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Two more House Groups with Three-aisled Long-houses from the Early Bronze Age at Højgård, South Jutland

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INTRODUCTION

The investigation at Højgård started in 1984[1] and was continued in 1985. The most important result has been the demonstration of two groups of houses with large, well-built, three-aisled long-houses in the company of small houses with sunken floors.

The results were presented in this journal in 1987 (Ethelberg 1987). On the basis of the pottery found and a typological evaluation of the houses, the three-aisled long-houses were dated to the Early Bronze Age, Period II–III, while the sunken houses were dated to the transition between the Late Neolithic and the Early Bronze Age.

This archaeological dating was supported by a C^{14} dating (K-4615) from a pit above one of the typologically latest houses. This pit is dated to 1010 BC (calibrated). The typologically latest houses at this time thus had to antedate the Late Bronze Age, Period IV.

The Højgård excavation was occasioned by gravel digging, and had therefore to be carried out in stages to accommodate this. On the request of the owner and operator, the investigation was resumed in 1987, continued in 1989 and concluded in 1990. It is the results of these investigations and the scientific datings which are the subject of this article.

INVESTIGATION METHOD

The settlement traces were delimited by means of trial trenches 3 or 6 m wide and 20 or 30 m apart. Based on the results from these trenches, those areas were selected that

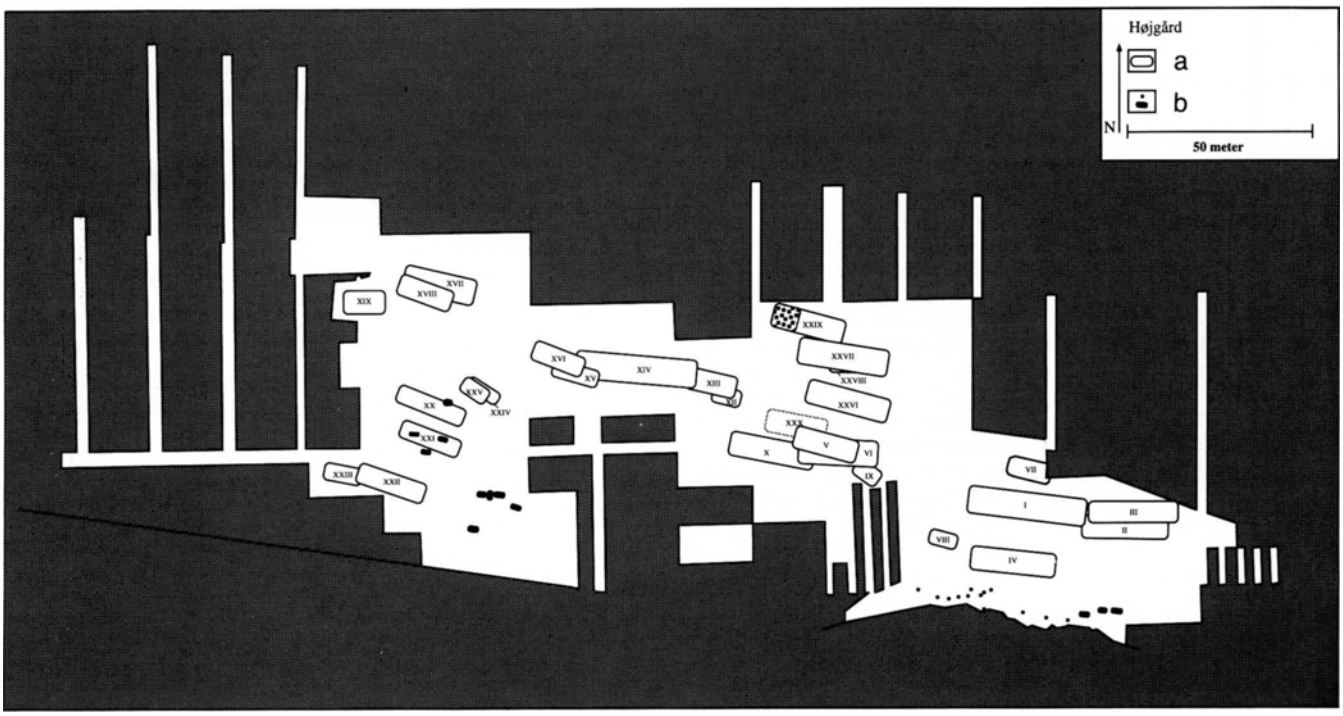

Fig. 1. Survey plan of Højgård showing the stratigraphic relation of the houses. a: Bronze Age houses. b: Iron Age graves.

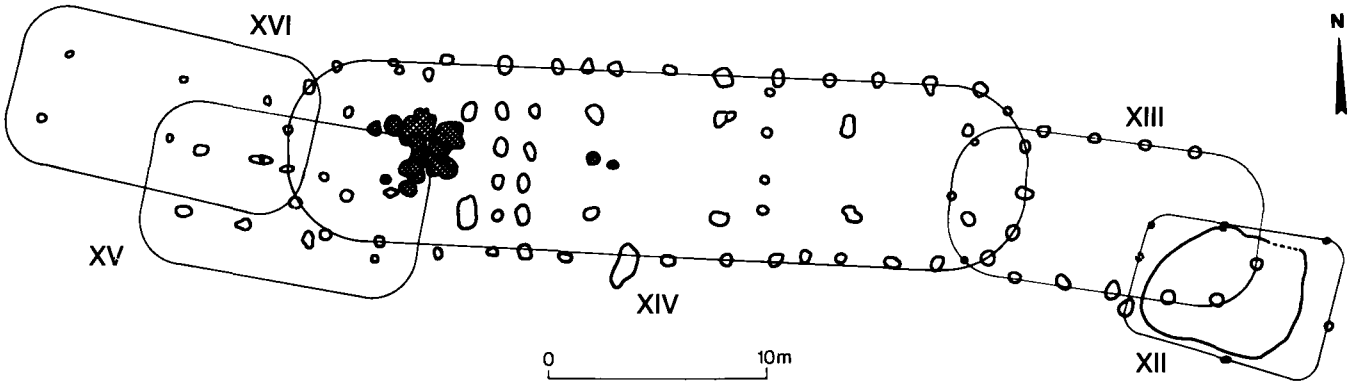

Fig. 2. The western house cluster (1987).

were to be surface-cleared. Here the topsoil was removed mechanically and the surface scraped with a mechanical shovel with a 3 m wide blade.

All structures within the surface-cleared areas were investigated in plan and section, while traces of structures in the trial trenches were usually investigated only in plan. After description, the fill remaining in the post-holes of the house constructions was sieved. All pits in the vicinity with finds were emptied after sectioning.

THE 1987 INVESTIGATION

The most important purpose of the investigation was to delimit and excavate the structures lying within the area covered by the gravel-digging permit, which meant *i.a.* that the excavation of that part of house X (Ethelberg 1987:158) that was not excavated in 1985 could now be completed.

Altogether, a continuous area of 6,050 sq.m. was surface-cleared. The remaining c. 6,550 sq.m. were covered by means of trial trenches. From 1984–87, an area of 18,050 sq.m. has been investigated. This investigation identified the western limit of the settlement. This left only the northern boundary to be defined, but this lay at this time outside the extraction area.

In addition to revealing the west end of house X, a further cluster of houses was found (fig. 2), consisting of a house with sunken floor (XII), a frame-house without traces of inner roof-bearing posts (XIII), and a large, wide, three-aisled long-house (XIV).

In addition, nine three-aisled long-houses (XV–XXIII) and two smaller, presumably also three-aisled houses (XXIV–XXV) were revealed, all with traces only of the roof posts and only occasionally a fireplace.

Two areas with four and five inhumation graves respectively were found, all of which may be dated to the beginning of the Early Roman Iron Age.

Below, only houses that can be dated to the Late Neolithic and Early Bronze Age will be described.

THE HOUSES

House XII (fig. 3): House XII has, like houses VIII and IX (Ethelberg 1987 fig. 3), a sunken floor. It appeared in plan as a large, almost rectangular depression measuring 6.70 × 5.20 m, and was oriented WNW/ESE. The house-pit, which had smoothly curved sides and floor, does not seem to have been dug in a regular manner. It is deepest in the middle – 26 cm. The depression was surrounded by at least five distinct post-holes and two ambiguous ones. One of them, in the southwest corner of the house, is considerably larger and more irregular than the others.

Just outside the west gable-end was a circular, flat-bottomed pit containing a fragmented cord-impressed A2 beaker (Glob 1945:65, fig. 29) (fig. 4). Under the pit was the base of a possible post-hole. This observation should be treated with some reservation, however, because the fill did not differ markedly from the surrounding subsoil,

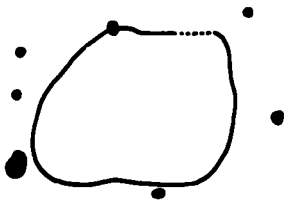

Fig. 3. House XII. 1:250.

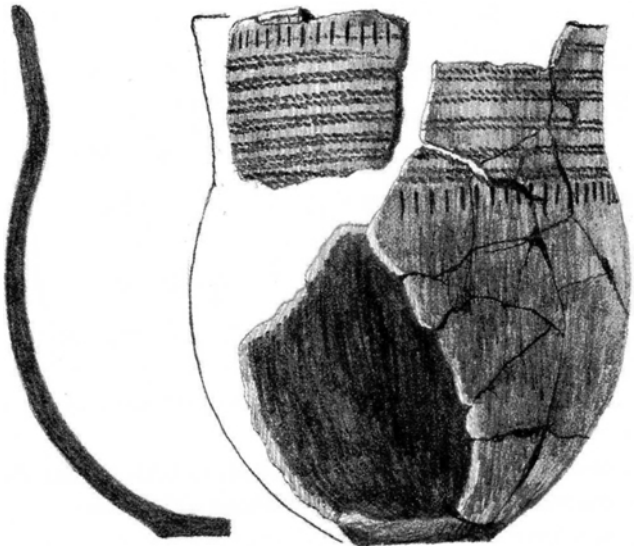

Fig. 4. A2 beaker from pit west of house XII. 1:2.

although clearly from the pit fill. If this is indeed a post-hole, it is coeval with or older than the pit. The next question is then, whether it can be linked to the house, which is important for the dating of this. Connection with the house pit cannot be proved, either. It does lie, however, in the presumptive wall line and helps to give the house an appearance resembling that of houses VIII and IX.

The house has had a rectangular to trapezoid outline measuring 8.85 × 5.7 m. There is no trace of inner roof posts or fireplace. In the centre of the house were a number of cobbles and larger stones. These were mainly associated with a post-hole, however, passing through the house pit. Two further post-holes were dug through the house pit. All belong to house XIII.

Scattered in the fill were a few potsherds of the same coarse type as found in houses VIII and IX, a few flint flakes, a blade scraper and a hammer-stone (fig. 5).

