



As the columns suggest, this family operates a barber shop out of their house.



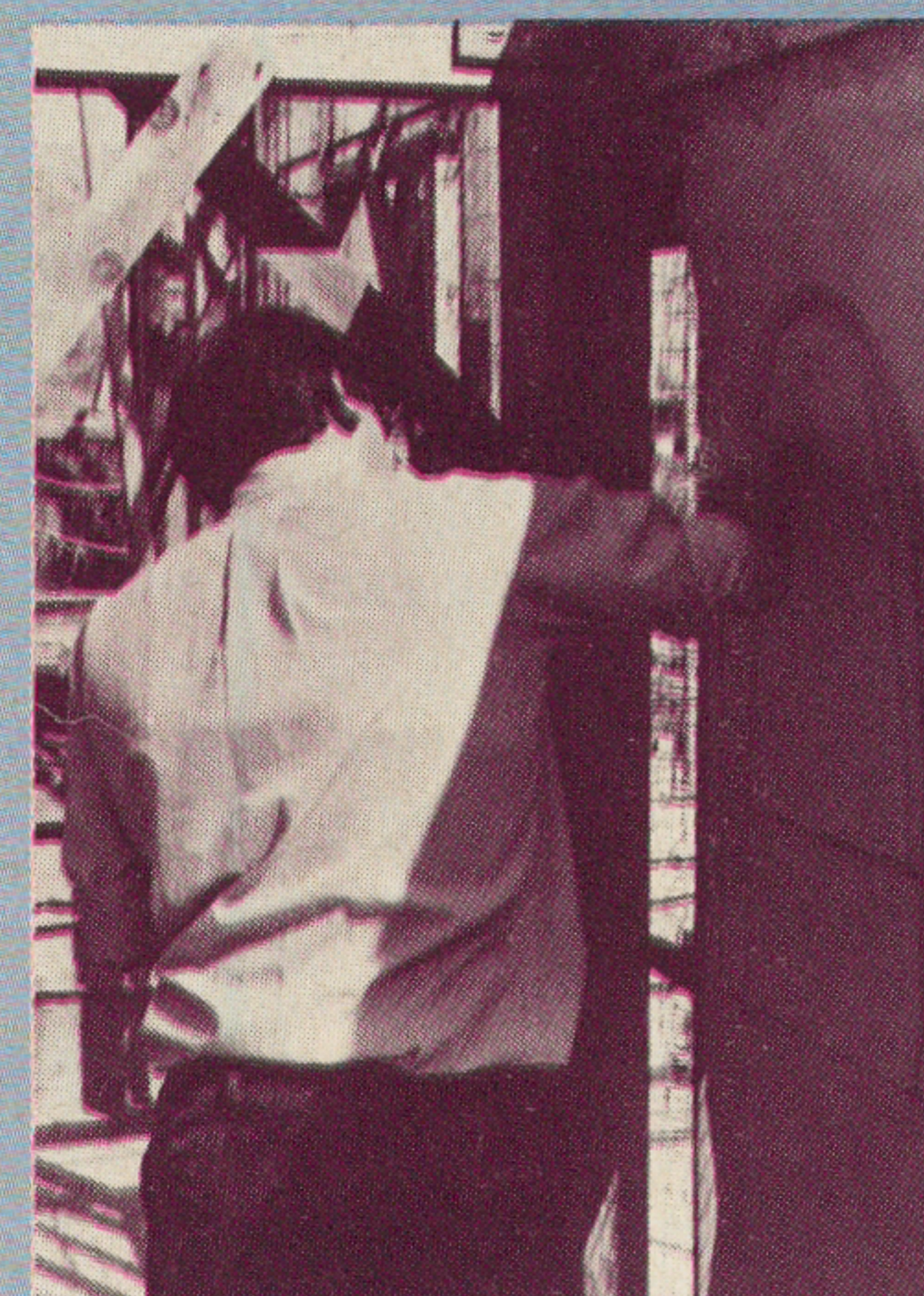
