



Some /  
"Local Historic Timber Roofs"  
(as a unit)

Slater per council 256.7

Timber and roofs  
Add Civic Soc 11 Sept 2008

112 units / 9 lines  
= 12.44  
50 min  
x 112  
5000  
5000  
5000  
5000  
5000

**1. INTRO**

I was asked to talk about Bolton Abbey's Great Barn since the Civic Soc \*contributed to dendro-chron dating of great Barn and St Peters Church roof in Add.

\*Guided tours of both in last year or two that you may have attended. This talk is another look at those buildings and a few other medieval roofs. *older timber that survives locally or for what dendro-chronology data would be very useful*

*Church from* **THE 2 ROOFS.** \*Very similar roofs. \*Question has always been- Was there a connection? Was the church roof re-used from the priory site? *by date or craftsmen?*  
\*Experts - long debated date; mostly based on stylistic evidence. \*Two v different kinds of building- barn and church. \*Two different structures-one timber one stone walled. \*Both listed nationally as of arch and hist interest. Possibly roofs linked by craftsmen and date?

**Dating** can be done by a) *examining* arch style or b) very precisely by dendrochronology - (or tree ring dating) - a technique for dating timber (currently oak) by measuring the *tree* ring growth. Dendro was carried out on timber in both barn and church. *so we now have the results (2007)*

**2. WHAT DENDRO IS.** (using Silsden bit)

**Look**-Here is a slice from a bit of roof timber from Silsden Moor - dates to about 1590, *felling*. You can see it's a **quarter log** from a smallish tree, i.e. quartered timber. Because it's a **slice** you can see the tree **growth rings** - about 80 visible here (gives idea of age of tree when felled)



**Tree structure growth:** **Tree rings are the seasons growth** the tree makes. The current year is in the living cells on the outside near the bark. AS the tree grows the old cells are filled with woody material. Trees make most growth in spring/early summer.

**Trees and climate:** Trees also **respond to climate change** and to growing conditions. So if it's a very cold spring or waterlogged or some trauma like pollarding, then the tree makes little growth. In a good year and good growing conditions it will make a lot of growth and a wider ring. Climate changes from year to year can be local or national or as in recent years world-wide. You may remember from history when the Thames froze in 1660s. Mini Ice Age in 1550s; bad climate of the 1300s. This should be reflected in tree-ring dating.

*How* **Dendro:** From a slice or a core the tree rings can be **measured**. This can then be produced as a graph. The **graph** and figures can be matched against existing master curves. To get a tree **felling date** you must have the **last rings and the tree bark**. Unfortunately this is often removed in high quality carpentry. So you only get the trees growing date range. 25-30 **sapwood** rings. Timber was used **green/unseasoned** and used shortly after felling date. So can assume the building date.

The degree of matching is expressed statistically as a **"t" value**; the **greater the match (higher the t value)** the more confident the result. To get a good match need **enough rings** to match the graph quite well- 70 rings.

**A Yorkshire buildings curve** was developed in pioneering work several decades ago. Some of the first master curves were for the Sheffield area. Still has dendro centre there. Sheffield did the church dating and Nottingham the barn. Research on methods and gathering of data for chronologies continues.

*How* **Dendro dating is expensive.** Its done by taking a core - takes a days work for an expert or two to come from Sheffield. Drill rock hard timber balancing on scaffolding to take 12 or so samples. Then samples have to be prepared, measured and compared. It was good to have contribution from the civic soc. -----

*(y other sources)*  
Dead work initiated by small party who organised the surveys too

*Gives*

## Start slides

Before dendro dating could be attempted a proper **survey** of both buildings was required to understand what was there and where the most suitable timber was ~~for found~~. No good dating 19<sup>th</sup> C repair work- must be the original timbers.

## 2. CONSTRUCTING IN TIMBER *Explanation - timber frame construction*

### First a word about Carpenters marks and assembly

*(slide of a timber building, carpenters marks)*

Timber roofs were always, ~~even today~~, prefabricated and made at a workshop.

*green*  
Timber was selected from woodland, sawn and cut, marked out, *prefabricated* lying on the ground.

