black, too. The first assembly line for any product forces labor and business dislocations. It is difficult to believe that the concept developed by Operation BREAKTHROUGH will be immediately profitable either to the first fabricator or to the product manufacturers supplying that fabricator.

Ideally, HUD and its legislative supporters will be far-sighted enough to subsidize the initial financial burden through the trial-and-error period. This short-term investment will repay the public many times by the elimination of long-range investments in rent or mortgage support.

## Inevitable Will Be Acceptable

The adoption of assembly line production techniques by the building industry is inevitable. I think the product will be good and will be acceptable. I consider it my responsibility, and the joint responsibility of the building products industry, to promote the concept even though it could seriously affect our business way of life. I am convinced that mass production is the only route to economic innovation.

I assume the success of Operation BREAKTHROUGH. I am no better prepared than anybody else to explain why movement in this logical direction has taken so long.

Within 10 years it should be possible for a new community or a new skyscraper to be conveyed down an interstate highway. If a manufacturer's products are not part of that city or that skyscraper, it will be because he protested too long and too loud about breaking with tradition and resigned himself to serving the on-site builders surviving in little towns off the beaten tracks of progress. □



A native of St. Louis, Mo., Douglas Grymes began working in sales and production for Ayer and Lord Tie Co., which later became a part of what is now Koppers Forest Products Division. For 20 years he worked on various sales and management assignments. In 1958, he was elected vice president and general manager of the division; in 1966, he was elected to Koppers Board of Directors; in 1967, he was named chief administrative officer. In February, 1970, he was elected President.

*A Question of Priorities: New Strategies for Our Urbanized World*, by Edward Higbee. Introduction by R. Buckminster Fuller. William Morrow, 1970. 215 pp. \$6.00.

This is a disturbing book that should be put on the shelf and ignored, lest it trouble our sleep, our consciences, and our pocketbook.

Professor Higbee, a specialist in geography, soils, and land use planning, has broadened his experience by participating in a series of Brookings Institution urban policy conferences and by working closely with the International City Managers' Association for the past seven years. Today he speaks broadly and familiarly with the field of urbanology.

The book contrasts the extraordinary potentials of our society, created by the greatest engineers of human history, with the built-in social resistances that stand in the way of realizing those potentials. The structure, function, and dysfunction of the city, and the irrational allocation of tax resources between and among the local, State, and Federal structures are other hindrances to developing what he calls "a society of responsibility."

In one chapter, Professor Higbee analyzes attitudes toward land use, as exemplified by leasing, new towns, investment capital, and zoning. "As long as land is treated as a commodity, the value of which increases with population, then just so long will it be impossible to build cities that are efficient working places and pleasant to live in." He concludes that land should not be privately owned.

The great weakness of the book lies in his assumptions about human nature. Short of a powerful religious and political movement that would sweep American society, the changes in attitude and direction that he envisions or the dominant American middle class cannot and will not take place. Exhortation is not enough, seeking efficiency is not enough, environmental appeals are not enough. In that sense, he has not addressed himself to the underlying social, racial, and economic realities of our society.

Morton Leeds  
Director of Plans, Programs, and Evaluation Staff  
Office of Renewal and Housing Management

## Recent Books Available at the HUD Library

*Urban Economics: Theory, Development, and Planning*, edited by William H. Leahy and others. Free Press, 1970. 339 pp. \$5.95. A concise presentation of superior theoretical work in urban economic analysis.

*Methods and Materials of Construction: A Guide for Builders, Owners, Architects, and Engineers*, by Lawrence E. Reiner. Prentice-Hall, 1970. 353 pp. \$17.25. A comprehensive survey of the construction process from site selection to occupancy.

*Law and the Municipal Ecology: Air, Water, Noise, Overpopulation*, by Stuart F. Lewin and others. National Institute of Municipal Law Officers, Washington, D.C., 1970. 234 pp. \$5.00. Legal approaches to bring about desirable relationships between man and his environment are suggested.

