

BUNGAY CASTLE.

REPORT ON THE EXCAVATIONS.

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Following my notes on the history of Bungay Castle, which appeared in the last part of the Proceedings of the Suffolk Institute of Archaeology, I now have the honour to present a report on the results of the examination of the site carried out during the period November, 1934, to July, 1935, at which time the funds collected had been exhausted. About £460 had been collected for the purpose, mostly from private individuals, although the local societies had subscribed liberally, and a valuable grant of twenty guineas had been made by the Society of Antiquaries of London. Two-thirds of the funds had been spent on local labour, over £200 having been paid in wages to unemployed ex-Service men. Besides the tidying and excavation work which had been carried out, certain sums had been spent on repairs to the masonry, hedges to replace destroyed walls, protective fences, and a permanent timber bridge to replace the old "turning bridge" which had formerly spanned the bridge-pit between the twin towers of the Inner Gatehouse. The publicity given to the work at the Castle had attracted some hundreds of visitors during the summer of 1935 and the collecting boxes placed in the ruins had benefitted correspondingly. Now that the Castle has been tidied up and made accessible, it is to be hoped that it will henceforth take its proper place as an important Ancient Monument, and will continue to be inspected by visitors to Bungay, who will, by their contributions, enable the ancient ruin to be maintained for the perpetual enjoyment of those who take interest in the old buildings of this country.

THE EARTHWORKS.

The site of the town of Bungay is a neck of high land, flanked to east and west by steep scarps rising above the swampy valley of the Waveney. At some period, possibly during the tenth century, the isthmus was fortified by cutting two entrenchments across from flank to flank, isolating the narrowest part of the site and forming a defensible site about three furlongs in length. At its narrowest point the site is about one furlong across from scarp to scarp. The flanks themselves appear to have been protected by earthen ramparts, in addition to the transverse entrenchments. Of the town's defences there still remain some portions of the northern entrenchment, somewhat complicated to-day by the cutting made by the railway company for their goods yard. The western half of the southern ditch is well seen from the lane known as Quaves Lane, which skirts its outer edge. At the back of the gardens on the north side of the lane may be seen the ramparts themselves. A fine stretch of rampart joins the south-

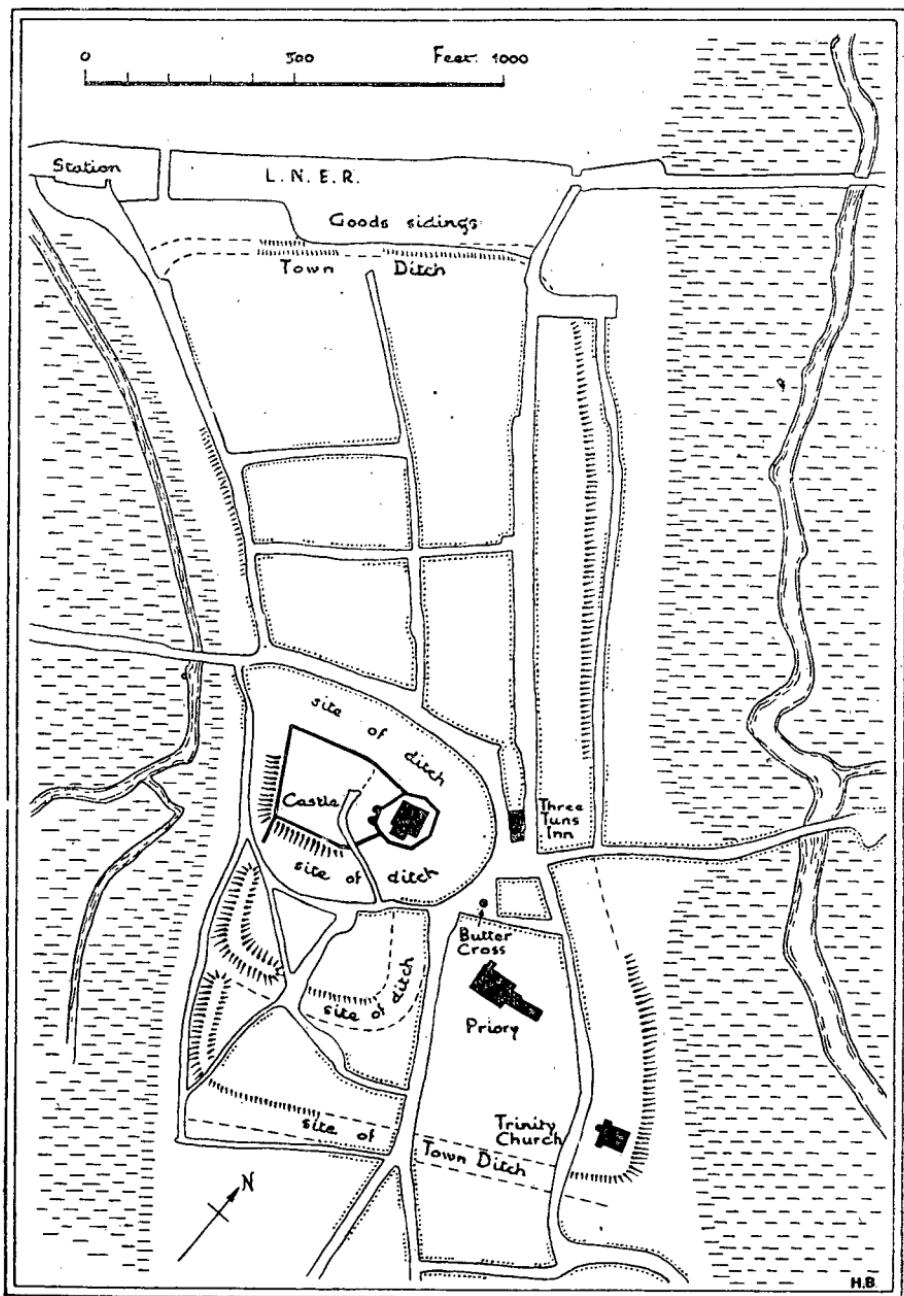


FIG. I.

The Town of Bungay, showing the Remains of its Mediæval Buildings and the Traces of their Earthwork Defences.

west angle of the town to the earthworks of the Castle, the Outer Bailey of which was probably taken from the town. The western ramparts of the Castle are possibly part of the original town defences. The Town Plan (Fig. I) shows two streets, Upper and Lower Olland Streets, which meet at the edge of the ditch by the south gate of the town. From this point the main street of the ancient town appears to have run along the crest of the ridge, the market place being approximately half way between the south gate and one which may have led through the northern ramparts to the large river-protected common of Outney beyond.

The mound of the Norman castle was erected (possibly by William de Noyers in 1070) in the very centre of the town, the centre of the mound being almost exactly midway between the flanks of the isthmus.* The setting-out circle from which the mound was raised was struck at about a hundred foot radius, the whole mound with its ditch was about four hundred feet across at its widest part, and the area at the summit was originally about one hundred and fifty feet across, and raised about twenty feet above the level of the town below.

Between the mound and the western scarps a small bailey was set out about three hundred feet wide (about the distance from the centre of the mound to the edge of the cliff—perhaps this represents a hundred paces). It is at present not surrounded by ramparts, the whole area having been covered by the soil from the ditches. Possibly this was always so, or possibly the ramparts were removed when the stone walls were built. At present this bailey is about 250 feet across and 175 feet from the cliff to the original edge of the mound ditch. Its level is the same as that of the top of the mound.

