The violent earthquake which struck North Yemen on December 13th, 1982, caused more than 3000 deaths and extensive physical damage to traditional stone habitations. Although the magnitude of the tremor has been placed at 5.6 on the Richter scale, the focus of the earthquake was shallow in relation to the earth’s surface thereby explaining the considerable amount of shaking that occurred. About half of the victims were children who were in school at the time of the quake. According to accounts by representatives of various international agencies who have visited the Dhamar region, some 60 miles south of Sanaa, there are presently 400-500,000 persons living outside of their destroyed, or partially destroyed, villages.

While tremors continue to be registered (although not all are felt) on a daily basis and the causes which are producing this remain somewhat obscure — some geologists favor the hypothesis that the tremors are of volcanic origin — the Yemeni villagers are fearful of returning to inhabit those dwellings, of which there are apparently many which only suffered slightly and could be repaired and consolidated. The villages of this plateau region of Yemen, such as Risaba featured here, are traditionally built of stone and situated along steep ridges with difficult access. The dwellings themselves are constructed with double stone walls, one of cut stone on the exterior and one of rubble on the interior (which is then coated), but often the two are not structurally bound together. This is one source of instability which resulted in damage. Roofs are made with timber rafters which frequently tie only two of the parallel walls together; hence, during a quake, the other two walls, or the corners, tend to fall away. (See photos).

The present situation is dramatic for the villagers, particularly in terms of habitation. For the moment it is apparently forbidden to build in masonry, so that except for tents (most of which lack rain flaps and bottoms) that have been donated but that people are unaccustomed to inhabiting, the alternative that local people have adopted consists of wooden-framed structures and sheets of corrugated tin. These "temporary" dwellings are filling the fantastically rugged and beautiful landscape, where previously the villages blended into their surroundings, with glittering tin shelters at a phenomenal rate. (This, in spite of artificially inflated prices for the imported materials!)

Experts, who have visited the areas, are convinced that it would take years to complete a detailed evaluation of the damage, and of the costs of rebuilding. Moreover, reconstruction in the Dhamar region will undoubtedly focus efforts upon the infrastructure (roads, dispensaries, schools, etc.) rather than housing simply because the

Above: Village of Risaba, in the Dhamar region of North Yemen, which suffered some of the heaviest earthquake damage. Photograph: J. Bjornson.
Right: Some in the streets of Risaba the day after the earthquake struck. Photograph: Dr. S. al-Raadi.
funds are so limited. Experienced professionals in the field believe that some kinds of intermediate structures must be found for housing, perhaps those which would form the nucleus of a permanent house later, or that could be transferred to some other use once a proper dwelling has been erected. In addition, given the scarcity of economic and material resources of the people— not to speak of their sentimental attachment to their traditional dwellings—efforts must be made to dispel their fears of returning to live in houses that could be recovered and consolidated structurally. But, this means a concerted programme of educating the people about the proper measures they themselves could take to strengthen the old houses. In the meantime, three months after the quake, the villagers of Risaba, as elsewhere, are building with tin and dreaming of reinforced concrete, that ubiquitous miracle material for everyday use.

Left, above: Detail of a damaged house in Risaba just after the earthquake. Note the existence of double stone walls, which are not tied together and therefore are prone to collapse. Photograph: Dr. S. al-Raadi.

Left: Typical construction of wood and corrugated tin being erected by residents of Risaba (and of the whole devastated region) one month after the quake, as protection against the winter rains. Photograph: J. Bjornsson.

Below: The new village landscape of Risaba (damaged, uninhabited dwellings are seen in the background). Structures include wood and tin shacks with flat roofs (at right an exception with double pitched roof) and tents but no masonry. Photograph: J. Bjornsson.

Brian Taylor, Mimar’s Associate Editor, was recently on mission in Sana’a where he encountered a number of people who were working in the earthquake region at the time, or had been there since, and who provided this background information on the physical changes occurring in the environment there now.