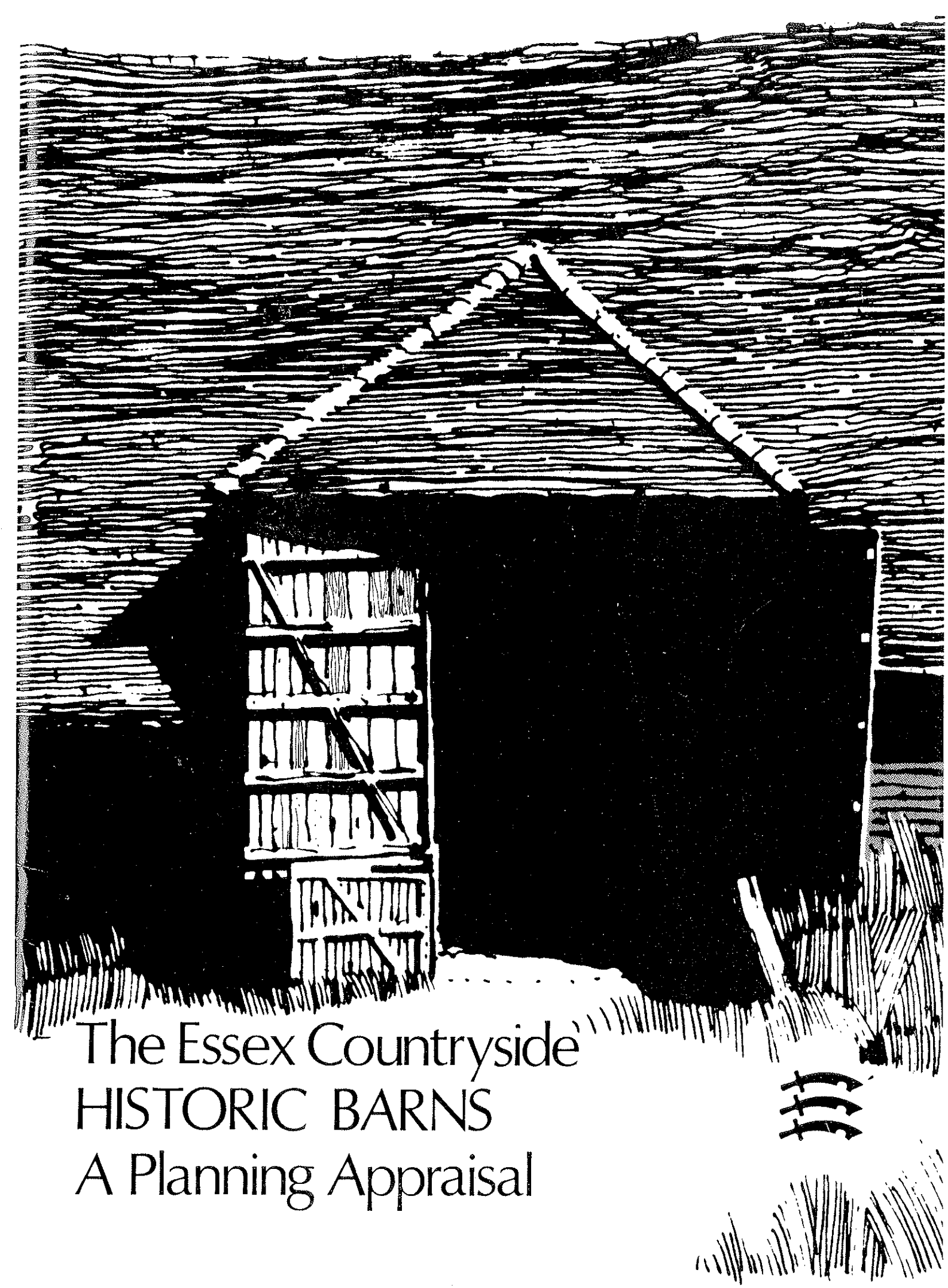


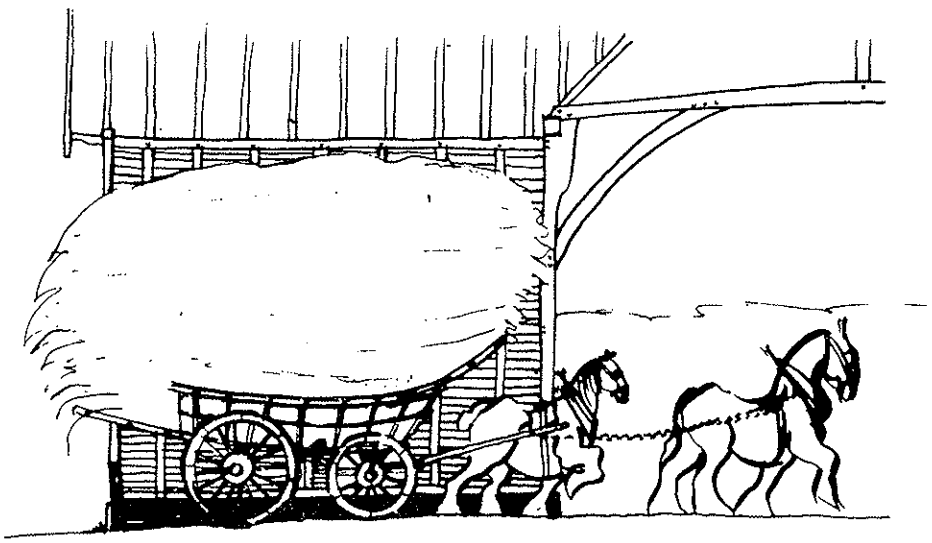
The Essex Countryside
HISTORIC BARNS
A Planning Appraisal

CONTENTS

Cover Illustration. Midstrey, Grange Barn, Coggeshall.

BACKGROUND

Until recent times, change in the character of the British landscape had been slow and gradual. Even a major force such as the enclosures movement took many decades to modify the field pattern whilst the resultant landscape remained virtually unaltered to the end of the last war. During the last thirty years, the rate of change has greatly accelerated. This is perhaps most obvious in the lowlying south-eastern counties which in the past had derived their beauty from the contrast between trees and open land. The extensive loss of tree and hedgerow cover has produced a new, raw landscape in which the trademarks of industrialised farming technology are only too apparent. Particularly significant is the replacement of traditional farmstead buildings – the barn, granary, wagon-lodge, milking parlour, stables and harness rooms – by utility structures which pay little respect in terms of scale, shape and colour to their surroundings. Whilst development and progress are essential, the preservation of traditional farm buildings and features of historic significance within the landscape should be given a high priority.



1.0 INTRODUCTION

The barn represents the most impressive and important agricultural building that England has ever produced. In effect, it fulfils a fundamental role in the architectural heritage of the English landscape, both in terms of its intrinsic value and its contribution to the rural scene as the dominant building in the traditional farmstead.

The barn has remained a vital part of the Essex arable farm holding at least since the time of the Conquest, being required to hold the entire cereal crop of the farm with all the straw and often the product of several successive harvests. The erosion of its functional purpose was initiated during the 18th century with the introduction of new farming techniques, a process which was greatly hastened by the advancement of mechanisation and industrial management techniques over the post-war period. More recently, farm amalgamation has taken over as the greatest single threat to what remains, since many original farm buildings are left in isolated situations as the economic centre of operations shifts to other locations.

The problem which arises is basically one of economics versus preservation. To some, the barn is regarded as having outlived its term of usefulness; to others, it is an essential part of architectural history. In the absence of detailed planning guidance as to the future of redundant farm buildings, the economic arguments hold sway with the result that many valuable structures are being lost through neglect and decay. There is no County-wide survey of the size of the problem but of the number which may once have existed, perhaps a third or a half remain (see Appendix 1). The present danger of losing most of these surviving examples is sufficient justification for local planning authorities to take positive action in respect of their preservation.

This brochure sets out the historical significance of the barn, the practical implications of conversion to alternative uses and finally, positive guidelines to assist planning authorities in making decisions as to their future.

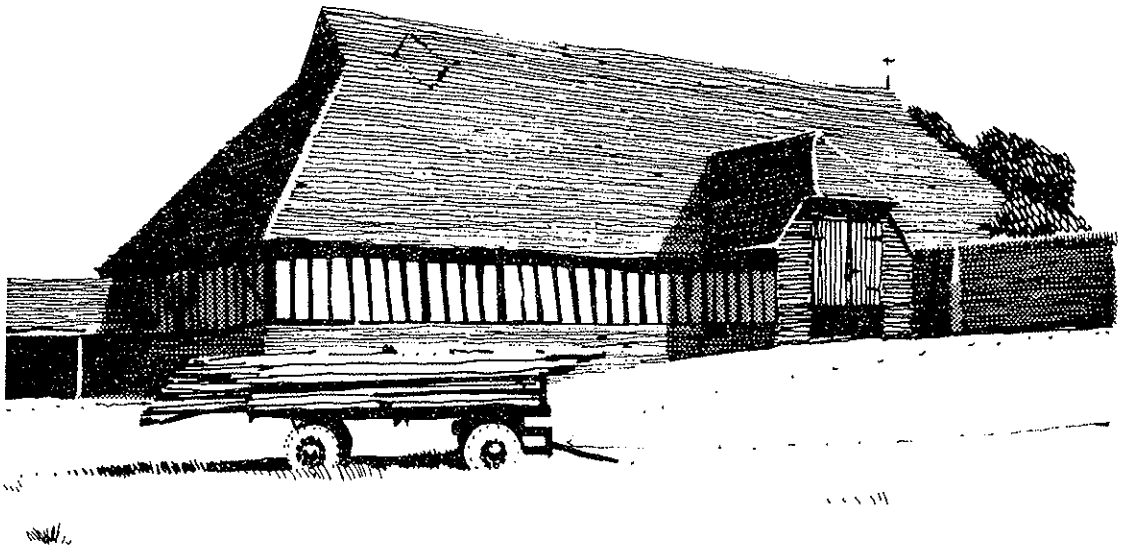


Fig. 1

Wheat Barn at Cressing Temple, carbon-dated to 1255 ± 60, showing the western end with walls re-built in c.1520 (see Fig. 6)

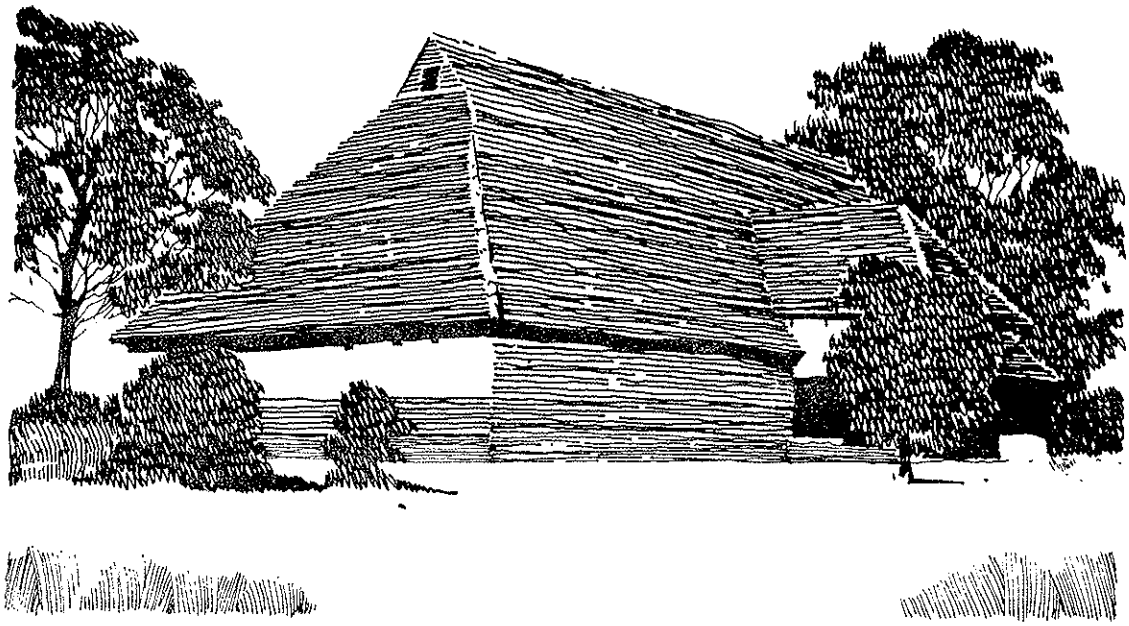


Fig. 2

Barley Barn at Cressing Temple, carbon-dated to 1200 ± 60. The walls and their covering are much re-built (see Fig. 5)

2.0 FUNCTIONAL CONTEXT

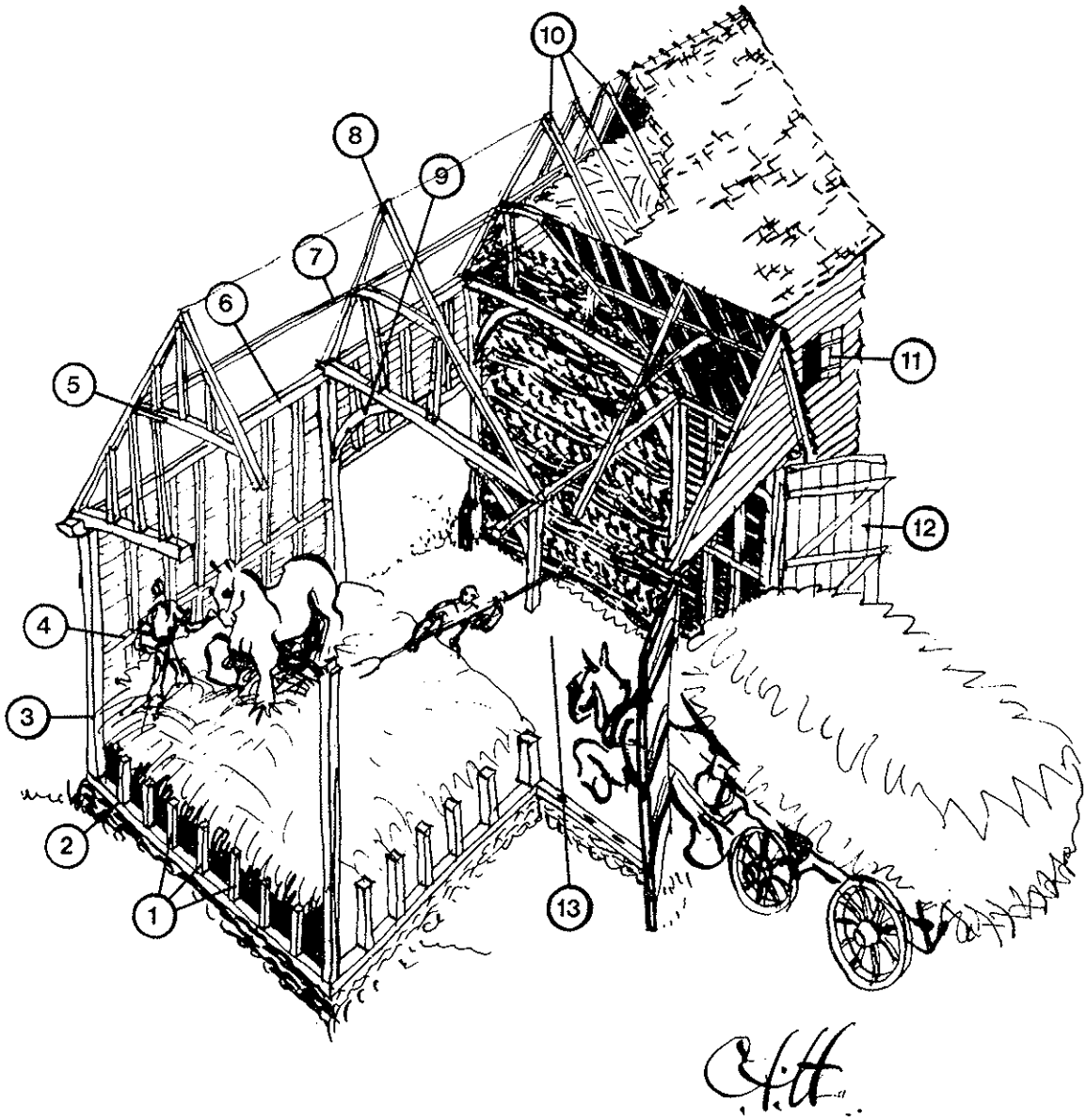
Since the functional significance of the barn has long since been relegated to the archives of history, the term 'barn' has been loosely applied to any large building on a farmstead. The barn in the true sense was a structure designed exclusively for the purpose of threshing and grain storage and as such, it exhibits certain distinguishing characteristics.