All the joints had to be marked so that when it was taken apart it could easily be put back together again on site. All timber structures therefore have carpenters construction marks, usually Roman numerals, and these can be quite individual to the craftsmen concerned. *side bar roof and*

*Debden - carpenter marks on rafters.*  
**Timber frames.** Timber framed buildings probably very common in medieval times. They disappeared with rebuilding in stone in 17/18<sup>th</sup> C. High status buildings were often of **Post and truss or box frame construction**. **New Hall Elland about 1485.** Timber house encased in stone but some timber remains at rear. Note posts, tie beam, braces etc. **Gunthawite hall** aisled barn Huddersfield, half timbered. Dendro dated 1560-1587. All components had to be marked in prefabrication. The aisled Stank Hall barn near Leeds is 1448-90

## SURVEY

### 3 SLIDES: THE SURVEYS;

3.; First we looked at **The medieval great Barn at Bolton Priory. (slide)**

#### 1 SITE/setting; Outside the barn (slide)

The barn is within the earthwork of a rectangular **barn yard** now cut by the road.

One of two barns (other removed to Frafield Hall barn)

Just outside precinct wall at top of river bank (precinct was extended)

On top of older earthworks of a quadrangle of farm buildings?

Ridge and furrow beyond farm yard.

Car park was a medieval croft with workers houses. Boundary bank with barn yard still seen.

#### 6 THE BARN - OUTSIDE features

- Note medieval hipped gable.

Stone roof of 250 tons - stone *ignited* mines on Bradley Moor for flags??),

18<sup>th</sup> C stone walls replacing timber walls on low stone plinth.

Listed II\* of national importance.

Long-40 bays plus. Aisles at end and sides, so wide but low sides.

Rare and unusual survival. High status (continue eg E Ridd)

Habitat for bats colonies.

Long debate over age. Dendro dating in 2006 gave insight into date and timber working

#### (slide-view) Just to put the barn in perspective-

Familiar view through hole in wall of prior y precinct inside precinct wall. Separates from fields.

**THE PRIORY.** Land given by d Romille to the canons. work of 1180 "Norman",

1240 nave windows, Flat lead roof. 1320-30 presbytery extended. *Peak of wealth early 16<sup>th</sup> C*

- Gatehouse; priory; Boyle shut 1710, (Rectory fine & has a garden entrance)
- Bathhouse A. Other buildings eg. chimney to timber hall.
- Church etc. • Tan pits

(16) Weath.

Biddy walk begun - new W. tower

Many other buildings inside precinct wall - these have gone. Stone <sup>chimney</sup> gable end of stack to a large timber-framed building that has gone. Tan pits. 17<sup>th</sup> C Boyle school now the Rectory. (18<sup>th</sup> C the tower etc)

..... <sup>WEST</sup>  
**slide- tower 1520 wealth at peak**- building work going on -west tower being built -financed by Cliffords c 1520s Arch to be part of nave. But Henry VIII Dissolved the monasteries 1535-9. Tower Never finished. Inscription in gothic lettering over dor records begun in 1520 by Prior Richard Moon. *NOT finished*

.....  
**Slide** so fine 13<sup>th</sup> c west wall is preserved <sup>behind tower</sup> with unfinished tower. One of glories. (149 Every Now)

Ownership; At Dissolution c 1535 B Priory lands mostly inherited by Cliffords of Skipton Castle. Through marriage of female Cliffords came eventually to **Dukes Of Devonshire**, present owners of estate

.....  
**(slide) Wall around priory precinct.** Hole in the Wall 1300s wall. Outside precinct wall was the farm land and its buildings, A village for workers under the car park site

.....  
**slide** barn is on river bank. <sup>2nd barn full - ?</sup> Older precinct wall in foreground - later extended towards barn

### THE BARN-INSIDE

*generally*  
**(slide) Structure is impressive.** Quality and scale. sheer size of timber. <sup>10 bays</sup>  
**scale of building.** Huge -9 bays + end aisles = 155 feet long. (14-15 feet apart)  
Aisled on sides and ends make it even bigger. (Most barns 3 or 4 bays with no aisle.)



### Construction Things to note:

\*Timber framed structure- 10 sets posts and trusses. with 10 sets of posts and trusses.

\*Each **post** is half a tree-log, squared up with adze not saw, =5 trees \*One large tree for each pair of posts.

\*Note raising holes on bottom of posts for rearing onto stone \*padstones

\*Biggest timbers are posts ( half log posts, some growing in 1371), longest timbers are **tie beams** and massive **wallplates** (joined end to end)

\***Form of trusses is-** king post (began 1450)

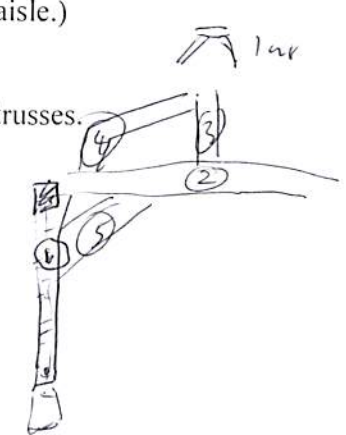
\*curved feet to principal rafters, aisle ties, (like Add)

\*braces. Braces are sawn. Come from smaller curved branches.

