

GLOSSARY, AND INDEX TO DIAGRAMS

The initial letters B.P. (Butt-purlin) and T.P. (Through-purlin) are disregarded in the alphabetical arrangement.

ANGLE-STRUT: A short inclined member acting in compression and serving to reduce the unsupported length of a major structural member.

ANGLE-TIE: A piece of timber across the angle of a hipped-roof building, tying the wall-plates together and affording a means of securing the inner end of a DRAGON-BEAM (*q.v.*)

ARCH-BRACE: A curved member across the angle of juncture between two major members (Fig. 7, H).

ARCH-BRACED CLASPED-COLLAR-PURLIN RAFTER ROOF: A roof made up of common rafters inclined together in pairs, linked by collar-rafters about half-way up the roof-slopes. A COLLAR-PURLIN (*q.v.*) is trapped in position centrally underneath the collar-rafters by means of arch-braces (Fig. 5, IIb).

ARCH-BRACED CLASPED-PURLIN RAFTER ROOF: A roof made up of common rafters inclined together in pairs, linked by collar-rafters at or above half-way up the roof-slopes. A collar-purlin and side-purlins are trapped in their respective positions by arch-braces (Fig. 5, IIc).

ARCH-BRACED COLLAR-RAFTER ROOF: A roof made up of common rafters inclined together in pairs, linked by collar-rafters about half-way up the roof-slopes. Arch-braces stiffen the angles between the collar-rafter and the corresponding common rafters (Fig. 4, If). The arch-braces may continue downwards as far as the springing of the roof, serving there in lieu of ASHLAR-PIECES (*q.v.*); or again may continue below the springing-line, in which case the roof becomes DEEP-ARCH-BRACED.

B.P. ARCH-BRACED COLLAR TRUSS: Pairs of principal rafters, at bay intervals, support side-purlins butted on to them, whilst also serving as common rafters. Collar-beams link the principal rafters: in some cases there may be a second, upper, collar-beam. Arch-braces unify the main collar-beam with the principal rafters (Fig. 8, IIIf).

T.P. ARCH-BRACED COLLAR TRUSS: As a T.P. COLLAR TRUSS (*q.v.*) but with arch-braces below the collar-beam and the lowest parts of the truss-blades (Fig. 16, VIIn).

ARCH-BRACED COUPLED-RAFTER ROOF: Pairs of common rafters are each strengthened by arch-braces near their base (Fig. 4, Ib).

T.P. ARCH-BRACED OPEN CRUCK-TRUSS: Pairs of cruck-blades, at bay intervals, carry side-purlins on their backs. There is an arched-braced collar-beam, but no tie-beam, cruck-spurs instead usually serving to carry or to anchor the wall-plates (Fig. 14, VIb).

T.P. ARCH-BRACED UPPER OPEN CRUCK-TRUSS: As a T.P. ARCH-BRACED OPEN CRUCK-TRUSS (*q.v.*) but on an upper floor (Fig. 15, VIc).

ASHLARING (carpentry): A series of short vertical timbers shutting off the lower angle of a pitched roof. The face of the short timbers may be boarded over or plastered (Fig. 7).

ASHLAR-PIECE: A short member at the lower angle of a timber roof, rising vertically from the inner end of a sole-piece to join the underside of a common rafter (Fig. 7F) (*c.f.* ASHLAR-POST).

ASHLAR-POST: A short, stout, post on the line of the inner face of a wall, rising vertically from a tie-beam, hammer-beam or sole-plate to join the underside of a principal-rafter or truss-blade (Fig. 7G) (*c.f.* ASHLAR-PIECE).

BARGE-BOARD: A board following the incline of a gable end, to protect projecting timbers. A favourite subject for ornamental treatment.

B.P. BASE-CRUCK TRUSS: Pairs of crucks, at bay intervals, are each truncated by a collar-beam, which locks side-purlins into position. There may be angle-struts or arch-braces from the truncated cruck-blades to the underside of the collar beam. For the rest, the roof is a rafter roof, often with crown-post and collar-purlin in the upper part (Fig. 9, IIIj).

BLADE: See TRUSS-BLADE.

BLOCKING-PIECE: A block or length of timber laid solidly upon the back of a truss-blade in order to achieve the required angle of slope to the roof. Particularly necessary in the case of ill-formed crucks (Fig. 3B) (*c.f.* OUTER TRUSS-BLADE).

