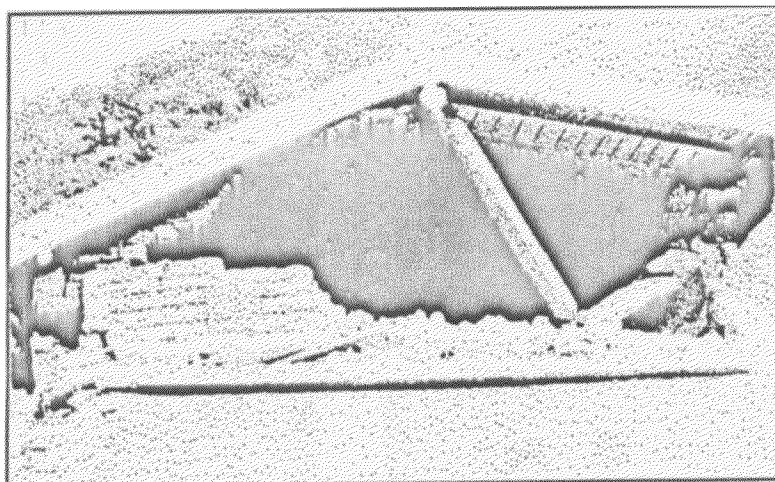
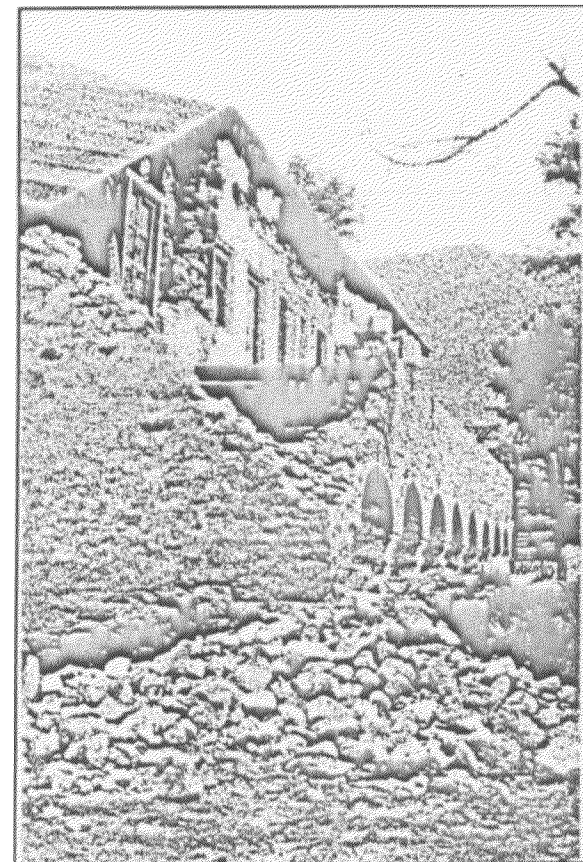


Typical collapse of corner masonry when not bonded by key-stones. The CGI sheet roof has collapsed following the outward collapse of the gable. Damage to the side wall of the upper floor can be seen due to the wall plate not being anchored properly and working free.



