parapets, which would not usually be affected by structural repairs to the roof itself. See also Chapter 7, § 7.032(b).

Needless to say, a building was not selected unless the only alternative would be a high steel tower, and only very solidly constructed permanent buildings were utilized. It was frequently necessary in such cases as at Lincoln Minster (80), to make special arrangements for independent support of the instrument, and for staging designed to distribute the weight of the observer away from the instrument support. Such items of station preparation were usually carried out by local contractors working to a specification drawn up after full consideration of details provided in the reconnaissance report.

2.065 MODIFICATION TO THE ORIGINAL PILLAR DESIGN

When at a late stage the secondary triangulation had progressed to the Highlands of Scotland it was necessary to design a new and lighter pillar, cylindrical in shape, in order to avoid excessive transport costs. (See § 7.031.) Apart from this only two minor modifications were made to the original very successful design.

(a) To prevent unauthorised persons removing the main centre plug, two hexagon-headed 'Allen' screws were fitted to secure the centre plug to the spider. Also a split pin was fitted to the small centre plug which could only be extracted by removing the main centre plug. The modification was carried out between 1947 and 1950.

(b) The metal centre pipe was originally intended as a support for the pole of a metal opaque beacon which was to be left permanently on the pillar. However, in the event, these opaque beacons were not used. Consequently, in pillars built after 1950, the metal centre pipes were replaced by cardboard tubes, which are very much lighter to carry and are sufficiently robust to support the weight of the concrete until it sets.

2.066 MAINTENANCE OF PRIMARY RETRIANGULATION PILLARS

Between 1947 and 1950 the majority of pillars built at primary stations from 1935–1939 were inspected. It was found that 5% needed extensive repairs, and 12% needed minor repairs to prevent further deterioration. The remainder were in good condition. Of those needing extensive or minor repairs the main causes of damage were:

Vandalism	43%
Effect of weather	26%
Faulty construction of foundations	21%
Miscellaneous	10%

Pillars in densely inhabited areas or near holiday centres and beauty spots are more subject to vandalism; pillars on high exposed sites are most affected by weather.

In 1951 a system of inspection was instituted, whereby all pillars are inspected and repaired once every 10 years; certain pillars at sites frequented by the public and therefore more liable to damage by vandalism are inspected more frequently. (See also § 7.04.)

2.07 Steel Observing Towers

In the flat and enclosed areas of East Anglia visibility between stations is very restricted. By reducing the ruling side length from about 25 miles to 10 miles and by using all suitable high buildings, it was hoped to produce a satisfactory primary triangulation. However, after extensive reconnaissance it was found that an adequate triangulation could not be established without the