The main structure, consisting of a series of bays and aisles, was devoted to storage of the cereal crop. It was common practice to use horses for compressing the crop into the bays and then eventually into the roof area. Finally, the horse would be slid down a ramp built into the stacked sheaves of corn and the ramp filled in by pitch-fork stacking.

For threshing, floors of hard material, such as rammed chalk, were laid across the central bays of the barn and the seeds were beaten out with flails during the winter months. Porch-like projections known as midstreys extended the threshing floors outside the barn affording over-night cover for loaded harvest wagons, whilst the great doors admitted sufficient light and air for the threshers to work. After winnowing with fans, the clean grain was carted away and stored in the granary, a separate purpose-built structure. The building was so orientated that the doors opened into the prevailing winds of the district, thus enabling maximum circulation of air for dehydrating the stored corn.

The period of time over which the barn declined in usefulness is in reality greater than is generally understood. The chain of events which contributed to this decline was first heralded as far back as 1788 when Andrew Meikle patented the threshing machine which was later to revolutionise farming practice. The Medieval system of barn storage and winter threshing by manual labour became rapidly undermined as this new method of farming practice gained widespread acceptance. Parallel with the trend towards mechanised threshing, the method of storage underwent radical change. The barn was gradually replaced by the stack yard in its capacity as a store for grain. In addition, the method of storage was modified to suit its new outdoor location. Instead of compressed storage, stacks were thatched and left to dry in the open air. Consequently, an increasing number of barns fell into disuse throughout the 19th century.

The fate of the barn in its original context as a functional building was finally sealed by the introduction of the combined harvesting machine. The production of threshed and winnowed seed straight from the field completely replaced the need for storage of unthreshed grain, whether in the form of the stack-yard or the barn.



1. Studs
2. Ground Sill
3. Cornerpost
4. Side Girth
5. Collar
6. Top-Plate
7. Side Purlin
8. Principal Rafters
9. Arch Brace
10. Common Rafters
11. Drying Doors
12. Great Doors
13. Threshing Floor

A small barn of the 18th Century, illustrating the main members and the way the building was used.

Fig. 3

3.0 ARCHITECTURAL CONTEXT

The basic form of barn construction has remained more or less constant, despite changes in style which reflect the evolution of architectural form over the immensely long period of its useful lifetime. This expresses the functional relationship of the barn to a style of agricultural practice which has altered little during the last 900 years. The change of form which did take place was primarily a reflection of increased sophistication in structural carpentry resulting from developments of a technical nature, modified by regional variations in building materials. In the face of this continuity in traditional structure and cladding, any systematic analysis of historic development has presented itself as an almost impossible task and it is only the comparatively recent development of expertise in this field which has made detailed investigation possible.

In Essex, the barn as a consistent structural type is characterised firstly by its form, this being a basic timber-framed building with steeply pitched roof, projecting midstreys and lean tos; secondly by a restricted range of materials such as thatch or tile roof and walls of weather-boarding, brick or rendering. Although most of the surviving structures have been much repaired during the course of their lives, they have merely acquired new "locks, stocks and barrels" while remaining visually the "identical guns".

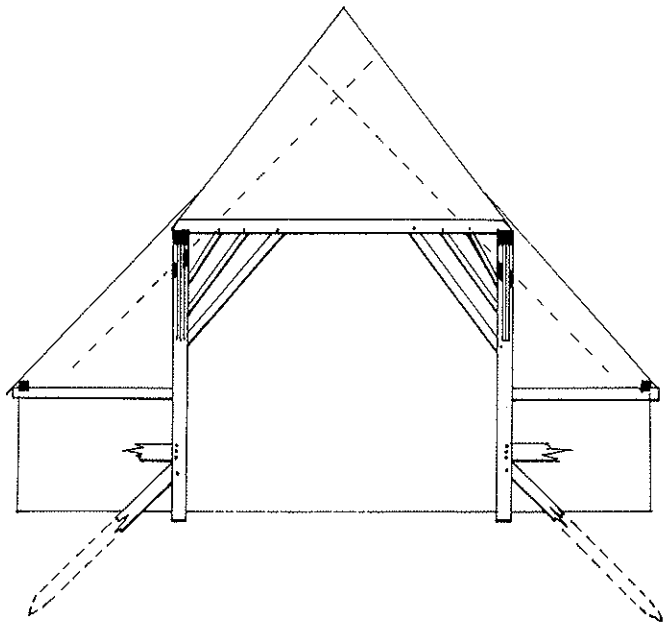
Despite the revolutionary changes in agricultural methods during the 19th century, consciously designed farmsteads continued to be built, and many layouts still retained close visual links with the manorial farmsteads of the earlier centuries. This era, however, bore a uniqueness of style which resulted as much from the imaginative use of multi-coloured brickwork as from the introduction of cast-iron into the basic structure.

Figures 4 to 13* illustrate in cross section the successive historical forms of timber construction together with the joint-types associated with each respective era. In the light of present knowledge, analysis of construction techniques rather than decorative or stylistic treatment is the most accurate indication as to date of origin.

**It must be noted that the cross-sections purely represent hypothetical structures since few standardised types exist. None have been drawn to scale and indeed some of the illustrated features are known to exist in structures of other periods. The purpose of the diagrams is to give an overall impression of the typological succession by which surviving specimens may be classified and assessed for intrinsic merit.*

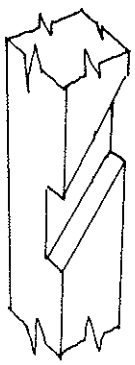
A BARN OF THE 11th CENTURY Fig. 4

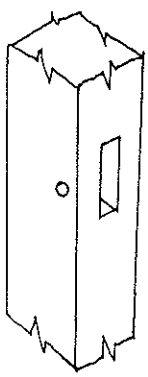
A barn of 11th century in which the posts were apparently reared against earthfast shores, shown partly dotted.



Recent researches have established that some standing timber-framed buildings either pre-dated the Norman Conquest or originated from the years of the "Saxon overlap". The earliest known example is the barn at Paul's Hall, Belchamp St. Paul's. This building still retains one 11th century earth-shored post, demonstrating a system of construction which bridged the gap between the earlier tradition of embedding posts in the site and the later technique of placing feet upon ground-sills. Falconers Hall Barn at Good Easter, built as a Prebendal Hall during the thirty years following the Conquest, has posts which were set upon sill-pads while remaining earth-shored. In this case, the fine mouldings cut on the posts confirm that they originated from the end of the 11th century. In both these examples it is significant that passing braces were fitted prior to construction on site, evidence which endorses the view that more of our English building traditions originated from before the Conquest than had previously been suspected.

notchless lap joint



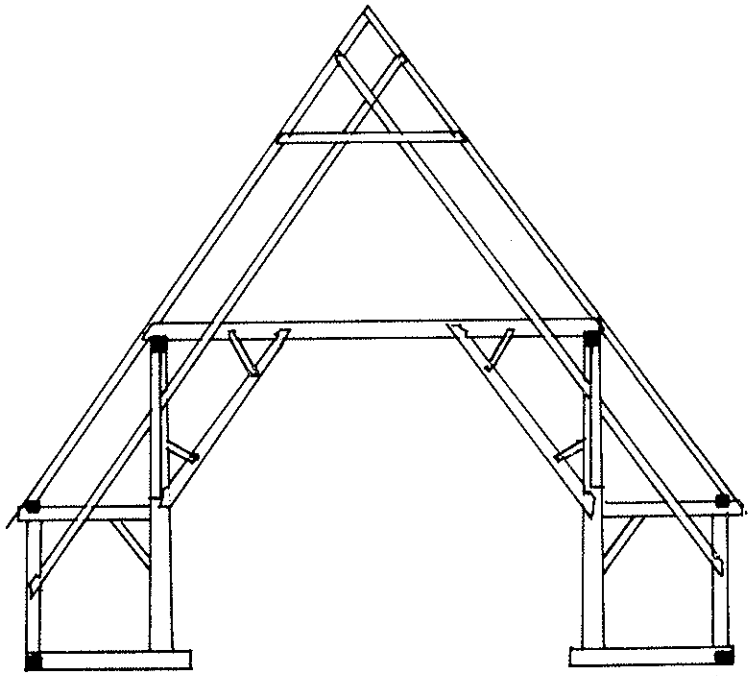


square mortice, pegged

A BARN OF THE 12th CENTURY

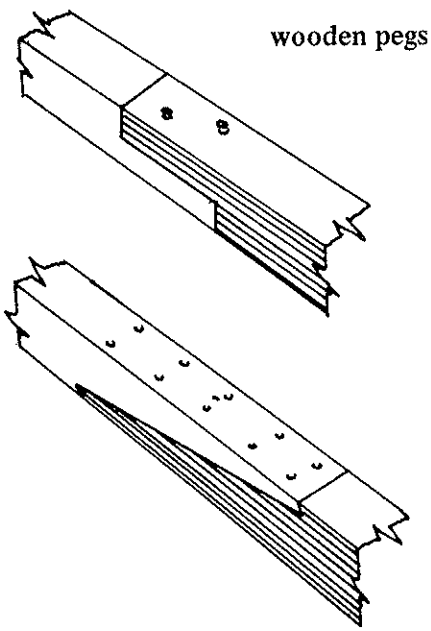
Fig. 5

Type and construction of 12th century barn, often of great size. Probable locations were the home farms of capital manors, monastic sites or grange farms and cells or preceptories of the Military Orders, such as the Knights Templar.



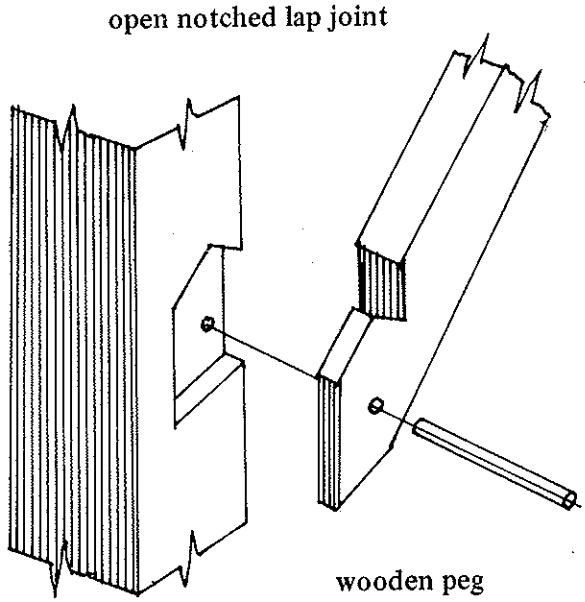
purlin scarf joints

wooden pegs



a) The two types of scarf-joint known to be used in c.1200.

open notched lap joint

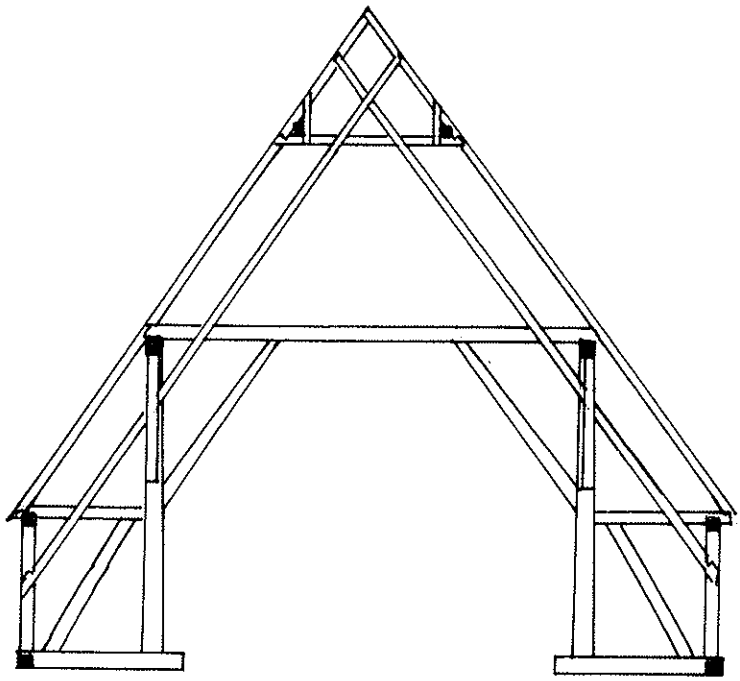


wooden peg

b) The notched lap-joint. This was used to assemble the majority of Norman carpentry. Of distinctive appearance and only known to exist in very few buildings in England. It is both rare and closely dateable as a type.

