It may, then, be concluded that none of these features represent the remains of *Nova Villa*. Its proposed site, which may have been marked out though not developed, is more likely to lie about \( \frac{1}{2} \) m. to the west. Significant place-names are there impressively concentrated around 'Newton Cottage', where the existing house has 17th-century features. The most important place-name seems to be 'Newton Bay', reached, as modern charts show, by the only reasonably navigable channels from South Deep. No navigable channel now approaches the E. side of the peninsula. If this be inconclusive evidence, at least it is certain that Ower, also on Newton Bay, was used as a port in the 13th century.\(^5\) Lastly the site now suggested for *Nova Villa* seems always to have remained in Studland parish, where Edward instructed that the new town should be prepared.

H. C. Bowen and C. C. Taylor

THE SOUTHAMPTON ARCADE (FIG. 78)

Publication of the late B. H. St. J. O'Neil's lectures on early artillery fortification has refocused attention on the town wall of Southampton, which he had previously studied in some detail.\(^5\) O'Neil's approach was primarily architectural and documentary, so that it is perhaps permissible to look again at part of the wall in terms of military tactics.

The Arcade, on the west side of the medieval town, consists of a row of blind arches in front of older walling, most of whose former openings have been blocked (FIG. 78). This blocking was recommended as a defensive measure in 1360, but the major expenditure on the walls was in 1369-70 and 1378-85. In 1378/9, after the French had overrun the Isle of Wight, William of Wynford and Henry Yevele were commissioned to impress masons for Southampton, and the king's carpenter, Richard Swift, was working on a tower and turrets there.\(^5\) The embrasures built in the blocking masonry are neatly framed in ashlar; the jambs converge toward the outer face of the wall, but are still a foot apart 7 in. from the face. Here the opening is narrowed to a vertical slit 2 in. wide, with a circular hole 5 in. across at the lower end, rather like an inverted keyhole, with an external \( \frac{1}{2} \) in. chamfer round the opening. Two such embrasures in King John's House are apparent; careful scrutiny reveals traces of five others in the wall farther north, and the rebuilding of a length of wall may have removed traces of another. If so, there was once a regular row of seven embrasures at intervals of between 30 and 40 feet, the exact interval being determined by the position of a convenient blocked opening. The irregular position of the eighth (close to the southernmost) has a special significance.

Embrasures for use with the long-bow had simple jambs converging to a narrow slit. Round orlets and horizontal cross-slits are said to have been introduced to improve the field of fire for cross-bows, but these weapons also needed more elbow-room within the embrasure, which had to be radically redesigned. The somewhat greater range and penetrating power of the cross-bow was offset not only by a slower rate of fire but also because it was difficult to manoeuvre in a restricted space. The round openings of considerable diameter, in the Arcade and elsewhere, were meant for guns—but what sort of guns?

It is usually implied that the weapon was a cannon mounted on a flat bed, its external muzzle diameter approximating to the bore of the opening. But this would

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\(^{5}\) Hutchins, *op. cit.* in note 51 (3 ed.), 1, 490–3.


mean that the gun could only be laid to fire on one fixed line—straight ahead—and without any elevation to increase the range. Elaborate structures would have to be built behind the cannon to absorb its recoil. These plate-fronted embrasures were never arrow-slits, so why slope the jambs merely to improve visibility of a field uncovered by fire? A 5-in. hole in a 7-in.-thick plate must mean a slender weapon to allow any traverse or elevation at all. At Mont Orgueil Castle, Jersey, there are ‘keyhole’ gunports with round openings 4½ in. across in plates 5½ and 8 in. in thickness.55

Hand-guns stocked like pikes are mentioned in the Wardrobe Accounts for 1374/5 and actual examples of uncertain date and origin survive.56 Richard Swift delivered two petites canons to Richard II in 1377, and one gun and two little guns were sent to Southampton in 1380, probably for the castle. But the townspeople themselves bought

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FIG. 78

THE ARCADE, SOUTHAMPTON

Plan showing possible fields of fire from gunports (pp. 226 ff.)