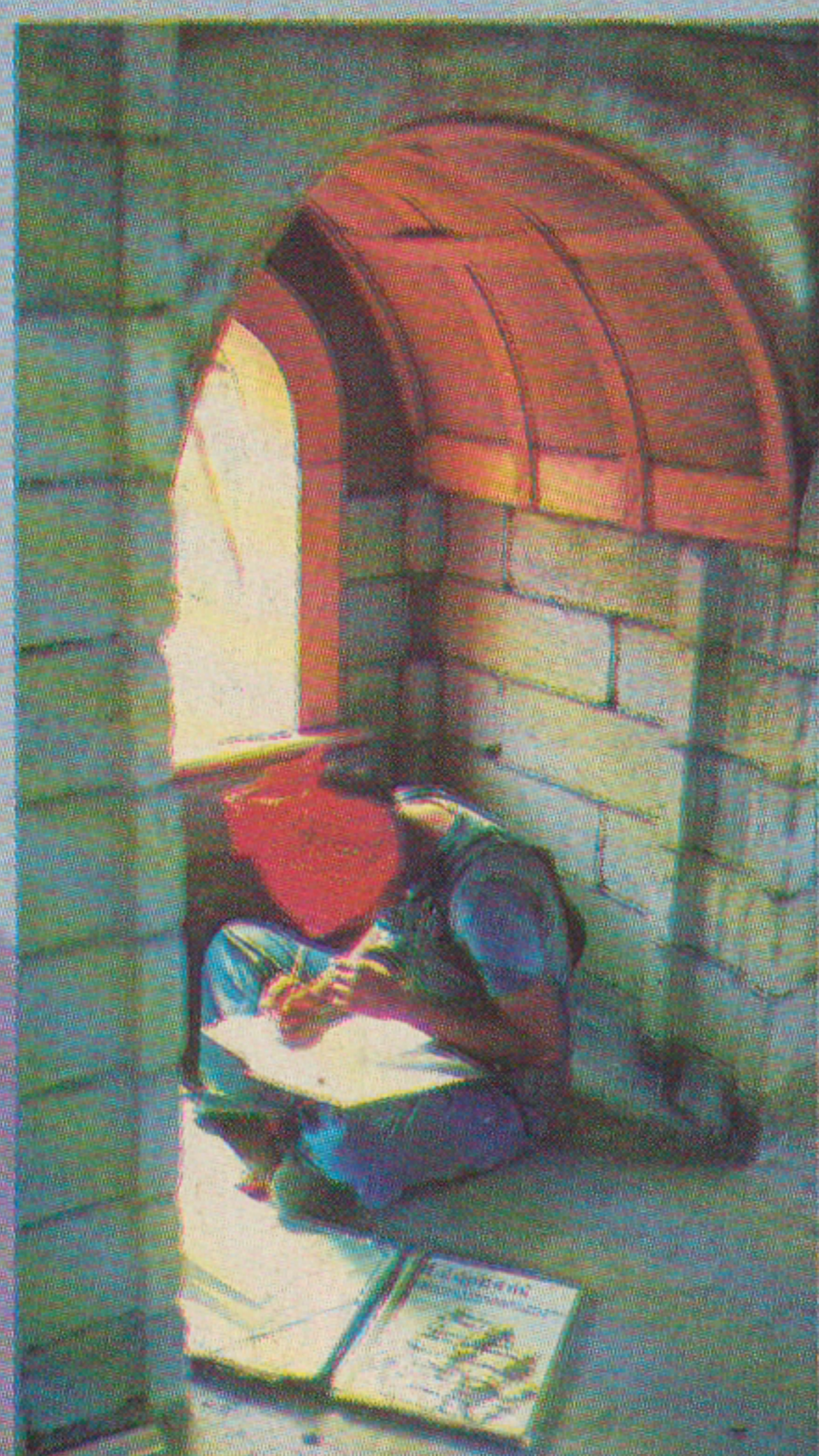
"The richest family in the community" stands before their new home.