\***Intermediate trusses** as in Add

Rear door evidence of **timber walls and braces into posts in wall**

\***Stone cross walls in three sections** (in 3 parts in 1780 with stable, shippons and joiners shop in middle) *shippons*



..... **Construction and carpenters marks** number each truss I, II, III etc Roman numerals scribed on. Each joint also marked. IY tag for right, H on left  
Fitted together with mortice and tenon joints and pegs. Some black marking out lines.

.....  
Carpenter marks 1-6 and 1-4 and significant diffs between the two parts.

*T6 looks like*  
*N Truss*

<p>S</p> <p>Thicker and heavier timber</p> <p>Wide and few rings</p> <p>Well trimmed, little wane</p> <p>More pegs i.e. 3 to KP</p> <p>Braces 16 ins</p> <p>shaped king post</p> <p>Simple marks</p>	<p>N</p> <p>Thinner timber</p> <p>narrower rings and more</p> <p>More bark</p> <p>fewer pegs</p> <p>Braces 11 ins</p> <p>kingpost straight</p> <p>varied marks-crescents . <i>small - large wane</i></p> <p>scalloped aisle timber ends</p>
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*- like Add,*

Slide ? we found two sets of carpentry marks N 1-6, S 1-4, Differences between the two sections. (similar character to Add church) Roman, crescents, tags (see later)

**Apotropaic** marking on truss 1 S section (slide)

**CONCL BARN DENDRO**

Following survey Nottingham dendrochronologists came and did coring from a variety of timbers. *17 samples*

RESULT

Of 17 samples; 12 dated because they retained bark. (only one from s end) From posts, tie beams and aisle timbers/

All trees of N part felled in winter of 1518/19. 1517/18 for south end.

It was one build - not an extension to an older building.

The timber: *also dated*

some trees growing in 1370s so hundred year old trees used.

The two parts of the barn showed not only two diff groups of carpenters but also two different sources of woodland. The southern timbers being faster grown and in better conditions.

**4. TIMBER Timber and woodlands supply-**

Leads to questions about local timber. *Where did come from ?*

\*Managed Woodland was once common, conserved and an essential resource.

\*clearance from 1200s (ridding names) *At Priory - 1200s* Many woodlands went in 17/18<sup>th</sup> C eg Highfield in Add. *add wood (Add)*

Britain naturally wooded and return to woodlands if no farming.

\* Local woods used for- construction timber, coppice woods, food, pasture of animals.

\*Bolton Priory woods- Lob Wood (Add), Westy Bank wood (strid) two large woods.

Today just names and little wood.

SLIDE Bolton Park still has veteran pollarded oaks and an open wood-pasture setting.

SLIDE Lob Wood site v bare.-retains wood place names eg Haw and HaggHead.

SLIDE: The boundary of lob wood and Add described in c 1155 when Alice de Romille of Skipton Castle confirmed the gift of land to the priory. The man made ditch survives (Uncertain if Earl Edwins manor boundary? or Priory boundary?) Hagg Head to Wharfe described.

Timber may have been selected from these woods. *Lob Wood*

**Other woods -doc**

Barden and Farnhill woods used for Conistone 17<sup>th</sup>C and Malham 16<sup>th</sup> C.

Timber selected for job - large for posts and small trees for purlins etc. Used green

Converting by sawing or adzing.

*Woods  
- timber  
- fuel  
- pasture  
- food  
- medicine*



*pelic wood*  
SLIDE Wood understorey remains -bluebells- of once extensive woodland.

**5) The next building for dendrodating was Add church roof SURVEY FIRST**

a) Site and Setting About the church today. \*Church field was site of Manor house. Fishponds still there. Dovecotes. corn drying kiln. \*AS cemetery under field excavated in 1990s?

History of site goes back to \*prehistoric circular **bank** round church. **1960s excavation** - Roman pottery, Viking decorative work, medieval iron working debris.

Docs show land belonged to **archbishop of york** in 800s but no church recorded in DB.