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a gun for 5s. 8d. in 1382—a small price to pay for anything more than a hand-gun. Supplies sent to Corfe Castle in 1380 included a thousand lead pellets weighing 300±15 pounds; these could only have averaged 1 in. diameter.57 Such slim guns would have been quite convenient to handle in narrow embrasures, with the pole stuck into the ground to take the recoil and the muzzle protruding well outside the wall so that the fumes did not blind or choke the gunner. The range would have been limited—fifty yards has been suggested58—since a weak charge was necessary to avoid any danger of bursting. This compares very unfavourably with the range of the longbow or cross-bow, but the gun then had the psychological advantage of novelty. Practical experiment shows that such a hand-gun would have a traverse of 30° and an elevation of +20° in the King John’s House openings. Assuming this to apply to the other embrasures of the Arcade (which are now inaccessible), we have the fire diagram of FIG. 78. Every point more than 20 yards from the wall is covered from two embrasures,

and the danger zone in front of the Blue Anchor postern from three. The dead ground close to the wall could be easily defended from the wall-walk, the parapet crenellations being most suitably arranged for this purpose. A score of men could hold this critical front, defending a hundred yards of quayside out of range of the castle.

If these suggestions are correct, the Southampton Arcade affords an unparalleled example of a medieval defensive battery, a masterpiece of conversion by a designer skilled in both architecture and military engineering. There is other evidence of such a genius at work in southern England at this time. Many castles and town walls have towers with ‘keyhole’ gunports facing forward, left and right, but this simple layout was elaborated at the west gate of Canterbury, which was begun shortly before 1380 (probably in 1378) and may therefore be closely contemporary with the Arcade. The twin-towered gatehouse has openings at three levels, each with a vertical slit above a round hole 10 in. across. On plan the axes of the openings are inclined at 45° to each other, and the elevation may be developed diagrammatically thus:

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This design presents certain problems of analysis. The two innermost ‘keyholes’ face each other at a distance of only three yards, but they control access to the entrance itself. Again, the two backward-facing openings on the S. tower look at the line of the city wall at point-blank range, but the wall may have been raked back there, or there may have been another reason for the extra defence. The weapons employed could have been larger than those at Southampton, but the same idea of overlapping fields of fire was planned for at Canterbury in terms of different levels. The name of Henry Yevele is associated with both the Arcade and the Canterbury west gate. O’Neil pointed out the close resemblance between the ‘keyhole’ gunports in the Winchester west gate and those of Dr. Molaine’s tower on the Canterbury town wall, both of the early 1390s, and Yevele was involved in both these rebuildings. The conclusion that he was the designer of these advanced fortifications seems inescapable.

D. F. RENN

THE CAEN CONFERENCE, 1963

The sixth annual Conference of the Society was held at Caen from 6–9 April 1963 and had as its theme ‘England and Normandy, 911–1204’. More than a hundred people attended. The Conference was organized by Professor M. de Bouard, to whom and to his local helpers, as well as to the University of Caen, the Society owes a great debt.

On 6 April delegates visited Brionne, Bernay, Jumièges and Vatteville. In the evening of the same day Professor D. C. Douglas lectured on ‘The political-historical background of Anglo-Norman relations 911–1204’, after which a reception was given by the University of Caen. On 7 April the following lectures were delivered: M. Adigard des Gautries, ‘La toponymie et l’anthroponymie de l’Angleterre et de la Normandie du 10ème au 13ème siècles’; A. J. Taylor, ‘Military architecture in England and Normandy to 1204—affinities, divergences and problems’; M. P. Hélot, ‘La rôle de la Normandie et de l’Angleterre dans l’élaboration du style gothique’ and Prof. M. de Bouard, ‘Remarques sur quelques “earthworks” normands’. On 8 April there was an excursion to Bayeux, Cerisy la Forêt and Lessay. On 9 April there was an excursion to various churches in Caen and to Rouen.

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