House X (fig. 6): The west end of house X was found to consist of another set of roof posts, two wall posts, two gable posts and an earth oven/cooking-stone pit.

The very clearly shaped west gable makes it doubtful whether what was perceived as the east gable in 1985 was so in fact (Ethelberg 1987 fig. 8). New scrutiny of the excavation plans from 1985 shows that the tentatively defined house XI (Ethelberg 1987 155 and fig. 3) cannot be maintained, because some of the posts that were thought to belong to house XI actually delineate the east gable of house X.

House X was 23.5 m long and 6.7 m wide. It is roughly

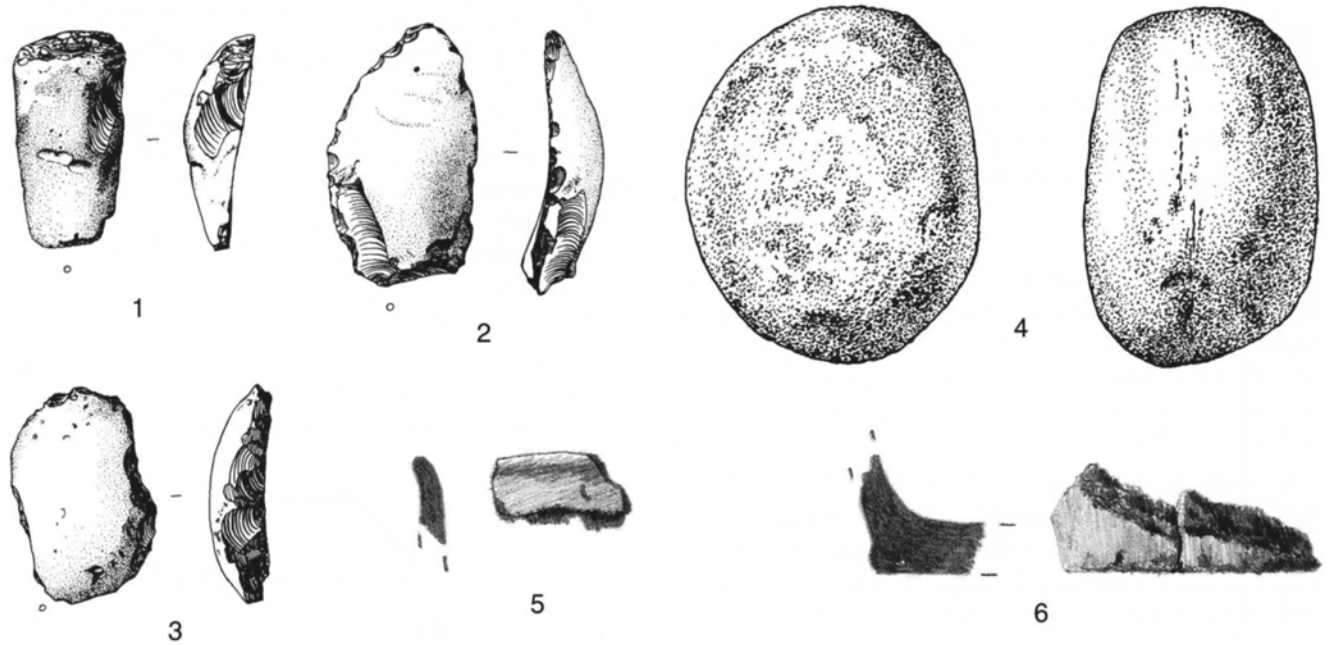

Fig. 5. Objects from house XII. Stone and flint objects 2:3, potsherds 1:2.

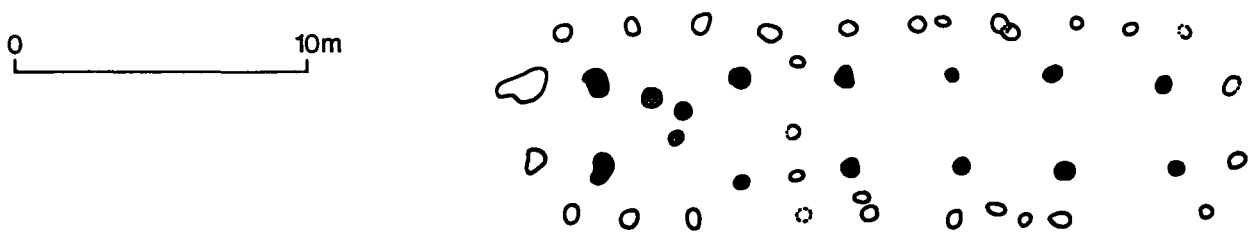

Fig. 6. House X. 1:250.

E–W oriented and three-aisled, with six sets of roof posts, which are scarcely so deeply set as the wall posts.

Between the next-last and last set of roof posts in the west end is a collection of three earth ovens/cooking-stone pits.

Between the penultimate and antepenultimate sets of roof posts – still at the west end – are three posts in a row perpendicular to the long axis of the house. In 1985, they were considered to be the west gable of house XI, but are perhaps more likely part of a partition wall dividing the house up into two rooms – a west end of c. 8.7 m and an east end of c. 14.8 m.

No entrances have been clearly ascertained, but in the south side just east of the presumptive partition wall are two post-holes slightly recessed in relation to the other posts and perhaps marking an entrance.

The gables are curved and made up of two posts which are almost in line with the set of roof posts – perhaps slightly recessed in relation to these, but not so much as is the case with house V, for example (Ethelberg 1987: fig. 7).

Finally, some of the remaining posts included in house XI may be regarded as replacement pieces. House X may thus have been in use for rather a long time, while "house XI" must be abandoned as a house construction.

House X cannot be coeval with house V and is stratigraphically older than house VI.

The revision of house X does not affect the chronological and typological conclusions presented in 1987.

House XIII (fig. 7): WNW–ESE oriented frame-house without inner or perceptible inner roof posts. The house was 13.8 cm long and 6.5 m wide. Both in the north wall and the west gable, a post-hole seems to be missing. Either they have never been there or they were not so deeply set as the other recognizable post-holes.

The side walls are straight and marked by approximately paired, opposing posts. The west gable is rounded and made up of two posts. It must be presumed that the east gable had the same construction, despite the "missing" post-hole. Neither fireplaces nor entrance have been ascertained.

Based on the stratigraphy, house XIII cannot be contemporaneous with house XIV, and it is later than house XII.

The only potsherds that can be assigned to the house derive from one of the holes dug into the house pit for house XII. Thus it cannot be determined whether they derive from house XII or house XIII.

House XIV (fig. 8): Practically WNW–ESE oriented three-aisled long-house, turned slightly more to the west than house XIII. The house has been considerably rebuilt, unless it is a matter of two phases.

At the west end, two collections of cooking-stone pits/earth ovens and two partition walls may be observed. The small number of both wall post and roof post replacements rather suggests rebuilding.

The house was 32.8 m long. The width varied from 8.0 m in the east to 8.4 m in the middle and 7.9 m at the west end. There were six sets of roof posts. The longitudinal distance between roof posts was 5–6 m and the transverse span 4–4.5 m. The distance between the roof posts and the side walls was 1.8–2.3 m.

Between the penultimate and antepenultimate set of

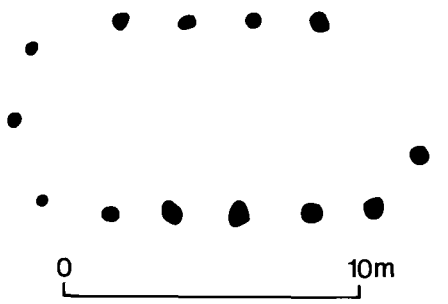

Fig. 7. House XIII. 1:250.

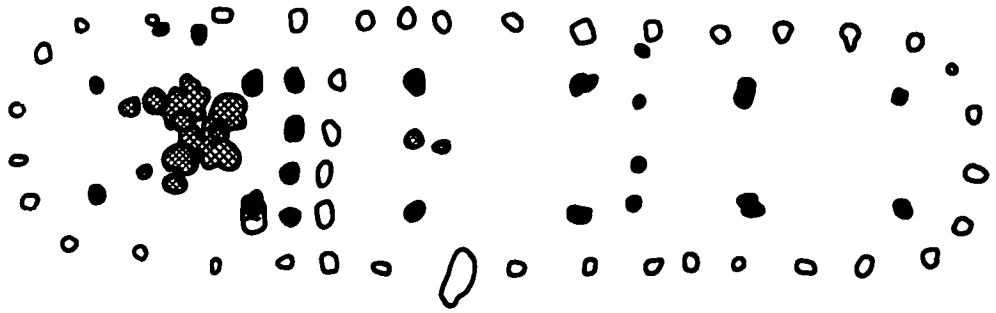

Fig. 8. House XIV phase 1 + 2. 1:250.

roof posts in the west end of the house are two partition walls c. 1.25 m apart. They cannot therefore be coeval. Although no entrance could be found in any of the partition walls, it cannot be ruled out, as with house I, that there was a central opening.

Between the penultimate and antepenultimate sets of roof posts at the east end of the house was another concentration of post-holes, some of which could derive from yet another partition. They are of considerably smaller dimensions, however, with respect both to scantlings and depth of set, than the post-holes in the partition walls of the west end. If this is a partition wall, the house was divided into three rooms of roughly equal size.

Although the house has its greatest width in the centre, this does not mean that the side walls were curved, but rather that there was a slightly irregular post-setting, especially at the west end of the house. The posts of the side walls were designed to be set in pairs opposite each other, and they were generally slightly more deeply set than the roof posts. But as the average difference is no more than 2 cm, wall posts and roof posts are considered in practice to have been equally deeply set. This suggests that also the walls played a role in roof construction. The gables were rounded and set with four posts.

In the north wall, an entrance to the west room can be demonstrated, marked with an inset wall post. There was an entrance into the central room both in the north wall and the south wall. The two entrances, diametrically opposed, are marked with an extra wall post. There may also have been an entrance in the south wall to the possible east room – likewise marked with an extra wall post.