At some period subsequent to its original foundation, the accommodation of the Castle was increased by the addition of an Outer Bailey. The subject of early Norman castles having been hitherto sadly neglected by archæologists, there is at present insufficient evidence to enable the probable period at which such additions may have been made to be stated with any degree of certainty. Possibly the addition was made when the garrison was augmented by Flemish mercenaries during the Anarchy of 1135-54. It would seem almost certain that the additional bailey must have been constructed not later than the time when the keep was built (*circa* 1164, v. inf.) as the consequent filling up of the summit of the original mound with this

*It may be of interest to note that the castle of Durham, founded by William the Conqueror in 1072, supplies a very close analogy with that of Bungay. At Durham, the old city is situated on a peninsula formed by a loop of the River Wear. At its narrowest part, the site is about a furlong across, as at Bungay. The castle mound, of almost exactly the same size as that at Bungay, is placed in the centre of this isthmus, the small barbican bailey being between the mound and the western scarps, as at Bungay.

At Norwich, where the city was situated in a rather wider loop of the River Wensum, the castle mound was again placed in the centre of the base of the loop. Here the river banks were too far off to be used as part of the defences of the bailey, so a small lunate enclosure was constructed to the south of the great mound, much larger than those of Bungay or Durham.

enormous tower must have forced the living accommodation of the castle into the Inner Bailey. The Outer Bailey would then have been needed for animals hitherto kept in the original bailey. The Outer Bailey at Bungay, called (probably from early times) Castle Yard, was set out along the southern side of the original castle, approximately two hundred feet away from the edges of the ditches. The earthwork appears to have been on an exceptionally large scale and must have encroached considerably on the area originally set out, leaving eventually a space some 150 feet across and twice as long.

The outer entrance to the Castle was where the eastern ramparts of the Outer Bailey reached the mound ditch (the passage beside the chemist's shop seems to represent this) and the way would then skirt the mound ditch into the Inner Bailey and thence to the timber bridge over the ditch into the area on the mound-top, arriving there, presumably at the point now marked by the twin-towered gatehouse.

Of all this earthwork, practically only the river front of the Castle remains. The whole of the mound ditch has been filled in and much of it built upon. The same applies to the north ditch of the Inner Bailey, although its southern ditch may still be detected in the gardens which now cover it. The magnificent earthwork of the south-western angle of the Outer Bailey still remains to give some idea of the ancient strength of its defences (the soil removed from round the keep during the recent excavations was dumped into spoliatory quarries which had been made in these ramparts) and the whole of the run of the southern ramparts of this bailey can be detected among the gardens between the Council Yard and St. Mary's Street, the old High Street. The houses on the western side of this road have, however, completely obliterated the eastern ramparts of the Outer Bailey, the run of which can therefore only be conjectured.

EARLY BUILDINGS WITHIN THE CASTLE.

The original accommodation of the castle would have consisted of a timber hall, probably rather like a mediæval barn, standing in the middle of the mound-top and surrounded by a stockade. The palisaded area of the original bailey would have contained stables and other outbuildings, also of timber.

The recent examination of the castle has shown, however, that the great keep was not the first stone structure on the mound. It was customary during the twelfth century to replace the early timber halls with either a stone hall or else a fortified structure or "hall-keep," such as at the Tower of London or Castle Rising. That there was no hall-keep at Bungay is shown by the fact of the existence of the present "tower-keep," a later type of structure which was a citadel rather than a residence. Built up into its walls, however, are a number of pieces of Caen stone which have obviously formed part of an earlier building, presumably an early stone hall. Inside the south wall of the forebuilding is built-in part of a slender column about eight inches in diameter and on the outer face of the west wall

of the keep itself, near its north-west angle, is part of a moulded string-course (Fig. IIa) which suggests that the destroyed building belonged to the first half of the twelfth century. No more can be at present ascertained concerning this earlier hall, but if it is ever possible to clear out the interior of the keep to its foundations those of the earlier structure may then be found.

DESCRIPTION OF THE KEEP.

The great tower stands on an "anti-mine" base about seventy feet square, the walls being at this level eighteen feet thick (Fig. VI). At about the present ground level, the exterior of the tower sloped back as a battering plinth (portions found, v. inf., see also Fig. IV) about nine feet high until the faces of the walls were about five feet behind those of the base. This plinth has now entirely disappeared and its place is taken to-day by the undercutting effected in 1766 by a destructive gentleman who wished to overthrow the walls of the keep preparatory to breaking them up for road metal.

Above the site of the plinth may be seen, in the rough rubble masonry, a series of cracks representing the sites of the original pilasters which at one time ornamented the walls of the keep. These pilasters were each about thirteen feet wide and there would seem to have been one in the centre of each face as well as the usual pair at each angle. A careful examination of such portions of the original facings of the tower as remain to-day will demonstrate that the pilasters projected about two feet in front of the wall face.

There were found in the ruins a large number of quoins of Barnack stone which had formed part of an angle ornamented with a vertical shaft about eight inches in diameter. It may be that these quoins came from the angle of the keep, as the shafted angle is quite a common feature of tower keeps.

Internally the keep is about thirty-four feet square and this span, too great for a single floor beam, necessitated its division into two by a cross wall eight feet thick, leaving the two halves of the interior thirteen feet wide. The wall at the northern end of the west chamber has been thickened to twenty-three feet in order to provide room for the staircase, and the chamber has thus been shortened by five feet.

The strong foundation storey of the keep was apparently buried several feet deep in fine gravel taken from the bottom of the mound ditch. The resulting ground level of the mound-top seems to have sloped upwards away from the entrance, so that the eastern side of the keep, which was most exposed to mining attacks, was buried more deeply than the western side next the bailey. The presence of this fine gravel would have made mining from the side of the mound almost impossible, as any gallery driven through such loose soil would be almost certain to collapse unless it were very efficiently shored up.

Within the keep, the foundation storey was filled to a depth of about twelve feet, which represents, approximately, the average depth to which the exterior of the tower was buried. On the surface of the

interior filling was laid the basement floor, formed of rammed lime. A few small portions of this remained adhering to the walls.

The basement floor contained two rooms, the eastern being thirty-four feet long by thirteen and the western twenty-nine feet long and of the same width as its neighbour, to which it was joined by a doorway, five and a half feet wide, passing through the cross wall. At the north-eastern corner of the west chamber, a lobby six feet wide led to the foot of the newel stair, a fine feature of the keep, thirteen feet wide. One of the steps was found, and showed the newel to have been a foot wide and the stair to have risen sixteen six-inch steps to the circuit. The lower part of the stair was filled up in comparatively recent times and a fireplace built in it.

The stair was lit by small windows (one of which remains) formed to pass out in the centre of the north central pilaster. The east chamber had two windows, to-day much broken, but having originally steeply sloping stepped internal sills and segmental rere-vaults. The west chamber probably also had two similar windows, but only the northern half of the northern one remains, its head lying on the floor within the chamber.

