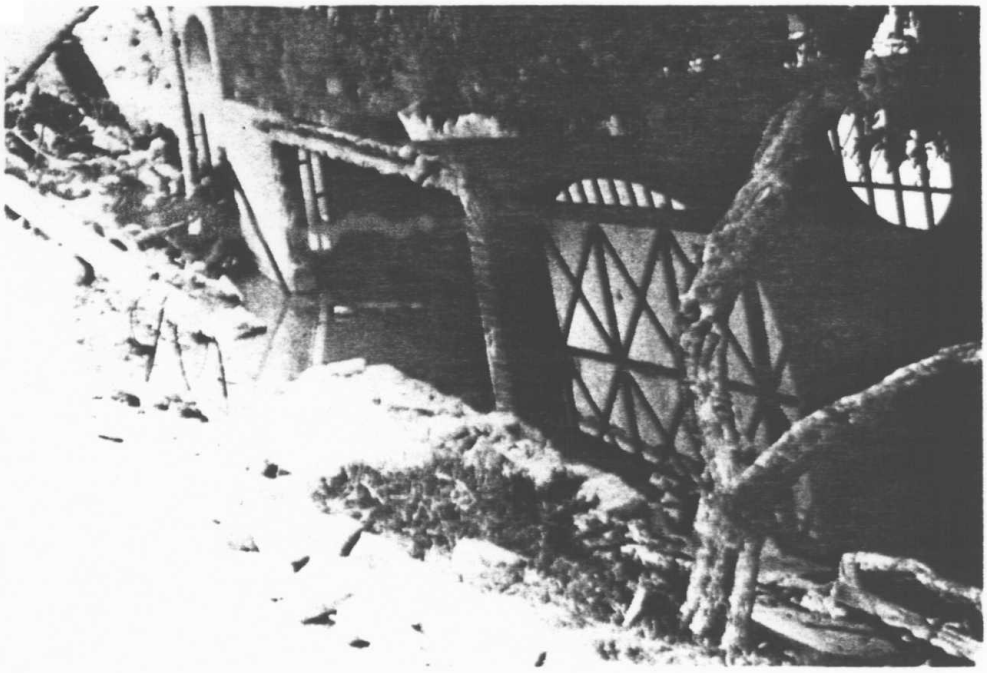

Fig. 12. House sunk into liquefied ground in Santa Marta.

Fig. 13. Temporary shelters erected in the street.

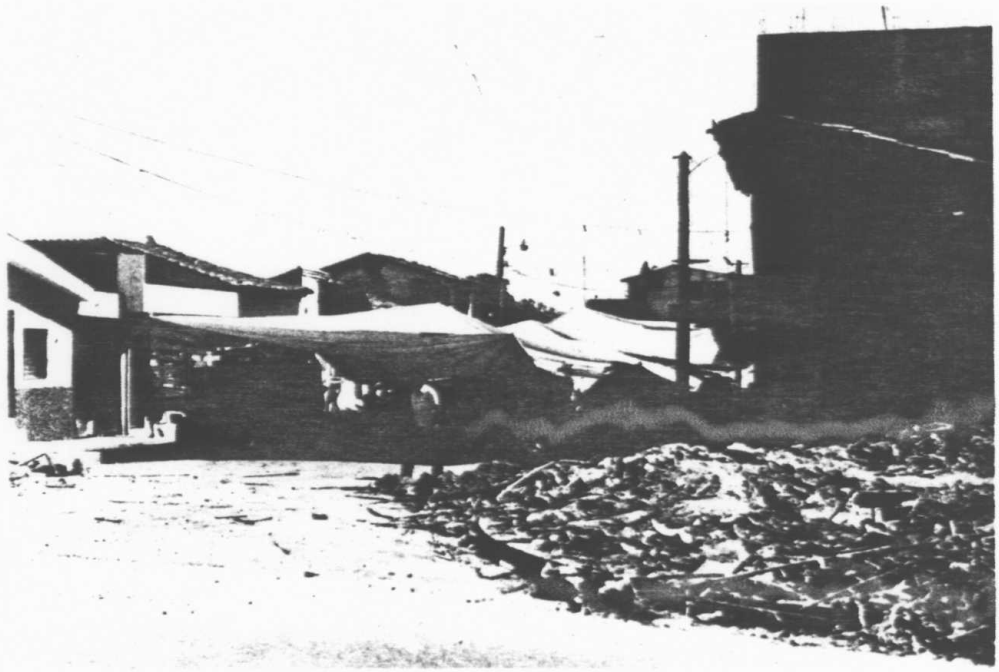

Fig. 14. Temporary shelters erected in the street.

end at the time of the earthquake, a very few heavy storms caused havoc to these inadequate shelters in the weeks immediately following the earthquake.