At the west end of the house between the last and the

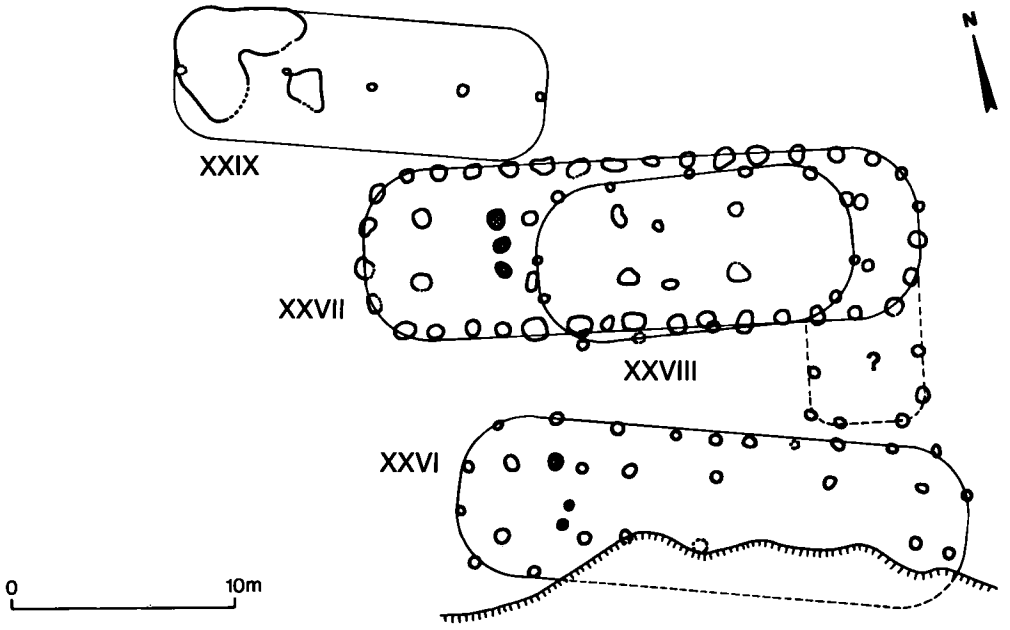

Fig. 9. The northern house cluster (1989/90).

next-last set of roof posts, a total of 11 cooking-stone pits/earth ovens were found, but they were not contemporaneous. The deepest – four in all – are the oldest, one of them being cut by two of the seven more flat-bottomed pits.

In the central room between the two roof posts and nearest the west partition wall were another two cooking-stone pits/earth ovens.

The most easterly cooking-stone pits/earth ovens in the west room, which are the deepest, must – judging by the distance – be considered coeval with the eastern partition wall, which must thus also be assigned to the construction phase. Whether the recessed entrance to the west room and the two cooking-stone pits/earth ovens in the centre room are coeval with this or later, cannot be decided, but recessed entrances seem in the light of Late Bronze Age houses to be a late feature.

If the eastern partition wall is contemporaneous with the oldest of the western partition walls, the house was constructed with three rooms of equal size, but after rebuilding, the middle room was the largest and the west room the smallest.

The fill in the post-holes yielded a few potsherds and flint flakes. These finds do not differ in any way from those made in the earlier-investigated houses.

Stratigraphically, house XIV cannot be coeval with house XIII, house XV and house XVI, but there are no vertical-stratigraphical observations.

THE 1989/90 INVESTIGATION

The investigation in 1989 sought to complete the excavation to the north-west and demonstrate the northern limit of the settlement area, while the purpose of the 1990 campaign was to examine the traces of structures encountered to the north.

In the period 1989/1990 an area of 11,600 sq.m., 3,300 sq.m. of which were surface-cleared, was investigated. During this investigation the fourth and last group of houses (fig. 9), consisting of a centre-post house with sunken west end (XXIX), a frame-house without inner roof-bearing posts (XXVIII), and two three-aisled long-houses (XXVI and XXVII) were localized and excavated. The most important result of the investigation was the demonstration of centre-post houses and of the settlement area's north boundary. The settlement can now be considered completely excavated.

THE HOUSES

House XXVI (fig. 10): House XXVI is an E–W oriented, three-aisled long-house, turned slightly to the north-west. It has been 22.45 m long and 6.55 m wide. It had six sets of roof posts. Whilst the span is relatively constant between them (3.0–3.2 m), the longitudinal distance between posts varies between 2.0 and 5.0 m.

The southern side wall lay just north of the limit of the 1985 excavation under an E–W field boundary. In connection with the continued gravel-digging, the remains of this wall have disappeared into the gravel pit without being recorded, with the exception of a single post-hole at the west end. Also a few of the southern holes for roof posts have disappeared in this way.

The diameter of wall posts and roof posts is the same, but the former are generally a shade deeper set than the latter. The depth decreases from west to east. Furthest east there are only a few centimetres of fill left. Against this, the eastern termination of the house must be treated cautiously, which is supported by the fact that the presumptive east gable is differently shaped than the well-preserved west gable.

The sides have been straight, while the gables have been rounded and set with only two posts, which at the east end are almost in line with the roof posts, while at the

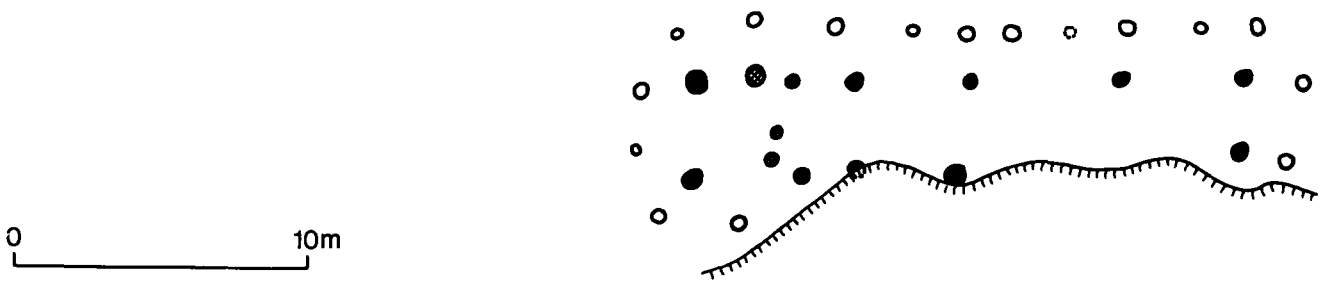

Fig. 10. Houses XXVI. 1:250.

west end they are inset. The distance between wall posts is generally 2.0–2.5 m. At a single spot in the middle of the northern side wall, the distance is only 1.5 m. Perhaps there was an entrance here.

Between the last and the next-last set of roof posts at the west end of the house is a group of cooking-stone pits.

House XXVII (fig. 11): House XXVII is an E–W oriented, three-aisled long-house, turned slightly north-west. This was 24.7 m long and 7.5 m wide.

The house had five sets of roof posts. Both the span (2.8–3.0 m) and the longitudinal interdistance (4.6–5.6 m) are very constant. The diameter of wall posts and roof posts is uniform, but unusually large. A few holes have a diameter of over 1 m. The depth of roof posts is considerably greater than that of the wall posts. Post-hole depth decreases from west to east. Furthest east, there are only a few centimetres of the fill left. The distance between wall posts is less than in house XXVI, about 1.5 m.

The side walls were straight, and the gables rounded and set with three posts. No entrances could be distinguished.

At the east gable outside the southern side wall, six post-holes form an almost square appendage (4.8×4.8 m). The diameter of the holes is considerably smaller than in the long-house, but depth and fill content are in agreement. It cannot therefore be excluded that a small out-house is involved.

Between the last and the next-last set of roof posts at the west end of the house is a collection of cooking-stone pits.

The house is vertical-stratigraphically later than house XXVIII.

House XXVIII (fig. 11): House XXVIII is an almost E–W oriented frame-house, 14.1 m and 7.0 m wide.

Although there is a single set of post-holes within the wall frame, which could be the remains of roof posts, the house is considered to have been devoid of these, on account both of the irregular depth of these post-holes and because the house is so long that several sets of posts should be expected if they were to be considered roof-bearing and thus a house type-defining element. It cannot be ruled out that the traces referred to are rather those of a partition wall.

The gables have been rounded. The northern side wall

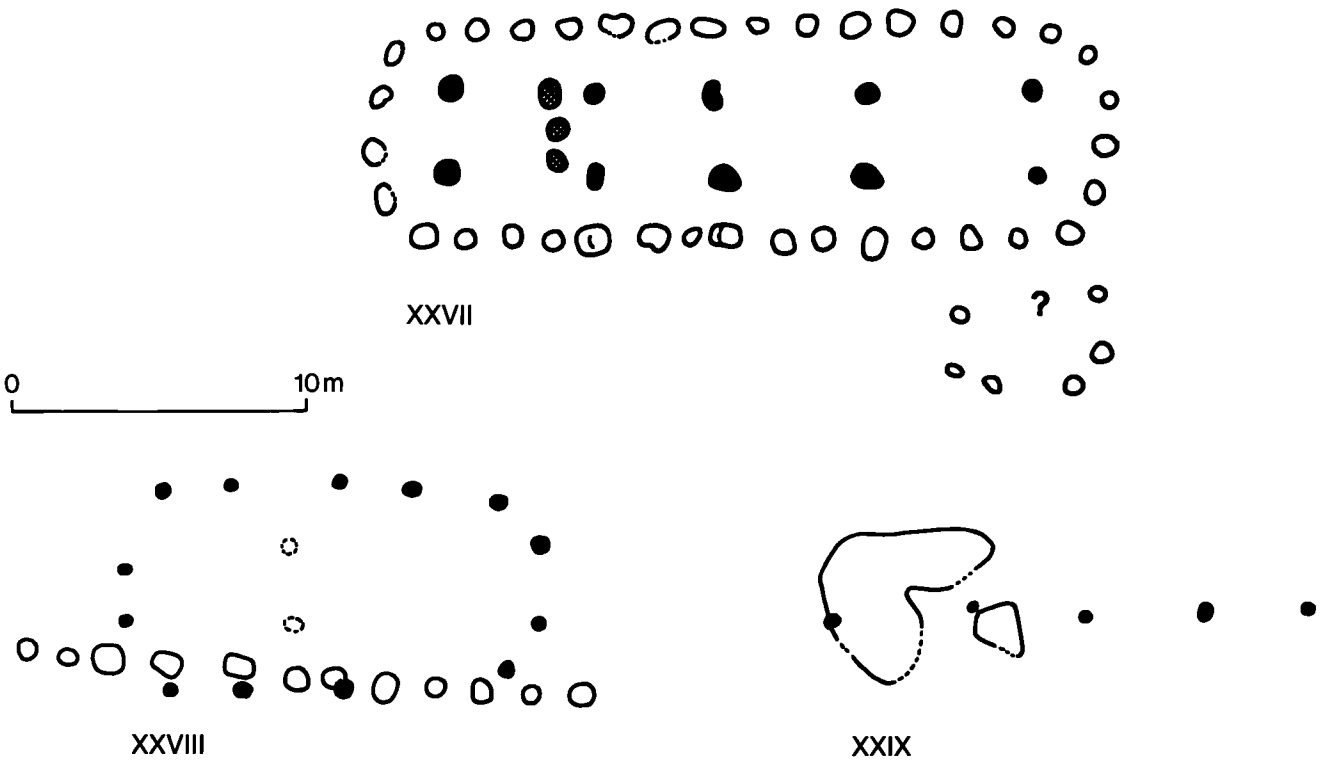

Fig. 11. Houses XVII, XXVIII and XXIX. 1:250.