In the north-western angle of the keep, at about thirteen feet above the basement floor, may be seen the remains of a latrine chamber (sometimes, incorrectly, called "garderobe") which seems to have originally been about twelve feet wide and eight feet long. It was lit by a window in the western face of the angle buttress, and in the north-east angle was a shaft descending more than forty feet into the mound.

The top of the ruined walls show no signs of the whereabouts of the first floor. It would seem probable, however, that the present wall-tops represent the level of the bearing of the floor-joists of the next storey, which would then be a foot or so above the top of the walls as they appear to-day, making the distance between basement and first floors about twenty feet (a very usual storey height in late keeps).

The curious undercutting of the keep walling is due to the efforts of the destroyers in 1766, who thus endeavoured to overthrow the walls. They succeeded in overturning the west wall, which lay in three large fragments between the keep and the gatehouse. In their fall they had buried themselves deeply in the loose gravel of the mound-top, having to be dug out and removed with explosives. The disturbance of the ground at their fall and the subsequent turning over of the soil by the workmen who had hacked at them to take the material had made it impossible to attempt stratification in this area. Smaller portions of the west wall and cross-wall still lie within the keep on the gravel filling of its interior.

THE FOREBUILDING.

To the south of the keep, and of one build with it, is the forebuilding or entrance tower. This structure is of unusual size, being thirty-eight feet long and twenty-feet projection from the keep. Its walls are eight feet thick, the eastern being rather more. The exterior has

a simple plinth, the burial of which under the gravel filling suggests that the latter was an afterthought and not part of the original scheme.

The interior of the forebuilding was not filled, its floor, of rammed lime, having thus been some eleven feet below that of the keep itself. The basement of the forebuilding was clearly a prison. It has no entrance, its occupants having probably been lowered through a trap in the floor above. In the south-west angle was a latrine (or "garderobe") which discharged directly into a cess-pit, seven feet by five, roofed with a barrel-vault and descending for an indeterminable depth into the mound. The oaken seat of the latrine (illustrated in the last part of the S.I.A. Proceedings) was discovered on the floor of the forebuilding during excavation and was found to fit exactly the slots provided for its reception in the sides of the latrine recess.

The manner in which the south wall of the forebuilding has broken away suggests that the prison was lit by a small window high up on this side.

The purpose of the curious holes cut in the walls of the prison remains a mystery. (See illustration in last part of S.I.A. Proceedings).

High up in the south wall of the keep may be seen a beam-hole which demonstrates the level of the first floor of the forebuilding, which was thus twenty-four feet above its basement and perhaps seven feet below the corresponding floor of the keep.

In the angle between the east wall of the forebuilding and the south wall of the keep would have been the great stair, but excavation has not yet reached this point. A short stair would presumably have passed through the south wall of the keep joining the entrance floor of the forebuilding with the corresponding floor of the tower itself.

The entrance floor of the forebuilding would appear to have had in it a latrine chamber corresponding with that in the prison beneath, as a shaft passes down through the wall to discharge into the cess-pit already described.

There are a number of forebuildings in the country which are more elaborate than that of Bungay. Some of them include the great stair itself and are further elaborated to provide additional defences to this. The Bungay forebuilding, however, is merely a simple room, and, as such, is by far the largest structure in the country.

In its simplest form, the forebuilding is a small tower about twenty feet wide and with quite thin walls, forming as it were a protected quarter-landing to the great stair before the main door of the keep. If the little tower is not square, its projection is usually greater than its width. (See plan of Scarborough, Fig. VII). At Bungay, however, we have a long tower covering a good deal of the south wall of the keep, providing more accommodation than was really necessary for a simple forebuilding. Its walls are thick, suggesting that it was a lofty structure.

It will be noticed that the axis of the keep is not the same as that of the original castle (see plan in last part of S.I.A. Proceedings), but

is slewed round so that the keep is almost four-square with the points of the compass. This has the effect of orientating the forebuilding, and I would therefore suggest that the floor over the entrance storey of this interesting tower was a chapel.

MINE GALLERY.

The mine gallery beneath the south-western angle of the keep was described in the last part of the S.I.A. Proceedings. It would appear reasonably certain that the gallery dates from the time of the surrender of the castle to Henry II in 1174.

ARCHITECTURAL DETAILS.

(See Figs. II and IV). Fig. IIa shows a section of a portion of moulded string built into the northern end of the west face of the keep basement. It is evidently re-used material from the destroyed stone hall and appears to be of the first half of the twelfth century.

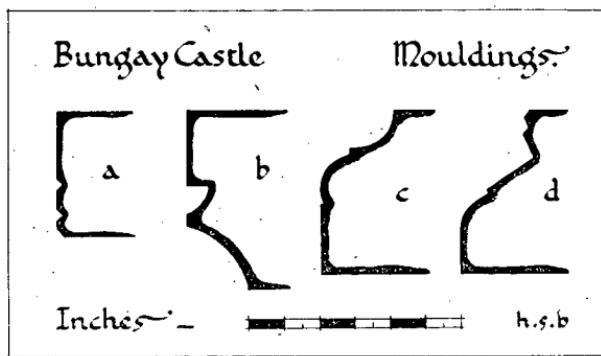


FIG. II.

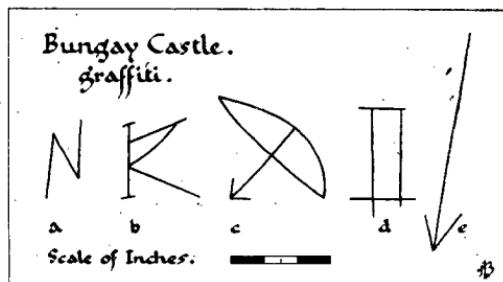


FIG. III.

Fig. IV displays some of the architectural details found during the excavations. From left to right, first may be seen some of the stones from the keep plinth, the angle of slope being nine vertical to five horizontal.



FIG. IV.

BUNGAY CASTLE. Architectural Details found during the Excavations.

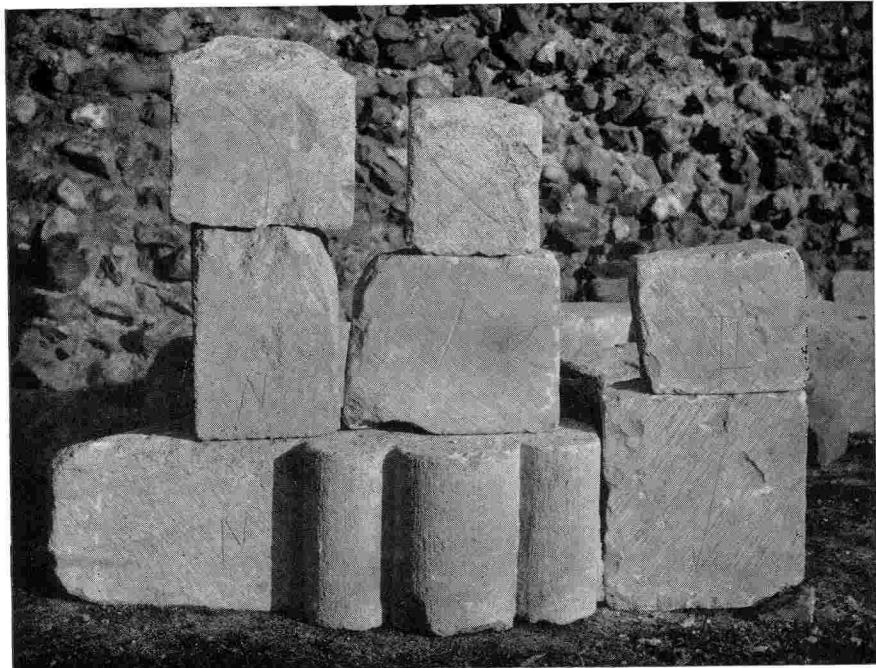


FIG. V.