Collapse of end gable in College: Bhatwari town, Uttarkashi District

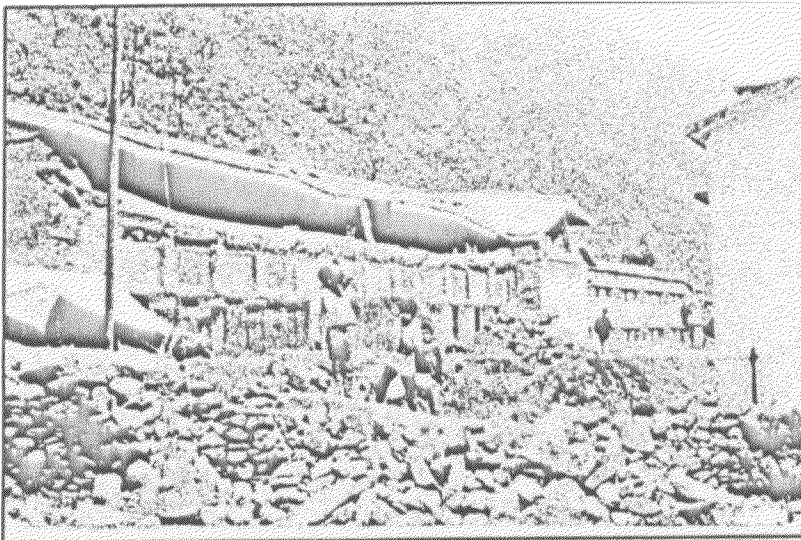


Collapse of end corner and gable in school in Uttarkashi town

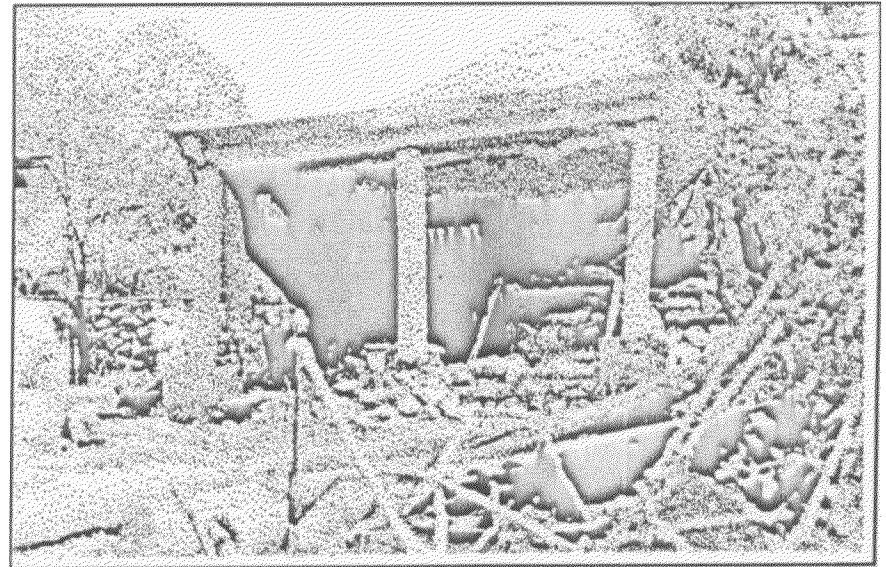
The end gable of this College building has collapsed due to a most unusual design flaw. This building has been built with a RCC column-slab frame and walls of dressed stone. The CGI sheet roof on the first floor rests on steel trusses that have prevented much damage. This gable was intended to be reinforced with a RCC tie beam in the form of a triangle. The base (i.e. the tie) was not cast. In addition, the ridge piece of the end section of the roof rested directly on the gable rather than on a truss. A classic gable failure then followed, leading to the collapse of the wall above the RCC tie beam at lintel level. The remains of the RCC tie beam at the gable can be seen suspended from the ridge.

FAILURE OF RCC FRAMES & SLABS

The collapse of this structure (adjoining a temple) killed a sadhu who was living in it. The failure is typical of low quality RCC construction in the region. The failure of the column-beam joints failed and hinges formed. The RCC slab then collapsed. Rescue of trapped persons from similar buildings proved very difficult because of the problems of breaking through the RCC with the redimentary equipment available on site.



Collapse of chajja and un-supported RCC columns in college building: Bhatwari town, Uttarkashi District.



Failure of RCC structure at Village Maneri, Bhatwari Tahsil, Uttarkashi District

The RCC chajja and supporting columns at this college building at Bhatwari have totally collapsed along with the gable wall in the background. The rest of this structure is relatively undamaged because of the use of steel trusses for the top floor and RCC frame-slab for the intermediate floor.