BOW CRUCK-BLADES: A pair forms an arch, each blade following an easy convex curve from base to apex.

BRACE: A subsidiary but structurally important member filling or embracing an angle between two major members and lending stiffness to them. A brace may be STRAIGHT or CONVEX or CONCAVE in relation to the angle subtended, or may be OGEE (see WIND-BRACE).

BRACED-COLLAR RAFTER ROOF. A roof made up of common-rafters inclined together in pairs, linked by collar-rafters about half-way up the roof slopes. Straight angle-braces stiffen the angles between the collar-rafter and the corresponding common rafters.

Sometimes there is an additional collar-rafter above the first (Fig. 4, Ie).

BUTT-PURLIN: A purlin (*q.v.*) which is interrupted in its longitudinal course down the length of a building by the trusses spaced at bay intervals (Fig. 2B). The backs of the principal-rafters of the trusses reach the underside of the roof covering, and the purlins thus butt against their sides, being secured there by various means. Butt-purlins denote a type of carpentry construction normal to the Lowland Zone of England and Wales (see Introduction).

CAMBER: The gentle upward curve of a beam, between end supports and centre, intended to counteract sagging or the appearance of sagging. The beam may at the same time taper from the centre towards the end supports. Sometimes, only the upper side of a beam is cambered. When a beam rises more strongly, to the extent that it takes a marked turn at the centre, the rise amounting to at least half the minimum depth of the beam, it is then said to be **CRANKED**.

T.P. CARRIER ARCH-BRACED TRUSS: A lower frame, which is either a T.P. truncated deep-arch-braced collar-truss or a complete open cruck-truss, supports a minor cruck truss at a higher level. The whole composite truss may be "raised", i.e. have its base 5 ft. or more from the floor (Fig. 15, VIg).

B.P. CARRIER BASE-CRUCK TRUSS: Pairs of crucks, at bay intervals, are each truncated at collar-beam height, where side-purlins are locked into position by a collar, or sandwiched between the two elements of a twin collar. Arch-braces normally fill the angles between crucks and collar. Carried by the lower truss is an upper one, this a **COLLAR-TRUSS** starting from the collar or wall-plate line, of which the principal rafters carry butt-purlins whilst also serving as common rafters. Above the uppermost side-purlins the principal rafters sometimes are reduced in dimensions or become common rafters. The upper collar-beams may pass below, above, or span between the top-most pair of side-purlins (Fig. 9, IIII).

T.P. CARRIER BASE-CRUCK TRUSS: A T.P. Base-cruck truss carries either a B.P. Truncated Couple-truss or a T.P. minor Full-cruck truss at an upper level (Fig. 15, VIh). The whole composite truss may be "raised", i.e. have its springing 5 ft. or more from the floor.

CATSLIDE ROOF: A single-slope roof (Fig. 22).

CLOSE-COUPLE RAFTER ROOF: A roof made up of common rafters inclined together in pairs, each pair secured at the base by a further member of similar dimensions (Fig. 4, Ic).

COLLAR: In a roof, a horizontal member tying together a pair of inclined members—truss blades, principal rafters or common rafters—

at some intermediate point in their length, usually at or above the half-way stage. There may be from one to three collars for a single pair of inclined members. A collar may be CAMBERED, the upper side or the whole being slightly arched, or CRANKED, rising strongly to a sharp turn to the centre. In the cranked version, the rise at the centre is at least equal to one-half of the minimum depth of the collar.

B.P. COLLAR-AND-TIE-BEAM TRUSS: Pairs of principal rafters, at bay intervals, support side-purlins, whilst also serving as common rafters. The outer ends of a horizontal tie-beam receive the feet of the principal rafters, and there is also a collar-beam. There may be a second collar-beam above the first and various arrangements of struts and braces in the interspaces (Fig. 11, Vd).

T.P. COLLAR-AND-TIE-BEAM TRUSS: Pairs of truss-blades, at bay intervals, support side purlins upon their backs. The outer ends of a horizontal tie-beam receive the feet of the truss-blades, and there is a collar-beam. There may be a second collar-beam above the first, and various arrangements of struts and braces in the interspaces (Fig. 20, VIIIi).

COLLAR-PURLIN: A beam running longitudinally in a building, immediately below the collar-rafters joining each pair of common-rafters, intended to give support to the pairs (Fig. 2A). The collar-purlin sometimes is held in position by arch-braces proceeding from the sloping common-rafters, but typically is carried by CROWN-POSTS (*q.v.*) standing on tie-beams arranged at regular intervals down the length of a building. Collar-purlin roofs belong to the BUTT-PURLIN (*q.v.*) family of structural types, instancing the difficulty of introducing purlins into a roof form which by tradition is essentially "single".