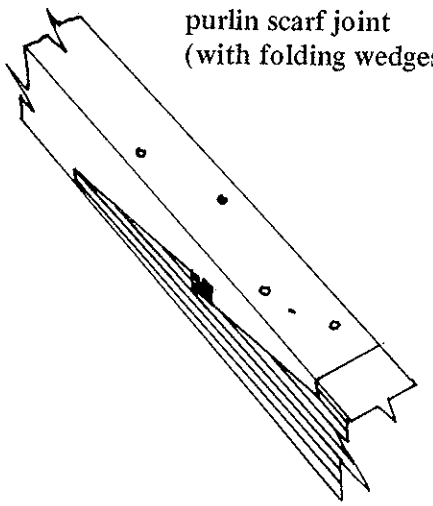
A BARN OF c.1250 Fig. 6

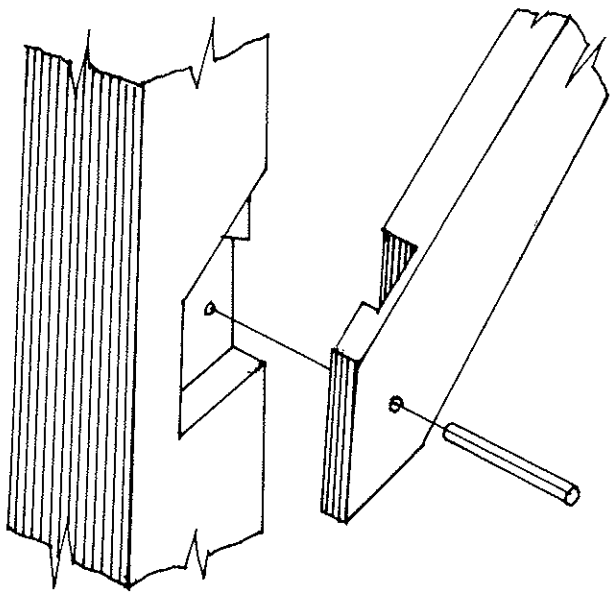
Barns of this period continued to be connected primarily with the capital manor farm or monastic site. As with structures of the 12th century, the timbers used were well grown by expert woodland management. They were grown straight and used straight.



secret notched lap-joint

purlin scarf joint
(with folding wedges)



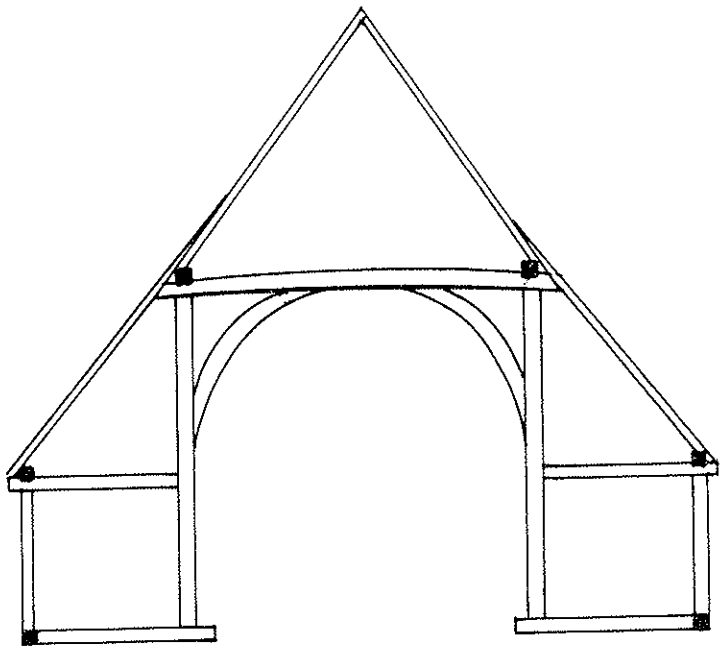


a) The type of scarf-joint then in use, i.e. from c.1250 to c.1330. This would be used for the top-plates, the largest members of a barn frame.

b) The secret notched lap-joint. First known to have been applied in c.1213 in the construction of Wells Cathedral and used extensively in the latter 13th century.

A BARN OF THE EARLY 14th CENTURY

Fig. 7



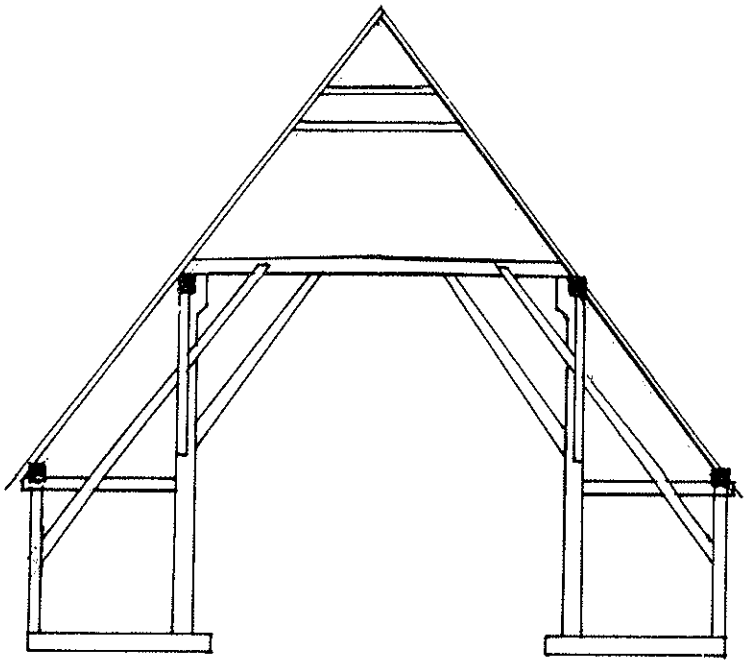
A section of a barn with complete "reversed-assembly" – that is, with all the lengthwise timbers on top of the crosswise timbers. It is held by some that this technique derives from pre-Conquest methods of building.

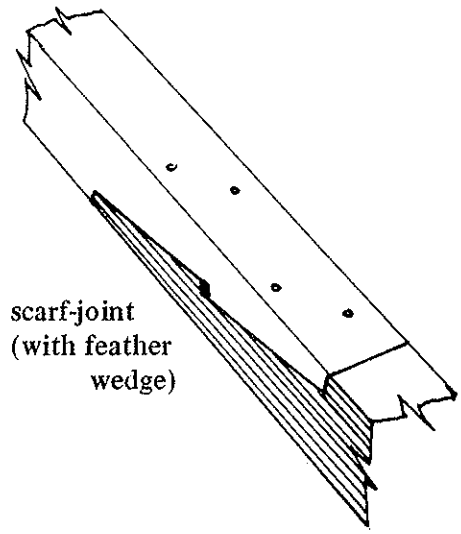
The only known complete example of this type, although demolished, has been proved by carbon 14 dating to have originated in the 14th century. A barn at Ashdon Rectory embodies one portal frame of this variety in its construction, an example which must be regarded as extremely rare.

BARNS OF THE 14th CENTURY

Fig 8a

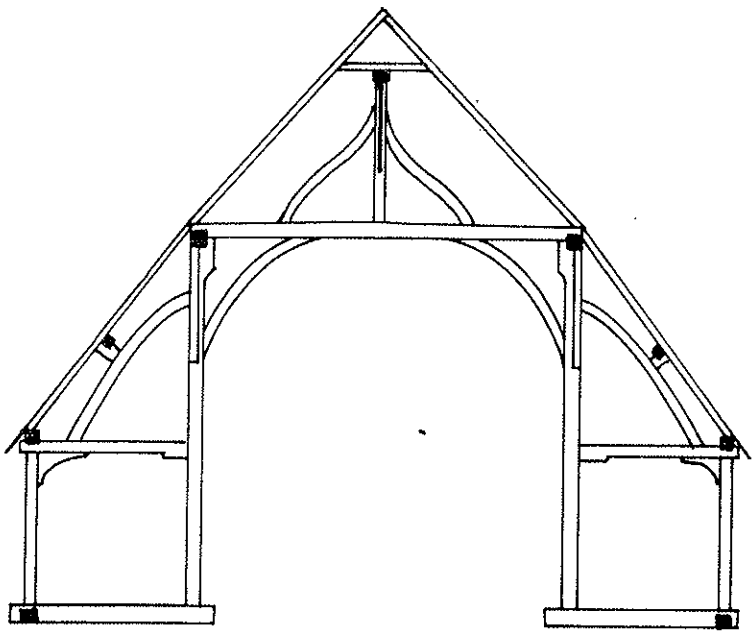
Builders of this period were still those with the largest agricultural interests; the manors, monastries and colleges. The secret notched lap joint was still employed to a very limited extent. Extremely long timbers were no longer available and subtle curvatures were introduced into timber frames.

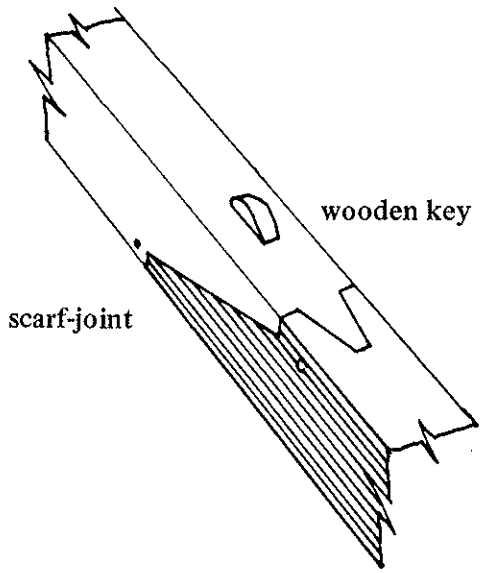




The accentuated curvature of the timbers relates it stylistically to the Decorated period

Fig. 8b

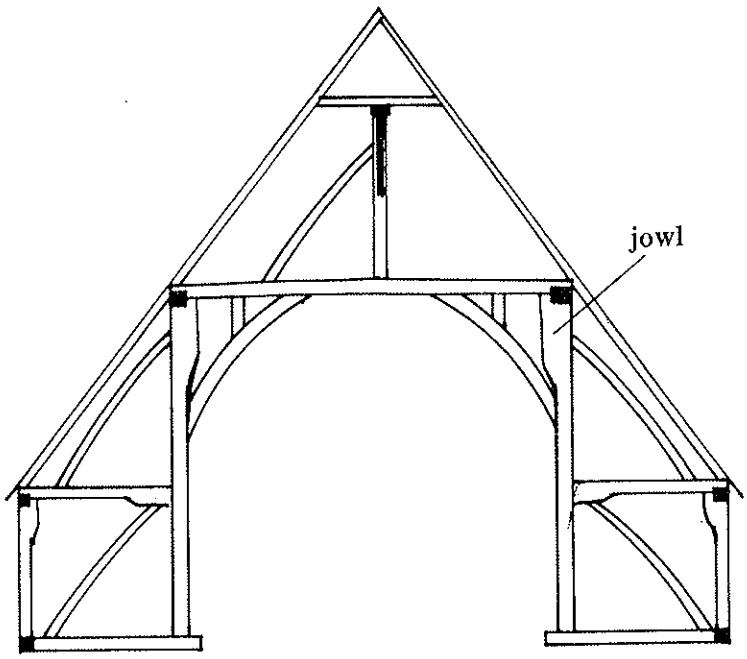


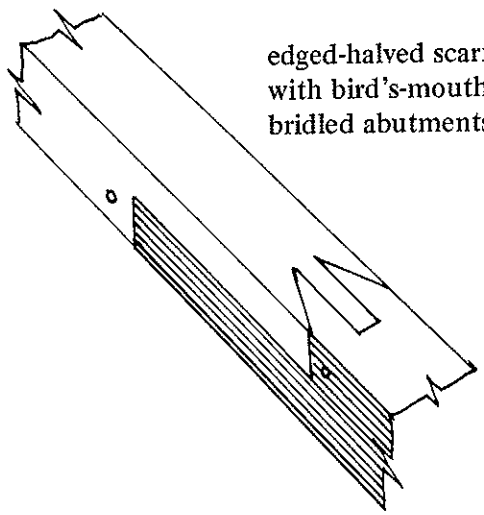


The highly refined scarf joint in use at this time. It was a joint which managed to perform the function of preceding types but used far less material, (about 4ft of 9" x 9" timber). It required even more skill in execution and its use declined owing to economic pressures.

A BARN OF THE 15th CENTURY Fig. 9

Barns of this period were mainly built on manor farms. Curved timbers were now in vogue and the jowls that thickened the ends of jointed timbers were used to full advantage at every practicable point of construction.



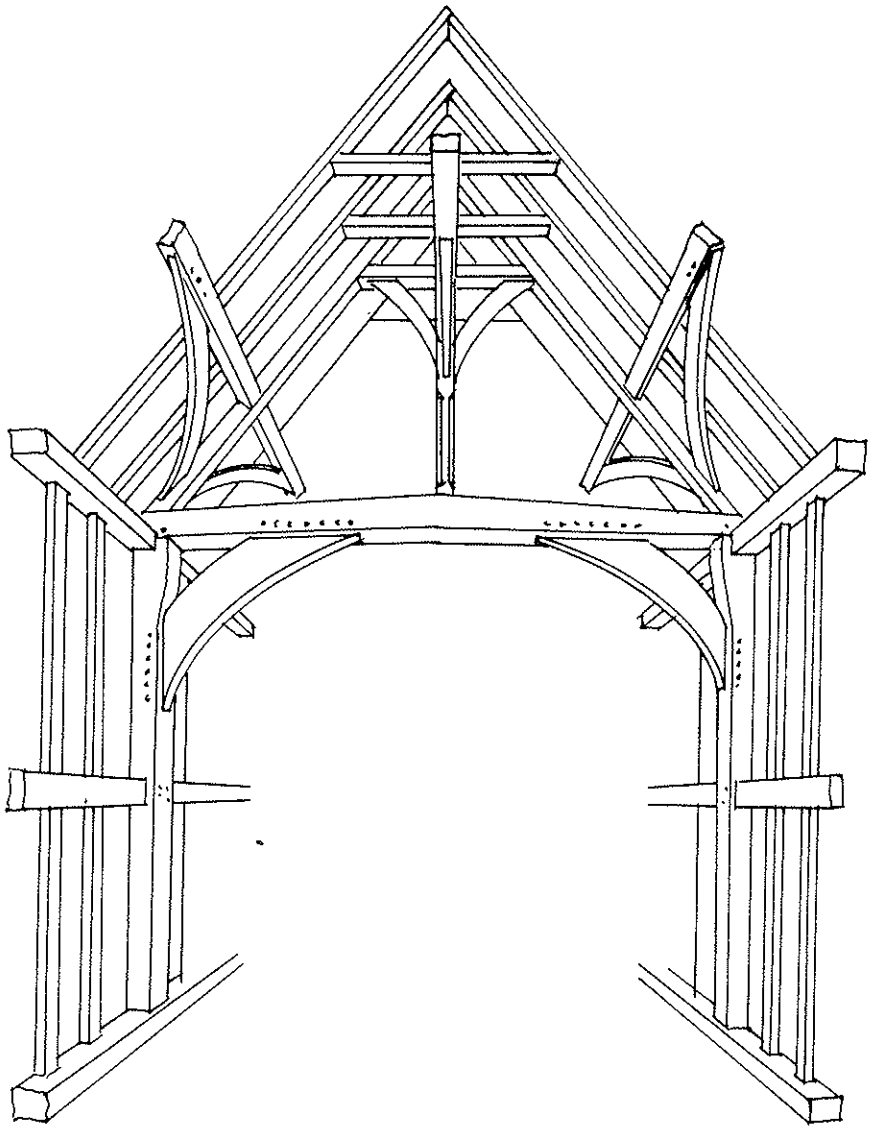


edged-halved scarf joint with bird's-mouthed bridled abutments.

An example of the numerous and highly ingenious varieties of the edged halved scarf joints then developed. These scarfs typify the entire Perpendicular Period of English architecture.