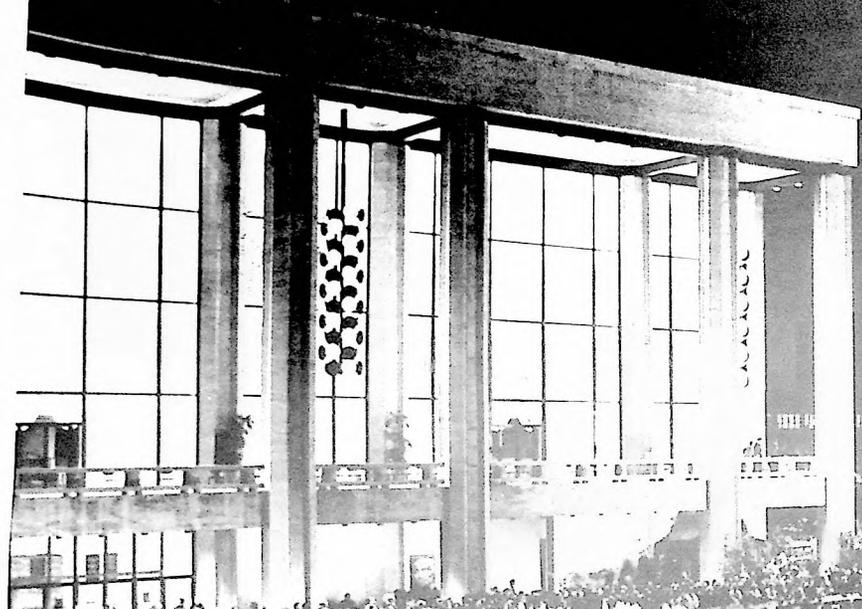
*So You Want to Buy a House*, by Al Griffin. Henry Regnery Co., 1970. 244 pp. \$5.95. A guide designed to answer questions for potential homebuyers who don't know where to start.

## New Publications

*Housing Programs for Smaller Communities* describes homeownership, rental, rehabilitation, special purpose housing, and housing services programs available for rural areas and towns with populations under 5,500. Available free from HUD Distribution Service Center, Washington, D.C. 20410.

*Housing with Shelter—Dual Purpose Residential Fallout Protection* outlines principles for fallout protection in both new and existing housing. The study indicates economical methods by which planners, architects, engineers, and housing producers can improve livability while providing protection against a potential radiation hazard. Copies may be purchased from the Superintendent of Documents, Washington, D.C. 20402. \$.65.

*Consumer Protection, Interstate Land Sales* describes the HUD program which protects the public in interstate land transactions. Single copies available free from the Office of Interstate Land Sales Registration, HUD, Washington, D.C. 20410.



LINCOLN



Lincoln Center for the Performing Arts—the Nation's largest art complex growing out of an urban renewal program—is completed. This distinctively landscaped and designed concentration of building for opera, ballet, symphony, and theatre has helped to revitalize housing, educational and cultural facilities in the heart of New York City.

HUD approved a grant of \$31,740,000 for the overall Lincoln Square Urban Renewal program in 1957. This grant represented the Federal share of the cost of land acquisition for the 73-acre site, relocation, demolition of substandard structures, and various site improvements.

It was not until 1962 that the first structure in the Center, Philharmonic Hall, was erected. Now the final building, The Juilliard School, is complete.

#### Mobilizing Resources

The history of the development of Lincoln Center is perhaps the most forceful demonstration available of how the private sector mobilized the resources that transformed a substandard residential area into a focal point for the Nation's performing arts and multiplied the value of Government assistance.

The stately buildings that make up the Center for the Performing Arts symbolize the cultural benefits brought to more than 3.5 million people annually. More than four million children have seen and heard world-famous artists at in-school performances, and millions more have heard Metropolitan Opera broadcasts and New York Philharmonic programs and concerts.

These buildings—the designs of internationally famous architects—are also memorials to dedicated fund-raising efforts by a group of distinguished private citizens headed by John D. Rockefeller, 3rd. Over \$141 million was collected from some 10,000 individuals, corporations, and foundations for the capital fund. Of the \$185,369,000 received from all sources, including state and local governments, approximately \$152 million went towards constructing the six buildings devoted to the arts and ancillary projects, such as the garage and plaza.

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During intermission on opening night of the Metropolitan Opera House (right) the audience strolls in the Lincoln Center Plaza in front of the New York State Theatre (left).

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The Lincoln Center Plaza is located about a mile north of Times Square between 62nd & 66th Streets and Amsterdam & Columbus Avenues. A pedestrian walking north on Broadway would come to a gracious plaza with a fountain that delights both passers-by and audiences at intermission. Surrounding the plaza are the Metropolitan Opera House, Philharmonic Hall, and the New York State Theatre. In wing positions are the Library and Museum of the Performing Arts, the Vivian Beaumont Theater, and The Juilliard School. The Center includes art valued at \$1 million and has a total seating capacity of about 14,000.