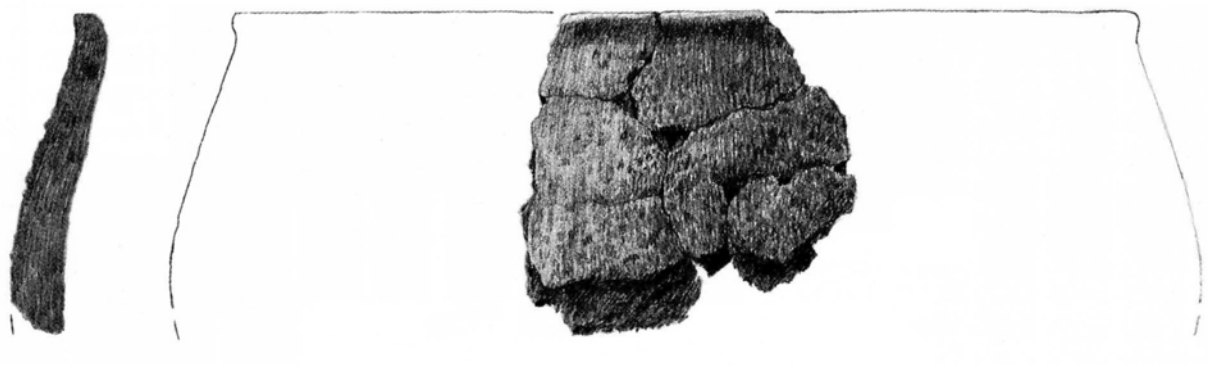

Fig. 12. Potsherd x1578 from house XXIX. 1:3.

has been slightly curved, the southern straighter. The wall posts have stood in pairs opposite each other with an interdistance of 2.5–3.5 m. No traces of either entrances or fireplaces have been demonstrated.

The house may be shown in vertical stratigraphy to be older than house XXVII.

House XXIX (fig. 11): House XXIX is an almost WNW–ESE oriented centre-post house with sunken floor – c. 6×5 m – at the west end. It must have been at least 16 m long.

No traces of the walls have been preserved, but judging from the house pit, the width was at least 5 m. In addition to the house pit, the house consists of five post-holes in the mid-line. Neither fireplaces nor any entrance could be discerned.

There are no stratigraphic observations in relation to the three-aisled houses.

ARCHAEOLOGICAL DATING OF THE NEW HOUSES

Based on the archaeological find material and the house-typological criteria laid down in 1987, the newly found houses are related to the suggested phase division, which has, however, been expanded, the settlement from the Late Neolithic and Late Bronze Age having been added. In consequence, in order to avoid confusion, it has been decided to change the phase designations.

1987	1991
	Phase A
Phase 1 =	Phase B
Phase 2 =	Phase C
Phase 3 =	Phase D
	Phase E

Phase A

There can be no doubt that house XII is associated with houses VII and IX. They are all three small, practically rectangular houses with partially sunken floors and no internal roof-bearing posts.

Scattered in the fill of the house pit in house XII is some pottery and worked flint. The pottery is of the same type as found in the previously investigated house pits, in respect of shape, temper and firing. The flint is characterized by flakes, an exception being a blade-like scraper.

A critical point is whether the pit with the A2 beaker from the early Under Grave period has any connection with house XII. This cannot be decided with certainty, the interpretation of the underlying post-hole being highly speculative. It is therefore omitted from further discussion.

In respect of shape, the houses most nearly resemble the Single Grave house from Vorbasse (Hvass 1977), while the pottery best resembles that from the large, three-aisled long-houses.

Although the sunken houses are stratigraphically older than the three-aisled long-houses, the congruence in grouping seems too remarkable to be a sheer coincidence.

House XXIX is a centre-post house with sunken west end, but without traces of wall construction. Houses of this type both with and without partially sunken floors have turned up all over the country. The dating frame work extends from the late Single Grave Culture (Hemmed Church house VI (Boas 1993, this volume)) to Early Bronze Age Period I/II (Egehøj house III (Boas 1983:101)).

The house pit was cut by a pit containing pottery deriving from a very thick-walled and coarsely tempered

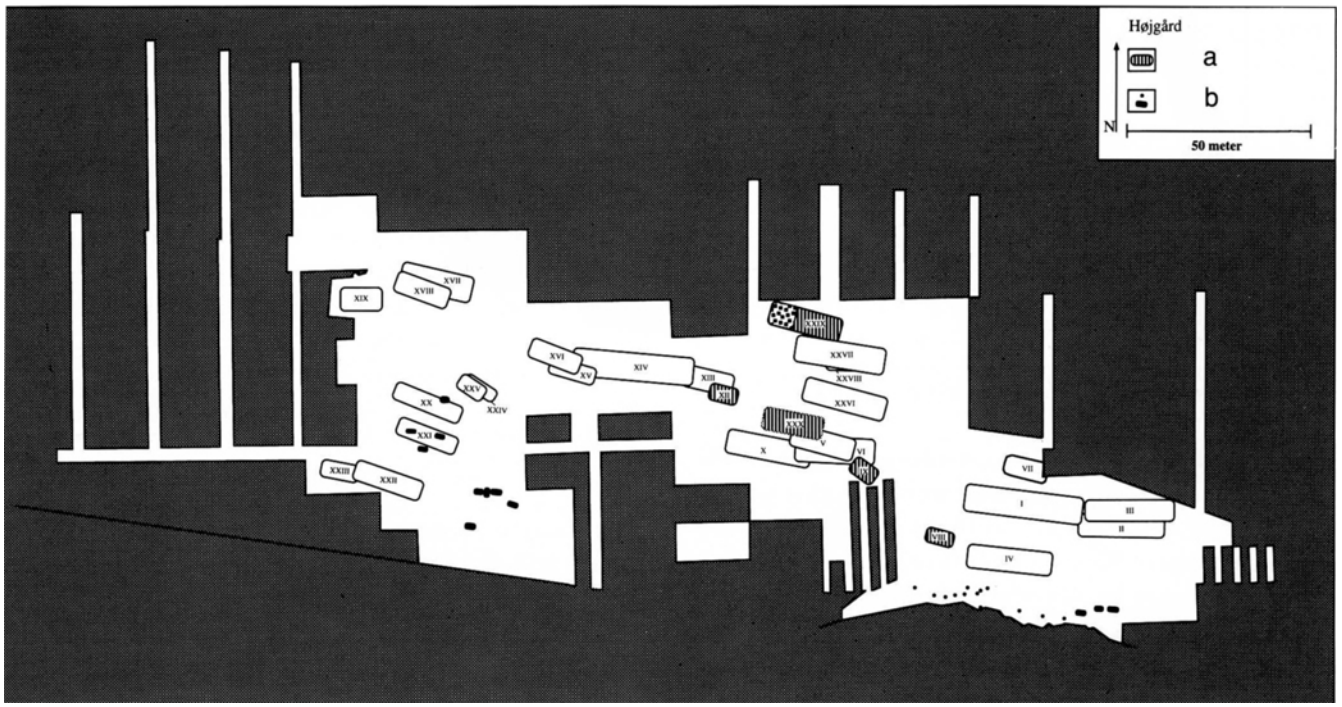

Fig. 13a. Højgård phase A. a: Late Neolithic houses. b: Iron Age graves.

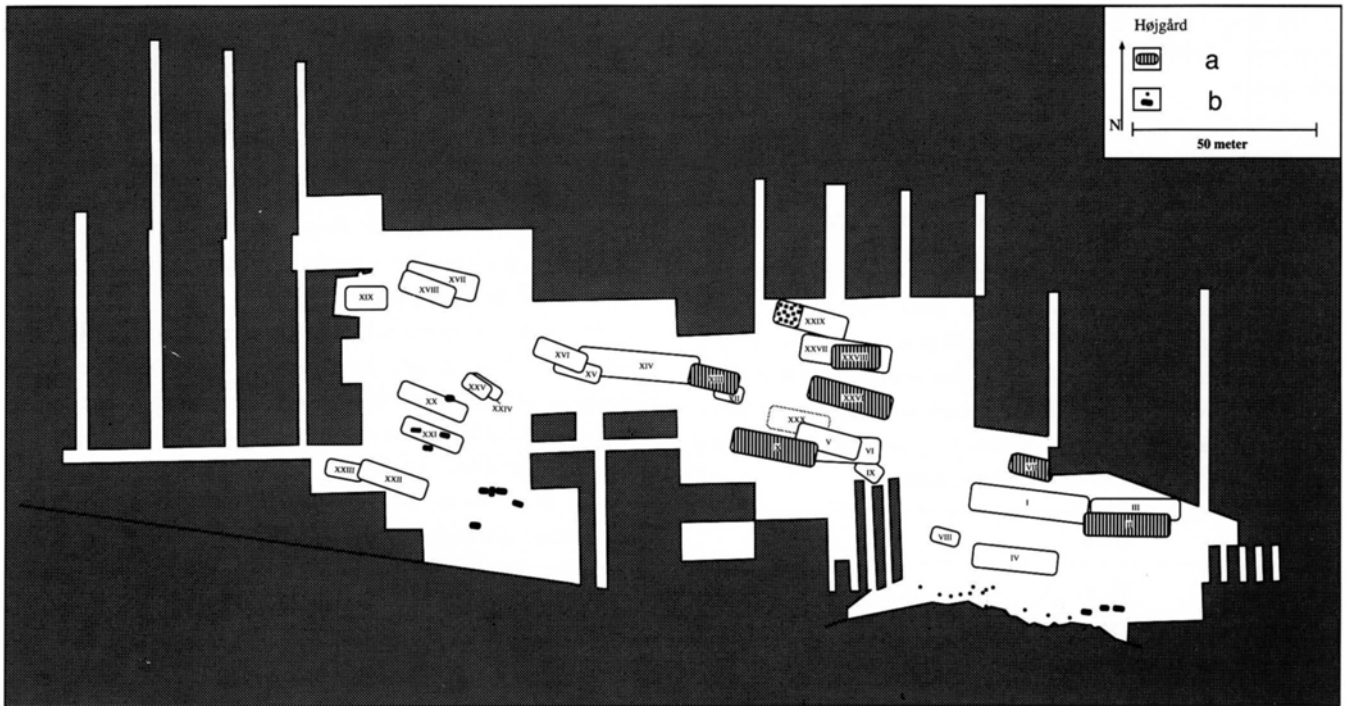

Fig. 13b. Højgård phase B. a: Houses, Early Bronze Age Period I. b: Iron Age graves.

vessel (fig. 12). The rim is rounded and slightly excurrent, while the side has been fairly straight. The transition from rim to vessel side is marked by a very indistinct shoulder. Vessel height was at least 13 cm. Considering the greatly increasing wall thickness below – 2.4 cm – the vessel can hardly have been much higher. It is burnished just below the rim but otherwise very coarsely slipped. A few other sherds, which cannot, however, be joined to the large fragmented sherd piece, suggest that the foot was offset and burnished. Although the sherd piece was found in a pit which is later than the house-pit, it is tempting to associate it with the house, for similar sherds were found in the untouched part of the house pit. The similarity to the potsherds from Egehøj (Boas 1983 fig. 7) and Røjle Mose (Jæger & Laursen 1983 fig. 17f), which may be dated to Early Bronze Age, Period I, and from Øster Nibstrup, dated to the Late Neolithic (Michaelsen 1989: fig. 8), is pronounced.