Church includes Norman **12 C work** (in reused stonework of tower and doorhead in church) + *Med. tower*

THE CHURCH Don't forget the tower and s wall are all **mid 18<sup>th</sup> C** and the medieval church had no tower but a bell cote (as at Weston and Linton)

Ref to a burial in the **new quai and aisle in 154???**, so we know <sup>aisle roof</sup> it must date before the ~~added aisle~~ <sup>must be from before then.</sup>

**With no aisle it probably had a lower and steeper roof.** To add the aisle would mean reconstructing the roof so it was high enough to cover an aisle, *so nave & aisle timber may be contemporary*  
Like BA barn the roof of **unknown date** but also many similarities to BAB

**B) INTERIOR The building SURVEY**

SLIDE Very similar **roof style in 6 trusses.**

\*Long thin king post; \***curve at base of principal rafter.** \*carpenters marks *scribbled*

Roof history- was exposed in 1940s? when a flat ceiling was removed.

Whilst assumed Georgian was probably medieval.

The timbers were not meant to be seen except the **bosses and wall posts.** *Paint traces on tie beams*  
SLIDE

As at BA we hunted for **carpenters marks** to see what type they were and if the timbers were in an order. So similar almost certainly by the same carpenters.

\* the nave trusses numbered in order 1-v1 in large **scratched on** roman numerals as at barn.

\*The side ones have a "tag" on them to show left from right when **timber taken apart** at carpenters workshop and reconstructed on site. *(as in BA)*

\*On the tie beams mortices ~~are~~ hidden by a plank. These held the joists for a ceiling. marked with **semicircles** <sup>like</sup> ~~as in~~ ba aisle. *cc*

\*six tie beams are from three trees each cut in half.

\*Discrepancies in numbering- wall posts marked with small **chiselled numerals** and also different **semicircles** as if reused. *as in w aisle at barn. (thin knife cut crescents and/or roman and chisel cuts in wall posts.)*

\*Purlins too all marked but all out of order- 2/2/4/2/3 and in two kinds of markings as if re used.

\*aisle no markings?

\*carvings - similar to Bpriory church. Gren man etc *Tower rose, serpent*

**Dendro dates**

**Sheffield dendrochrons spent a day coring balancing on scaffolding**

**Result** not straightforward.

For timber to date need bark on it. -7 samples from nave so well cut all bark removed, so final dates range of the timber ranged from 1465 (king post 6) to 1512 (tie beam 4). tie beams all cross matched with each other so contemporary. . So clearly it was built after this. *1512 date*  
One p rafter sample from intermediate truss cross matched with aisle timber but was from interm truss without any carpenter marks, so different..

Curiously samples from one tie, and two kingposts did not cross match with any other samples or with any chronologies. A number of timbers gave no dateable match at all.

Interm truss 5/6 pr rafter after 1523 <sup>Not nearly like BA</sup>  
Disappointing that date inconclusive. Some timbers growing in 1382-1454 (king post truss 6) so it is likely that timber was salvaged from the old roof for reuse in the new heightened roof over the aisle

Of the 7 aisle samples – pr after 1508, after 1511, after 1510, after 1496; ashlar post after 1496. one did not match anything else. So this gave us a clearer date.

CONCL Allowing for missing sapwood this made the nave and aisle roof probably about 1533 and just before the Dissolution of the monasteries 1539. Prio Moon who was building the unfinished tower at the priory from 1520 has his symbolic name as the moon on the crest with the Vavasours, Lords of the Manor.

The new nave roof probably reused bits of older roof and was not meant to be seen. It was under drawn with panted panelled ceiling with bosses c 1530s. traces of colour paint still seen red and blu grey. Arnolds tour to Wragby church at Nostell showed the kind of thing.

So those two buildings have told us a lot about local building work in the early 1500s.  
**Are there other buildings in the area of similar date?**

## 7. OTHER BUILDINGS AND ROOFS OF 16<sup>th</sup> C

### Timber frames:

**slide: Fold Farm Kettlewell** - only standing timber framed building still standing. Posts encased. <sup>Survived</sup>  
a timbered medieval hall, c 1490 (stylistic grounds), encased inside the 17<sup>th</sup> century Fold Farmhouse at Kettlewell and once the property of Coverham Abbey. Fold Farm Kettlewell incorporates one of the few remains of a standing and substantial timber house with cusped braces and decorated posts, probably associated with Coverham Abbey, as yet undated.

**Slide Horbury 1473 (Dendro)**

**Slide: Snowden Manor** - timber posts in wall of an aisled timbered fhouse. <sup>Washington Valley</sup>

**Slide: Timber posts** - H and L Bradley posts (post at Crayke cottage Add) posts are reused as doorheads. <sup>London</sup>

**Slide: West hall** near Addingham was a timber framed encased in stone. framing c 1490, ?timber. <sup>W.M. Saweird</sup>  
King post roof truss. timber windows remained?