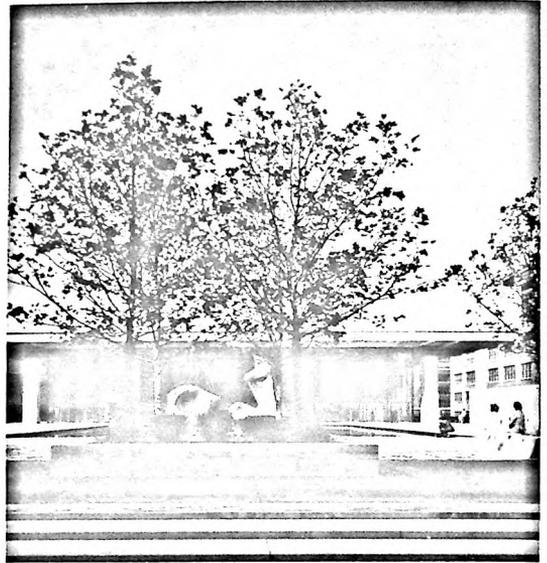
Drama, dance, opera, symphony, and chamber music are supplemented by events such as the New York Film Festival and International University Choral Festivals. The best performing artists and companies of the world, from both East and West, have appeared on these stages.

### Benefits Community

Lincoln Center has brought substantial benefits to its community. The visible upgrading of the area surrounding Lincoln Square has resulted in \$20 million in additional real estate tax revenue to the city. The Center pays its artists \$40 million yearly, while 2,350 persons are regularly employed by the institutions. Its audiences swell restaurant and hotel business.

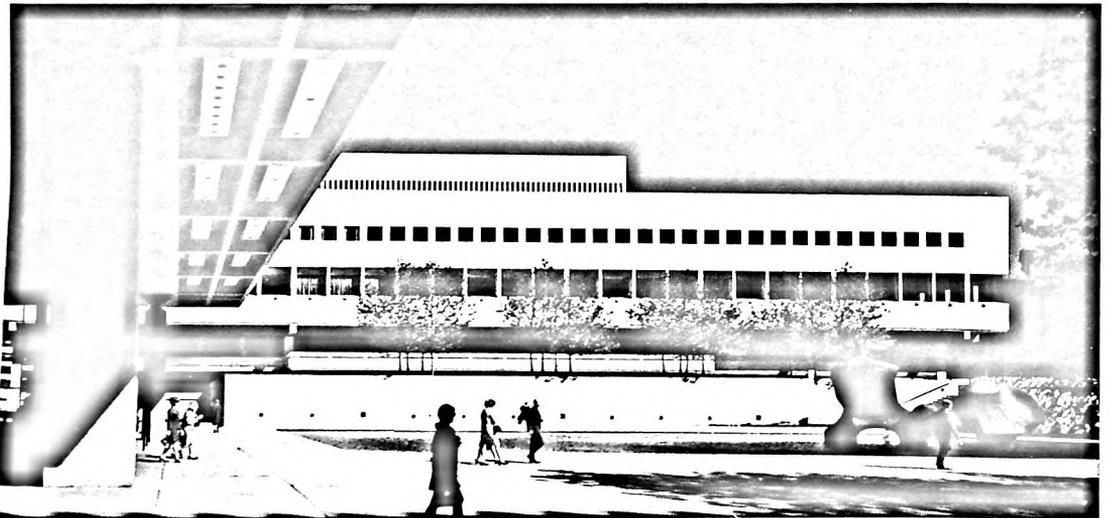
The overall Lincoln Square project area also provides space for Fordham University's Leon Lowenstein Center, a \$17.5 million, 14 story structure accommodating 3,000 students, and Fordham's \$3 million, 800-student law school.

Unrelated to arts and education, but a part of the Lincoln Square project area are a Red Cross headquarters building, two apartment projects of 4,260 units for middle-income families, a public school, a New York public library branch, a fire station, and Guggenheim Bandshell-Damrosch Park with a seating capacity of 2,500. ©



The Vivian Beaumont Theatre and Library and Museum of the Performing Arts opened in the fall of 1965. In the foreground is "Lincoln Center Reclining Figure," a bronze sculpture by Henry Moore. The Vivian Beaumont Theatre principally provides a stage for dramatic productions. Built at a cost of \$10,326,000, it seats 1,140 persons while the Forum, which it contains, accommodates an additional 299. The Library and Museum of the Performing Arts has a seating capacity of 312 in its auditorium and Heckscher Oval. The cost was \$8,021,000.