The sherd material cannot at the moment narrow down the dating beyond Late Neolithic/Early Bronze Age. But as the typologically oldest three-aisled long-houses may be dated to the transition to the Early Bronze Age, Period I, house XXIX must be dated to the Late Neolithic.

In the house cluster comprising houses V, VI, IX and X, there are five posts in a row to the north with the same orientation as house XXIX. These can derive from another centre-post house (XXX fig. 14). The holes are not linked to a depression. The area was investigated in 1985. At that time, only holes that belonged to clearly identified house constructions were sectioned. These holes have therefore been recorded only in plan.

The sunken floor at the west end of house XXIX is of approximately the same size as the house pits belonging to houses VIII, IX and XII but was not, like these, surrounded by post-holes. It is reasonable – especially on the basis of the pottery found – to regard the small sunken houses as coeval with the centre-post houses and thus part of the oldest settlement phase (fig. 13a), which should thus be dated to the Late Neolithic.

Five houses in all can be assigned to phase A, namely VIII, IX, XII, XXIX and XXX. Two different types are involved, but it cannot be ascertained whether the difference is chronological, functional, or social. Considering that the farm unit also in the subsequent period seems to consist of two different house types, there can be reason to consider the difference as primarily functional.

Phase B

Phase B (fig. 13b) comprises the typologically oldest three-aisled houses, *i.e.* those with the greatest distance between the wall posts and the smallest number of gable posts. Also characteristic is the fact that the wall posts are more deeply set than the roof posts. Besides house II, houses X and XXVI may be assigned to phase B.

Revaluation of house X has not altered the typological dating. Stratigraphically, house X is older than house V, which belongs to the typologically latest, three-aisled houses of the Early Bronze Age.

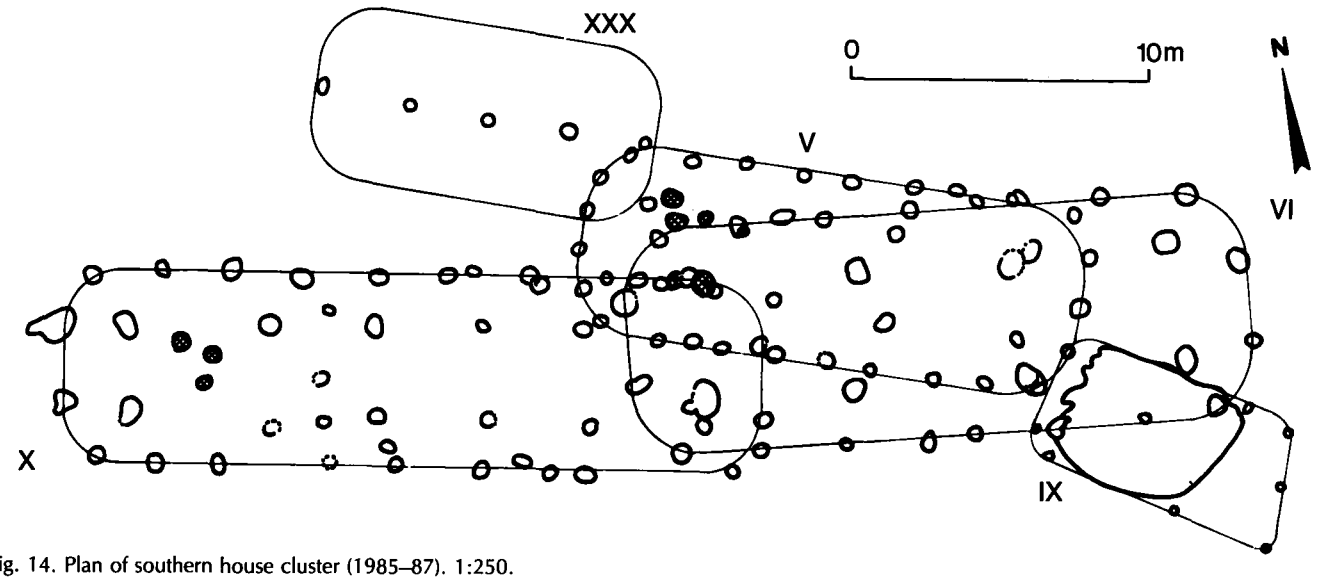

Fig. 14. Plan of southern house cluster (1985–87). 1:250.

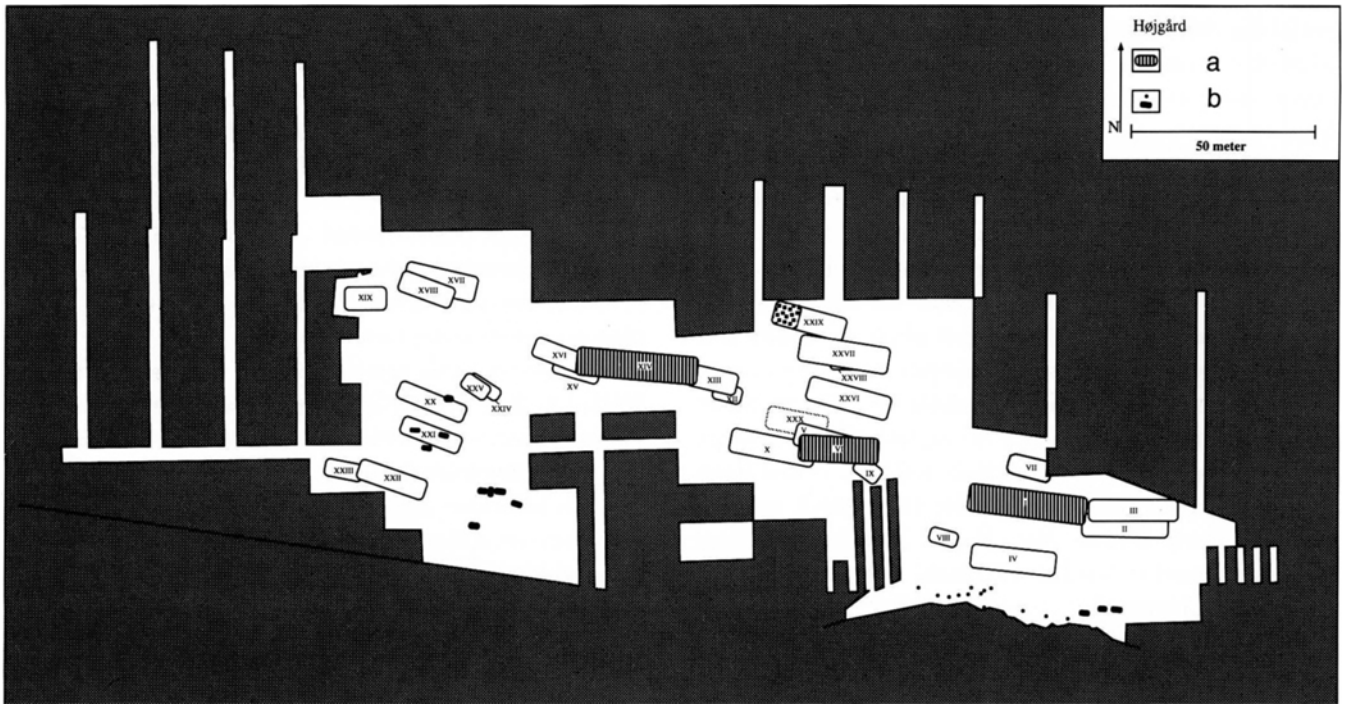

Fig. 15a. Højgård phase C. a: Houses, Early Bronze Age Period II. b: Iron Age graves.

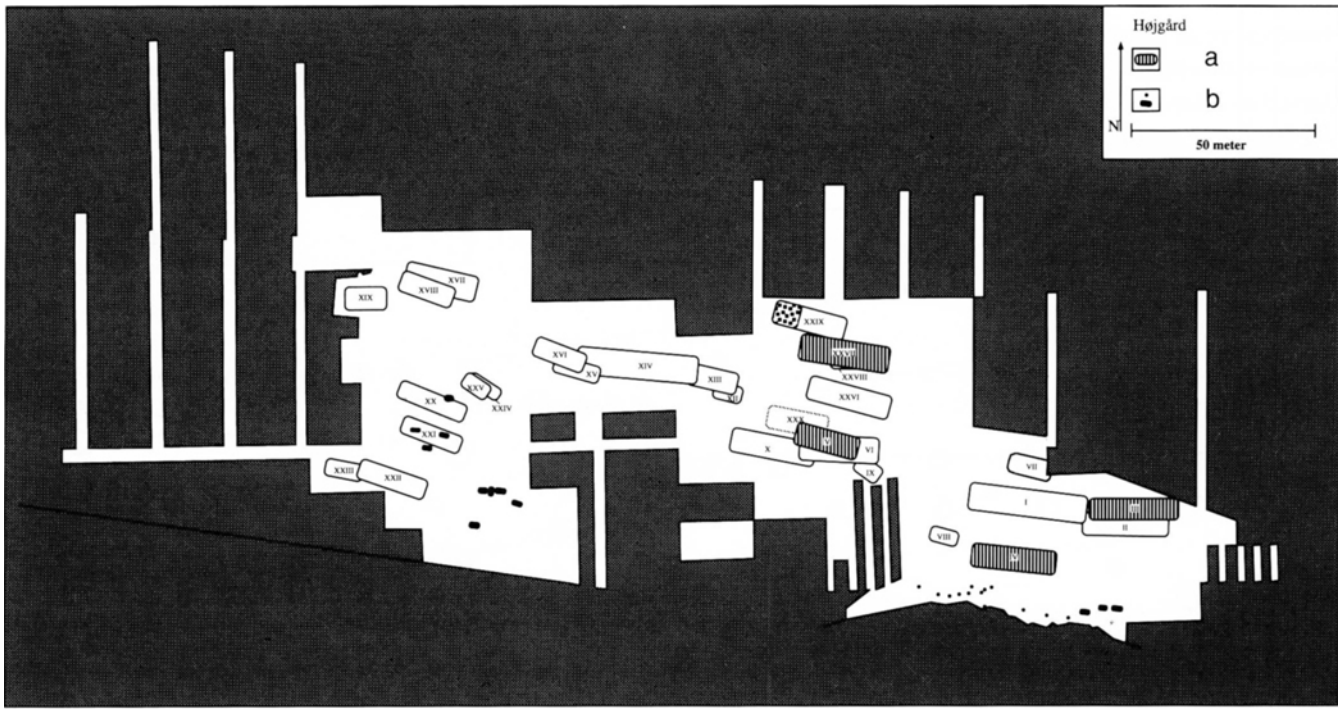

Fig. 15b. Højgård phase D. a: Houses, Early Bronze Age Period III. b: Iron Age graves.