BUNGAY CASTLE. Stones having Graffiti upon them.

Next is part of an impost moulding (section shown on Fig. IIb). This section is often found in connection with scalloped capitals, and it may be that the stone is an abacus of one of the capitals to the columns described below.

Several stones were discovered which had formed part of a column or columns about two feet four inches in diameter. Portions of their bases were also discovered (Fig. IV). Two different mouldings were found, their sections being shown on Fig. IIc and d). A very small portion was found of a scalloped capital which had also belonged to a column of about the same diameter (Fig. IV).

The capital, bases and impost moulding all seem to belong to about the middle of the second half of the twelfth century.

It would seem that these columns can only belong to the keep, unless the estimated date of this structure (v. inf.) is very much out. The large diameter of the columns suggests that they formed part of an arcade taking the place of the cross-wall at the main floor level, as at Rochester keep (v. inf.). As there are two base sections, there may have been such an arcade on two floors (possibly the entrance floor as well as the main floor, or else an upper floor over the latter).

The portion of capital shown on Fig. IV is resting on a stone which shows sections of vaulting shafts, the central of these being $5\frac{1}{2}$ inches and the two lateral $3\frac{3}{4}$ inches in diameter. This stone has come from a room vaulted in at least two bays of quadripartite vaulting, properly constructed with transverse rib and diagonal ribs. It is difficult to imagine which portion of the keep this might be; possibly one of the storeys of the forebuilding (? the chapel) may have been vaulted.

At the extreme right of the display of architectural details shown on Fig. IV are three of the score or so of stones found which have formed part of an angle having a shaft eight inches in diameter running up it.

GRAFFITI.

A number of graffiti or "mason marks" have been noted on the dressed stones found in the ruins. These are shown in Figs. III and V.

The "N" or "lightning flash" (Fig. IIIa) appears on the vaulting-shaft stone and on an unmoulded stone. (Fig. V).

The mysterious sign IIIb (which may have been drawn upside-down) appears on a stone which is probably part of a salient angle of a doorway.

The bow with an arrow on the stave instead of the string (IIIc) appears on one of the stones of the keep plinth. (I understand that this sign is of common occurrence).

The "box" (IIId) is on an unmoulded stone.

The arrow or "spear" (IIIe) which may be upside down, appears on two unmoulded stones.*

At the top left-hand corner of Fig. V is shown a stone having two curved scratches which may be accidental.

*One of which was inadvertently built into the restored south-west angle of the keep in 1935.

PETROLOGY.

The core of the walling of the keep consists of flint rubble.

The keep was faced internally and externally with a rubble casing of an estuarine sandstone probably from the moors behind Scarborough. This stone is similar to the Aislaby stone used for some of the Yorkshire abbeys built during the second half of the twelfth century.

The shafted quoin-stones are of an oolitic limestone of the Barnack-Ketton type.

The remainder of the dressed stones are of Caen stone.

I am indebted to the Director of the Geological Survey for assistance in connection with the elucidation of the sources of the stones and also to Professor Pruvost of Lille University, to whom I sent some samples in case they might have been quarried on the Continent.

DATE OF THE KEEP.

The earliest keeps in this country, the "hall-keeps," were large, two-storied structures having a great hall and a great chamber placed side by side and raised above a storage basement. East Anglian examples are Norwich and Castle Rising. About 1125 the hall-keeps began to give place to the "tower-keeps" which were smaller, loftier towers having the chamber situated over the hall instead of alongside it. Sometimes there was also a separate entrance floor, as at Hedingham in Essex.

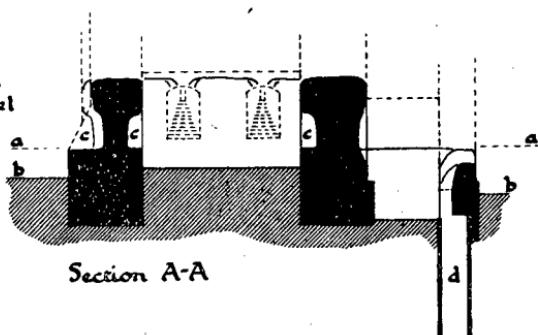
The hall-keeps had walls about eight to ten feet thick and their chief external ornamentation was thin pilaster strips passing up their walls. With the raising of the towers their walls became thicker and strong basements were instituted as protection against mining. By the middle of the twelfth century the narrow pilaster strip was giving place to the broader form which had originally been designed to provide space for the angle-staircases in the thin walls of the hall-keeps. (Compare Norwich with later Rising).

The square plan and thick walls of Bungay keep show it to belong to the second type of keep and the discovery of the broad pilasters suggest that it is fairly late in date. Another fact which points to a late date is the elaborate forebuilding already noted. At the outset, therefore, we may suggest a mid-twelfth century origin for Bungay keep.

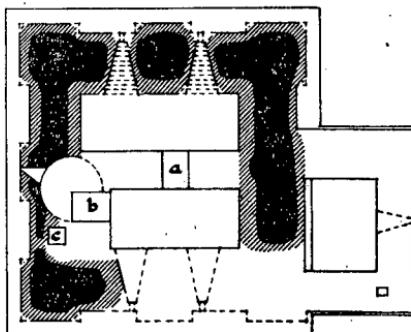
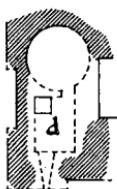
The earliest known keep which has broad pilasters in place of the narrow strip type is the fine tower of Scarborough, begun by Henry II in 1157. This keep has also the peculiarity of a staircase away from the angle, as at Bungay. No other keep has this feature, so that there is a very close link in this respect between the two keeps. It would seem reasonable to suppose that a private keep would have been behind, rather than ahead, of the fashion set by the royal engineers, so perhaps we may assume Bungay keep to have been built later than 1157.

The Keep of Bungay Castle in Suffolk.

a-a Present Ground
 b-b Norman ditches
 c-c robber holes
 d cesspit



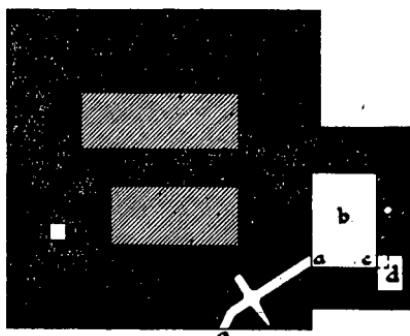
a doorway
 b stair lobby
 c drain from -
 d garderobe on
 mezzanine floor



Basement Plan.



a-a Mine Gallery
 b Prison
 c Garderobe
 d Cesspit



Foundation Plan.