The Juilliard School, in addition to its teaching facilities, provides accommodations for audiences totalling 2,606 persons in two halls seating approximately 1,000 each and in two smaller auditoriums. These stages are used for a variety of artistic events. The building cost \$29,748,000.



Once it was coal. Now it is water. That is the story of the past and present of a five-county area in southern Illinois which saw its economic base crumble after World War II. Now the future holds promise of prosperous growth.

It is the story of a long and difficult comeback for the area and its people, and the story of coordinating the full range of available resources—public, private, local, state, and Federal—to change a period of decline into one of new growth. And it is the story of how the Big Muddy River has been transformed from a destroyer into a benefactor.

# water to the rescue

By the end of last year an earthen dam two miles across was completed in an area called Little Egypt—its southern terminus being Cairo at the junction of the Ohio and Mississippi Rivers.

Eventually this dam will impound 300,000 acre-feet of water in the 19,000-acre Rend Lake Reservoir. This newly harnessed water promises to revitalize the economy of the area and the 41 communities that lie within the conservation district the reservoir will serve. It is estimated that within 10 years the Rend Lake development will generate \$400 million in investment in the area.

Through most of its history, the area's economy had been based on coal. Its mines supported the industrial growth of the area. But in the thirties, fuel competition from oil and gas and dwindling coal production brought that era to an end. World War II prolonged the coal economy, but after the war economic decline set in. During the 13 years after the war the population of Franklin County, central to the area, dropped from 50,000 to 30,000.

## Industry Needs Water

Efforts to induce new industry to locate in the area proved futile. Although the area had many attractions to interest industrial investors—a central strategic market location, transportation, good labor supply, agriculture, and land—it lacked an available supply of water for industrial and community use. So industries went elsewhere.

The location of water was not the problem. The Big Muddy traversed the area from north to south, spreading destructive floods through the flat plains after the winter thaws, then drying to a trickle in hot summers. The water was there, unconserved, unharnessed, and unusable.

In 1954 a number of local leaders concerned with the problems arising from a two-year drought in the area formed the Rend Lake Association. Their purpose was "to conserve, improve and develop the natural resources of the Big Muddy Watershed and to encourage agriculture, water conservation, forestry, recreation, industry, and other economic endeavors that will help the individual, business, and professional interests in the area." Through their efforts the Rend Lake Conservancy District was created.

A number of engineering studies were made to determine the project's feasibility and cost. These were funded by the State of Illinois, the Area Redevelopment Administration (succeeded by the Economic Development Administration) and the U.S. Army Corps of Engineers. The Corps of Engineers found the proposed dam and reservoir eligible for Federal Assistance and by 1967 funds totaling over \$41 million had been appropriated and construction started.

## HUD's Role

At the same time HUD reviewed the District's request for assistance in constructing an extensive water treatment and distribution system and, after much consideration of so vast a proposal, approved a loan which now totals \$8,775,000. Another loan of \$4,725,000 was obtained through the Economic Development Administration (EDA).