The frame-houses belong to this phase, since they can be shown stratigraphically to be later than the small sunken houses in phase A – post-holes in house XIII are dug down through house XII – and stratigraphically older than the houses assigned to phase D – a post-hole in house XXVIII is cut by a house XXVII post-hole.

On this basis, also house VII is assigned to phase B, which thus comprises houses II, VII, X, XIII, XXVI and XXVIII. As two different types are involved, which may be assigned stratigraphically to the same phase, the difference is considered to be functional.

It is therefore reasonable to assume that the basic farm unit in this phase consisted of a large, three-aisled long-house and a small frame-house. If this is the case, it is likely that houses II and VII formed one entity, houses X and XII another, and houses XXVI and XXVIII a third. It cannot be decided whether the three farms were contemporaneous, or sequential.

The phase B sherd material cannot contribute to a narrowing of the dating beyond the Early Bronze Age. Central to the dating of this phase is therefore the find of a small house model in amber from Sejstrup (Asingh 1990: 14), which is situated a good 20 km north-west of Højgård. The ground plan of the amber house is identical to that of the frame-houses at Højgård. In particular house XXVIII shows a striking resemblance. The Sejstrup grave has to be dated to Early Bronze Age, Period I, which accords with the stratigraphical observations at Højgård and the dating of the frame-house C from Røjle Mose (Jæger & Laursen 1983:114). The Sejstrup house is at the same time important for the evaluation of whether frame-houses had internal roof-bearing posts, which due to being shallow-set have been ploughed away. This does not seem to be the case, which justifies the term frame-house.

The establishment of a Period I dating for the frame-houses thus also places the typologically oldest three-aisled house and thereby phase B in Period I.

Phase C

Characteristic of the houses belonging to phase C is their great width, practically uniform depth of wall posts and roof posts (fig. 15a). Of secondary features, *i.e.* features that are not general but are phase-specific when they occur, may be mentioned distinct partition walls at the west end, combined with lengths of about 30 m.

House XIV is on account of length and breadth, position and form of the partition wall at the west end, and in principle equally deep wall and roof posts, a pendant to houses I and VI, whereas the increased number of wall posts at the gables and the possible recessed entrance seem to be later features.

Several potsherds derive from the post-hole fill, all of the same type known from the previously published houses.

The first-mentioned features indicate coevality with houses I and VI, but house XIV also contains elements pointing ahead. This may be because it presumably functioned for longer than the other houses of this type, judging by the two partition walls and the collection of earth ovens/cooking-stone pits, which can be divided into two clusters. This means that the number of posts in the gable ends is not an unambiguous phase identifier, but one can still reckon that the greater the number, the later the house.

In this phase, there is a change in the structure of the basic farm unit from two houses – presumably with different functions – to one house, which is wider and furnished with partition walls – perhaps in order to collect the two functions under one roof (fig. 19).

No finds have turned up to narrow down the archaeological dating, which is thus still anchored in the house type: Early Bronze Age, Period II and the beginning of Period III.

Phase D

Characteristic of the houses belonging to this phase are the closely spaced wall posts and the clearly deeper set of the roof posts and lesser width than the phase C houses.

Hitherto, houses III, IV and V have been assigned to this phase. Now, house XXVII (fig. 15b) can be added. Although it approaches phase C houses in its width, the crucial features are the deeper set of the roof posts compared to the wall posts and the closeness of the wall posts.

When the houses were presented in 1987, phase D was dated stratigraphically to be later than phase C and earlier than a pit that could be C^{14}-dated to 1010 BC.

When house XXVII was investigated in 1990, three large fragmented potsherds with preserved rim (fig. 17.1–3) were found. In all three cases the sherds were from thin-walled, well-fired vessels with burnished surface. The rim is clearly thinned down. The transition between neck and top is marked by a distinct ledge and in the two cases also by oblong horizontal lugs. Vessels of

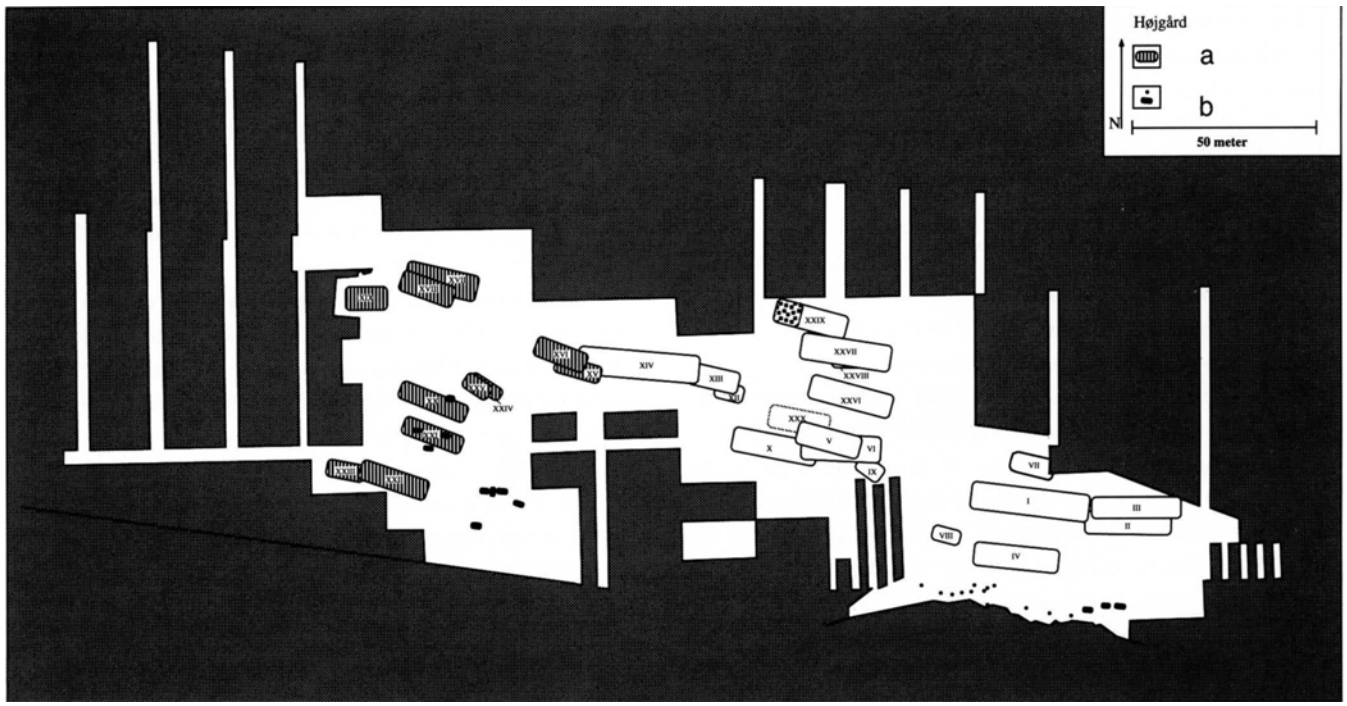

Fig. 16. Højgård phase E. a: Houses, Late Bronze Age. b: Iron Age graves.

this type have their main distribution area in the western part of South Schleswig where they are primarily found in graves dated to Early Bronze Age, Period III (Aner & Kersten 1979).

Phase E

Furthest to the west are nine three-aisled long-houses and two smaller houses which were doubtless also three-aisled (fig. 16). Only the holes from the roof posts are preserved, and a few possible fireplaces, which are never grouped together.

With the exception of house XVII, which in relation to the other houses had deeper-set roof posts with a considerably greater span between them, the other houses seem to have been constructed in pairs, successively.

The phase E houses are placed in an approximately NNE–SSW oriented group, in which houses XXIV and XXV must be outhouses to houses XX and XXI or vice-versa.

Houses XV and XVI lie east of this row of houses and are associated with the western group of houses containing, *i.a.* house XIV. The question is, however, whether this association is a real one. If it is, one would expect that at least one of the two is contemporaneous with houses III, IV, V and XXVII, but the lack of a group of cooking-stone pits/earth ovens at the west end between the last and the next-last set of roof posts and the small length and breadth argue against this.

These west-situated, slender houses are otherwise difficult to date. Stratigraphically, they cannot be coeval with the large three-aisled long-houses with partition walls. They are older than the inhumation graves from the early phase of the Early Roman Iron Age, because some of these graves have cut into the post-holes.

Only in a few of the post-holes has pottery been found, in all cases a finely tempered, relatively thin-walled, well-fired ware which cannot be more closely dated, but is presumably later than the Early Bronze Age.

In a few pits in the vicinity, pottery has been found which can be dated to the Late Bronze Age, Period IV (fig. 17.4). Here the ware is of approximately the same kind.

A dating to Pre-Roman Iron Age is hardly likely, due to the low find frequency: Pre-Roman Iron Age sites usually carry a very copious sherd material. Moreover, the entrance posts so characteristic of this period are absent. Finally, it appears that the Early Roman Iron Age houses from South Jutland (Ethelberg 1989) are grouped in the

