

# HEAVY ARTILLERY BOARDS.

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1.—Artillery boards are prepared in such a way that measurement between gun and target can be accurately made and that errors due to distortion of paper, such as one gets in an ordinary map, are eliminated. The boards are covered with zinc on which is mounted a sheet of drawing paper. The map grid is carefully drawn by hand on the mounted paper and the map itself cut up into squares and stuck down, each piece being fitted into its correct position on the corresponding grid underneath.

**The distortion of paper due to gumming causes slight irregularities and overlaps in piecing together but there is no accumulation of error**—a distance measured right across the board between two points has no greater error than that due to the distortion in the two small squares in which those points lie, which is negligible.

## 2.—GUN POSITIONS.

The position of the guns is shown correct in relation to the trigonometrical framework on which the detail of the map depends.

**Owing to the necessary exaggeration of the width of roads, &c., and to slight errors in mapping, these gun positions will not always agree with surrounding detail on the map.**

At the same time, discrepancies of this sort should be reported, as it sometimes happens that guns are put into emplacements other than those for which the board was intended.

## 3.—ARCS.

The paper arcs are carefully fitted down  $15^{\circ}$  at a time, and checked by chord measurement, or, in the case of the so-called "square" arcs, by measurement of tangents. Owing to paper distortion they will not always read accurately when fitted to the radius for which they were intended—they are therefore made to read correct angular measurement by pushing them in or out.

Consequently **Arcs which give correct angular measurement are not always regular in shape.** For this reason **they are not put on at a definite range in yards lest they be used for measuring distance.**

## 4.—AIMING POINTS.

One of the main objects of using artillery boards and of having gun positions surveyed is to avoid errors of line due to protracting bearings on the map between guns and comparatively near aiming points. Many of the ordinary metal or celluloid protractors used are inaccurate.

On most artillery boards a point where a line  $90^{\circ}$  or  $180^{\circ}$  from the A.P. cuts the arc is marked. This point is not determined by protracting from a line joining the gun and A.P., but by calculation from co-ordinates and is probably correct to three minutes. **In such cases it is quite unnecessary to show the A.P. on the board.**

In other cases, owing to the gun not being in position when the board was prepared or to the battery commander using some temporary aiming point that has not been surveyed, the arcs are put on to read bearings from grid north. Where this is done it is usual to give particulars on the board of the bearings from the nearest survey picket so that the battery commander can get his own line accurately with a director—the survey picket is also marked on the board in order to show where it is but **not to protract bearings from,** as it is usually much too close for accurate results.