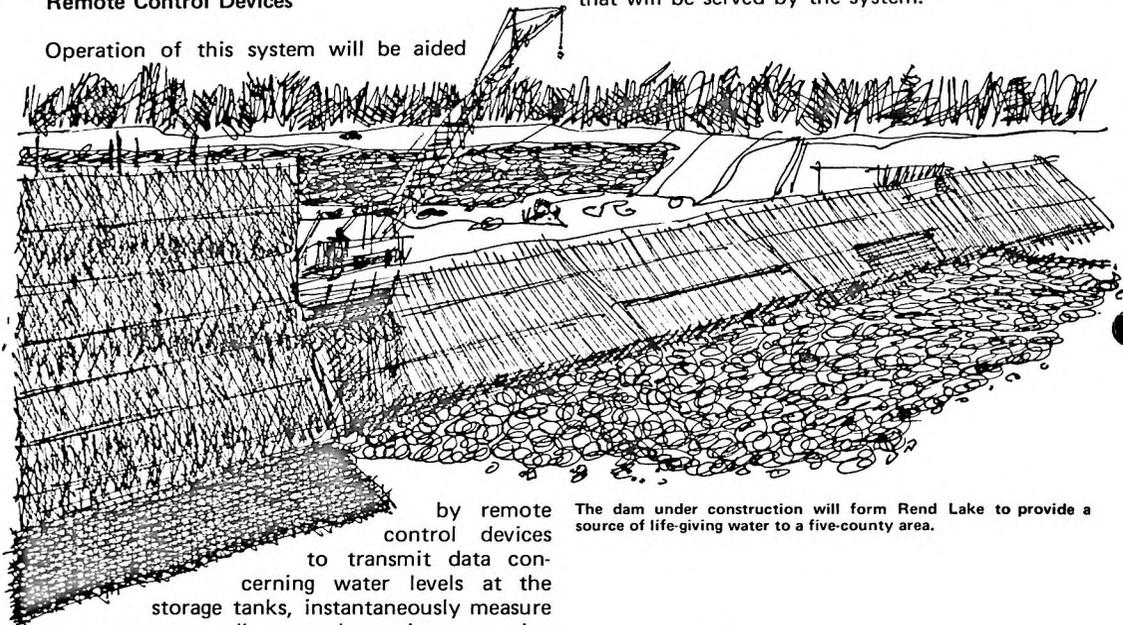
This system, the work on which is now nearing completion, reaches into five counties. When Rend Lake is completely filled in about a year, it will provide 40 million gallons of water daily for the area. More than 30 communities are being tied together by approximately 125 miles of water transmission lines ranging in size from 6 to 36 inches. Five storage tanks, 11 pumping

stations, and a 27 million gallon-per-day-capacity treatment plant will soon serve this network.

Not only will this system provide good water, in most cases better quality than now available, in assured and sufficient quantity, but also most communities will buy the water from the District at less cost than they can now produce it themselves. Even with these advantages it was not easy for the district officials to initially convince all of the municipalities on the project. Strangely enough, it was those communities who needed the help the most who were the hardest to sell.

### Remote Control Devices

Operation of this system will be aided



by remote control devices to transmit data concerning water levels at the storage tanks, instantaneously measure pressure readings at the various pumping stations, and flow of each major user, operate the treatment plant and permit more efficient overall operation.

The construction of these facilities concurrent with the construction of the dam and reservoir is an excellent example of the responsiveness of three Federal agencies working together to help the state and local governments meet an important need. Local determination and leadership have been matched by meaningful Federal assistance.

It took many years to bring all these plans together to accomplish the common goal of providing the water supply that the area needed to survive. Now that has been done.

### Visible Progress

Development has already started or is planned in anticipation of the opportunities in business, employment, and community development that will result. The new Rend Lake College is under construction. A convention center, a new State park, hotels, motels, recreational facilities, and new industrial growth are being planned.

At full capacity, the Economic Development Administration estimates that the dam will generate up to \$7½ million annually from business and recreational development in the five counties that will be served by the system.

The dam under construction will form Rend Lake to provide a source of life-giving water to a five-county area.

With a 162-mile shoreline, the lake is well suited to large-scale recreational development, and will have a relatively stable water level.

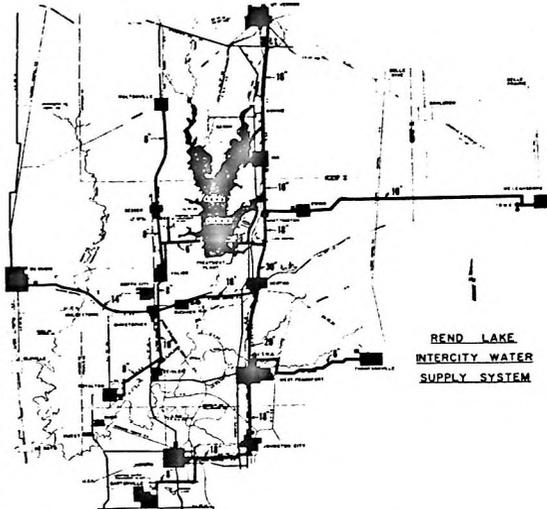
It is estimated that within a few years several million dollars a year will flow into the area from marina, boating, motels, summer cottages, and the planned convention center.