RESPONSE TO THE DISASTER

To handle the disaster the government established a National Emergency Committee (COEN) headed by the country's President, Jose Napoleon Duarte. The committee delegated the task of handling the aid sent to El Salvador to a committee formed by the private enterprise association; after complaints that its powers were limited to just receiving aid, the government granted this committee the power to actually distribute aid. There were accusations that in the distribution of aid preference was given to employees of those companies represented in the committee.

A number of non-governmental organizations were involved in distributing aid to the earthquake victims, most visibly the Church and the recently formed trade union confederation, the UNTS. A great deal of aid that was sent to El Salvador was addressed to these two bodies. Not all of the assistance offered to El Salvador was accepted by the government, for apparently political rather than technical reasons; fifteen plane loads of emergency aid from groups in the U.S., directed to Church Emergency Committee (CIE), were refused permission to land; and whilst a large consignment of emergency medical supplies from Cuba was accepted, a team of more than forty specialists offered with the equipment were denied entry to the country.

The distribution of aid to the victims that we observed was often very poorly co-ordinated, with trucks arriving unannounced in the poor areas and distributing almost on a "first come—first served" basis; the result of this was that people living higher up on the slopes in the southern districts almost never arrived down on the roads in time to receive the aid distributed, which was primarily food. To remedy this, many affected communities had formed their own committees to check the aid distribution. For example in Las Brisas, the community had formed a committee that had drawn up several copies of a list of all the people in the area in order of greatest priority, with a space next to each name where each person had to sign to acknowledge receipt of their ration from each consignment of aid. This committee reported that a large proportion of the food they had received had been donated by friends and relatives in the countryside who had carried out their harvests early for the benefit of the earthquake victims.

With the disruption of both the water distribution system and the sewerage in much of the city, combined with the disruption of the hospitals, one of the major problems believed to be facing the victims of the earthquake was the threat of disease, particularly cholera.

RECONSTRUCTION

It is quite clear that despite the fact that its history has been so marked by earthquake destruction, San Salvador was completely unprepared for this earthquake. However, as in all disasters, there is the opportunity to learn the lessons and this prevent a recurrence. In terms of housing, there is now the opportunity to provide 300,000 people with

homes built on suitable sites and using preservative treatments for the timber to prevent attack.

Greater control of other building materials is also required; it is known that available cements are often of low strength and that the locally milled steel is generally of smaller diameter than its nominal size and is brittle. A practice that was witnessed many times in San Salvador is that of removing reinforcement steel from the rubble of damaged buildings which is then straightened for re-use; this is quite understandable, particularly in a country so short of resources, but it must be ensured that this steel is not used in critical members of large structures.

As in any seismic region, the quality of engineered construction needs to be ensured by an adequate and appropriate building code. This will first entail a detailed study of seismic risk in El Salvador, including the location and mechanism of the geological faults and a thorough historical study of the country's seismicity. The code would need to specify requirements both for materials and for design; reinforcement, particularly of columns, was very inadequate in many cases and in none of the damaged structures was there evidence that the principle of "weak beams and strong columns," that is to design a framed structure so that it will fail in a non-catastrophic manner, had been applied. Unfortunately, there is little reason for believing that any new earthquake resistant design regulations will be applied any more rigorously than those of 1946 and 1966.

In all these matters, from the construction of bahareque houses to the aseismic design of hospitals, as well as in emergency planning, one of the main tools is education, at all levels. El Salvador has a long way to go in this field; illiteracy stands at 43% nationally and the destruction of 1,400 primary and secondary school classrooms in the earthquake is going to disrupt education further in the capital. At the level of higher education, El Salvador has a shortage of engineers, architects and other professionals and the only two seats of learning in the capital both suffer from grave financial difficulties as well as other disruptions; the Catholic University has been bombed fourteen times in recent years and the National University was occupied by the military between 1981 and 1985, during which time large numbers of books and much important equipment was lost. The National University also suffered a great deal of damage in the earthquake of 10th October 1986.

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