COLLAR-RAFTER ROOF: A roof made up of common rafters inclined together in pairs, linked by collar-rafters about half-way up the roof-slopes. Sometimes there is an additional collar-rafter above the first (Fig. 4, Id).

B.P. COLLAR TRUSS: Pairs of principal rafters, at bay intervals, support side-purlins butted on to them, whilst also serving as common rafters. Collar beams link the principal rafters. In some cases there may be a second, upper, collar-beam (Fig. 8, IIIe).

T.P. COLLAR TRUSS: Pairs of truss-blades, at bay intervals, carry side-purlins upon their backs. At or above midway up the roof-slopes is a collar-beam (Fig. 16, VII).

COMMON RAFTERS: Members following the slope of a pitched roof to give direct support to the covering of slates, tiles or thatch. Usually spaced at intervals of one to two feet (Figs. 2, 3, 7B).

CORNICE: A group of mouldings, sometimes bearing ornament, at the eaves externally, or at the springing line of a roof internally.

COUPLED-RAFTER ROOF: A roof made up of common rafters inclined together in pairs (Fig. 4, Ia).

B.P. COUPLE TRUSS: Pairs of principal rafters, at bay intervals, support side-purlins butted on to them, whilst also serving as common rafters (Fig. 8, IIIa).

T.P. COUPLE TRUSS: Pairs of truss-blades, at bay intervals, carry side-purlins upon their backs. There is often a ridge-purlin, and there may be "deep" arch-braces, rising from below wall-plate line to the underside of the truss-blades (Fig. 16, VIk).

CRANK: The marked change of direction at the centre of a beam which has been shaped like an extremely flat, straight-sided arch. The beam may at the same time taper from the centre towards the end supports. The rise at the centre is at least equal to one-half of the minimum depth of a beam (Fig. 16, VIp).

CROWN-POST: A post standing centrally on a tie-beam to give direct support to a collar-purlin and frequently also to four-way angle-struts which diverge therefrom to stiffen the nearest rafter-couple and to minimise the risk of sagging in the collar-purlin (Fig. 2A).

CROWN-POST ARCH-BRACED RAFTER ROOF: A roof made up of common rafters inclined together in pairs, linked by collar-rafters at or above half-way up the roof-slopes. At bay intervals, arch-braces spring from a tie-beam which at its centre carries a crown-post supporting a collar-purlin running longitudinally under the collar-rafters (Fig. 5, II f).

CROWN-POST RAFTER ROOF: A roof made up of common rafters inclined together in pairs, linked by collar-rafters which sometimes are stiffened by angle-struts from the common rafters. A collar-purlin is supported at bay intervals by crown-posts, standing on tie-beams (Fig. 5, II e).

CRUCKS: Pairs of heavy timbers, each pair arranged as an arch, placed at bay intervals down the length of a building to support longitudinal wall-plates and purlins with the aid of ancillary members (Fig. 13B). Each individual cruck is described as a blade, and may be straight, bow-, elbow-, or ogee-shaped or imprecise. Sometimes pairs are cut from the same tree, neatly or roughly finished; others are from separate trees, neatly or roughly matched and finished.

CRUCK-SPUR: A short timber jointed to and projecting from the outer edge of a cruck-blade to give support to, or to anchor, a wall-plate (Fig. 3). Cruck-spurs are used especially with open cruck-

trusses, as these do not have a tie-beam (the member which in the case of a full-cruck projects beyond the cruck-truss to perform this function). The best-made cruck-spurs carry the full load transmitted through the wall-plate: others merely hook the wall-plate to the crucks. There are sometimes two (or more) cruck-spurs to one cruck-blade, the lower linked to the MIDDLE RAIL (*q.v.*) of a timber-framed wall.

B.P. DEEP-ARCH-BRACED COLLAR TRUSS: Pairs of principal rafters, at bay intervals, support side-purlins butted on to them, whilst also serving as common rafters. Collar-beams link the principal rafters. In some cases there may be a second, upper, collar-beam. Arch-braces unify the main collar-beam with the principal rafters, and continue downwards below wall-plate line (Fig. 8, IIIg).