Problems remain, as Roy E. Patton, President of the Board of Trustees for the conservancy district, acknowledges. Zoning and other measures are needed to direct and control growth into a desirable environment. Sewage lines and treatment plants will be needed and are being planned.

But today the opportunities far outweigh the problems. Water—its control, availability on a sustained basis, and conservation—has completely reversed the area's economic condition and potential. □



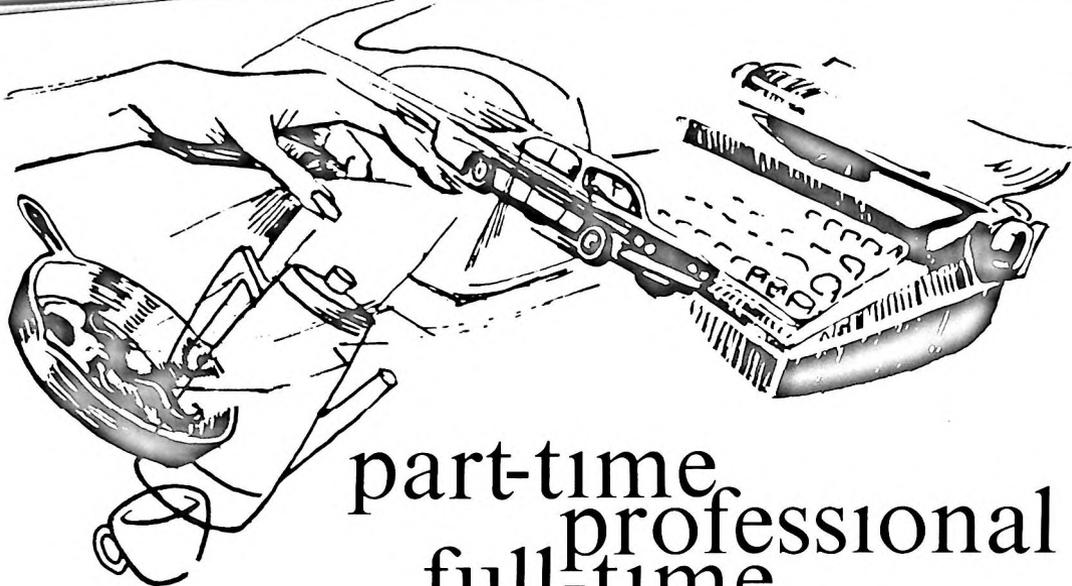
Workmen encased all of the ductile-iron pipe, ranging in size from 16 to 36-inches, in 8-mil polyethylene wrap for additional protection from corrosion.



Construction on the new water treatment plant to be operated by the Rend Lake Conservancy District is ahead of schedule. It will ultimately process up to 40 million gallons of water daily from the new Rend Lake for distribution to 31 southern Illinois communities.



Saturday on court house square in Benton, Ill. This typical midwestern small town is the center of an economically depressed area that will soon get new life with the flow of water from Rend Lake Dam being completed this year.



# part-time professional full-time woman

By Betty L. Rom

The one characteristic that best describes the experience of the women who make up HUD's Part-Time Program for Professionally Trained Women is varied backgrounds.

Some have traveled and studied in various parts of the United States or the rest of the world. Some have helped themselves or their husbands through school. Some have been trained in disciplines far removed from those conventionally considered as part of HUD's area.

They also have qualities in common. Although they are generous in service to the community, their own careers have generally been secondary to the requirements of family and home. Of the 48 women presently employed in the Program—28 in the Central Office and 20 in the Field—all have bachelor's degrees and post-graduate degrees, or the equivalent in job experience. The average age is 38, but the range runs from 23 to 61.

They serve HUD as attorneys, librarians, urban planners, writer-editors, economists, architects, relocation advisors, program managers, research analysts, and staff assistants in budget and personnel areas. Their grades vary from GS-7 to GS-14 with salaries from \$4.13 to \$10.01 per hour.