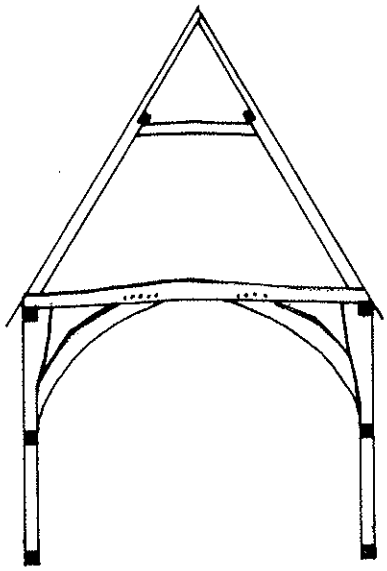
A BARN OF THE 15th CENTURY Fig. 10

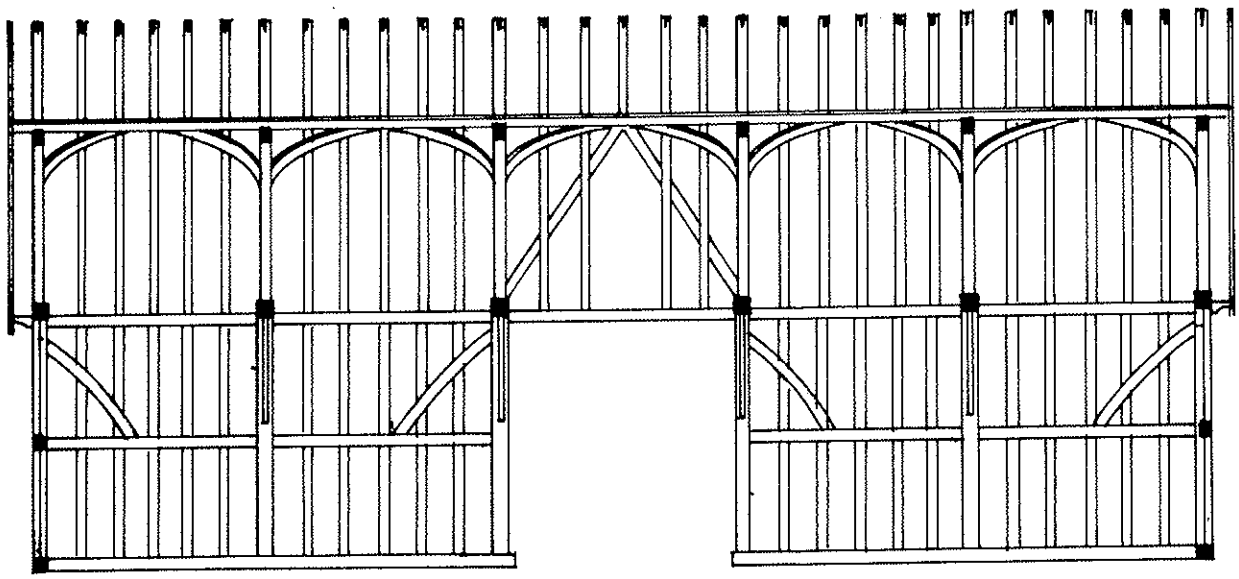
Carpenters during this period combined various types of roof-framing into complex hybrid designs. Some 15th century church roofs in Essex display as many as four distinctly different types. This diagram represents the combination in a barn roof of side-purlins with a collar-purlin. Following the introduction of crown-posts in c.1250 at Salisbury Cathedral, the course of development was towards the general acceptance, perhaps for economic reasons, of side-purlins braced in the plane of the roof. The combination of both types in the same roof occurred immediately before the change to side-purlin roofing.



A BARN OF THE LATE 16th CENTURY Fig. 11

Cross and longitudinal sections of a type of barn built during Elizabeth's reign, possibly by yeomen descended from several generations of yeomen who had acquired material wealth. Often beautifully wrought and assembled, usually without aisles, and suitable for farms of one hundred acres or less.

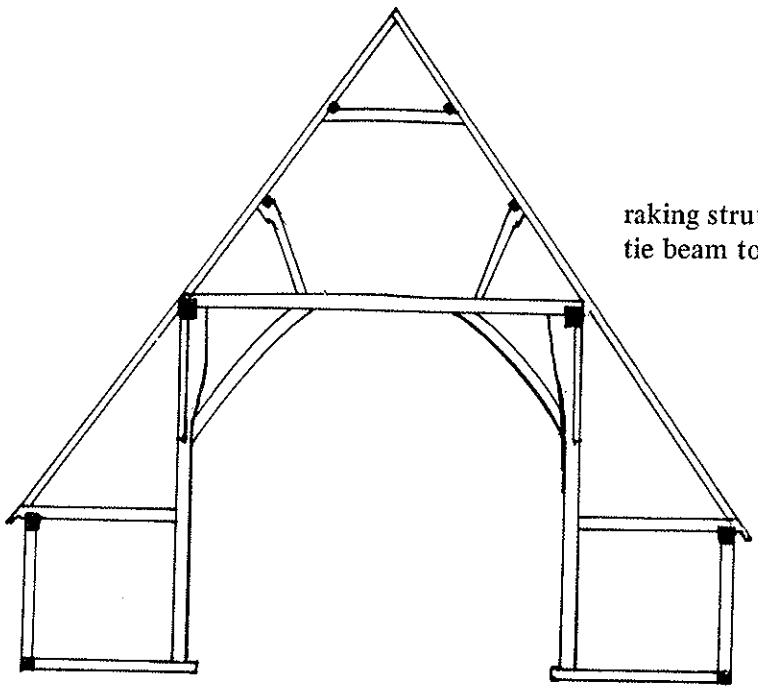


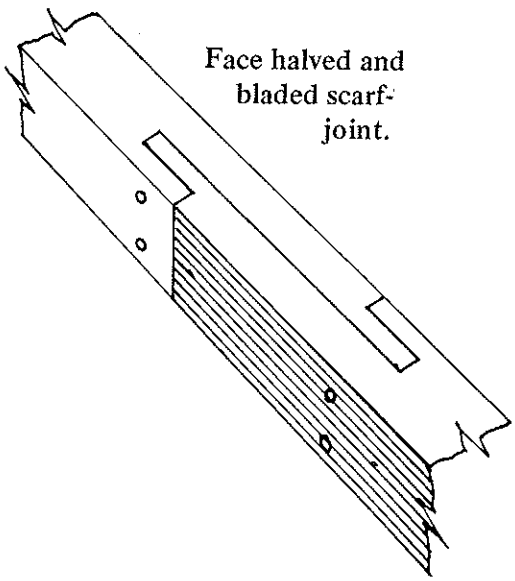


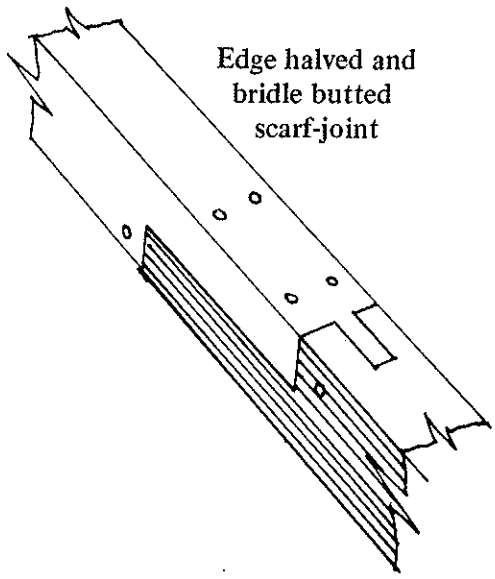
A BARN OF THE EARLY 17th CENTURY

Fig. 12.

Barns were built in considerable numbers during the Elizabethan period. Often of maximum size but also of skeletal construction, they lacked adequate bracing and stability. It would appear that builders in these years were relatively new sections of the community such as prospering yeomen and others acquiring wealth by the accelerating decline of feudalism.







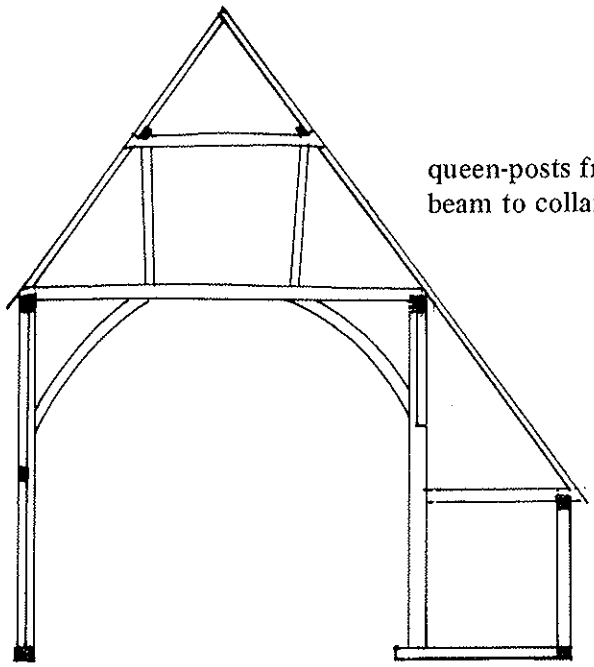
a) The scarf-joint most often used in the latter part of 16th century, first known to have been applied in 1575. It is almost entirely made by saw-cuts, and is face-halved and 'bladed'. This type of joint was never to be superceded since it could not be made any cheaper.

b) The surviving and simple form of the preceding scarf-joint (Fig. 9) which lingered in use until 1650. Either or both may be found in barns of these dates.

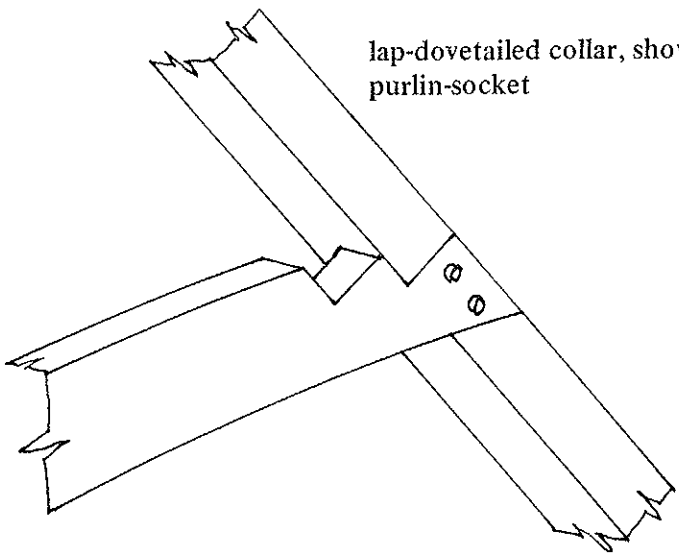
A BARN OF THE MID TO LATE 17th CENTURY

Fig. 13

Cross-section of a typical larger barn of the middle to late 17th century. Jowls were not cut on the upright posts and often only one aisle or outshot was provided. Of large size, they are frequently to be found on the farms of much divided manors or sub-manor farms.



queen-posts from tie beam to collar



lap-dovetailed collar, showing the purlin-socket

The peculiar technique which this type embodies is the lap-dovetailed collar to provide a socket into which the side purlin could be laid.

4.0 ARCHITECTURAL DETAILING

In addition to the broad indication as to age and quality derived from analysis of the overall structural frame, valuable supplementary evidence may often be obtained by inspection of specific details in the construction and cladding of the building. The following paragraphs briefly outline types of covering, decorative features and certain structural elements, advising where possible how these features may be used to assess the antiquity and quality of a structure.

4.1 Wall Coverings

The wall cladding of Essex barns has varied little, as the most available material throughout the many centuries of its history has been timber. Feather-edged or weather-boarding applied horizontally was the standard form of timber-cladding used in the majority of cases, whilst vertical, square-edged boarding was common to earlier examples. Vertical boarding was generally housed in grooves on the under-side of the eaves-plates, then pegged to suitable rails in the walls (generally half-way up) and to the outer edges of the ground-sills. This was the most logical and enduring method of board cladding, demonstrated by the fact that surviving examples of this method date from earlier centuries, e.g. c. 1300 at Frindsbury, Kent; c. 1430 at Upminster, Essex. Although this method was perpetuated by English settlers in North America during the early part of the 17th century, later examples of vertical boarding in this country are rare.

Many barns originally faced in plaster have remained relatively unchanged. In fact, it is unlikely that any surviving examples are of modern origin, an assertion which can be proved by the existence of wattle grooves in the heads and sills. There are many cases where weather-boarding and plaster are seen in combination, examples of plaster above weather-boarding being more common than the reverse arrangement.

Brick nogging or infilling between studs is a method of cladding which has survived in a few cases but in the light of present knowledge, examples of the type do not pre-date 1550. This method was quite unsatisfactory due to the incompatible and widely disparate rates of expansion and contraction between timber and brick, together with the excessive weight which bricks impart to the structure. The few examples which exist are usually much repaired due to the frequency with which brick-panels have fallen out during periods of wet weather. Barns constructed entirely of brick and ranging in date between the 16th and 19th centuries, although rare, are to be found in Essex. Depending on the date of construction, these surviving examples generally possess well-carpentered roofs.

4.2 Roof Cladding

The traditional cladding for the barn roof throughout its working history has been thatch and surviving examples of this type occur in all periods. In Essex, however, tiles were also used over an equally extensive period. Unfortunately, it is almost impossible to determine

whether tile or thatch may have been first intended for a building. Firstly, roof coverings are generally subject to a great amount of repair and replacement to the extent that little evidence remains as to the type of cladding used originally. Secondly, examination of the roof timbers is unlikely to provide any indicators, since the supporting structure is identical in both cases.

4.3 Threshing-Floors

These were laid across the width of the barn in numbers ranging from one at the centre to as many as three set at regular intervals between the two gable-ends. Few have survived through to the present day, the primary reason being sub-soil conditions rather than the durability of the materials themselves. This, of course, has the effect of increasing the value of those floors which remain.

The oldest and most enduring material is clunch or rammed chalk which is unique in its ability to resist discoloration, remaining clinically white and clean irrespective of age and wear. Bricks laid on edge, although less resistant to tarnishing, were likewise relatively hard-wearing. A fine example of this type is to be found in the 12th century Grange Barn, Coggeshall. A further traditional form of floor covering was wooden boarding but because of its susceptibility to rot, few examples of this type have survived. A comparatively rare yet interesting type of material used to effect for this purpose is York stone flagging, which gains a singular richness of texture through age. The isolated examples which still exist, such as the barn at Hoe Farm, Aldham, have significant rarity value and should be retained.

4.4 Decorative Detailing

Purely decorative features are somewhat rare in the structure of the barn, since almost every part serves some functional purpose. The barge-board is virtually the only exception. It is safe to assume that barge-boards would have been fitted in cases where the ends of top-plates project through the wall-cladding for a distance equal to that between two rafter couples. The style of these features, where they have survived, can indicate an approximate period of origin, i.e. Medieval, Jacobean. Such non-functional items are comparatively rare, since they were seldom replaced, even upon houses. The majority of barns until the 18th century would invariably have possessed decorative features of this type and surviving examples certainly justify retention.

4.5 Reversed Assembly

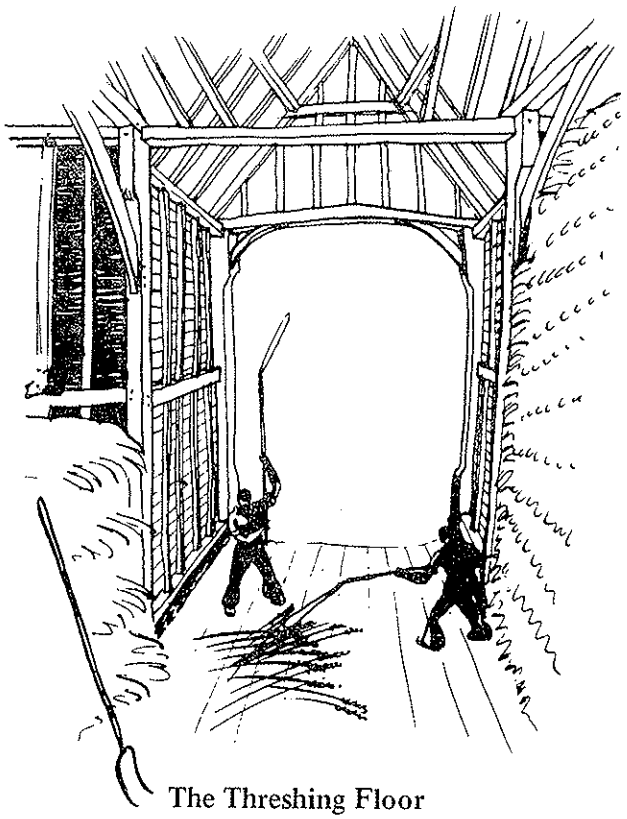
The oldest barns of Mediaeval origin were assembled on site by a method that clearly distinguishes them from barns of later construction. It is apparent that carpenters engaged on building construction during the 12th and 13th centuries set out their work according to rules that simplified the task. By the technique known as "reversed assembly", it was possible to set up the largest practicable units of framing across the barn and then secure these by the immediate addition of lengthwise timbers.