T.P. DEEP-ARCH-BRACED COLLAR TRUSS: As a T.P. COLLAR-TRUSS (*q.v.*) but with arch-braces springing from below wall-plate line (Fig. 16, VIo).

DEEP-ARCH-BRACED COUPLED-RAFTER ROOF: A roof made up of common rafters inclined together in pairs, strengthened by arch-braces continuing downwards below the line of the wall-plate (Fig. 4, Ib).

B.P. DEEP-ARCH-BRACED COUPLE TRUSS: Pairs of principal rafters, at bay intervals, support side-purlins butted on to them, whilst also serving as common rafters. Arch-braces spring from below wall-plate line to stiffen the principal rafters (Fig. 8, IIIb).

T.P. DEEP-ARCH-BRACED CRANKED-COLLAR TRUSS: As a T.P. COLLAR-TRUSS (*q.v.*) but the collar-beam is "cranked", i.e. forms a chevron, with the rise at the centre at least equal to half the minimum depth of the collar-beam. Also, deep arch-braces spring from below wall-plate line to form an arch with its apex at the underside of the collar-beam (Fig. 16, VIp).

B.P. DOUBLE HAMMER-BEAM TRUSS: Pairs of principal rafters, at bay intervals, each support side purlins butted on to them, whilst also serving as common rafters. Horizontal beams receive the feet of the principal rafters, and project inwards from the wall-tops as hammer-beams, supporting vertical hammer-posts at their inner ends which rise to meet the underside of the principal rafters. There is also an upper stage of hammer-beams, supported by arch-braces, again carrying vertical hammer-posts and arch-braces which form an arch underneath a collar-beam some little way below the apex of the truss (Fig. 10, IVf).

DRAGON-BEAM: A horizontal piece of timber bisecting the angle formed by the wall-plates at an outer corner of a hip-roofed building,

serving to receive and support the foot of a hip-rafter. The inner end is joined to an *ANGLE TIE* (*q.v.*).

EAVES: The horizontal lower edge of a roof over-hanging the wall face. Eaves may be formed by the projecting feet of the common rafters or by *SPROCKETS* (*q.v.*) attached to the feet of the rafters. The feet of the rafters or sprockets may be left exposed, or their ends covered vertically by a *FASCIA* and their underside by a *SOFFIT BOARD*.

ELBOW CRUCK-BLADES: A pair forms an arch, each blade having a shape something like that of a boomerang, broadest at a point nearer to the lower extremity than to the upper. The outer edges are approximately vertical in the lower part, and trace the roof slopes in the upper (Fig. 14, VIa-d).

B.P. FALSE DOUBLE HAMMER-BEAM TRUSS: Closely resembles the Double Hammer-beam Truss (*q.v.*) but has only arch-braces in the upper of the two main stages, not hammer-posts (Fig. 10, IVg).

FALSE HAMMER-BEAM CLASPED-COLLAR-PURLIN RAFTER ROOF: A roof made up of common rafters inclined together in pairs, linked by collar-rafters at or above half-way up the roof-slopes. A collar-purlin is trapped in position centrally underneath the collar-rafters by means of arch-braces, which at bay intervals are received by hammer-beams on wall-brackets (Fig. 5, II d).

B.P. FALSE HAMMER-BEAM COLLAR TRUSS: Pairs of principal rafters, at bay intervals, support side-purlins butted on to them, whilst also serving as common rafters. Horizontal beams receive the feet of the principal rafters, and project inwards from the wall-tops as hammer-beams, from which, near their inner ends, arch-braces rise to the underside of a collar-beam and form a complete rounded or pointed arch. There are further arch-braces under the hammer-beam. (There are no hammer-posts) (Fig. 10, IVc).

T.P. FALSE HAMMER-BEAM COLLAR TRUSS: Pairs of truss-blades, at bay intervals, support side-purlins on their backs. Short horizontal beams receive the feet of the truss blades, and project inwards from the wall-tops as hammer-beams, from which, near their inner ends, arch-braces rise to the underside of a collar-beam and form a complete rounded or pointed arch. There are further arch-braces under the hammer-beams. (There are no hammer-posts) (Fig. 18, VIIb).

B.P. FALSE HAMMER-BEAM COUPLE TRUSS: Pairs of principal rafters, at bay intervals, each support side-purlins butted on to them, whilst also serving as common rafters. Horizontal beams receive the feet of the principal rafters, and project inwards from the wall-tops as hammer-beams, from which, near their inner ends, spring arch-

braces rising to the apex of the truss. There are further arch-braces below the hammer-beams. (There are no hammer-posts or collar-beams) (Fig. 10, IVa).