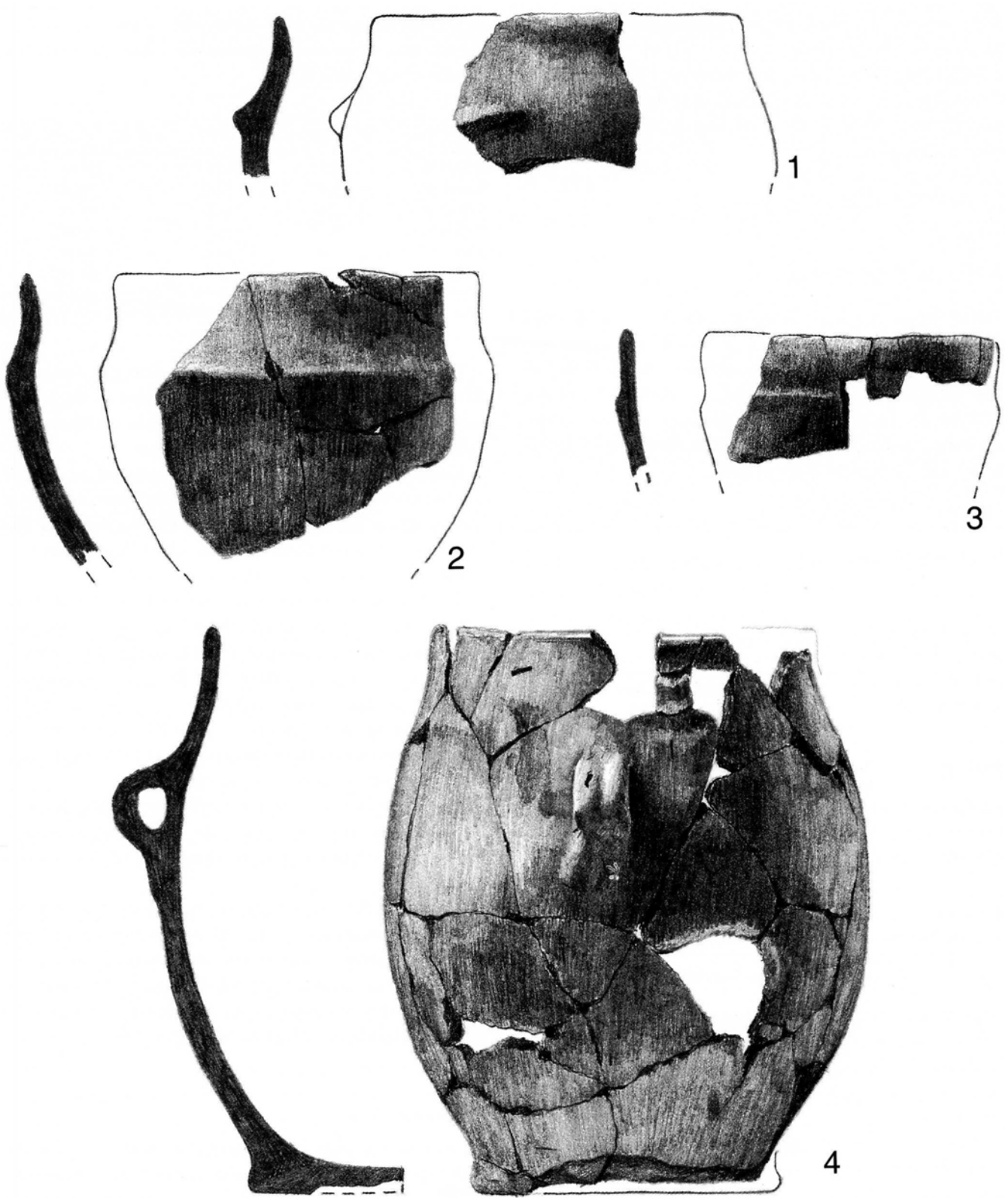

Fig. 17. 1–3: Potsherds from house XXVII. 4: Vessel x99.1 from the Late Bronze Age, found in a pit close to houses XV and XVI. 1:2.

same way, as C. J. Becker has demonstrated at Grøntoft, for example (Becker 1982).

Archaeologically, the dating cannot be narrowed down further than the end of the Early Bronze Age/Late Bronze Age. Here, a dating to the Late Bronze Age seems to be most appropriate.

Finally, it cannot be decided how many of the phase E houses were contemporaneous.

THE SCIENTIFIC DATING

The dating of the three-aisled long-houses from Højgård has been based above mainly on stratigraphic observations, house-types, a few potsherds and a single radiocarbon dating of the latest possible age (K-4615 Ethelberg 1987:161ff). In the following, the focus will be on the scientific datings and to what extent these are in agreement with the archaeological dating.

Thermoluminescence dating

V. Mejdahl took a series of thermoluminescence samples of fire-cracked stones from houses V, VI and X, which were investigated in 1985. The results are presented in table 1 (Mejdahl 1987 and 1990).

Risø TL no.	House	Pit	Sample no.	TL date ± 200 years 20C	100C
R-851102	V	822	886	830 BC	850 BC
R-851105	V	829	887	560 BC	740 BC
R-851106	V	829	887	1120 BC	400 BC
R-851108	V	832	889	1 AD	500 BC
R-851109	VI	834	890	1120 BC	1280 BC
R-851112	VI	835	891	690 BC	
R-851115	VI	836	892	1110 BC	1310 BC
R-851117	VI	836	892	980 BC	1190 BC
R-851121	X	838	894	310 AD	470 BC
R-851122	X	838	894	190 BC	360 BC

Table 1. Thermoluminescence datings from the central house cluster.

From the first results it was clear that the datings were erroneous, but by altering the fading temperature, datings could be achieved that were considerably older than the first ones. This does not alter the fact, however, that samples of stones from the same pit can give datings varying by as much as 660 years. This discrepancy can be due both to the sampling method and to the type of stone. During the investigation of house XIV in 1987, a new series of samples was taken, in which sampling was designed to eliminate errors, and more care was exercised in the selection of stones. The preliminary datings are shown in table 2 (Mejdahl 1989).

Risø TL no.	House	Pit	TL date ± 200 years
R-881103	XIV	1201	1850 BC
R-881106	XIV	1202	1310 BC
R-881108	XIV	1203	1190 BC
R-881110	XIV	1203	1290 BC
R-881111	XIV	1203	1350 BC
R-881113	XIV	1204	1280 BC

Table 2. Thermoluminescence datings from the western house cluster.

With the exception of the sample from pit 1201, the datings are nicely grouped, but in relation to the radiocarbon dates, they are still too late, also in relation to the radiocarbon samples' presumable self-age.

Finally, there is a TL-dating of potsherd no. x200, which was found at the top of the post impression in a roof-post hole belonging to house I. On the inside of this sherd were charred food remains, which have been C^{14}-dated by means of the accelerator method.

Two TL measurements were undertaken. One of these – R-871101 – yielded 1220 ± 200 BC, but must be rejected due to too great a fading of the TL signal. The other – R-871102 – yielded 1480 ± 200 BC. In comparison, accelerated radiocarbon dating – Ua 705 – yielded 3115 ± 110 bp in C^{14} years = 1410 BC, calibrated ± 1 standard deviation. Here the agreement between the two methods must be said to be acceptable.

This agreement does not immediately apply to the dating of the fire-cracked stones, the TL-dating of pottery having proved more reliable than that of fire-cracked stones.

Generally, the thermoluminescence method is still in its infancy. Development work still seems necessary. Until this has occurred, extensive culture-historical conclusions should not be drawn from TL-dating. V. Mejdahl has discussed thermoluminescence problems in relation to Højgård elsewhere (Mejdahl 1987 and 1990).

Radiocarbon dating

In connection with all excavation campaigns, charcoal samples have been taken with a view to radiocarbon dating. They were extracted with a trowel, and by wet and dry sieving. In those cases where there was insuffi-

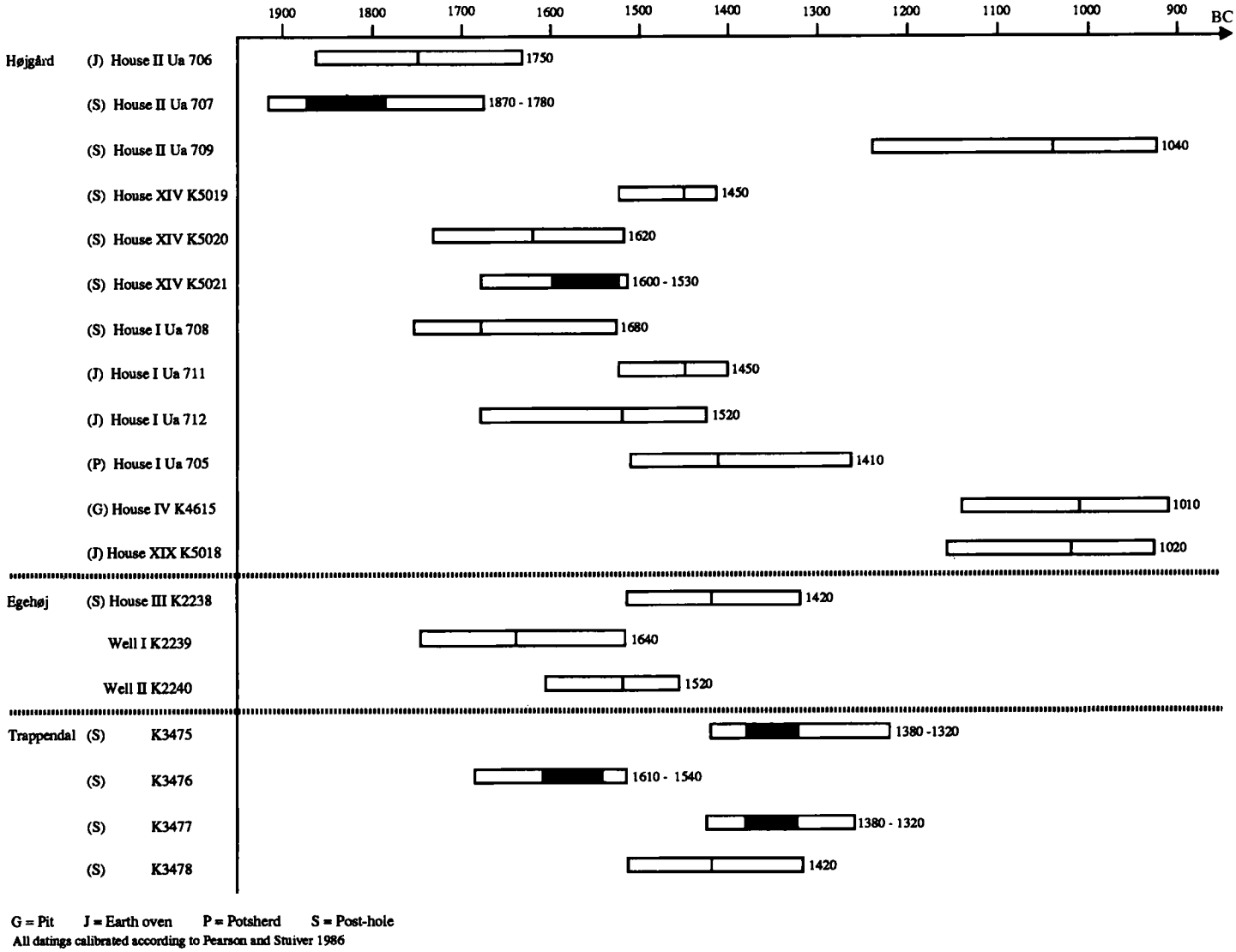

Fig. 18. Radiocarbon dates of the three-aisled long-houses at Højgård.

cient material for a conventional dating, C. Malmros of the National Museum's Environmental Department has selected the most suitable and submitted them to Uppsala for accelerator dating. A more detailed presentation of the individual datings occurs elsewhere in this volume (Rasmussen 1993). So far, results have been received only for the samples submitted up to and including 1987.

As it appears above, both conventional dating and accelerator dating are involved. The results are shown in fig. 18. The Ua-datings (Uppsala) have employed the accelerator method, the K-datings (København) are conventional. The table also includes the datings from Egehøj (Boas 1983) and Trappendal (Boysen & Andersen 1983). All datings are calibrated according to Pearson & Stuiver 1986, and may thus be directly compared with the TL-datings.

The full agreement between the two dating methods is apparent. The accelerator method has its great strength in the fact that only a fraction of a gramme of organic material is required, but it does present methodological problems that have to be taken into account during sampling. The risk that the sample to be dated has been contaminated, for instance by animal activity, is considerably greater than with conventional dating, so the date obtained can be either too late or too early. An example of this is presumably sample Ua 709, or more

extreme Ua 710, which is dated to the early Viking period and has therefore been omitted from the table. Error can be counteracted by taking a series of samples, and discounting the most deviant.