Scale of Feet

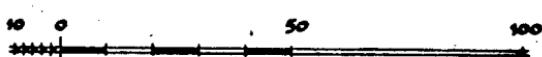


FIG. VI:

In the summer of that year, Hugh Bigod was deprived of his castles, not getting them back until 1163, when Henry had become involved in a dispute with Thomas Becket and was trying to win the lay lords to his cause. Bungay keep could not have been built in the period 1157-63, as no accounts concerning it appear in the Great Roll of the Pipe.

It may therefore be a reasonable supposition that Hugh Bigod commenced the keep soon after getting Bungay Castle back in 1163. He could not have built it much later, as it would have taken many years to build, and he was finally deprived of the castle in 1174. Moreover, in 1165, we find Henry starting his favourite castle of Orford, apparently for the purpose of keeping Bigod and his Flemish mercenaries in check. The design of Orford keep shows a considerable advance on that of Bungay, so it would seem probable that the initiation of the latter antedates that of Orford.

The probable date of foundation of Bungay keep is thus suggested as about 1163-5.

It is not impossible that the keep may have been built before 1157, but it must have taken many, perhaps eight or ten, years to build, and the mouldings, as well as the segmental heads to the basement windows, do not suggest such an early date as 1150. Very few tower-keeps in this country are datable from documentary evidence, and very little work has been done in connection with the examination of Norman castles which provides much assistance in dating their features from architectural evidence.

It has been suggested that the Anarchy of Stephen's reign, with its forced labour of peasantry, may have produced some of the keeps in this country. The wail of the Anglo-Saxon Chronicle—"They cruelly oppressed the wretched-men of the land with castle-works"—may refer to the building of keeps, but may equally be referring to earth and timber castles. In any case, the same might possibly have been said of Hugh Bigod's reign in East Anglia until Henry II finished his career in 1174.

It may be that future research will ante-date the period c. 1164 suggested as the date of commencement for Bungay Keep, but I feel that the extraordinary resemblance between this keep and that of Scarborough is too remarkable not to serve as some indication.

A point which may be followed up by future students is the interesting one of the origin of the rubble with which the keep was faced. William d'Aumale, Earl of York and lord of the (then keep-less) castle of Scarborough, appears to have been a friend of Hugh Bigod during the Anarchy, and thus may have provided the latter Earl with stone for a castle, which Bigod would not have found so easy to procure after Henry had turned d'Aumale out of Scarborough in 1155, and thereafter constructed the royal keep in that castle. On the other hand, it is equally probable that the rubble is re-used material from the stone hall which certainly preceded the keep and which may have been built during the Anarchy.

COMPARISON OF THE KEEPS OF BUNGAY AND SCARBOROUGH, AND ATTEMPTED RESTORATION OF THE FORMER BY ANALOGY WITH THE LATTER.

See Figs. VII and VIII. Scarborough Keep, commenced about 1157 by Henry II after he had subdued William d'Aumale, Earl of York, and taken his castle from him in 1155, is a rather smaller tower than that of Bungay, the solid "anti-mine" base of the latter being seventy feet square to the sixty-three of the Yorkshire tower. In both cases the thickness of wall in the foundation is eighteen feet.

The habitable basement storey, at which level the two plans on Fig. VII are taken, have walls thirteen feet thick in both keeps, the plinths in both cases projecting five feet and sloping at an angle slightly less than sixty degrees with the horizontal. (Actually nine vertical to five horizontal).

While the two plans compared on Fig. VII show clearly their family resemblance, their minor differences seem to be due mainly to their unequal sizes. Thus, while the pilaster strips ornamenting Scarborough vary from nine to twelve feet wide and project only a foot, those of the larger tower are eleven to thirteen feet wide and of two feet projection. The greater internal span of Bungay keep necessitated the provision of a cross-wall to assist in carrying the floors; at Scarborough the span was unbroken in the basement and on the upper floor, where the thinning of the walls had increased the span, a great arch spanned the interior in place of a cross-wall.

In both keeps the circular stair is away from the angle, a remarkable eccentricity already noted. At Scarborough the stair is in the thickness of a side wall and is twelve feet in diameter, at Bungay the cross-wall assists in housing the stair, which seems to have been thirteen feet in diameter.

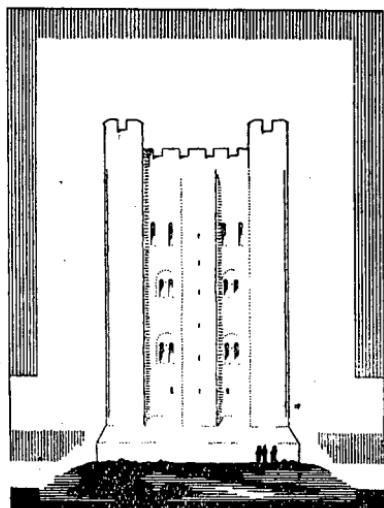
In both keeps the "anti-mine" basement is filled with soil and the lower stage of the forebuilding left empty but inaccessible, to serve as a pit-prison. Both prisons have a latrine with a vaulted cesspit, and both were lit by a loop high up in the wall away from the main tower.

The Scarborough forebuilding is of the small, rather primitive, type with thin walls and having its projection as the larger horizontal dimension. It had, however, three floors, the upper of which, over the entrance, may have been a chapel. The Bungay forebuilding, described in a previous section of this report, is very large and has unusually thick walls, and has been prolonged as noted along the wall of the main tower, possibly so as to provide room for a commodious chapel on its upper floor.

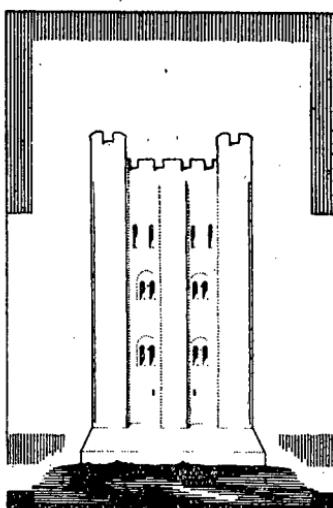
It will be noted that the great stair to the forebuilding, seen on the plan of Scarborough keep, has not yet been found at Bungay.

Another feature which suggests that Bungay keep post-dates that of Scarborough is not shown on the comparative plans. The latrine shoots in the main tower at Bungay were constructed to discharge into the mound without passing into the open air, whereas at Scar-

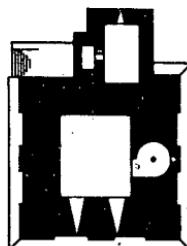
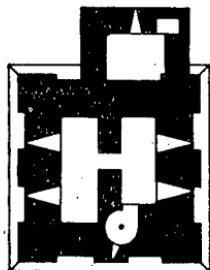
**Comparison of the Keeps of
Bungay and Scarborough**
Upper Parts Restored in each case—.



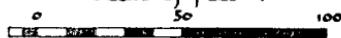
Bungay



Scarborough



Scale of Feet.



Hugh Brauer.

FIG. VII.

borough the more primitive method was employed of letting them discharge through the external wall-face between the pilasters and down the sloping plinth.

The angles of the latter keep are ornamented with shafts running up them. The discovery of shafted quoin-stones at Bungay suggests a similar feature.

Let us now consider the section of Scarborough keep and see how that of Bungay may have resembled it. From this comparison we may be able to obtain some impression of the original appearance of the great East Anglian tower.