FASCIA: A board placed vertically across the ends of common rafters projecting from the eaves of a roof.

T.P. FULL CRUCK-TRUSS: Pairs of cruck-blades, at bay intervals, carry side-purlins upon their backs. A horizontal tie-beam extends beyond the cruck-blades to support wall-plates. There may be one or more collar-beams, and ancillary timbers in the interspaces (Fig. 19, VIIIa).

GABLED ROOF: A ridged, double-sloping roof forming triangular gables at the ends (Fig. 22).

GABLET ROOF: Inward sloping on all four sides, but small gables are formed in the upper part of the ends (Fig. 22).

HALF-HIPPED ROOF: A ridged, double-sloping roof, sloping at the ends only in the upper half (Fig. 22).

HAMMER-BEAM: A short, horizontal beam supporting the foot of a principal-rafter or truss blade on the wall-top and projecting inwards therefrom to carry a hammer-post and/or an arch-brace. It is invariably supported from below by an inclined or curved brace (Fig. 7C). It is a form of extended **SOLE PLATE** (*q.v.*).

B.P. HAMMER-BEAM COLLAR TRUSS: The normal type of hammer-beam truss. Pairs of principal rafters, at bay intervals, support side-purlins butted on to them, whilst also serving as common rafters. Horizontal beams receive the feet of the principal rafters, and project inwards from the wall-tops as hammer-beams, supporting vertical hammer-posts near their inner ends, which connect with the undersides of the principal rafters. Arch-braces also rise from the inner ends of the hammer-beam and sweep round to the underside of a collar-beam, forming a complete rounded or pointed arch. There are further arch-braces below the hammer-beams (Fig. 10, IVd).

T.P. HAMMER-BEAM COLLAR TRUSS: Pairs of truss-blades, at bay intervals, support side-purlins on their backs. Short horizontal beams receive the feet of the truss-blades, and project inwards from the wall-tops as hammer-beams from which, near or at their inner ends, vertical hammer-posts rise to the undersides of the truss-blades. Above, there is an arch-braced collar-beam. There are further arch-braces below the hammer-beams. The hammer-posts may sometimes droop below the hammer-beams as pendants (Fig. 17, VIIc).

B.P. HAMMER-BEAM COUPLE TRUSS: Pairs of principal rafters, at bay intervals, support side-purlins butted on to them, whilst also

serving as common rafters. Horizontal beams receive the feet of the principal rafters, and project inwards from the wall-tops as hammer-beams, supporting vertical hammer-posts near their inner ends which connect with the undersides of the principal rafters. Arch-braces also rise from the inner ends of the hammer-beams to the apex of the truss, and there are further arch-braces below the hammer-beams. (There is no collar-beam) (Fig. 10, IVb).

B.P. HAMMER-BEAM QUEEN-POST TRUSS: The truss has no principal rafters. At bay intervals, lengths of beam extend inwards from the wall-tops as hammer-beams, supported on arch-braces; and at their inner ends carry vertical queen-posts, at the top of which side-purlins are locked in position by a collar. Angle-struts incline against the queen-posts on their outer side, and on the inner are arch-braces or struts rising from the base of the queen-struts to form an arch under the collar-beam. For the rest the roof is a rafter roof, and there may be a crown-post standing on the centre of the collar-beam to support a collar-purlin passing below collar-rafter or scissor-rafter (Fig. 10, IVe).

HAMMER-BEAM TRUSS: A truss belonging to a general class in which the central part of the tie-beam is omitted, leaving "hammer-beams" protruding from the wall-top on each side, supported by arch-braces from below: differentiated by this feature from the "open" and "tie-beam" classes of truss. There are two varieties, those with principal rafters and butt-purlins and those with truss-blades and through-purlins (Figs. 10, 17).

HAMMER POST: A stout vertical post rising from the inner end of a hammer-beam and joining the attendant principal rafter at the top (Fig. 7E).

HIPPED-MANSARD ROOF: A roof having two angles of slope on all four sides, the lower steeply-pitched and the upper shallow (Fig. 22).

HIPPED ROOF: A ridged, double-sloping roof, sloping also at the ends (Fig. 22).

HIP-RAFTER: A member following the external angle at the junction of two sloping sides of a roof, and receiving the ends of pairs of shortened jack-rafter rising from the eaves.