Another problem is the self-age of the samples. Here too significant discrepancies can arise, if the samples are not taken from trees with a short life-span. Finally, great care should be exercised when taking samples, so they are neither mixed with extraneous material nor are contaminated with recent material.

The results of the radiocarbon datings confirm the contemporaneity of the earth ovens/cooking-stone pits and houses. There can be no doubt that these pits are an integrated part of the large, three-aisled long-houses.

The radiocarbon datings further confirm the house-typological development, but the large, broad houses with partition walls seem to be confined to Period II. Unfortunately, there is still no dating of either the centre-post houses or the typologically latest houses with their characteristic placement of earth ovens/cooking-stone pits. On the other hand, they are dated both ceramically and stratigraphically.

Finally, C^{14}-dating K-5018 of house XIX suggests that the smaller houses to the west without preserved wall traces and without the characteristic placement of the cooking-stone pits/earth ovens must be dated to the transition between the Early and Late Bronze Age. The dating is 1020 BC, calibrated ± 1 standard deviation: 1160–920 BC.

To summarize, the archaeological and scientific datings show a possible continuity of settlement from the end of the Late Neolithic to the beginning of the Late Bronze Age. There is thus a unique possibility there of studying house development through the Early Bronze Age (fig. 19).

SUMMARY OF INVESTIGATIONS 1984–90

In the period 1984–90, an area totalling 29,650 sq.m. has been excavated, 14,800 of which have been surface-cleared.

29 houses (I–XXX) (fig. 1) make up four clusters with houses from the end of the Late Neolithic to the end of the Early Bronze Age. A continuity of settlement can be demonstrated, extending from the end of the Late Neolithic to the beginning of the Early Bronze Age, and settlement furthest west presumably from the beginning of the Late Bronze Age. Within this period, the settlement can be divided into five phases (A–E):

Phase A, which comprises the centre-post houses XXIX and XXX and the sunken houses VIII, IX and XII, is the oldest and should probably be dated to the end of the Late Neolithic.

Phase B is made up of the long-houses II, X and XXVI and the frame-houses VII, XIII and XXVIII and should be dated to the transition to the Early Bronze Age, Period I.

Phase C is made up of houses I, VI and XIV and should be dated to the transition to the Early Bronze Age, Period II.

Phase D comprises houses III, IV, V and XXVII and should be dated to the Early Bronze Age, Period III, but it cannot be ruled out that it starts at the end of Period II.

Phase E is made up of houses XV–XXV and must be dated to Period III/IV, *i.e.* the transition between Early and Late Bronze Age.

This does not mean, however, that all houses that can be assigned to the same phase have necessarily existed at the same time, and considering the time involved, coevality seems hardly likely.

One can follow how the three-aisled construction technique supersedes the centre-post construction and how the weight of the roof is gradually transferred from mainly the walls to mainly the roof-bearing posts. It is in other words the development of the three-aisled house that can be followed here. This development occurs in the course of the Early Bronze Age.

The houses within each cluster do not always constitute a settlement sequence in which the same house may be followed for several phases. In the western cluster, house XIII and house XIV have hardly had the same function. In the northern cluster, house XXVI and house XXVII probably have, but in the house-typological development, the time interval is too great for one to have replaced the other.

There seems to be a striking agreement between the size of the houses and the supply of bronze, so that the largest houses – *i.e.* the Period II houses – are found when the bronze supply culminates (Kristiansen 1978:160ff). In step with the increased bronze supply, the houses seem to increase in size and to decrease again with the reduction in size in Periods III and IV.

The perception that the cooking-stone pits/earth ovens

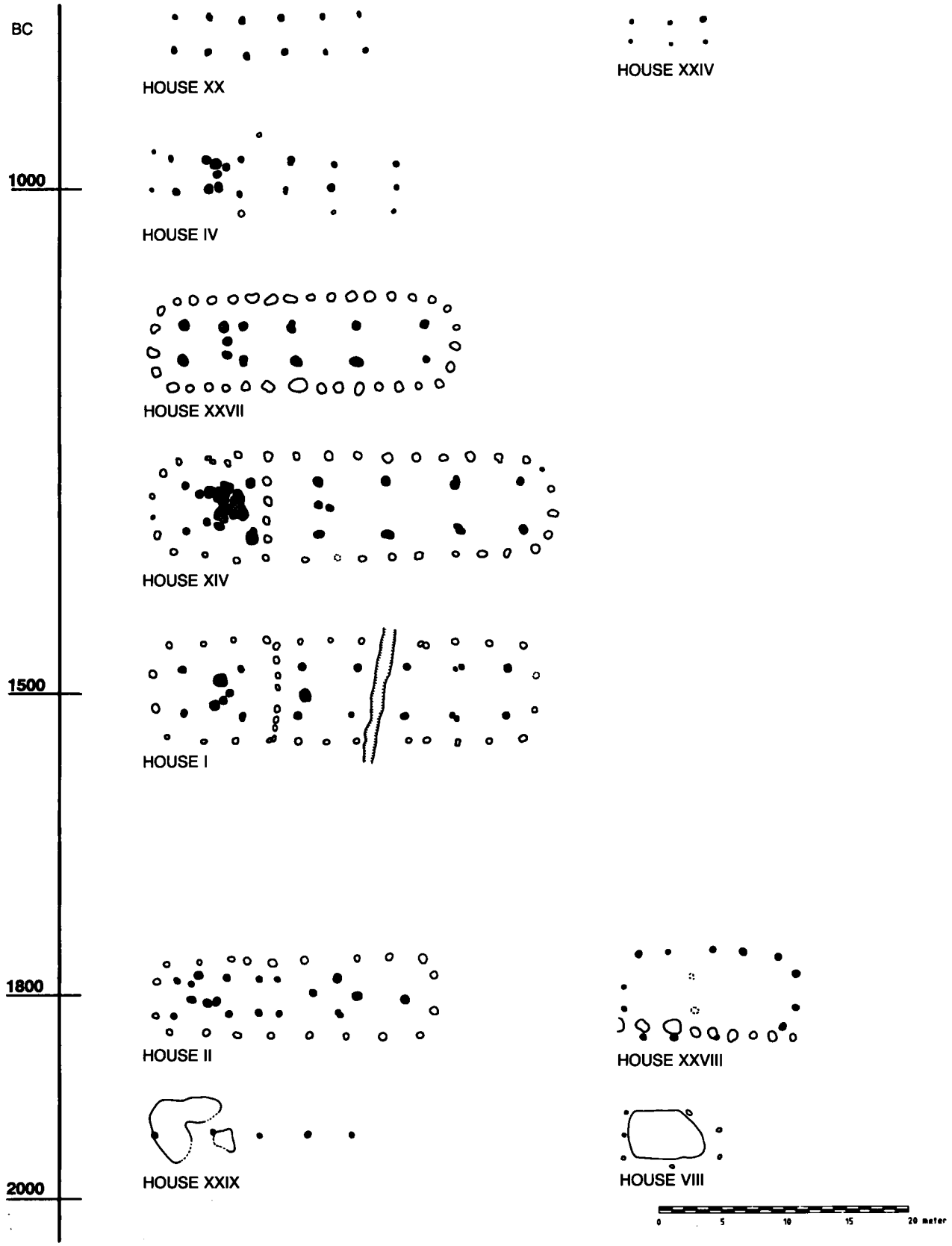

Fig. 19. The development of house-types from the end of the Late Neolithic to the beginning of the Late Bronze Age in South Jutland.

at the west end of the three-aisled long-houses are characteristic of the Early Bronze Age has been further strengthened and must be considered a defining element.

Finally, Højgård represents one of the few settlements from the Early Bronze Age which has been completely investigated.

HØJGÅRD IN CULTURE-HISTORICAL PERSPECTIVE

It is surprising that the typologically oldest three-aisled long-houses should be dated to the transition Late Neolithic/Early Bronze Age. When the possible self-age of the samples is taken into account, it is most likely that the first three-aisled long-houses at Højgård were erected at the beginning of the Early Bronze Age.

This means that houses II, X and XXVI from Højgård are the oldest known house constructions in northwest Europe in which the three-aisled construction has been used.

At this point, when the first three-aisled long-houses were built at Højgård, it is usually assumed that the country was divided into two different cultural zones – Zone I and Zone II (Lomborg 1960; Jensen 1988).

Zone I is made up largely of the Danish Islands and the northern half of Jutland. Here it is normally assumed that the Nordic Bronze Age developed in the course of Period I. In Zone II, which covers the northwest European lowland area and the southern part of Jutland, the so-called Sögel-Wohlde Culture was predominant.

The dating of the oldest three-aisled long-houses from Højgård to Period I and the location in Zone II suggest that the three-aisled long-house was perhaps developed within the Sögel-Wohlde Culture's distribution area.

At the Højgård locality, both the centre-post house and the three-aisled long-house are represented, with the centre-post houses as the oldest. Although it has not been possible using scientific methods to demonstrate continuity between the two house types, it must, judging by the position of the houses, nevertheless have been the case.

If we look at house development in Zone I, we see that the houses in the Late Neolithic have a centre-post construction and are with or without completely or partially sunken floor. This construction principle is used at least until and including Period I, *cf.* the C^{14}-dated Egehøj houses from north Djursland (Boas 1983).

The latest investigations in northern Djursland of the locality Hemmed Church seem to confirm the existence of centre-post houses some way into the Early Bronze Age (Boas 1991 and 1993, this volume).

Not until Period II do three-aisled long-houses turn up with their characteristic placement of a group of cooking-stone pits between the last and the next-last set of roof posts at the west end of the house – for example Vadgård house BN (Lomborg 1973: fig. 7) and Hemmed Church house V (Boas 1993, this volume).

For the correct understanding of Højgård, Hemmed Church is of the greatest importance, because it is a zone I locality where both house types – as at Højgård – are represented, and where the settlement must be considered continuous.

If the scientific datings of the latest centre-post houses from Djursland are correct, it looks as if the three-aisled construction principle, after being developed in Zone II at the beginning of the Early Bronze Age, Period I, perhaps expands into Zone I in the course of the Early Bronze Age, Period II.

However, one should be cautious about drawing too far-reaching conclusions about house development in the Early Bronze Age, so long as the number of houses that can be dated to the Early Bronze Age is still modest, like the number of datings. But at present it looks, as mentioned, as if the three-aisled long-house appears later in Zone I than in Zone II.

Translated by Peter Crabb

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NOTE

1. Højgård, Haderslev Museum jour.nr. 1706, sb.nr. 170 Gram sogn. The participants in the 1987 investigation were: Lene Lund, Anders Horsbøl, Carl Anker Thorsager and Per Ethelberg. The participants in 1989/90 were: Carl Anker Thorsager, Hans Peter Jørgensen. Artefact drawings: Jørgen Andersen; house plans: Hans Peter Jørgensen; survey plans: Per Ethelberg.

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