In the light of present knowledge, these units consisted of the complete rectangular frames of the two aisles, each with a main-post standing full-height and the tie-beam in position. When two of these were reared opposite across the building, the aisle top-plates were set onto their previously prepared tenons, thus enabling the shoring or props to be taken away. This method of timber-framing can be detected from the outside, since the ends of the aisle tie-beams must project beneath the eaves. It is, therefore, a valuable indicator that date of construction was during the earlier Medieval period.

4.6 The Gambrel Roof

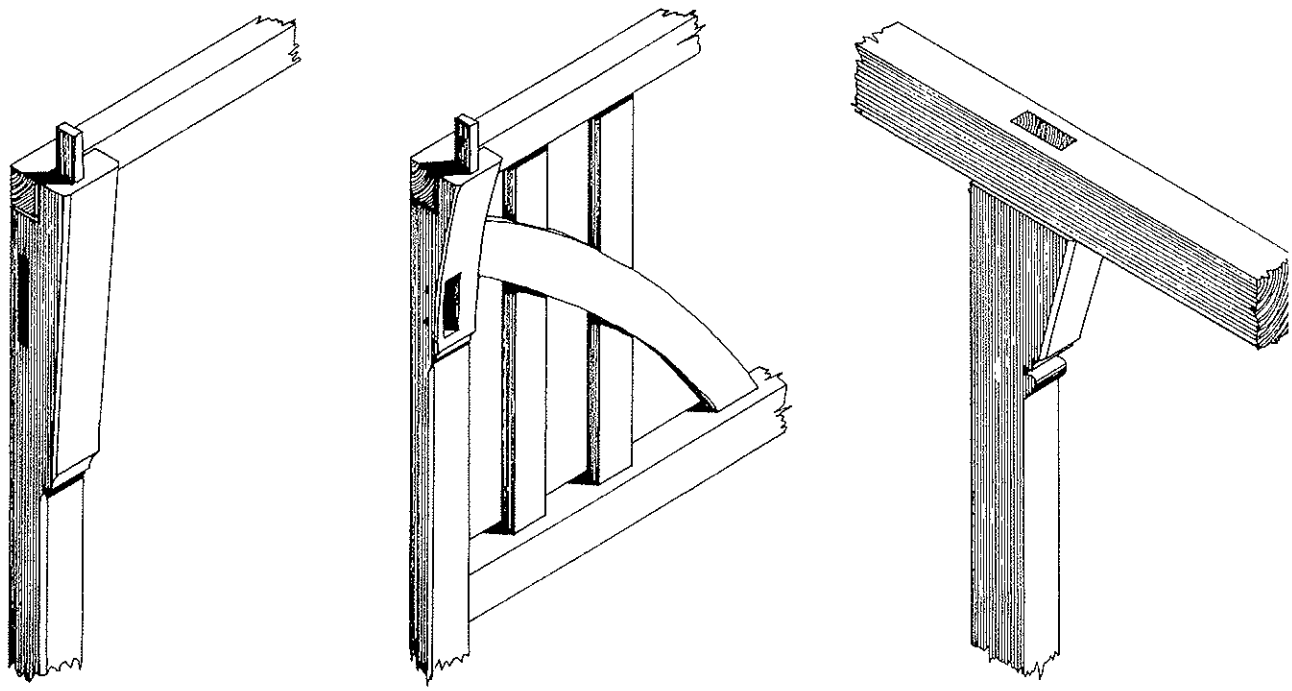
The form and structure of this roof-type is strongly analogous to its namesake, the horse's "gambrel", the first great angle above the knee in the hind-leg. It is basically a double-pitched roof with the lower pitch longer and steeper than the upper pitch.

This roof-type is known to have existed as early as the 14th century, an example being the nave roof of Sheering Church. Surviving examples of the type, however, show that it was very popular during the late 16th century, since it provided the means whereby the volume of the roof in small buildings such as cottages could be increased. Both large and small barns of this type still exist but await detailed study and dating.



The Threshing Floor

Fig. 14



Shaped and Decorative Jowls. Circa. 1600

Fig. 1

4.7 The Knee

The knee refers to a right-angle of timber with a concave hypotenuse. Its distinguishing shape is due to the fact that it was cut from the oak at the angle between trunk and branch. This meant that the grain was continuous around the angle, a feature which gave this small timber its tenacious strength.

The knee is known to have been developed by shipwrights at a very early date but it did not appear in buildings much before the opening of the 14th century. This is verified by the fact that braces rather than knees were fitted beneath house jetties until c.1320. Subsequently, the use of solid knees without spandrel voids became the rule.

The use of the knee in barns of earlier construction was not widespread, being limited to the inside of the eaves-angle. By the late 17th century, it began to be widely used in smaller farm-buildings such as cart and wagon lodges. This was effectively the forerunner to its application in the barn. By the 18th century, the knee appeared in most angles of the barn structure and for this reason it was a significant determinant in the architectural style of the period.

4.8 The Jowl

The oldest medieval barns have main posts that thicken towards their tops, at which point they are usually of the same measurements as the top-plates, e.g. Barley Barn, Cressing. The complex conjunction of more than two components, however, was not applied to this aspect of timber-framing until a much later date.

By c.1250, when the second barn was built at Cressing, the "upstand" had been invented and applied in practice. This effectively combined the three relevant timbers – post, wall-plate and tie-beam – but did little to produce a rigid angle of jointing. Between that date and c.1300, the final development had taken place, jowls of accentuated profile being cut from the base of the tree-trunk and inverted for the purpose. This allowed a very intricately jointed assembly of the three timbers, each being secured to the other to give maximum rigidity of angle. From c.1300 until the middle or "florid" years of the 16th century, the jowl was widely used by barn carpenters. There are many examples from this period of their use at the top ends of vertical timbers and, to a lesser extent, on horizontal timbers.

Towards the close of the 16th century, the use of this feature declined sharply. In fact, there are house-frames of this period in which only one pair of corner-posts were given jowls. The reason for this is not yet fully understood. Even the ever-increasing shortage of timber during the 16th century does not sufficiently explain the decline of the jowl, since it had been cut from parts of the tree that were not needed for other purposes. It can be said with certainty, however, that this trend clearly signified the end of a period of excellence in the history of carpentry.

From late Georgian times until c.1900, a cheap substitute for this complex joint type took the form of the knee bolted through both posts and tie-beams. Whilst the use of knees for this purpose did not constitute good carpentry, it could be said that they contributed to architectural merit in those structures which were dependent on them for structural support. Additionally, if well-cut, the knee could be termed a visually pleasing feature.

4.9 Roof Racking and Bracing

The bracing of rafters as a measure to prevent racking was practiced over an extensive period from the latter part of the 13th century to the end of the Perpendicular period. Early examples are found more extensively in ecclesiastical buildings, a notable example being the roof of the north transept in Westminster Abbey. Other examples are known to have survived in Monastic Churches, such as Blackfriars, Gloucester. It is difficult to determine precisely the extent to which rafter-bracing was used in barns of this earlier period for the obvious reason that they have not received the same care and attention over time as ecclesiastical buildings.

In Essex, present evidence suggests that effective roof-plane bracing was not introduced until c.1430, when it appeared together with side purlins, themselves supported by tenoned and compressed collars. This type of bracing was invariably of Tudor style, with a depressed and four-centred arcature.

Since rafter-bracing introduced an additional element of stability, it was technically feasible to reduce the number of timbers in the construction of the roof. The increasing acceptance and application of the technique, therefore, had an impact on the form and struc-

ture of roof architecture. The crown post and central purlin type gradually disappeared and even collars were reduced from "common" to "principal" components at bay intervals.

The middle of the 15th century was a period of transition characterised by experimentation with hybrid roof-types in which features of both old and new methods were combined. A typical example is the nave roof at Little Braxted Church which combined side purlins and rafter braces of Perpendicular style arcature with common collars. An even more interesting example is the roof of the Granary at Rookwood Hall, Abbess Roding, where crown-posts and collar purlins were used in addition to side purlins with Tudor style wind braces, the best of both schools in a single roof. Where examples of such roof-types exist in barns, they warrant a careful assessment as to their rarity, technical excellence and historical importance. (See Fig. 10)

Fig. 16

Interior of 17th century barn showing main post and through braces – note absence of 'jowls'.

5.0 THE PLANNING CONTEXT

Planning policies relating to development in the countryside, both within the Green Belt and rural areas beyond the Green Belt are set out in the Structure Plan for Essex under Policies S9 and S10 as follows:–

Policy S9 – **Metropolitan and Southend Green Belts**

"Within the Metropolitan and Southend Green Belts, there will be the most stringent restriction on new building and a presumption against any new development, including changes of use, outside the towns and villages. Developments which may exceptionally be permitted in the Green Belts are those essential for the needs of agriculture, mineral extraction or forestry, those which would contribute to countryside recreation, institutions in large grounds, cemeteries or similar uses which are open in character. Dwellings for agricultural workers may be permitted in conjunction with farms if it can be shown that the worker must be resident on the agricultural holding. Any development which is permitted shall be of a scale, design and siting such that the appearance of the countryside is not impaired".

Policy S10 – **Rural Areas beyond the Green Belts**

"Within the rural areas beyond the Green Belts, the open countryside will be protected from development and the existing uses of land shall remain, for the most part, undisturbed. Permission will not normally be given for development in the rural areas unless the proposals are related to agriculture, mineral extraction or forestry or are for other forms of development which must take place in the rural areas. Dwellings for agricultural workers may be permitted in conjunction with farms if it can be shown that the worker must be resident on the agricultural holding. Any development which is permitted shall be of a scale, design and siting such that the appearance of the countryside is not impaired".

These policies reflect the restrictive measures under Green Belt and countryside policy formulated in the original Development Plan for Essex of 1957 and reiterated in the Approved Review Development Plan of 1976. The essential difference, however, is the fact that the Structure Plan makes special provision for the consideration of valued historic buildings in areas where such policies operate:–

Policy C3 – "In areas where development will not otherwise be allowed, the conversion of buildings of architectural or historic interest may be permitted in appropriate circumstances where this would preserve a building".

The concept of the redundant historic farm building has not been fully acknowledged as a problem until comparatively recently. The trend towards rationalisation of building stock in line with industrialised farming practice first became apparent in the 1960's

and has since escalated due to such factors as amalgamation of farm units under the Agricultural Act of 1967. The policy as set out in the Structure Plan is essentially a reflection of the grave concern expressed by the Secretary of State as regards this loss of valuable historic buildings and the inadequacy of countryside and conservation policy as originally formulated in County Development Plans for dealing with the specific needs of individual buildings. It is a concern which has been expressed repeatedly in a number of D.O.E. circulars, culminating in Circular 23/77 entitled "Historic Buildings and Conservation Areas – Policy and Procedure". The Secretary of State recommended that:–

> "24. New uses for old buildings may often be the key to preservation. It may be justifiable to relax control over the land use allocation, density, plot ratio, daylighting and other controls where this would enable an historic building or group to be given a new lease of life. This may apply particularly in the case of warehouses, churches, barns etc., where the size and character of the building present special difficulties".

The historic barn is virtually the only large agricultural building in the countryside which can be termed of architectural and historic interest with any degree of consistency. As such, it is to be regarded as a special case within the terms of Structure Plan policy C3. Section 8 sets out detailed guidelines based on this policy in relation to the particular problems presented by the historic barn. It is intended that these should provide a broad framework within which District Councils may formulate their own detailed development control policies.

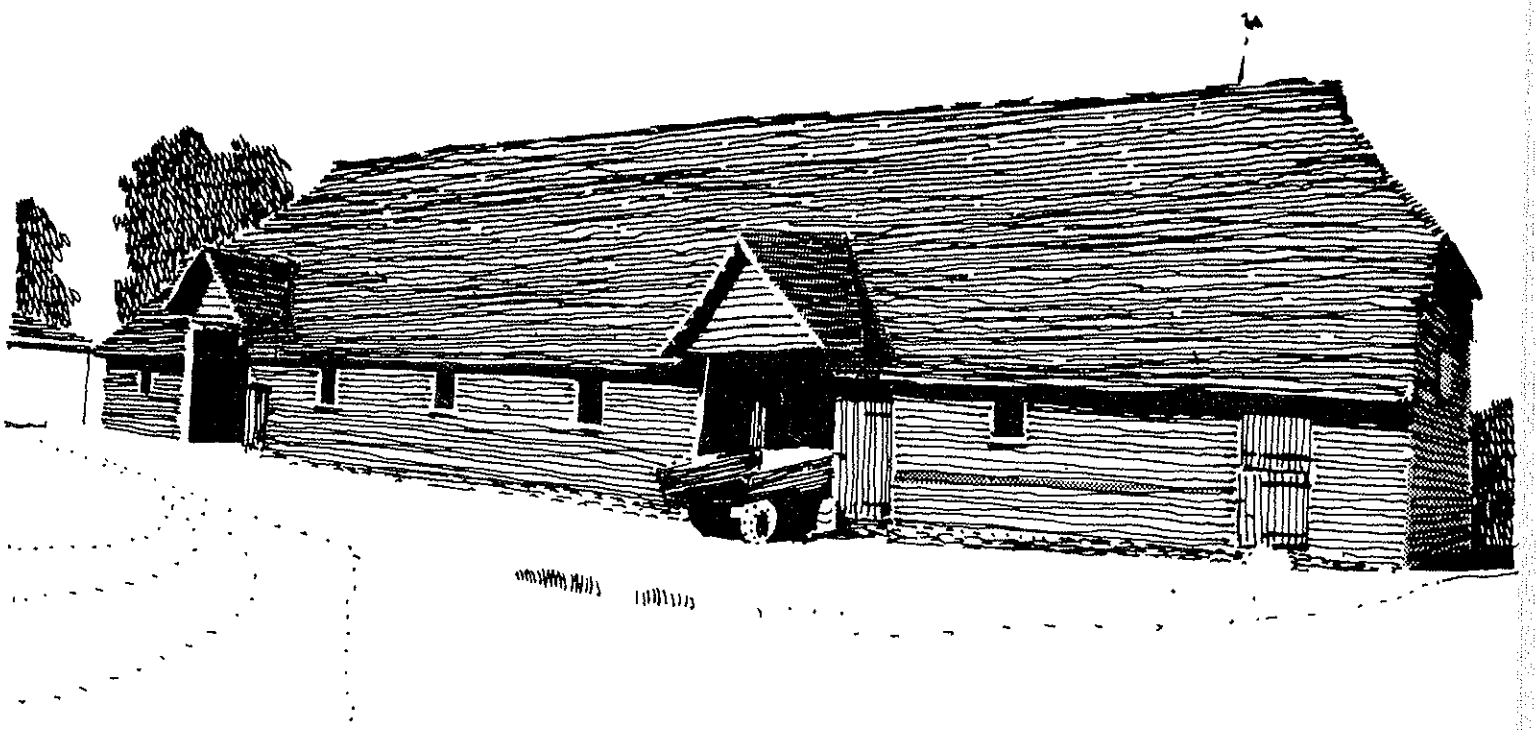
Whilst it is of paramount importance to seek continuance of agricultural use in accordance with rural planning policy, the guidelines regard this objective more as a first priority than a statutory obligation. In shifting the emphasis to the preservation of the building itself, the inference is that change of use may be necessary in order to ensure the retention of a feature which makes a valuable contribution to the rural scene.