JACK RAFTER: A shortened rafter running from a hip to the eaves or from the ridge to a valley.

T.P. JOINTED OPEN CRUCK-TRUSS: Pairs of cruck-blades, at bay intervals, carry side-purlins on their backs, and there is a collar-beam, which may be arch-braced. The cruck-blades however, are made up of two pieces, joined by a scarfed joint near the "elbow". The truss

may sometimes be "raised", i.e. stand 5 ft. or more above the floor, or constitute an UPPER JOINTED OPEN CRUCK-TRUSS, being on an upper floor (Fig. 15, VIi).

KING-BLOCK: A block of timber inserted between the principal-rafters or truss-blades at the top of a roof, not descending appreciably below their junction. Usually, it supports a ridge-purlin, and may carry a wind-brace thereto (Fig. 16, k-m).

KING PENDANT: A length of king-post trapped between the principal-rafters or truss-blades at the top of a roof-truss and descending therefrom to an ornamental or plain termination a little distance below. Usually, but not invariably, it supports a ridge-purlin, and may carry a wind-brace thereto (Fig. 10, IVa).

KING-POST: A vertical post extending from a tie-beam to the apex of a roof, where it passes between the principal rafters or truss-blades. Usually, but not invariably, it supports a ridge-purlin. It may carry a wind-brace to the ridge-purlin (Fig. 11, Vb).

KING-AND-QUEEN-POST RAFTER ROOF: Pairs of rafters inclined together are supported by a ridge-purlin and side-purlins, carried respectively by king-posts and queen-struts from tie-beams spaced at bay intervals (Fig. 6, IIk).

B.P. KING-POST TIE-BEAM TRUSS: Pairs of principal rafters, at bay intervals, support side-purlins butted on to them, whilst also serving as common rafters. The outer ends of a horizontal tie-beam receive the feet of the principal rafters, and from its centre rises a vertical king-post, which at the apex of the truss passes between the two principal rafters and may support a ridge-purlin. There may be ancillary angle-struts or braces, or arrangements of studs may occupy the residual area of the truss (Fig. 11, Vb).

T.P. KING-POST TIE-BEAM TRUSS: Pairs of truss-blades, at bay intervals, support side-purlins upon their backs. The outer ends of a horizontal tie-beam receive the feet of the truss-blades, and from its centre rises a vertical king-post which at the apex of the truss passes between the truss-blades, where usually it supports a ridge-purlin. There may be ancillary angle-struts or braces, or arrangements of studs may occupy the residual area of the truss (Fig. 20, VIIIg).

KING-STRUT: A vertical member extending from a tie-beam to the underside of the upper junction of a pair of principal-rafters or truss-blades (Fig. 11, Vc).

B.P. KING-STRUT TIE-BEAM TRUSS: Pairs of principal-rafters, at bay intervals, each support side-purlins, whilst also serving as common-rafters. The outer ends of a horizontal tie-beam receive the feet of the

principal rafters, and from its centre rises a vertical king-strut which stops against the undersides of the principal rafters at the apex of the truss. There may nevertheless be a ridge-purlin. There may be ancillary angle-struts or braces, or arrangements of studs may occupy the residual area of the truss (Fig. 11, Vc).

T.P. KING-STRUT TIE-BEAM TRUSS: Pairs of truss-blades, at bay intervals, support side-purlins upon their backs. The outer ends of a horizontal tie-beam receive the feet of the truss-blades, and from its centre rises a vertical king-strut which stops against the undersides of the truss-blades at the apex of the truss. There may nevertheless be a ridge-purlin. There may be ancillary angle-struts or braces, or arrangements of studs may occupy the residual area of the truss (Fig. 20, VIIIh).

MANSARD ROOF: A roof having two angles of slope on both sides, the lower steep and the upper shallow, gabled at the ends (Fig. 22). (See also **HIPPED MANSARD ROOF**).

MIDDLE RAIL: A horizontal rail between groundsill and wall-plate in a timber-framed wall.

M-SHAPED ROOF: A roof, usually gabled in "M" form at the ends, in which a central gutter is parallel to the eaves but at a higher level (Fig. 22).

OGEE CRUCK-BLADES: A pair forms an arch, convex in the lower part and concave near the apex (Fig. 15, VIj).

T.P. OPEN CRUCK-TRUSS: Pairs of cruck-blades, at bay intervals, carry side-purlins on their backs. There may be one or more collar-beams, but no tie-beams, cruck-spurs instead sometimes serving to carry or to anchor the wall-plates (Fig. 14, VIa).