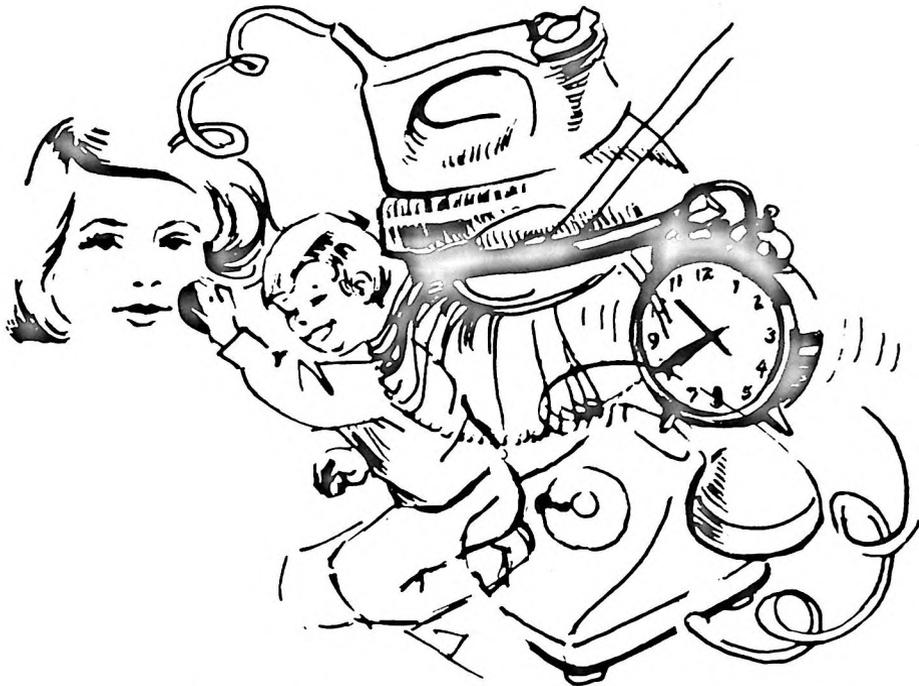
## Creative Jobs in Housing

Yvonne Clement, now a public information specialist, directs photography in HUD's Visual Arts Branch,

and writes filmstrip scripts. Before joining the Department, she was a freelance writer and sold real estate. She is a graduate of Smith College, studied journalism at the University of California at Los Angeles (UCLA), economics at New York University, and French at the Sorbonne. As the wife of a naval attache, she lived in Central America and in Mexico, where her three daughters were born. A widow since 1960, she finds that good help at home enables her to enjoy her work which she describes as a creative job in the housing world.

Housing specialist Joyce Walthers finds her regular part-time schedule less disruptive than her former nonstop volunteer work. Although she has a master's degree in meteorology, her interests have been earth-bound since 1963, when she became active in the Housing Committee of the Fairfax Area League of Women Voters. As part of HUD's Office of Metropolitan Planning and Development, she has drafted several brochures. Her familiarity with policy has helped in personal contacts with planning agencies seeking HUD grants. She has three daughters, one attends Beloit College.

A Wellesley graduate and former Smithsonian guide for the Junior League, Elizabeth Stallings is now the wife of an Arlington, Va., pediatrician and the mother of three children. She completed the requirements for her master's degree in library science and now works on cataloguing in HUD's library.



**Doris Jackson**, a program specialist for HUD's Division of International Affairs, started her foreign exposure at an early age. With her father, American composer George Foote, she and her family traveled here and abroad. At nine she spent a year in Paris; halfway through high school she spent a year in Italy. Her major work experience included 12 years with the Johns Hopkins School of Advanced International Studies, where she ran conferences, scheduled speakers, and edited a quarterly publication. After her twin sons entered college, she learned about HUD's program through a friend, and qualified for her present job through Civil Service certification on the senior level positions list.

#### **Regional Office Opportunities**

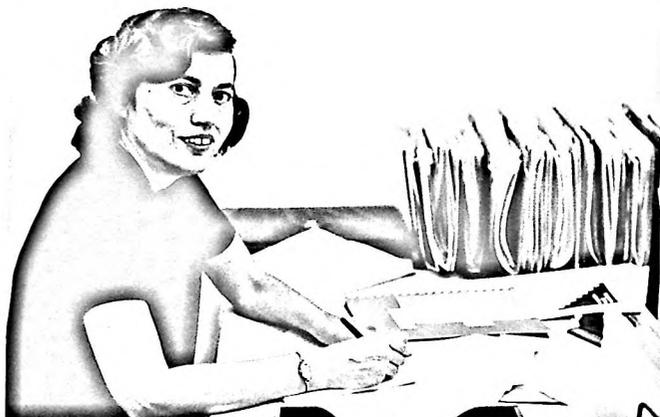
**Ethel Fowler Mazurek** started at HUD Headquarters as an intern in 1961, and spent three years in the relocation branch of Community Organization and Relocation. Eager for more education, she resigned and entered Rutgers but didn't complete all the graduate degree requirements because she got married. She returned to HUD, this time to the Philadelphia office, but left when her daughter was born. Two and a half years later, the Mazureks found a reliable babysitter, and Mrs. Mazurek returned to work as a relocation advisor. Her job calls for occasional travel, but she tries to limit it to one-day trips. She prefers housework, cooking, needlework, and keeping her family happy.