**Plum Tree Banks** at Hall Gill on the Moorside was an old freehold medieval house of the Wade family but long gone. Earthworks remain suggesting a timber hall and a wing or two

### Roofs <sup>Another old house is</sup>

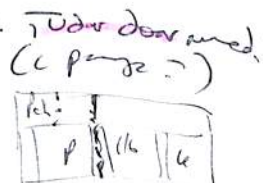
**slide Manor House on manor garth.**

Add belonged to two different owners so had two manor houses. Still has two different forms to the village - the part clustered around the church and church street where the old manor house by the church hall fell into the river bank about 1600. This was part of Edwin of Mercia's estate taken by Norman king william and given to de Romilles of Skipton Castle. Then there is the Percy part. Both parts given to Vavasours later who were manorial lords to 1715. Join at Cross end by Low Hall? Manor house off Manor Garth may be the Percy Fee Manor House or its later replacement.

**slide** Stone walls like the church. Skewback kneelers c 1600. Much altered - 19 new windows. Rear porch dated 1774 & initials Richard Smith (Lord of the Manor)

**Slide**; drawing of frame <sup>inside + int. truss. P. chabot</sup>

**slide; Fine King post A frame** truss c 1500 and timber partitions, <sup>stylistic date 1500</sup>



Conclusion There are other capacity of c. 1500 around.

## 8. OTHER BUILDINGS-crucks

### Slide cruck

There are other buildings at other end of social scale. Not always high status

Buildings lower down the scale, at a more vernacular level, and once common were of cruck construction. Pairs of A shaped timbers, thatch and stone walls

There is **documentary evidence** for these showing it was normal until about 1600

Crucks are mentioned in documents from Kirkby Malham in 1454/5

whilst surveys of Cracoe in 1557 and 1586 (10) show that houses and barns were still being built with crucks of oak or ash timber and thatched

In Addingham docs show the Sailor was thatched until 1838 when rebuilt.

A cruck house at Crossbank was repaired much earlier. ~ 17/18?

There is also documentary evidence for rebuilding cruck barns eg in Appletreewick where a fine laithe dated 1737 still stands and is full of re-used cruck timber. Surviving accounts describe rebuilding the old ling-thatched barn and reusing old interior timber to save costs. *this process common?*

There are even some <sup>cruck</sup> buildings still standing in the area.

Slide Red Gables at Ilkley probably the remains of a true longhouse with a house and barn in a line and a single entry. Steep roof is a giveaway.

Slide At Drebley some barns remain - steep roof of tin sheet a clue. Inside the crucks still stand.

Barden Seale barn that was taken to Shibden Hall and later burnt down.

What is the date of these? Not known. Amateur dendro dating Silsden suggests late 16<sup>th</sup> c date but really needs proper dating.

There is **physical evidence** that cruck buildings once common. As houses were rebuilt in stone, the old cruck timbers were re-cycled and re-used

Old **cruck timbers** are seen in many of the Moorside farms, recognised by the halving joints. This type of carpentry used for all the joints. *(most pre 1600) Everytimber/Rycroft*

SLIDE Fell Edge, mentioned in 16<sup>th</sup> C Rycrofts Charity, has almost a whole <sup>cruck</sup> building and its purlins reused. Still seen though house now much altered.

SLIDE The barn at Gyll House Stanley Fletchers, Ivy Bank House featured in Kate Masons book are other examples. *Part 5 - the barns ~ 1672*

SLIDE Low Hall may be a manor house replaced by Manor Garth. It was once a large house with 5 hearths in the 17<sup>th</sup> C. Datestone 1675 moved when refronted in 18<sup>th</sup> C. The roof is made of very good reused crucks. Pieces of walling remain from when it was a bigger house. These crucks might be from a cruck-framed hall that may have been higher status..

## CONCLUSION

Archaeologists often ask- Where are all the medieval; timber buildings that predate the stone ones 17/18thC. seen today?

Answer is- Those that record buildings are finding plenty of remains.

But- No dendro work at all has been done in the Dales area.

Agricultural buildings are virtually excluded from any dendro dating.

The dendro dating of our two buildings has been important nationally.

BOLTON A BARN TO WHICH Civic Society funded has given us a definite date (felling in winter 1518 so building shortly after) The CHURCH though less definite has contributed data for local dendro curves and will help with future work but also given a fascinating insight into reusing timber. Crucks reused in buildings however remain to be dated. If they are all saye 16<sup>th</sup> C then the question asked is what were all the buildings like before that? *This would give us useful information about buildings that have otherwise disappeared. Still need to discover*