The earth-filled "anti-mine" basement at Bungay is about twelve feet deep. The depth of the corresponding basement at Scarborough has not been ascertained, but it is at least ten feet deep.

The basement proper at Scarborough is just under twenty feet in height, and the height of the corresponding storey at Bungay appears to have been about the same.

The windows lighting each of the floors at Bungay keep were probably in the east and west walls, two windows lighting each half of the tower.

The entrance floor at Scarborough is about twenty feet in height, has four windows and a fireplace. In it is the main door of the keep, at the head of a short stair leading from the rather lower floor of the forebuilding. The same could probably have been said concerning the entrance floor of Bungay keep. At Scarborough, however, the place of the cross-wall has been taken by a huge arch spanning right across the keep and helping to support the floor over. The cross-wall was presumably omitted because the floor was required as one room.

The second floor of a tower-keep was usually the Great Hall. At Scarborough this storey was again twenty feet high, but was divided into two rooms by a cross-wall, which makes its purpose rather difficult to conjecture. One of the rooms has a fireplace in it, and it may be that this storey contained private rooms of the castellan, the great hall of the tower being in the entrance storey. This seems probable when we observe that the uppermost storey, which is usually that containing the Great Chamber of the castellan, has no fireplace—an essential feature of such an apartment.

It would thus seem possible that the great hall of the keep was on the entrance floor and that both the two uppermost floors were given over to the private apartments of the castellan. The top storey at Scarborough was also about twenty feet high to the springing of the roof, this having been probably in two spans with a pitch of about fifty degrees.

The probable arrangement of the cross-wall at Bungay presents difficulties. The actual span along the length of this wall is twenty-nine feet, the same as that at Scarborough, where it is spanned by the great arch. At Hedingham in Essex there is also a great arch spanning the interior of the keep, and this too has a span of the same width. It is therefore tempting to suppose that Bungay also had a single great

arch, a much better arrangement than the more primitive arcade at Rochester, a very early tower-keep begun in 1128. On the other hand, the discovery of the portions of large columns lends support to the arcade idea, especially as the cross-wall in the basement is such a very sturdy construction. (There may, however, have been half-round responds with scalloped capitals at the springing of the arch, as at Hedingham). It is to be hoped that future excavation will produce evidence of the form taken by the cross-wall.

By analogy with Scarborough, it may be supposed that the keep of Bungay also had four storeys. Above the existing basement may have been an entrance floor twenty feet high, a second floor of the same height and an upper floor twenty feet high to the springing of the roof. This

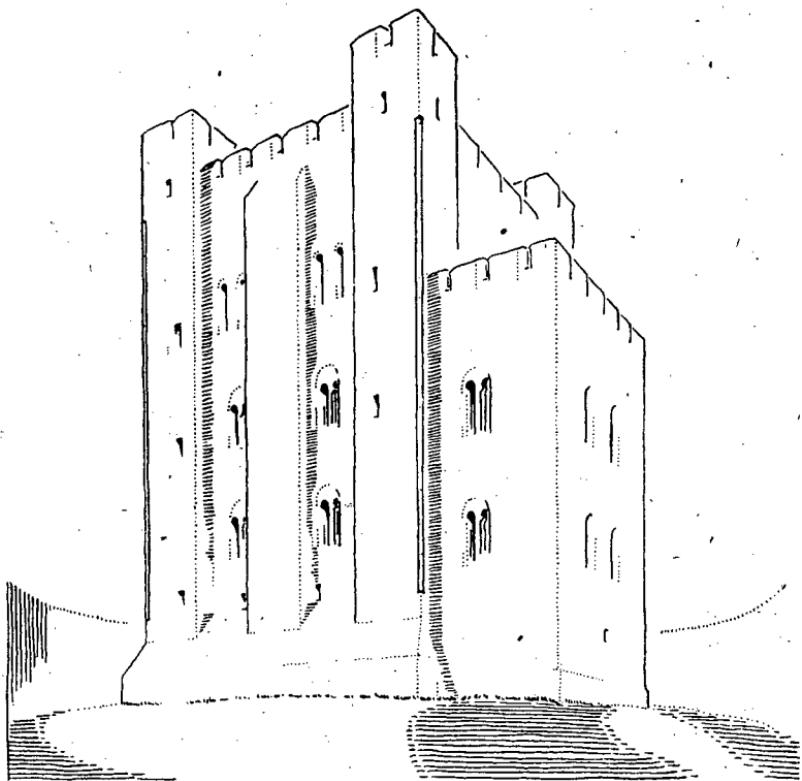


FIG. VIII.

BUNGAY CASTLE. The Keep restored. South-west aspect.

makes a height of eighty feet from the basement floor to the springing of the roof, this having probably been in two spans of perhaps fifty degrees pitch, making the ridges about sixteen feet above the springing. The wall-walk would probably have been at about the level of the ridges,

and thus about ninety-six feet above the basement floor. The crenelated parapet would have been at least six feet in height, making the whole height of the tower about 102 feet above the basement floor. The angles would certainly have been taken up as turrets, probably ten feet higher than the tower itself. Thus the total height may have been about 112 feet above the basement floor—or 124 feet above the foundations of this mighty tower. Even if the keep had only possessed three floors, the minimum accommodation for a tower-keep, only twenty feet need be taken from these heights. The Great Tower of Bungay may thus take its place among the loftiest keeps in the country.

COST OF THE KEEP.

The cost of some of the twelfth-century keeps may be ascertained from the building accounts still to be seen in the Great Roll of the Pipe. From these figures and a study of the plans of the towers themselves I have been able to arrive at an approximate "cubic rate" for mid-twelfth century Norman keeps in England. At a rough estimate, I should imagine that Bungay keep would have cost about £1,400 Norman, say £35,000 of our money to-day. Even if the keep had only been three stories high, thus reducing the cost to, say, £30,000, we can quite appreciate the willingness of Hugh Bigod to pay a thousand marks—about £15,000 to-day—to save his great tower from destruction.

THE INNER GATEHOUSE.

After the surrender of the Castle in 1174 and its consequent seizure by the Crown, there is at present a gap in our knowledge of the history of the place. The reversion to the Bigods took place soon after the accession of Richard I in 1189, but it seems that the new lord of the Bigod estates, Roger, the son of Hugh the Restless, gave his attention primarily to rebuilding the much more commodious castle at Framlingham, building there the lofty towered curtains which remain in such good preservation to-day.

The period at which the curtain wall surrounding the mound-top at Bungay was erected is not at present clear, but it would appear that at some time during the thirteenth century the upper part of the obsolete keep was taken down and its materials employed in building the new curtains.

The entrance through these high walls, which are about six and a half feet in thickness and have the wall-walk about twenty-six feet above the level of the mound, at the remaining western side of the enclosure, was by a twin-towered gatehouse of simple plan. Two half-round towers, twenty-two feet in diameter, rise above square bases on either side of the entrance passage, which is ten feet wide between the flanks of the towers. The tower-bases are of solid masonry, and their walls above vary from seven to ten feet in thickness, according to the amount to which the wall-face was exposed to assault.