The Production of Houses

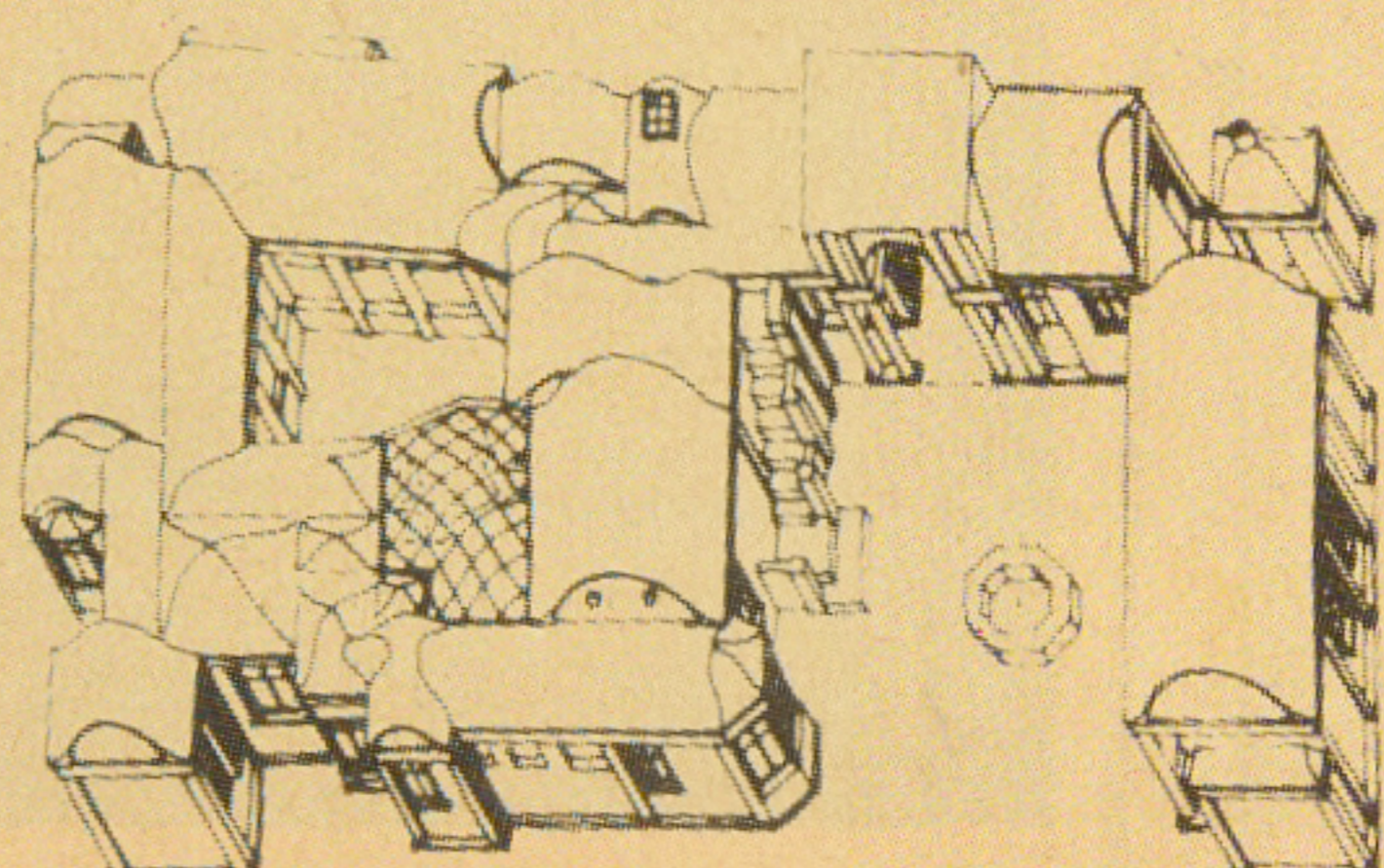
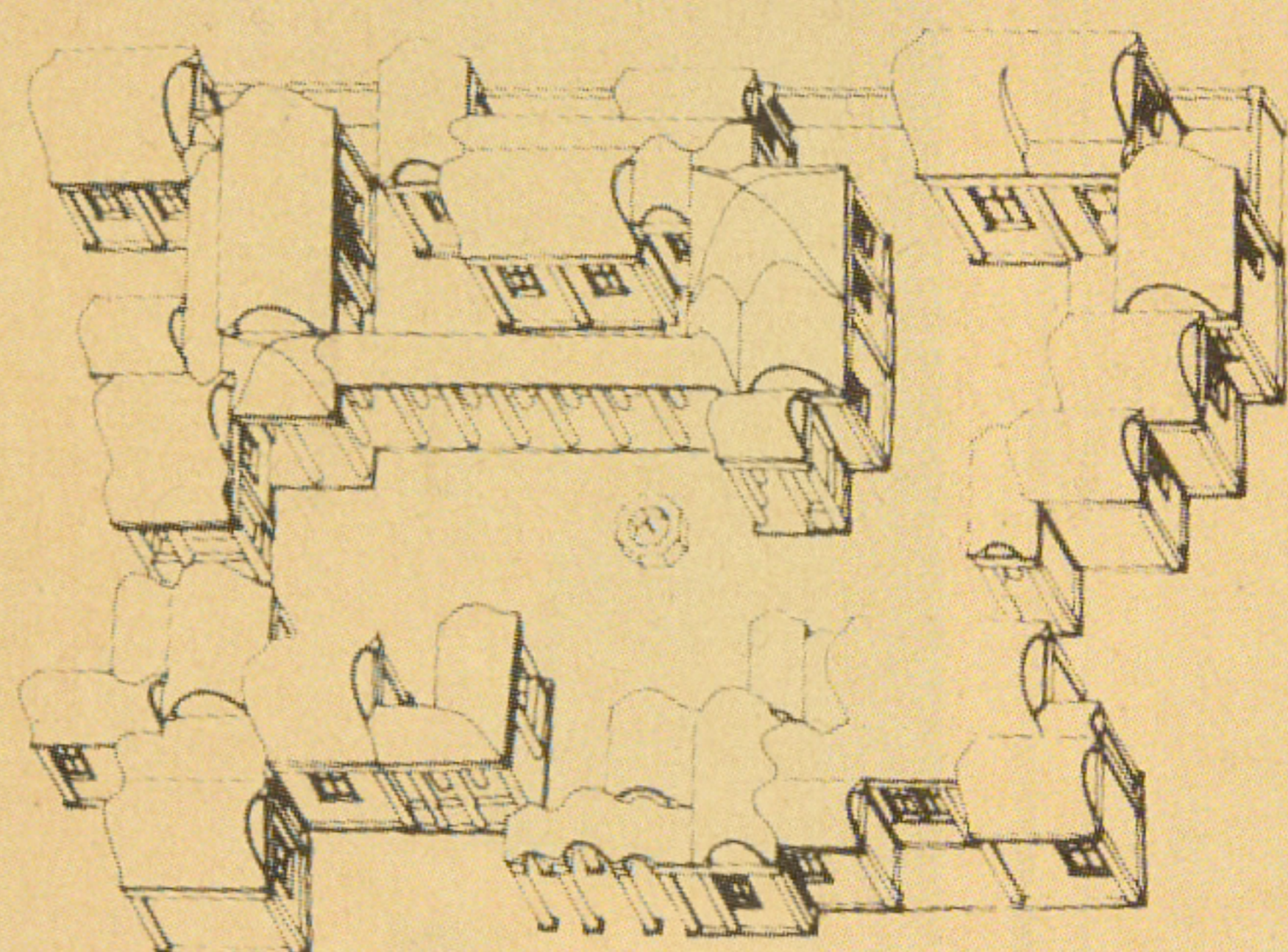
Christopher Alexander put his theories into practice in the construction of a housing complex in Mexicali, Mexico.