OPEN TRUSS: One belonging to a general class lacking a tie-beam, and thereby differentiated from the "tie-beam" and "hammer-beam" classes of truss. There are two varieties, those with principal rafters and butt-purlins and those with truss-blades and through-purlins (Figs. 8, 9, 14, 15, 16).

OUTER TRUSS-BLADE: An extra truss-blade, carrying side-purlins, starting from a cruck-blade at its upper end but diverging thence at a shallower angle towards the wall-plate. Used in cases where to lay the side-purlins upon the cruck-blades would give much too steep a roof-pitch (Figs. 15, VIj; 19, VIIIe) (*c.f.* **BLOCKING-PIECE**).

PENDANT: A vertical timber suspended from above, usually treated ornamentally (Fig. 17, VIIIc).

PLATED YOKE: A shaped short timber plate at the apex of a truss across the face of a pair of truss-blades or principal-rafters, serving to secure them together (Fig. 14, VIb).

PRINCIPAL RAFTER: A stoutly-enlarged rafter forming part of a B.P. roof-truss (Fig. 7A). It follows the slope of a roof, and since its upper side assists in the support of a roof-covering it interrupts the longitudinal run of the side-purlins, which consequently must be received on its flanks or secured to the truss by supplementary means (Fig. 2B). The use of a Principal Rafter denotes a system of carpentry construction different from that characterised by the use of a TRUSS-BLADE (*q.v.*).

PRINCIPAL WALL-POST: One of the main posts of a timber building, serving to divide the length into bays (Figs 2B; 7A). It supports a horizontal beam connecting with adjacent principal wall-posts on the same side of the building, and usually also, a tie-beam or other main transverse member of a roof. The head of the principal wall-post normally is broadened into a "shoulder" on the inner side, and may receive a single or double angle-brace or arch-brace related to the tie-beam, hammer-beam or other element of a roof-truss (*c.f.* WALL-PIECE).

PURLIN: A longitudinal horizontal beam supporting the rafters of a roof, itself supported by end or partition walls, props or roof-trusses spaced at adequate intervals. There are three types, RIDGE-, SIDE- and COLLAR-PURLINS (*q.q.v.*). Side-purlins are differentiated as BUTT-PURLINS or THROUGH-PURLINS according to the manner in which they perform their function.

QUEEN-AND-CROWN-POST, DOUBLE-COLLAR TIE-BEAM RAFTER ROOF: Essentially a rafter roof of the crown-post type, in which the crown-posts, supporting a collar-purlin, stand on heavy collar-beams at bay intervals, the collar-beams in their turn being lodged on side-purlins carried on queen-posts from tie-beams (Fig. 6, IIj).

QUEEN-POSTS: Vertical members giving direct support to side-purlins. They rise symmetrically from a tie-beam to support through-purlins on the opposite sides of the slopes of a pitched roof (Fig. 5, IIg, h) (*c.f.* QUEEN-STRUT).

QUEEN-POST COLLAR-RAFTER ROOF: A roof made up of common rafters inclined together in pairs, linked together by collar-rafters at or above half-way up the roof-slopes. Queen-posts rise from tie-beams, spaced at bay intervals, to give direct support to side-purlins just below the collar-rafters (Fig. 5, IIh).

QUEEN-POST RAFTER ROOF: A roof made up of common rafters inclined together in pairs. Queen-posts rise from tie-beams spaced at bay intervals to give direct support to side-purlins placed centrally on the opposing roof-slopes. The queen-posts may not be precisely vertical (Fig. 5, IIg).

QUEEN-POST ROOF TRUSS: A tie-beam type of truss occupying the lower part of the roof space, comprising a pair of vertical queen-posts rising from the tie-beam to support side-purlins on opposite sides of a pitched roof. The heads of the queen-posts are kept rigid by a horizontal "straining-beam" (collar-beam) stretching between them, and on their outer sides by angle-struts. There are subsidiary members (Fig. 21, VIIIj).

B.P. QUEEN-POST TRUSS: There are no principal rafters. A tie-beam supports a pair of queen-posts carrying butt-purlins held in place by a collar-beam. Angle-struts are inclined against the outer side of the queen-posts, and there are arch-braces or angle-struts under the collar-beam. The roof otherwise is a rafter-roof, and there may be a central crown-post seated on the collar-beam, carrying a collar-purlin and collar-rafters or scissor-rafters (Fig. 12, Vf).