Internally, the towers are only six feet across and open at the gorge, but the upper stage of each once had a small room, formed by carrying a light wall across the gorge on an arch. (A portion of this wall was found lying at the foot of the north tower). These rooms, which were about twelve feet high, were entered from the wall-walks through simple unmoulded pointed arches and vaulted lobbies, and the two rooms were joined by short stairs passing through the internal walls to the roof over the central portion of the gatehouse. Why this roof was at a higher level does not seem apparent, as there are no indications of a chamber over the entrance, nor does it seem possible for such to have been accessible. Possibly the way to the tower-tops was from the roof of the central portion of the gatehouse. The roof of the central portion appears to have been about thirty-two feet above the entrance passage and the roofs of the towers were perhaps some six feet higher.

The walls of the towers are unpierced externally.

BRIDGE-PIT.

One of the most interesting features exposed during the excavations is the pit which housed the mechanism of the "turning-bridge," and which, when this was up, barred access to the innermost enclosure of the castle. (Fig. IX). Very few of these pits have been excavated, and probably none shows the arrangements so perfectly as the example at Bungay.

The deep ditch in front of the gatehouse was spanned by a permanent wooden bridge, which terminated on a stone pier joining the outer faces of the twin towers. The square bases of these towers project some twelve feet in front of the main wall of the gatehouse, and between this and their internal flanks is the deep pit which separated the last pier of the permanent bridge from the threshold of the gate. The sides of the pit are carried up by the cheeks of the steep talus from which each tower rises, and which assists the change from square base to semi-circular tower proper. The lower part of each tower and the face of its talus is of good ashlar, the stone being oolitic limestone. Above this, the masonry is of flint rubble faced with sandstone rubble spoil from the keep. Much of the stonework of the gatehouse, apart from the bases referred to above, is re-used stones from the Norman building.

The bridge-pit is about ten feet square, and presumably passed down to the scarp of the ditch beneath. (Excavation has been stopped, however, at a level of about ten feet below the entrance passage). The back of the pit is roughly level with the front of the gatehouse proper, the portion of this below the entrance passage being of solid masonry, in which may be seen the chases for the counterpoise of the bridge (Fig. IX). At the sides of the pit are rough holes about a foot square, which once held the axle of the bridge. The present condition of the holes is somewhat puzzling. As they now appear a beam could not have turned in them. Either the actual socket stones have been removed, which seems most probable, or else the axle was a fixed beam, round which the bridge turned, which would have been an unusual



FIG. IX.

BUNGAY CASTLE: The Bridge-pit, showing the Chases for the Counterpoise, one of the Socket-holes for the Axe, and the Scoop at the Back of the Pit to allow for the Turning of the Bridge.

arrangement. At the level of the centres of the holes, a small set-off passes along the sides of the pit. (In the drawing of the attempted reconstruction of the bridge (Fig. X) I have suggested that this set-off was carried across the bridge-pier and formed the bearing of the outer end of the bridge). The south side of the pit is not vertical, but slopes as a sort of battering plinth to the tower. This batter is stopped before the axle-hole is reached, and was obviously intended to serve as a check to the counterpoise when the bridge rose, so that its upper surface would not bump against the front of the gate-arch.

The floor of the entrance passage was decked over with balks of timber, six inches thick, which also covered the chases for the counterpoise. That this decking was permanent is shown by the fact that the timbers were built-in, the upper walling actually standing upon them. This may account for the bad condition of the walling of the entrance passage, which has nearly all collapsed, making the original plan difficult to elucidate. Indeed, the whole of the passage between the flanks of the towers has been swept clean, possibly when the gatehouse was turned into a cottage at the end of the eighteenth century. There is thus practically no trace of the entrance arch, except for a few sorry scraps of re-used stones marking its site. The walls of the entrance passage appear to have been patched from time to time, possibly due to the failure of the timber decking referred to above.

The thickness of the entrance arch cannot be ascertained, but some idea as to the site of the great door may be obtained by inspecting the remains of the hole for the locking-bar which passes right through the wall of the south tower. The sides of this hole have been very much robbed, but its original site may be guessed at. Above is another small hole which must have had something to do with the door, being possibly the sill of a fixed wooden tympanum filling up the arch above the hinged valves of the door below. This upper hole is roughly level with the string-course which caps the ashlar bases of the towers and which probably marks the springing-line of the entrance arch.

The timber floor does not appear to have reached the back of the pit, but stopped, apparently, at the back of the entrance arch, that is to say, at the site of the great door. The place of the decking was probably taken, at this point, by a stone kerb forming the front of the landing between the chases, and serving to protect the edge of the decking and prevent it from slipping forward. The edge is now too broken away for it to be certain as to what happened at this point.

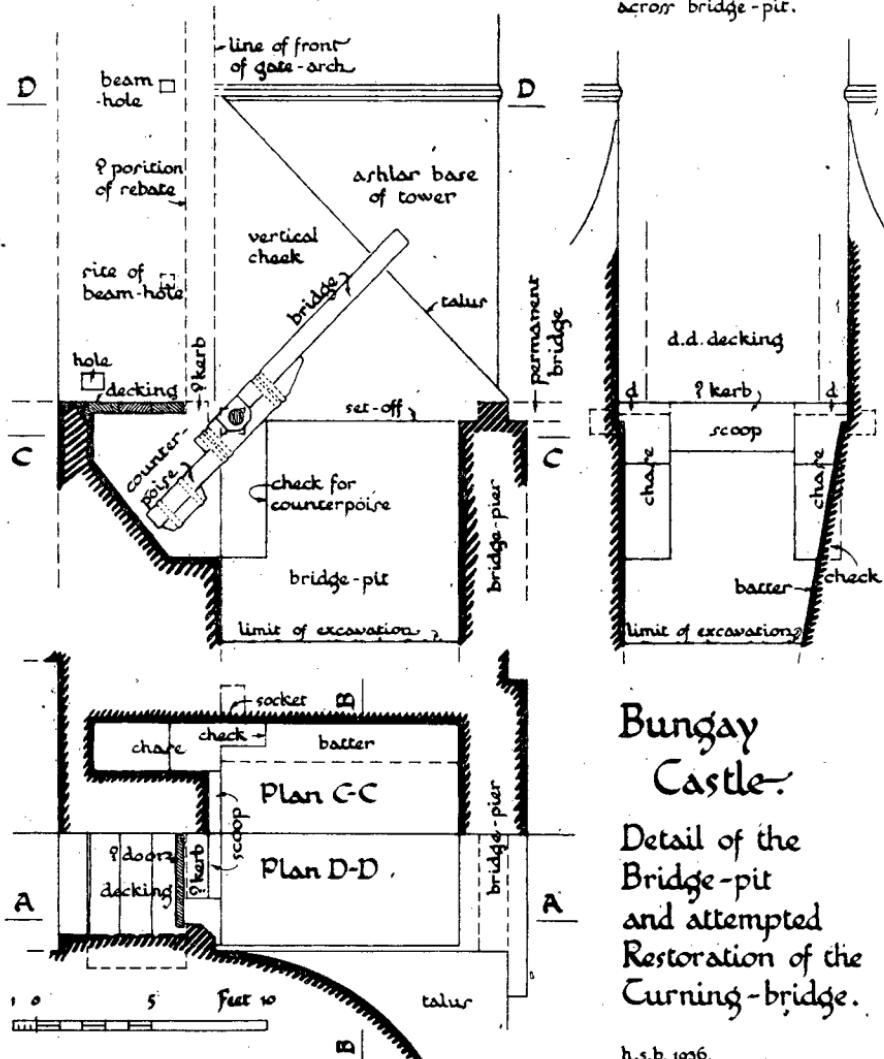
THE TURNING-BRIDGE.