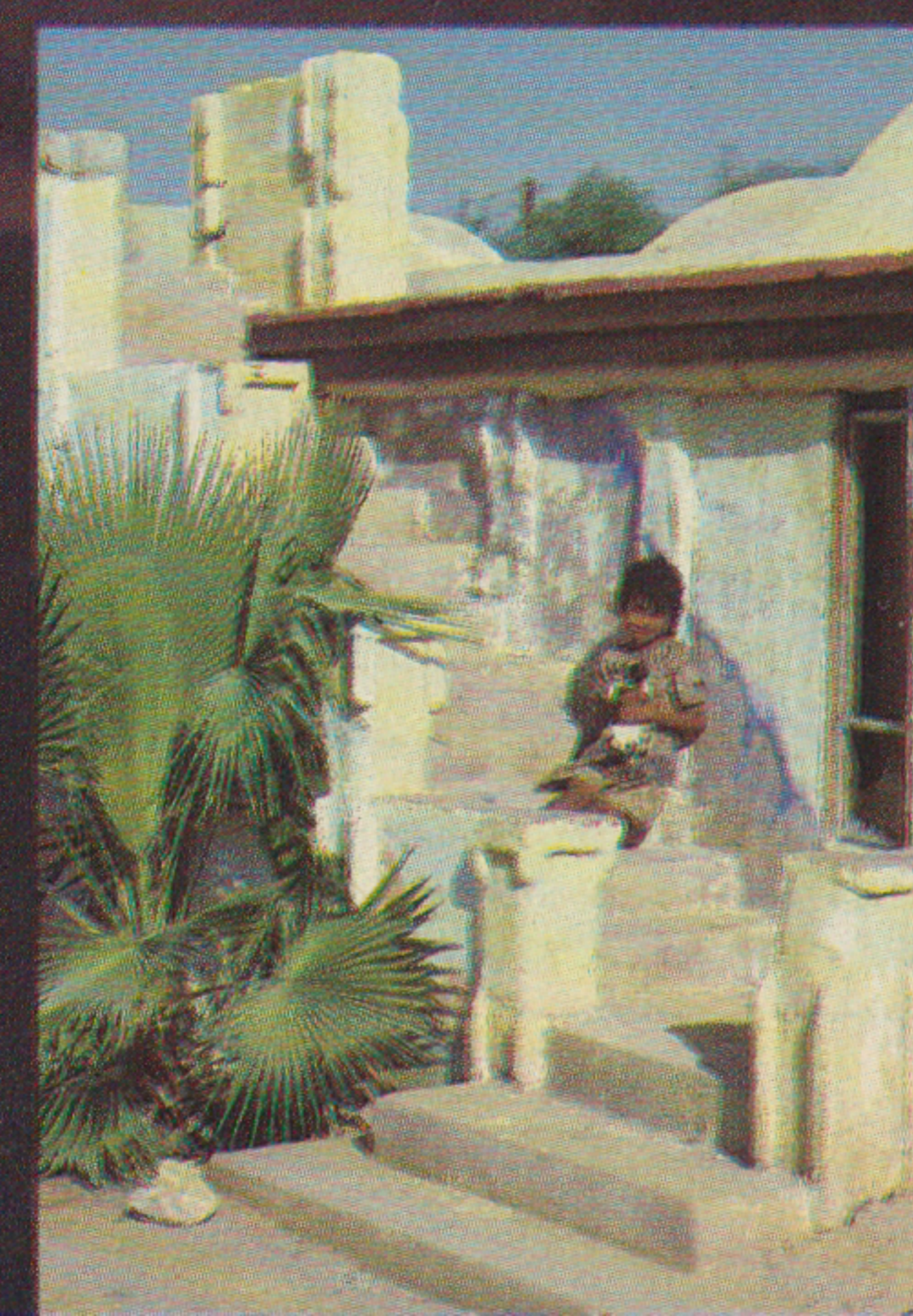
Hand-painted tiles designed by Christopher Alexander.