It should be appreciated, of course, that the advice relates specifically to buildings of merit and as such, the exemption would only apply to those structures deemed to be of special architectural or historic quality. Although a significant proportion of barns appear on the statutory lists, it is anticipated that the number will increase annually as the current review of the lists brings to light further barns of architectural and historic interest.

6.0 AGRICULTURAL USE

The outstanding quality of the barn as a timber-framed building is attributable as much to a hall-like sense of spaciousness as to the quality of the carpentry. Preservation of the structure as one large unit must therefore be regarded as the only totally acceptable means of retaining its special character. On the basis of this one objective alone, reinstatement to some form of agricultural use is the obvious solution, since it calls for no alteration or adaption of the existing structure. Furthermore, for barns located within the farmstead, agricultural occupancy is the only use which would not affect the visual harmony of its group setting.

Provided no pressure is exerted on the timber frame or external walls, the advantages offered by the volumetric capacity of the barn may well outweigh the disadvantages of a structure not built to modern requirements. Bearing this in mind, considerable flexibility could be afforded for loose storage of grain and other products by protecting the external walls with a lining of corrugated steel sheeting. A further possibility is the use of fork-lift and pallet storage techniques. This system of storage not only mitigates the risk of side-thrust on the external walls but facilitates efficient use of vertical space in that pallets can be stacked to a height of some 20 feet. Conversely, use of the barn for implement storage would be inappropriate. Although side doors and good headroom might offer the appropriate incentives, the likelihood of damaging structural members whilst manoeuvring heavy vehicles within the barn itself presents a strong risk to the stability of the building.



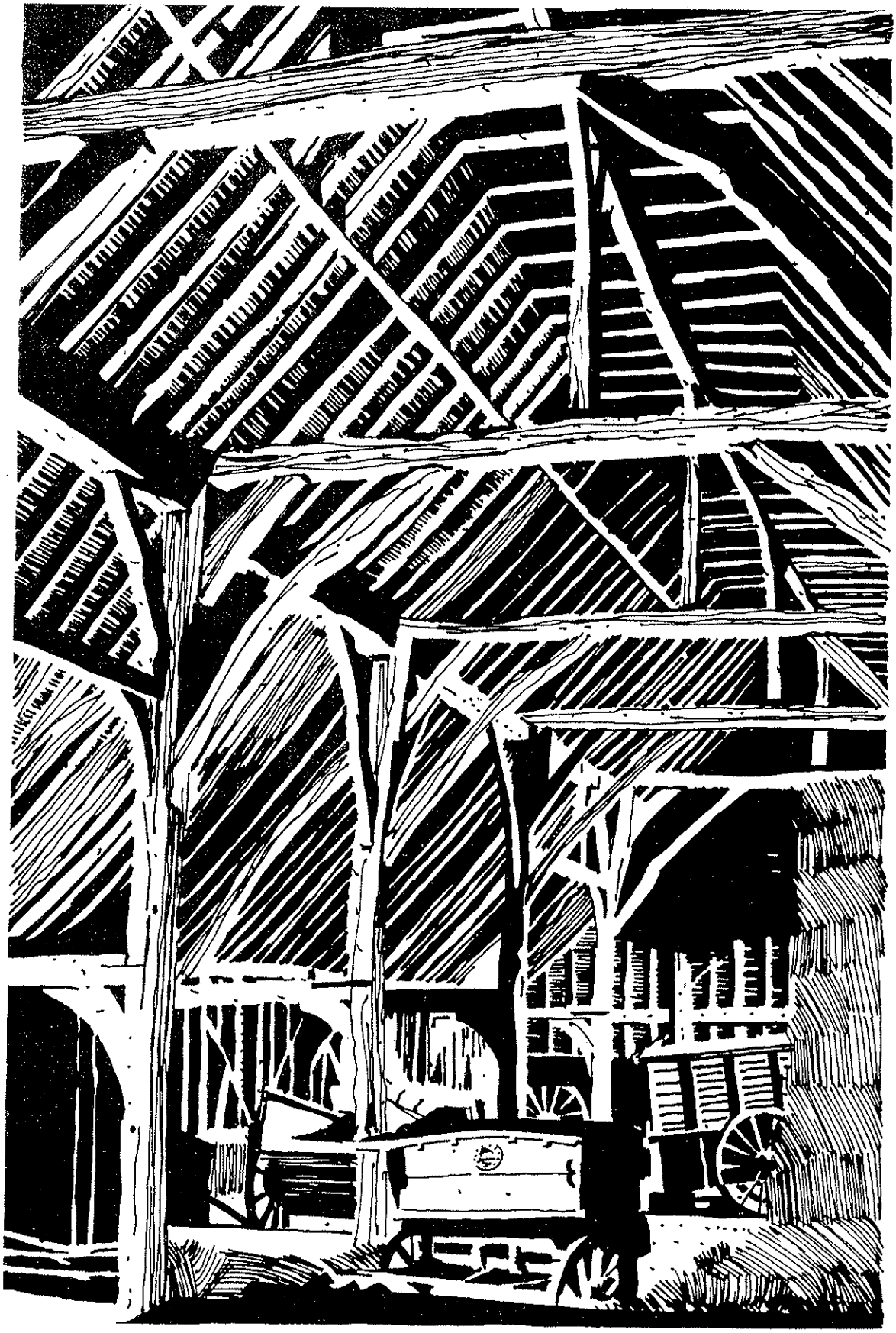
Widdington, the framing of which is shown in Fig. 8b.

Fig. 17

Reinstatement to agricultural use is an ideal solution in environmental terms but it is one over which there is no statutory control. The decision rests ultimately with the farmer who, for a number of purely practical reasons, may consider reinstatement impractical. It is undeniable that economic factors are primarily responsible in determining the future of the historic barn. The most pressing problem is that it is invariably the least remunerative building on the farm and the most expensive to maintain. The practical advantages of purpose-built units further militate against the continued use of the barn as a functional building. On the other hand, the Ministry of Agriculture is prepared to give assistance towards the repair of listed farm buildings on condition that they remain in agricultural use. With this in mind, every opportunity should be taken to foster new uses such as pallet storage which would increase the attractiveness of the barn as an economically viable proposition.

It must be stressed that retention or reinstatement to some form of agricultural use should be regarded as the major prerogative. Where it is the case that this proves to be quite impractical and as a result, progressive dereliction is likely to place the building in jeopardy, the opportunity may then be given to the farmer to seek some form of alternative use. The following section discusses the possibilities and problems of various uses as a basis for establishing supplementary guidelines to rural planning policy.

Fig. 18



Interior of barn at Powers Hall Farm, Witham. A structure of early 15th century type, still in agricultural use.

7.0 ALTERNATIVE USES

The purpose of this section is to discuss the economic, practical and aesthetic issues involved in converting the redundant barn to alternative uses. Following a brief discussion of general issues, a more detailed assessment is made of the factors which must be considered in relation to specific types of use. For ease of reference, these are categorised under two main headings – public uses and private uses. Finally, the relative opportunities and constraints of these broad use types are summarised in order to provide a basis for the formulation of detailed development control policies.

7.0.1 Location

Location in relation to existing centres of population is a major factor governing investment of capital in a conversion project. For community uses, the value of the building will depend very much on its location. For industrial concerns, the major criteria will be ease of access for delivery and distribution, whilst uses which may otherwise be feasible for the barn in an isolated or remote situation may be strongly conditioned by service costs.

7.0.2 Site Factors

The majority of barns form part of a building group, whether this be the traditional farmstead or the outbuilding complex to residential property. The conflicts that could arise when different uses share a communal area pose the need to assess the feasibility of providing for separate access and curtilage arrangements.

7.0.3 Building Condition

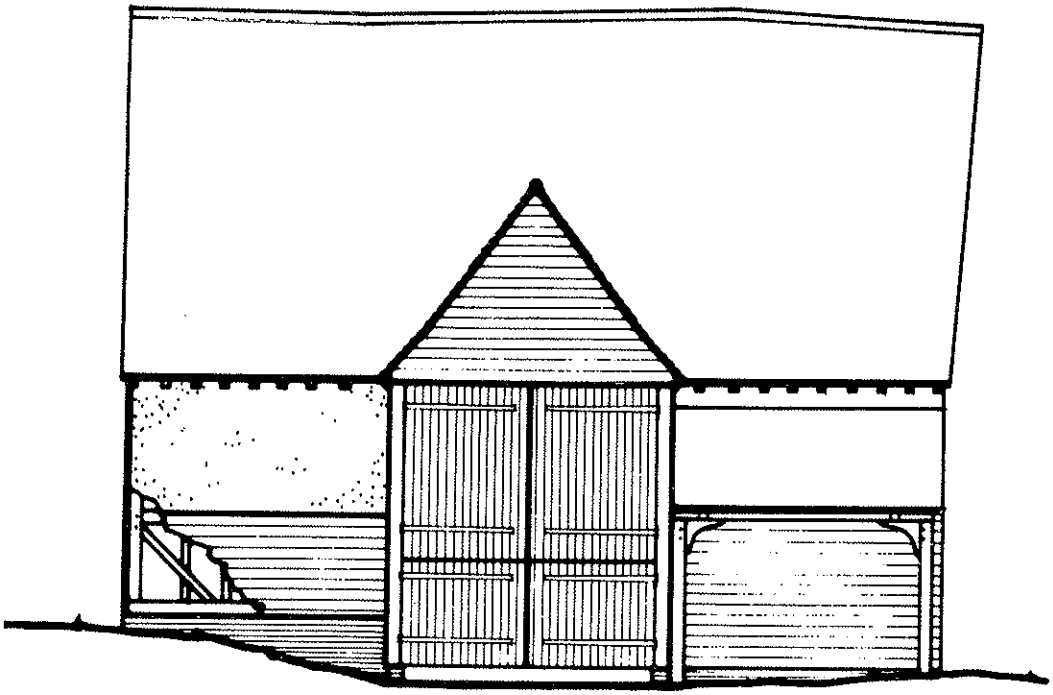
Since progressive dereliction is a blight which affects all redundant structures, the viability of conversion is largely a question of degree. The point at which restoration becomes a rebuild and therefore untenable is a difficult question requiring expert advice as to the soundness of the timber-frame.

7.0.4 Design

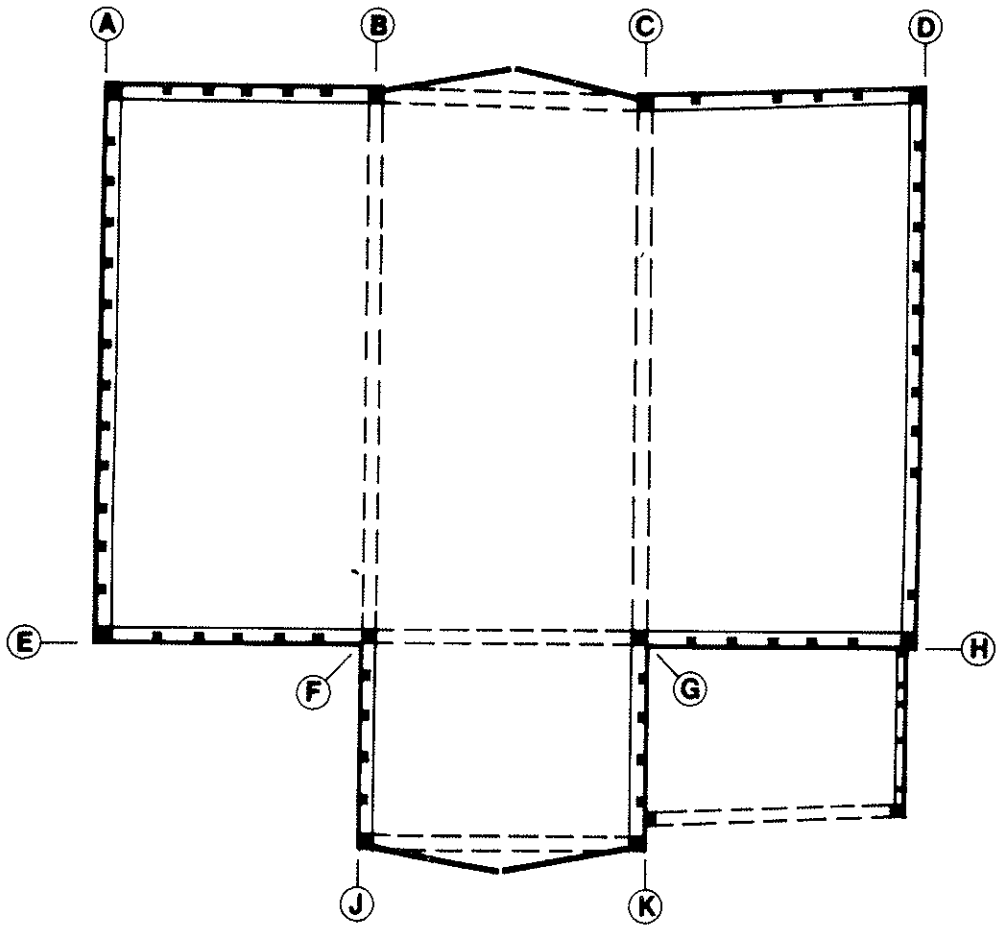
The appearance of the barn, like any other historic building, may be considerably altered by works aimed at providing accommodation for a new user. It is all too easy to destroy the character of a building by excessive or ill-advised restoration, the use of inappropriate materials and inexpert workmanship.

Buildings of the past, particularly those with timber-frames, were constructed to conform to certain structural principles. The fact that repairs or alterations should always take this into account creates a necessary constraint without which the results will look unconvincing and may even be the cause of instability. A detailed survey to determine the exact relationship of the structural members must be carried out before considering major repairs and renovation. A typical survey is illustrated in Figs. 19 and 20.