Nothing appears to be known about these interesting examples of mediæval engineering, and it may perhaps be of interest to attempt to reconstruct the Bungay bridge from the traces remaining of its site (Fig. X).

The manner in which it was pivoted is not quite certain (v. sup.) but the site of its bearings is approximately ascertainable.

Section A-A. through chare.

Section B-B. across bridge-pit.



Bungay Castle.

Detail of the
Bridge-pit
and attempted
Restoration of the
Turning-bridge.

h.s.b. 1936.

FIG. X.

If the ledge at the sides of the pit represents the level of the outer bearing, it would appear that the main beams of the bridge were designed partly to rest upon the axle and partly notched or tenoned into it. It is clear that these beams could not have projected inwards to form the counterpoise, as the decking above the chases is not high enough to allow of this. It would seem, therefore, that the counterpoise beams were separate and joined to the bridge-beams in the manner suggested on the drawing (Fig. X). The actual weights may have been of pig-iron attached to the ends of the arms.

The bridge was apparently designed so as the counterpoise just mastered the bridge itself, that is to say, the normal position of the bridge was "up." This is suggested by the check for the counterpoise noted above, and would, indeed, seem a reasonable supposition in any case, and suitable to the requirements of the defenders. The counterpoise arms being inaccessible by reason of the decking, the bridge must have therefore been secured at its outer end. This could easily have been effected by employing small weights, such as a couple of pieces of stone or boxes of earth. In time of need, the last retreating defenders could kick away the weights and make their way along the bridge into the gatehouse, the bridge, relieved of their weight, rising behind them, and taking up its position in front of the gate-arch. The bridge could easily be lowered from within by pushing it until a person could stand upon it and walk out to the end, the bridge falling beneath his weight until it was down and could be secured as suggested above.

A mysterious feature is the hole shown on the drawing just above the inner edge of the gatehouse decking. This hole is fifteen inches deep and appears to have held a beam which could be removed at will, the hole on the opposite side of the passage being slotted backwards for the purpose. What such a beam could have been for is a mystery, as it would pass across the entrance and interfere with traffic, but the whole back of the gatehouse has been so much altered and damaged that nothing can be very certain about any of its details.

DATE OF THE GATEHOUSE.

The problem of the date of the gatehouse, and the curtain-walls, which are of one build with it, presents some difficulty.

It is known that Roger Bigod obtained a license to crenellate his "*mansum*" of "Bungeye" in Suffolk in 1294, and in the absence of any other evidence, it would seem reasonable to suppose that the high walls and gatehouse are of that date. On the other hand, however, a distinguished antiquary with much knowledge of military architecture, visited Bungay Castle during the summer of 1935 and expressed his surprise that the gatehouse could have been erected so late as 1294, as, had he not heard of the license, he would have dated it as nearer 1200. Upon reflection, I could not help appreciating his views as regards the date, and feel, therefore, that it would perhaps be as well to consider the design of the gatehouse in detail before accepting the date 1294.

The twin-towered gatehouse appears in this country during the last quarter of the twelfth century and by the end of the century the towers are nearly always semi-circular, the vulnerable corners of the early square type having been done away with.

For the first quarter of the thirteenth century, the towers remain backless, until the military architects realised the possibilities of having floors from which archers could shoot at the enemy through arrow-slits in the walls of the towers. In general design, therefore, the gatehouse might be of the first quarter of the thirteenth century. In defence of the 1294 theory, however, I would suggest that the reason for the primitive plan of the towers is that they are so small internally that rooms in their lower storeys would only be six feet in diameter and were thus not worth having. (The walls are thinned down considerably to provide space for the upper rooms). The castle was so small that there would have been no room for larger towers. The little half-hexagon wall-tower south of the keep certainly looks most primitive, resembling the towers of Framlingham, erected about 1190. Nothing but the plan of this is known, however, so it cannot be adequately discussed.

My attention was also drawn to the very primitive looking string-course which caps the ashlar bases of the gate-towers (the only architectural detail the gatehouse possesses). At first glance this resembles the late twelfth-century moulding which may be seen in the aisles of the Abbey Church at Fountains in Yorkshire. Upon comparison, however, I found that the two mouldings, were quite different that at Fountains having a broad vertical face and much less steep chambers than the string at Bungay, which shows comparatively little vertical face. Up to the present I have been able to find no moulding comparable with the Bungay string-course, but I am satisfied that it need not necessarily be of late-twelfth century date.

The chief feature of the Bungay gatehouse is, of course, the "turning-bridge." The earliest form of moveable bridge was the "draw-bridge" (*pons tractilis*), where, I suppose, the bridge was simply drawn back horizontally, possibly plank by plank, into the castle. The next form was the "turning-bridge" (*pons tornatilis* or sometimes *versatilis*), which is the type under consideration.

The earliest mention of a "turning-bridge" I have been able to discover is that noted, to be built at Winchester Castle, in the Close Roll for 1235. Baxter and Johnston's "Mediæval Latin Words" gives the earliest reference as 1220. The type certainly goes on into the fourteenth century, being replaced towards the middle of that century by the "*pons levabilis*," the ordinary "lifting-bridge" familiar to most of us, and in use in various forms down to the last century. The period at which the "turning-bridge" seems to have been most popular was the middle of the thirteenth-century. The excellent example recently discovered in the barbican of the Tower of London, interesting by reason of its three counterpoise chases, seems to have been constructed soon after 1274, as the barbican ditch was being

finished at that date. This pit, although more finely finished, and in better masonry, than the Bungay example, is without the latter's refinement of the check to the bridge counterpoise, which suggests that the Bungay pit is an improved version of that at London, and therefore of later date. (It may be of interest to note that Hugh Bigod, father of that Roger Bigod who in 1294 obtained the Bungay licence, had been for a while Governor of the Tower of London, having been appointed in 1258).

In the absence of any irrefutable evidence to the contrary, it seems that we must accept the date of the "licence to crenellate"—1294—as being the date of the curtain-walls and inner gatehouse of Bungay Castle.

THE INNER BAILEY AND ITS GATEHOUSE.

Experimental soundings made during the recent excavations determined the site and probable form of the gatehouse to the Inner Bailey. It seems to have been a twin-towered structure similar to the Inner Gatehouse, possibly being contemporary with it. It is greatly to be hoped that an attempt will be made at some future date to investigate the whole of this bailey. Much of its curtain wall remains, in a shocking condition, however, being overgrown with vegetation to such an extent as to be almost invisible. It is to be hoped that these old walls may be cleaned and preserved and it might even be found possible to conduct inexpensive excavations within the bailey to recover the plan of the Great Hall and other domestic buildings of Bungay Castle.

ERRATUM.

In a footnote to the paper published in the last number of the S.I.A. Proceedings, it was stated that Bungay Priory was founded in 1188 by Roger de Glanville and Juliana de Vere, Hugh Bigod's widow. This is incorrect, as Juliana was Hugh's first wife, his second having been called Gundrada. It was this lady whom Roger married, and who, with him, founded Bungay Priory.