Above left: A member of the Alexander team hard at work. Above: Alexander, "the master builder," places a window.



Overhead view of the communal and living areas.



Doorway of a building still under construction.

Once Christopher Alexander's architectural philosophy has been understood, the big question becomes how is he able to implement it under today's prevailing construction practices? The answer: He isn't, and doesn't even try. Alexander's belief in a complete overhaul of the way in which buildings are made has led to his insistence on side-stepping the status quo completely — or at least as much as he is able. How he has managed to do it is the subject of *The Production of Houses*, his forthcoming book documenting the construction of housing for the poor in Mexicali, Mexico.

In October 1975, Alexander's Center for Environmental Structure agreed with the state government of Baja California to build 30 houses of approximately 650 square feet

for \$3,500 each, about one-third the going price for a house that size in Mexicali. The Alexander team was given a degree of leeway unheard of in the United States, but the Mexican authorities were extremely eager to see the job carried out. Accordingly, the architects did not have to clear their plans with either the municipality or the bank that provided the loans for the project. Local zoning ordinances were waived, as were the city's planning laws and land subdivision practices. The Alexander team was even permitted to make structural changes once the project got underway. As Alexander writes, "In short, we were free to do almost everything in the way in which we believed it had to be done. We were responsible for building, for the building system, for inventing and testing the system, for developing the system, for building experiments, for working with the families, for laying out the land, for defining the subdivision, for interpreting the zoning ordinance, for handling funds."

First, the Center for Environmental Structure established its builder's yard — in Alexander's words "the seedbed, the kernel, of our project in Mexicali; . . . it was both the site of our experi-

ments and their outcome, both the construction yard for the construction of the families' houses and the laboratory where we worked out the methods of construction we would use." Basic decisions were then made: The buildings would be constructed of soil-cement adobe blocks — cheap, easy to make, and providing good insulation from the town's summer temperatures (which at times rise to 115 degrees). The shape of the blocks was carefully considered, and special corner blocks were designed so the houses could be built without working drawings.

Then a nine-step process dealt with the specifics of where the houses would be built and how they would relate to one another. Since the housing cluster is a basic Alexander concept, it followed that the first houses should be built around the builder's yard, extending its functions to the other houses as they began to rise around them in turn. Dwellers for the first cluster of five houses were found through the local credit union, and they were asked for a down-payment of six percent (\$200). Next, the "pattern language" devised for the cluster by the Alexander team was presented to the five families, who discussed and criticized it

Alexander's Seven Questions of Construction and His Answers

	Conventional Architecture	Alexander's Way
Who's in charge?	Several: architect, engineer, contractor	One: A "master builder" combining all functions
Where do materials come from?	Construction firm often outside the community	Localized builder's yard in each community
Who controls public land and town planning?	The city government	The community
Who designs houses?	The architect	The inhabitants
How are construction details made?	Mass production	Individually crafted on the site
How are costs controlled?	Standardization and centralization	Flexible system based on local initiative
What is day-to-day life like on the site?	"Just a job"	"A house raising" with spiritual importance



A Mexicali housewife
with her new wood-burning
stove.



Above: Barrel-vaulted forms support the poured concrete roof over this Mexicali bedroom. Opposite page: Young Mexicali residents enjoy the view.

in light of their needs and desires, and modifications were made to accommodate them.

But the participation was not ideal, as Alexander reports: "Discussion of these patterns with the families was interesting, and the families became enthusiastic about the project as they began to see the richness inherent in the patterns. However, our efforts to get them to modify this language, to contribute

other patterns of their own, was disappointing."