#### **Opportunities for Women**

In the Washington area, most of the recruiting for HUD's Part-Time Program for Professionally Trained Women is done through the Washington Opportunities for Women (WOW) desk at the U.S. Employment Service's professional office. WOW was formed in 1966 by a group of volunteers who recognized the need for part-time work and study opportunities in Metropolitan Washington. WOW serves the women whose training and skills constitute a valuable resource for the community, but whose family or other responsibilities make full-time career commitments impractical.

In the Washington Metropolitan area, interested applicants may also call Mrs. Eve Duff, HUD's Program coordinator, at 755-5500. Elsewhere in the country they should contact the personnel officer at the nearest HUD area office.

HUD continues to need women trained in engineering, architecture, insurance, law, real estate, economics, auditing, accounting, and other skills. Of the women who try the limited work situation, some will eventually find their way back to full-time jobs. Under the Program, they are usually given career-conditional appointments. Qualifications are the same as those for HUD's full-time positions. Salary is pro-rated to the length of the work week, and tours of duty are prearranged to suit the needs of both the hiring office and the employee.



**A.** Yvonne Clement, a part-time public information specialist, edits film as part of her job in HUD's Audio-Visual Division of Public Affairs.

**B.** Relocation adviser, Ethel Mazurek, trained and worked in Washington before relocating to HUD's Philadelphia Regional Office.

**C.** Joyce Walters came to HUD with a master's degree in meteorology and now works in the Office of Metropolitan Planning and Development.

**D.** Doris Jackson's travel and study in international affairs matched her to a job as program specialist for HUD's Division of International Affairs.

**E.** Elizabeth Stallings completed the requirements for a master's degree in library science and now works on cataloguing in HUD's Library. 



# lines & numbers

## MOBILE HOMES AND THE HOUSING MARKET

Mobile Home production in 1970 is now expected to top the 400,000 mark.

The latest estimate of mobile home shipments for 1970 indicates a total production of some 402,000 units. This will represent a decline of about 3% under the 413,000 units shipped in 1969. This reflected in many cases the financing problems that affected all sectors of the housing market in 1970. Industry sources estimate a strong upturn in 1971 to a production of about 450,000 units.

### Mobile Home Features

Mobile homes range in price from \$4,000 to \$18,000. The current average retail price is \$6,050 for a unit that measures 12' x 60' in overall size or 684 sq. ft. of living area. The cost of \$8.85 per square foot for mobiles compares to \$16 per square foot for the average unfurnished site-built home.

### Mobile Home Families

A survey of homeowners conducted for HUD indicated that the typical mobile home purchasers consisted of a two person household, husband and wife, whose members were under 35 years of age with an income under \$10,000. The educational level of these households consisted of 12 years of formal education. Typical mobile homeowners fell into two groups: skilled or semi-skilled craftsman and active duty military, persons not employed, or not in the labor force.

According to the HUD survey, the mobility of mobile home households is no greater than that of the population as a whole. Eighty-one out of 100 household heads planned to continue living in their mobile homes.

### Mobile Home Production

Year	Manufacturers' Shipments to U.S. Dealers	Retail Sales (Millions of dollars)
1970	402,000 Est.	N.A.
1969	412,690	\$2,600
1968	317,950	1,908
1967	240,360	1,370
1960	103,700	518
1947	60,000	146

### Mobile Home Features

Width	Average Length	1967	% of Total Shipments 1968	1969
8'	29' to 45'	.3	.1	.5
10'	45' to 60'	7.3	2.2	1.1
12'	54' to 65'	84.1	85.9	84.2
Sectional Homes*	40' to 65'	6.3	8.2	8.7
Expandables †	50' to 65'	2.0	3.6	3.2

\*Homes of two or more modules

†Homes whose parts are shipped one inside another and assembled on site

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