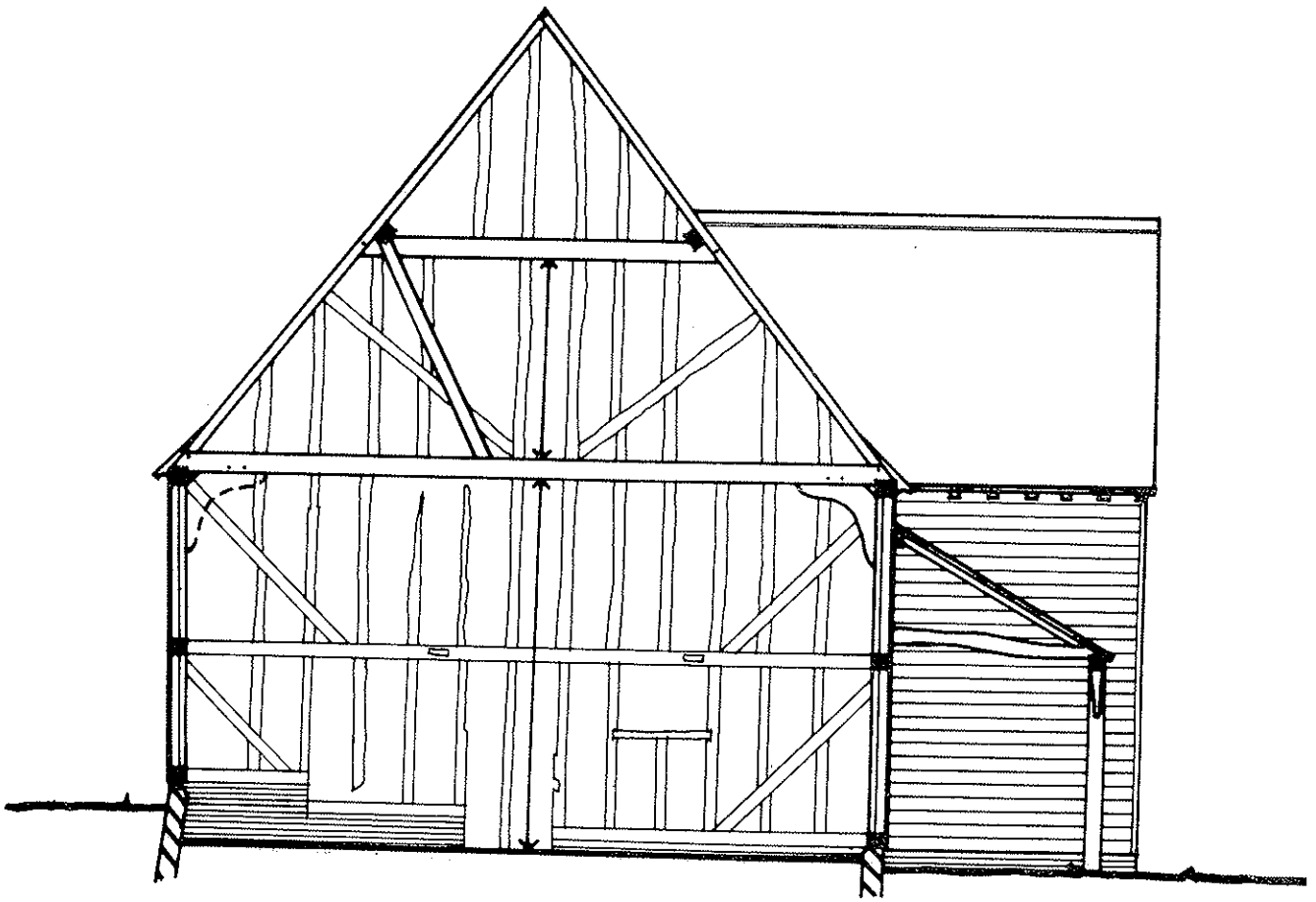
Fig. 19



Typical Barn Survey – Elevation



Typical Barn Survey – Plan



Typical Barn Survey – Section

Fig. 2

7.1 PUBLIC USES

The barn as a structure lends itself well to the accommodation of most uses which cater for public activities. If handled with care, suitable accommodation could be provided with minimum impact on the features which make up the character of the timber-framed structure, both externally and internally. The major advantage in this respect is that public uses in general terms are relatively less demanding in their requirements for day-lighting and internal sub-division of space. The real problem is more concerned with factors external to the building itself, namely location in relation to the community it is intended to serve, and the impact of the new use on the site and surroundings.

Accessibility is necessarily the key factor to the feasibility of any public facility. In effect, this limits consideration to buildings which are contained within, adjoining or in easy reach of existing settlements and those which form part of a recreational complex, country park or golf course.

As regards the relationship of a new use to its site and surroundings, two factors must be considered. Firstly, it is an aesthetic issue; car-parking areas are not visually attractive and the question should be asked as to whether this intrusion can be satisfactorily assimilated into the landscape. Secondly, since most barns form part of a building group, generally the farm complex, a site-planning problem arises. It is rare for buildings in the typical farm complex to have their own curtilages. The space which is available is more likely to be a centrally located farmyard within the group, functioning as a working area for the farm unit as a whole.

In making provision for the public use, sufficient land must be set aside in order to satisfy car-parking standards without jeopardising the viability of servicing the farm-unit from the remaining area. The exact amount of land required is governed by standard allocation and this will vary according to the type of use. Additional space should also be set aside for parking and turning of service vehicles. Since this requirement can vary significantly from one site to another, no standard dimensions are laid down. It would be for each case to analyse its own specific requirements in terms of size, numbers and types of commercial vehicles and agree the allocation with the local planning authority.

The introduction of an alien use into a building which forms part of a functional and visual entity can be problematic in many respects, but its success will depend to a large extent on the ability to clearly demarcate boundaries on the ground and, wherever possible, to provide separate access. It is only in this way that new and existing uses can operate as separate entities, thus avoiding all the conflicts that could arise when two different activities share the same circulation space.

Of the few cases found in an urban situation, the majority form part of an outbuilding complex attached to large dwellings or redundant farmsteads which had at some time previously existed in isolation.

Provided the new use does not conflict with the amenity of neighbouring properties and sufficient space can be found to satisfy car-parking requirements, an urban location must be regarded as more appropriate for community uses, both in terms of economic viability and planning policy. Firstly, the building would be integral to the community it is intended to serve. Secondly, it would be easier to isolate the building from surrounding structures without disturbing the functional unity between them. Thirdly, vehicular conflict between new and existing uses is unlikely to be a significant problem.

Although each specific proposal will highlight problems which call for an adaptive approach, the demands made on the site and the building will be similar according to the broad categories of uses which cater for public activities.

7.1.1 Museums

Conversion for the purpose of housing museum items presents an ideal solution if based purely on aesthetic and practical criteria. It could almost be regarded as an extension of storage use, since little or no alteration to the internal structure would be required. Moreover, schemes of this nature would provide the much needed capacity to satisfy a pent up demand for more space. Significantly, several museums in the London area have considerable collections of Essex County material, including coaches and small mills which are at present not on exhibit owing to lack of space. Bearing in mind the growing interest in features associated with the development of industrial and agricultural processes, it is possible that some of the larger barns could be investigated for their potential in this respect. Smaller aisled barns may offer potential for exhibiting less bulky items as in the case of Weald and Downland Open Air Museum at Singleton, Sussex.

To make such a scheme financially viable, it must of necessity be located in relationship to a wide catchment area or, if isolated, within a complex which attracts a significant number of visitors, such as the country-house estate. An additional constraint lies in the fact that most museums are not sufficiently endowed to be able to finance a restoration project of this nature. This would necessitate the involvement of the local authority in a level of financial commitment which, in the short-term at least, it would be reluctant to accept unless a convincing case were made for local demand. Although both these constraints combined would tend to militate against conversion to museum-use, the right barn in the right location would fulfil a valuable role by providing much needed additional floorspace.

7.1.2 Community Uses

The viability of conversion for community purposes, more than any other change of use, will rest on proximity to centres of population within reasonable travelling distance. Local interest groups could play a valuable part by investigating the potential of redundant structures within or on the outskirts of built-up areas relative to existing community needs and requirements.

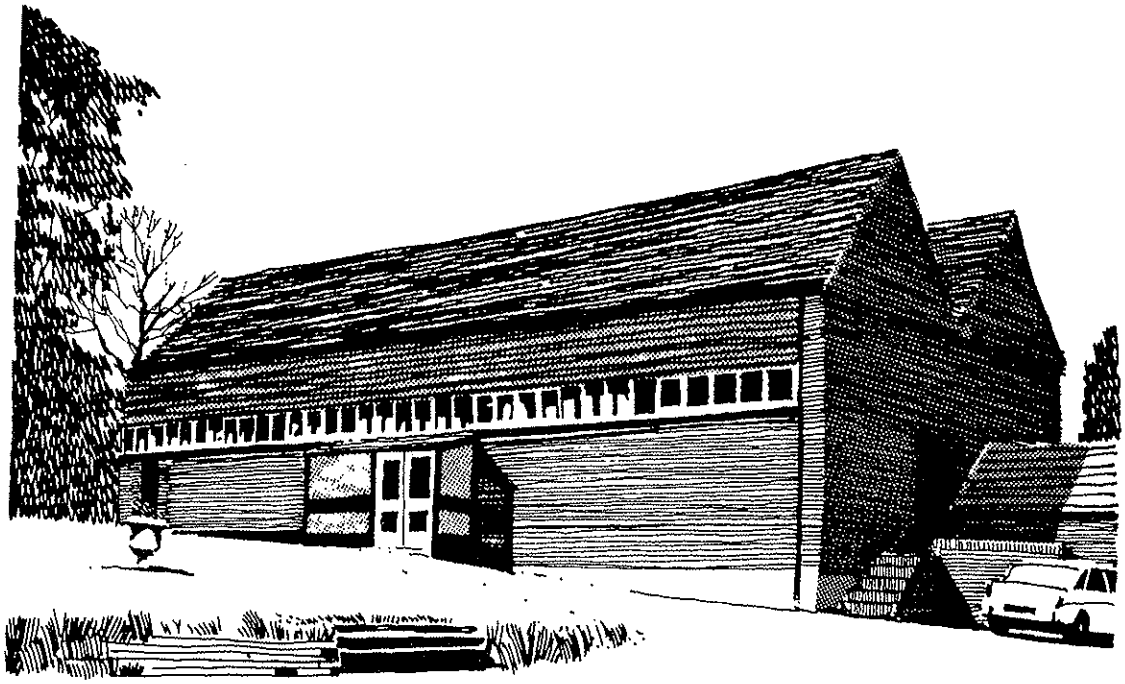


Fig. 21

Jacques Hall, Mistley, an agricultural building converted to a workshop for the handicapped.

Fig. 22

Interior view of part of the workshop.

Barns have always played an important role in community festivities and, until recent times, have often provided a venue for harvest suppers. Even today, several barns in existing agricultural use are used for occasional dances which require little provision other than lighting.

In practical terms, community uses must be viewed favourably insofar that little structural alteration would be involved, works being limited to the provision of heating, lighting, seating, toilets, kitchens and other ancillary accommodation. The major problem arises from compliance with fire regulations. It is usual for the certifying authority to expect a more rigorous approach to fire prevention in places of assembly, particularly those which house elements of high fire risk, such as the theatre. Particular care must be taken in detailed design not to harm the character of a building when meeting requirements such as provision of non-combustible linings and alternative means of escape. The Civic Trust gives helpful advice in this respect.

Successful conversions carried out recently provide evidence of the possibilities. Local authority community provision is exemplified in the imaginative and sensitive conversion of Jacques Hall, Mistley to a Day Centre for the elderly and handicapped. (Figs. 21 and 22). Barns at Duddenhoe End and Silver End have been converted to churches, whilst Manor Barn at Little Easton is now in use as a theatre.

A late brick barn at New Marsh, Foulness, demolished in 1975. Fig. 2

To list a range of community facilities that could be accommodated, however, would vere towards the unrealistic, suffice it to say that such uses would be considered on their own merits, subject to satisfactory resolution of access, car-parking and detailed design.

7.1.3 Restaurants

Conversion to restaurant use again requires little alteration to internal structure, apart from provision of kitchen, toilets and utility rooms. Chichester Hall, a 19th century barn at Rawreth, demonstrates the success of a conversion in which all the necessary accommodation has been provided within the existing structure.

The need for proximity to towns and villages is not of such paramount importance to commercial viability that an isolated building would be untenable. Suitable candidates, however, would effectively be restricted to those within a few miles of centres of population.

7.1.4 Farm Shops

In practical terms, use of the historic barn for the sale of produce direct to the public could be termed an extension of the agricultural activities of a holding and as such, be assimilated with no obvious change to the structure or appearance of the building. In planning terms, however, it implies change of use to a form of retailing which is normally subject to control under Green Belt and other rural planning policy. Since a generally restrictive attitude would be adopted towards retail uses in the open countryside, planning permission is likely to be limited to those cases where the use of a building for this purpose is entirely ancillary to the activities of a holding.

7.1.5 Recreation

Although obvious size restrictions preclude the possibility of conversion to the standard sports hall, some structures may well offer potential for recreational activities which are modest in their requirements on floor-space and ceiling-height. The Sports Council has recommended a range of "small area" uses which would be regarded as appropriate in view of the fact that standards could be flexibly applied. These are set out in Appendix 2 together with the relevant court-sizes considered appropriate by the governing body in each case.

The Sports Council recommend in particular the activities contained within the ambit of "small community provision". Larger scale activities present two major difficulties. Firstly, they may well prove not to be economically viable due to remoteness from larger centres of population. Secondly, a proportionately greater amount of space must be set aside for ancillary accommodation in the form of changing-rooms, refreshment facilities, storage-areas and toilets. Even in the barn of larger proportions, demand on floor-space made by these requirements is likely to substantially reduce the area available for the major activity.

7.2 PRIVATE USES

Although private uses make relatively less demand on the site and surroundings of the barn, the effect of conversion on the building itself is correspondingly more difficult to resolve. The one factor common to the two uses classified as 'private' under this section is that they both make possible the consideration of the barn in the isolated situation. In other respects they display widely different characteristics and for this reason, all the relevant issues are discussed separately.

7.2.1 Residential

Residential use is the most obvious and indeed the most sought after possibility for the conversion of historic barns, accounting for the overwhelming majority of conversions throughout the country.

In general planning terms, there is a strong presumption against the conversion of non-residential buildings in the open countryside to residential accommodation. (Structure Plan Policies S9 and S10). Whilst consideration should be given to the question of agricultural need, the relative value of the barn as a building of architectural or historic interest may well outweigh the need to restrict the introduction of new uses in the countryside. The determining issues would then be physical in nature, relating to the effect of the proposed use on the building and its surroundings.

Normally, adequate garden area of at least 100 sq.m. and two parking spaces would be required for each unit of accommodation provided. Although it may be possible to partly offset the parking requirements by use of existing outbuildings, these standards in total may impose a site planning problem in a situation which is invariably constrained by proximity to other buildings. The degree of constraint, however, would vary according to location as follows:–

Barn at Hatfield Broad Oak, converted to three houses – entrance side. Architects: S. Peachment and P. Nixon. Fig. 24

Interior of one of the houses. Fig. 25

i) Farm Complex

Conflict between agricultural activity and the new use can only be satisfactorily resolved by the adequacy of curtilage around the building. Separate parking and access should be provided wherever possible.

ii) Sites within or adjacent to existing settlements.

The principle of conversion in such cases would generally be covered by location within towns and villages excluded from Green Belt or other countryside policy. The issues really revolve around the practical viability of providing sufficient land for parking and garden area in a situation where the curtilage is invariably shared with other buildings.

iii) Isolated Sites.

Provision of access and service arrangements may present a problem of some magnitude since the scale of costs escalates rapidly with distance. Were this to be overcome, the only outstanding issue would be suitability of site layout to the landscape setting of the surrounding countryside.

7.2.2 Light Industry

A major problem facing the small industrial concern is the lack of legitimate accommodation of a suitable size. Old urban properties which have been the traditional source of small, cheap premises are now rapidly disappearing, whilst the new stock of units on planned industrial estates tend to provide sites too large and expensive for the small operator.