Before the specific design of the individual houses began, the Alexander team met with the five families to talk about the organization of the cluster itself, and to determine where within the cluster each house would be. Among the features they decided on were a gateway to define the entrance to the cluster, a communal outdoor "room" where the families could gather to barbecue

meat, and other public areas that would allow more privacy and quiet. Once the configuration of the cluster was fixed, individual lots within it were chosen. Conflicts, of course, arose. Two of the families wanted the same site, but the impasse was resolved by awarding the family who agreed to another plot slightly more land. Actual lot lines were then drawn — Alexander again takes up the story.

"We now come to the most

interesting and important part of the whole process. Once the private lots have been determined, the natural next step is to locate the individual houses on their lots. . . . If the houses are well placed, they help shape the common land, and the cluster becomes coherent. If the houses are badly placed, they fail to shape the common land, and the cluster degenerates into a loose aggregation of individual houses, with no communal

spirit." Once that was accomplished — by following the patterns described in *A Pattern Language* — connective spaces, such as porches and arcades, were planned to emphasize the unity of the cluster.

The design of the individual houses followed the same general procedure, moving methodically from the general to the increasingly specific, every detail in keeping with the overall scheme. Interviews with each family probed for the patterns of their daily life (something that conventional architects also do in planning a house for a client). Again, a "pattern language" was established for every house based on Alexander's precepts and adapted to the requirements of each family.

The step-by-step construction program devised by the Alexander team contrasts with the "fast-track" methods used by American contractors, in which separate parts of a building are worked on by small groups of specialists, who often complete their work before other key parts of the structure are finished. Fast-tracking is economical, but allows for a minimum of on-site variation. Instead, the Mexicali houses were built in a 23-part sequence: **(1)** Lay out stakes; **(2)** excavate and neutralize soil; **(3)** place corner stones; **(4)** place wall foundations; **(5)** prepare slab; **(6)** place under slab plumbing; **(7)** pour slab; **(8)** erect columns; **(9)** erect walls between columns; **(10)** install door frames; **(11)** build perimeter beams; **(12)** weave roof baskets (barrel-vaulted forms supporting poured concrete above); **(13)** erect gable ends; **(14)** install electrical circuits; **(15)** place first coat of roof concrete; **(16)** place top coat; **(17)** install window frames; **(18)** build and install windows; **(19)** build and install doors; **(20)** install plumbing; **(21)** install electrical; **(22)** paint walls, roof, and trim; **(23)** lay brick floors on walks and arcade floors. Each phase was designed by the architects to be as uncompli-

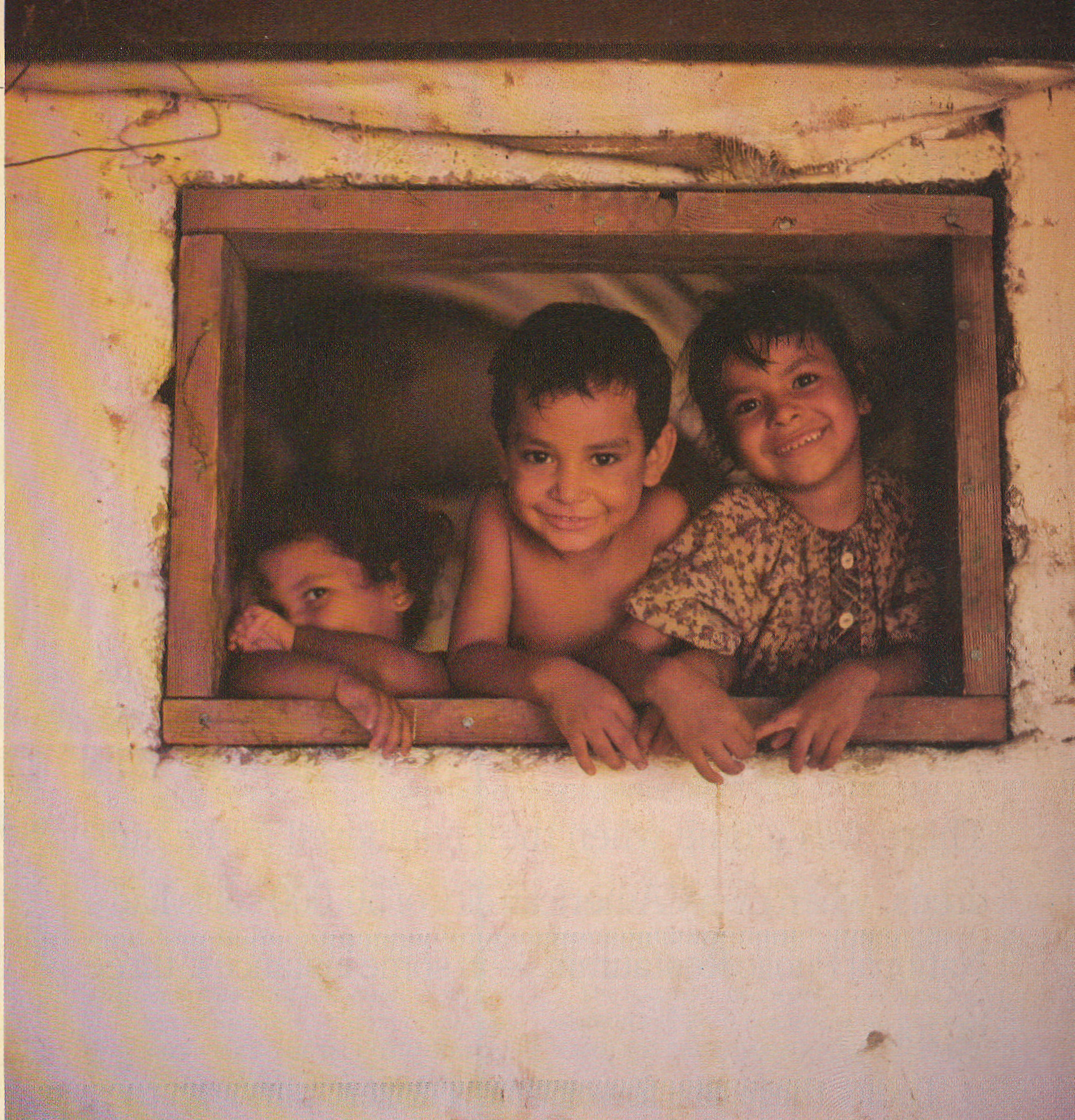
cated as possible to allow the residents to do as much of the labor as they could.

In order to make the whole concept work, Alexander cautions that "It is essential to recognize that, as a precondition for its success, this process absolutely requires an agreement with the local government whereby permission is given to building operations, not to individual building plans." The reason: In the United States architects were only recently allowed by the American Institute of Architects to serve as their own contractors, a practice previously prohibited to avoid ethical conflicts. But how would building-trades unions react if their members were routinely replaced on house construction projects by untrained members of the general public? It is highly unlikely, of

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course, that this way of building would ever seriously endanger the job security of construction workers on the mammoth commercial projects that make up a significant portion of the building industry in America. Yet in the realm of housing — especially housing for the poor, whose needs are disgracefully unattended to — Alexander's approach pro-

vides a promising alternative. The major changes in society often come precisely when overwhelming needs meet surprisingly simple solutions. Christopher Alexander's prescriptions might give real relief to some of the millions of Americans suffering from chronically substandard housing. In any case, it would be well worth a try. — M.F.



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Street Scenes



WINDOW SHOPPING IN PARIS

*Along elegant boulevards and narrow side streets,
crowded avenues and nameless alleyways
off the beaten path, the shop windows of Paris
are works of art.*

Georges Carpentier puts the finishing touches on a salmon mousse at Fauchon.