Two types of firm which are particularly vulnerable in the urban market are the traditional craft industry and the new business enterprise. The barn may well offer a possible solution to both types of firm on the basis that greater importance is likely to be placed on the acquisition of suitable accommodation than on proximity to associated trades or to the market.

Whilst each case should be considered on its own merits, rural craft industries such as furniture-making, pottery, antique-restoration, basket-making, wood-turning and jewellery-workshops are considered to be the most appropriate types of use. Enterprises which generate large volumes of traffic would be strongly discouraged. Equally inappropriate would be uses which materially affect the external appearance of the building and its surroundings. Particular caution would be necessary in this respect to guard against uses which need to house industrial plant externally or which make excessive demands for open storage.

In view of widely disparate requirements between one industrial practice and another, it would be necessary to restrict planning permission to a personal consent. A time limit should also operate in order to obviate the risk of expansion which might constitute overuse of the site.

In addition to the suitability of certain industrial practices in planning terms, the restrictive clauses of the Factory Act 1961, the Public Health Act 1961 and the building regulations must necessarily be examined. For instance, the use of a wholly timber-framed building for processes which are an obvious fire-risk would require fairly rigorous provision for safety. The additional cost implied by requirements of this nature may act as a severe constraint to the small firm and it cannot be too strongly emphasised that discussions with the various certifying authorities should be initiated at an early stage.

The amount of space to be set aside for car parking and turning of service vehicles is governed by factors discussed earlier in the section under "Public Uses". The degree to which these requirements impose a site planning constraint depends on location in relation to other buildings and environmental factors. For barns located within the farm complex or on isolated sites, the constraints are much the same as those applying to residential uses. Particular care should be exercised in relation to barns located within or adjacent to existing settlements since it would be necessary to ensure that the use itself as well as the traffic generated is appropriate to an urban location.

The Council for Small Industries in Rural Areas (COSIRA)* supports the view that the barn offers potential for a limited range of small firms, in particular small craft industries. It is unlikely, however, that COSIRA would be able to give financial assistance except in a limited number of cases. This is due to the fact that their terms of reference require priority to be given to areas of high unemployment which in Essex could only apply to the more urban locations in the southern part of the County. It must be made clear, however, that this does not undermine COSIRA's willingness to give advice on technical matters or other sources of finance available for the small operator.

Barn at Lordship Farm, Writtle, now in use as repair-workshop for agricultural machinery. Fig. 26

* *COSIRA is a central government appointed agency operating on behalf of the Development Commission for the appropriation of advances from the Development Fund.*

7.3 SUMMARY AND CONCLUSIONS

In considering alternative uses, an evaluation must be made in two stages. Firstly, the importance of the building must be considered in terms of its architectural quality, its rarity as an example of structural type, historical connections and the contribution made to landscape or townscape setting. Once established that the structure is of sufficient importance for it to be regarded as an exception to established Green Belt and other countryside policies, the impact of conversion must be analysed both in terms of the building itself and the surroundings. Although each case calls for a great deal of discretion according to specific circumstances, it would be true to say that the relative demands of a proposed use on the building and the environment around it can be assessed according to broad principles.

Fundamentally, the more a use is able to utilise the whole building as one large space, the less will be the impact on the external appearance of the structural frame; in effect the architectural and historic integrity of the building. Most public uses display the common advantage of an internal layout centred on one large space. Museum uses are particularly favourable in this respect due to significantly less demand for ancillary accommodation. In addition, it is usually the case that day-lighting is relatively less important to public uses, thus reducing the impact that fenestration can have on external appearance. The major disadvantage is that public uses generate a considerable number of vehicles. Not only would it be necessary to consider the possible conflicts that might arise, particularly where the barn is located within a working farm-unit, but also the likely visual disruption caused by large numbers of parked vehicles.

Private uses such as light industry and residential are likely to have more effect on the barn as a building of architectural and historic interest, although the degree of impact would vary significantly according to individual requirements. Sub-division and day-lighting provision, particularly in the case of residential, would invariably affect both the structural frame and the external appearance of the building. This disadvantage, however, is balanced to a certain extent by less demanding site requirements.

In conclusion, public uses may be regarded as preferable in terms of conversion potential, but this must be weighed against the suitability of the site to accommodate vehicles with minimum disruption to the visual scene and, where appropriate, neighbouring occupiers. It may well be that in certain situations this problem outweighs the favourable aspects of conversion. In such cases, the less demanding site requirements of private uses could sufficiently compensate for the associated conversion problems to make this the better solution.

8.0 SUPPLEMENTARY PLANNING GUIDANCE

Historic barns are important features in the traditional landscape and every attempt should be made to conserve them and prolong their useful life. The following policy as set out in the Structure Plan provides the means whereby the preservation of valued historic buildings in the countryside may be considered:

> Policy C3
> "IN AREAS WHERE DEVELOPMENT WILL NOT OTHERWISE BE ALLOWED, THE CONVERSION OF BUILDINGS OF ARCHITECTURAL OR HISTORIC INTEREST MAY BE PERMITTED IN APPROPRIATE CIRCUMSTANCES WHERE THIS WOULD PRESERVE A BUILDING".

The following guidelines elucidate this policy in relation to the specific problem of the redundant historic barn and constitute practice notes as a basis for District Councils to formulate detailed policies:--

If the local authority is satisfied that a barn is of special architectural or historic interest and that a suitable agricultural use cannot be found, then it may be appropriate for the local authority to consider change of use, provided that:

a) the proposed use would not conflict with agricultural interests in the area.

b) the proposed use would not be detrimental to the character or appearance of the surrounding area or, as the case may be, the group value of the adjoining buildings.

c) the proposed use would not generate traffic of a magnitude or type, i.e. heavy goods vehicles, that might be likely to cause additional traffic hazards and/or damage to minor roads.

d) sufficient land convenient to the building should be allocated or conveyed as the case may be for the provision of car parking and servicing in accordance with the agreed standards for specific uses laid down by the local planning authority. If adjoining the area of a farm-unit, this land should be clearly defined by means of a boundary wall or hedge in order that vehicular conflict between the two uses may be avoided. Separate access should also be arranged if at all possible.

e) in the case of proposals for conversion of the isolated barn, consideration must necessarily be given to the feasibility of providing utility services.

It is suggested that the following design criteria be used to assess proposals in detail:

a) The appearance and structure of the barn should remain materially unaltered, thereby preserving the architectural and historic integrity of the building. Where dereliction has reached

an advanced stage and restoration involves the introduction of a considerable amount of new material, it will be necessary to protect the building against ill-advised restoration, particularly the application of inappropriate timbers and other materials.

b) Care should be taken to ensure as far as possible that alterations have the minimum impact on the timber frame. In general terms, no main framing members should be removed and openings in existing walls should be located to ensure the minimum loss of existing frames and studs. Repairs to timber members should be effected by splicing or matching sections rather than by complete replacement.

c) Original facing materials or stud infill should be retained and repaired. Traditional roof materials, namely plain clay tiles, pan-tiles or slates should likewise be retained and any replacements should match the existing. Where a barn has subsequently been covered with corrugated iron or asbestos, it would be advisable to seek replacement with one or other of the above materials but care must be taken to ensure that the roof structure is sufficiently strong to take the increased loading. Where a thatched roof still exists, every effort should be made to ensure its retention.

d) New internal partitions should be offset from principal frames in order to achieve better junctions and allow the main frames to be seen to their best advantage. Main frames are to be exposed, not cased.

e) The number of windows to be incorporated should be reduced to a minimum, all to respect the existing stud spacings.

f) Dormer windows or other intrusions into the roof slopes should be resisted. New windows in the roof slopes should follow the roof-line and be top hung. As far as possible, window openings should be kept to the private side of the building.

g) Chimneys should not be allowed as they are alien to the building form. Any new fires or boilers should have inconspicuous metal flues.

h) If subdivided into a number of separate units of accommodation, care should be taken to retain the overall unified appearance of the building and its setting.

i) In residential schemes, the conversion should either avoid major changes in external appearance or alternatively make it clear that the building is a barn which has been altered to a dwelling. Using the latter concept, the aim should be to achieve a dramatic conjunction of the barn as a large-scale building against the superimposed residential elements. This approach demands a consistent philosophy throughout combined with detailed design of the highest standard.

j) Site layout and landscaping should be kept simple and in character with the barn. Car-parking areas should be screened to the satisfaction of the local planning authority and, where possible, located in such a position as to minimise their impact on the surrounding countryside.

APPENDIX 1

ESTIMATED NUMBER OF SURVIVING BARNS

To assess the number of barns that exist at the present time is a difficult task since there is little documentary evidence available on which to base reliable estimates.

Barns per Farm Unit

The only positive indication of the total number existing in the County is the fairly obvious fact that at least one barn would have been a necessary component of the cereal farm. This is a very conservative estimate, since many holdings have a quota of two, three or even more barns. Unfortunately, it is not possible to assess with any degree of certainty the average number of barns per farm unit. The only yardstick available is farm acreage, yet the most this will indicate is total volumetric capacity.

Ancient Cereal-Growing Farm Units

Estimates of the number of farm-units in which the barn or group of barns would have existed is equally problematic. The Ministry of Agriculture's statistics, seemingly the most obvious source of reference, are inappropriate insofar that the possible number of ancient holdings cannot realistically be deduced from currently recorded cereal-farming units.

The method chosen is based on deduction from the Ordnance Survey cover with certain adjustments. This is regarded as the most reliable source, at least for indicative purposes, since the named farm, shown by the symbol "Fm", generally represents an ancient cereal farmstead. The first refinement includes within the estimate a figure for Manors, most of which have survived as farms to the present day but not shown as such on the Ordnance Survey maps. (It should be noted that a number of ancient farmsteads are recorded on the Ordnance Survey without the definition "Fm", and that Manors only account for a proportion of this number). Secondly, a deduction is made for coastal or marshland farms, often named "Wicks", which historically were more likely to have been sheep-farms than cereal producers.

Estimated Number of Ancient Cereal Producing Farm Units Requiring Barn Storage Facilities.

Number of named farms on Ordnance Survey Base	1,184
Estimated number of Ancient Manors still surviving as farm units*	416
	1,600
Estimated number of ancient coastal and marshland farms not regarded as cereal producing units	200
Total estimated number of units	1,400

* *600 Ancient Manors are believed to have been in existence at time of Conquest.*

On the basis that each of these farm units was serviced by at least one barn, it is estimated that the County's heritage of ancient barns is at least 1,400 structures.

The proportion of this assessed number surviving to the present day is difficult to assess but it can be expressed with certainty that only a half or a third remain. A countywide survey would be most valued if a voluntary organisation were prepared to undertake the necessary work.

APPENDIX 2

RECOMMENDED RECREATIONAL USES RELATED TO HALL SIZES (REF. PARA 7.1.5)
MAXIMUM NUMBER OF COURTS RELATED TO STANDARDS OF PLAY.

Type of Activity	Small Halls 26m x 16.5m x 6.7–7.6m (429 m^2) 85ft x 54ft x 22–25ft (4,590 sq.ft.)		Small Community Provision 20m–22.5m x 16.5m x 6.7m (330 m^2) 66ft–74ft x 54ft x 22ft (3,996 sq.ft.)	
	No.	Standard	No.	Standard
Badminton (courts)	3	County/Club	2–3	Recreational
Basketball (courts)	1	County/Club	1	Recreational*
Cricket Indoor (pitches)	1	Recreational	–	–
Cricket Nets	Yes	N/A	–	–
Indoor Hockey (pitches)	1	Recreational*	1	Recreational*
Judo	1	Recreational	1	Recreational
Karate (contest area)	1	Recreational	1	Recreational
Indoor Soccer (5 a side) (pitches)	1	Recreational	1	Recreational
Keep Fit, Movement & Dance	Yes	N/A	Yes	N/A
Table Tennis	4 6	County/Club Recreational	6	Recreational
Volley ball (courts)	1	County/Club	1	County/Club

* Below minimum standard as recommended by governing body of the sport concerned.

Ref. Extracted from information supplied by Eastern Sports Council.

GLOSSARY

Aisle	–	Secondary space of a large barn running parallel to the main roof by a continuation of the roof slopes down to a low eaves level. Normally a feature of earlier barns.
Arcature	–	The style of curvature of an arch, i.e. Decorated, lancet, Tudor or shouldered.
Arch-brace	–	Current name for curved braces triangulating the tie-beams and main-posts.
Bargeboard (or verge-board)	–	Board designed to cover the incline of the gable end of a roof, much adapted for decorative carving. Normal in weatherboarded buildings, less so with brick or rendered walls in Essex.
Bladed Scarf	–	A type of scarf having interlocking blades on the ends of the two timbers it joins. (known from 1575).
Capital Manor	–	A manor that held Courts Leet and Courts Baron, an important unit in feudal administration.
Cladding	–	Covering; as of roof-tiles; walls-weatherboarding etc.
Collar	–	A horizontal timber uniting two rafters at or above half their height. Anciently called a "wynd beam".
Corner-post	–	A storey post standing in a return of the plan, i.e. between end and side walls.
Crown-post	–	A short vertical post rising from the centre of a tie-beam, bearing a long purlin (collar purlin) on which all collars rest. (Medieval).
Eaves-angle	–	The angle between vertical walls and the slope of their roofs.
Earth-shored Posts	–	A newly discovered and defined structural device used towards the end of the Saxon Period. This consists of 'earthfast' shores which had tenons cut on their top-ends after they were embedded in the site; the main-posts of buildings were then reared against and secured to these shores. (e.g. Faulkner's Hall and Paul' Hall p.7.)
Gambrel	–	A ridged roof having compound pitches or slopes named after horses' gambrels, the great angles in their hind legs.

Ground-sill – Timber laid along either the ground, or a plinth wall, into which timber walls are framed.

Jowl – A thickened top to a post, usually effected by inverting a tree trunk. This gave more timber from which to cut joints, and a more stable unit of assembly.

Lap-joint – Carpenter's joint effected by overlapping one timber by another and transfixing both with spikes or pegs. The overlapping portion is normally sunk into the primary timber to give a flush surface. A method perfected by the Normans and used extensively during that period.

Midstrey – The central or middle strey or bay of a barn; usually covered by a porch roof.

Purlin – A longitudinal timber supporting the rafters of a roof in the middle ages, placed centrally on posts (collar purlin) or in the pitch of the roof in later periods (side purlin).

Racking – Term applied to the pairs of rafters in a roof, when all lean either to right or left instead of remaining upright. This caused major problems in early roof-forms and was solved at Cathedral level during the early 13th century.

Rafter – The inclined timbers comprising the sloping surface of a roof – always in 'couples' or pairs, meeting at the ridge.

Scarf – The category of timber-joint which unites two pieces end-to-end producing one piece with four fair surfaces that are apparently continuous.

Spandrel – The triangular panel area left at each side of a square head filled by an arch.

Storey-post – A main post or corner post of a timber-framed building at least the full height of one vertical division.

Stud – A vertical post in a wall to which the cladding is affixed, secondary to storey-post.

Tenon – Basic form of carpenters' joint in which a reduced end of one timber is fitted into a rectangular cavity called the mortise in a second member.

Top-plates – Lengthwise timbers carried by posts on which rafters are mounted.

Upstand — A piece of a post's top which in very early timber-buildings was designed to stand higher than the beam joined onto the post. This method preceded the inception of jowls.

Windbrace — A triangulating and bracing timber to strengthen an angle, mainly against wind-pressure. Often found in the plane of the roof.

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