T.P. QUEEN-POST TRUSS: A tie-beam supports a pair of queen-posts carrying through-purlins above them. A straining-beam (collar-beam) keeps the heads of the queen-posts in place, and angle-struts are inclined against their outer sides. There usually are ancillary members. The roof is otherwise a rafter roof (Fig. 21, VIIIj).

QUEEN-STRUT: One of a pair of struts rising from a tie-beam to give indirect support to side-purlins, on opposite sides of a pitched roof. They are placed below side-purlins, but do not actually make contact with them (Figs. 6, Ili; 12, Vg).

QUEEN-STRUT COLLAR-AND-TIE-BEAM RAFTER ROOF: Essentially a rafter roof, in which pairs of common rafters are carried by side-purlins supported at bay intervals by stout collar-beams, themselves lodged on pairs of queen-posts standing on tie-beams (Fig. 6, Ili).

B.P. QUEEN-STRUT TRUSS: Similar to a B.P. QUEEN-POST TRUSS (*q.v.*) but principal rafters are identified with the truss, the latter carrying abutted side-purlins (Fig. 12, Vg).

RAFTER SINGLE ROOFS: Types of roof wholly made up of common rafters and ancillary elements, and having no longitudinal members whatsoever above the wall-plates except such as might be afforded by the roof-covering (Fig. 4).

RAFTER DOUBLE ROOFS: Roofs made up essentially of common rafters but having longitudinal purlins held in position by special arrangements at bay intervals, these not constituting developed roof-trusses (Figs. 5, 6).

T.P. RAISED ARCH-BRACED OPEN CRUCK-TRUSS: As a T.P. ARCH-BRACED OPEN CRUCK-TRUSS (*q.v.*) but having its springing 5 ft. or more above the floor (Fig. 14, VIId).

T.P. RAISED FULL CRUCK-TRUSS: As a T.P. FULL CRUCK-TRUSS (*q.v.*) but having its springing raised 5 ft. or more above the floor (Fig. 19, VIIIb).

T.P. RAISED OPEN CRUCK-TRUSS: As a T.P. OPEN CRUCK-TRUSS (*q.v.*) but having its springing 5 ft. or more above the floor (Fig. 14, VIc).

RIDGE: The horizontal line of intersection of the two sides of a pitched roof.

RIDGE-PURLIN: A longitudinal member at the top of a roof, against or upon which rest the upper ends of the sloping rafters (Fig. 3A).

ROOF PITCH: The slope or inclination of a roof in relation to the horizontal. Usually stated in degrees. Roof pitches are controlled by the weather-resisting capacities and weight of the roof-covering employed. Rough generalizations for Britain of *minimum* pitches for the various customary materials are: large thin slates, 20°; medium-sized thin slates, 25°; pantiles 25°; large stone slabs (flags) in regular or slightly-diminishing courses, 30°; small thin slates, 30°; small thick stone slates, 35°; stone slabs (flags) in strongly diminishing courses, 35°; oak shingles, plain tiles, thatch, 45°; though for the last (thatch) reeds and wheat straw will allow a shallower pitch than other thatching materials.

ROOF-TRUSS: A group of strong timbers arranged as a frame within the triangle of a pitched roof, the frame spanning transversely across a building to give support to longitudinal purlins (side-purlins and ridge-purlins). By means of roof-trusses the length of a roof is divided into bays. Sometimes, intermediate lighter trusses mark half-bays.

SADDLE: A short length of timber secured above the upper ends of two truss-blades or principal rafters, serving to join them. It usually forms a seating for a ridge purlin (Fig. 14, detail 3f).

SCISSOR- AND COLLAR-RAFTER ROOF: A roof made up wholly of common rafters, combining the "scissor-rafter" and "collar-rafter" types (Fig. 4, 1h).

SCISSOR-RAFTER ROOF: A roof made up of common rafters inclined together in pairs, linked by SCISSOR-RAFTERS crossing one another on the centre line of the roof in their passage from about the lower third to the upper third of the roof-slopes (Fig. 4, 1g).

B.P. SCISSOR TRUSS: Pairs of principal rafters, at bay intervals, support side-purlins butted on to them, whilst also serving as common rafters. Straight, bowed or ogee-shaped braces intersect one another across the centre-line of the trusses, giving the appearance of scissors. When the braces spring from below wall-plate line, a truss would be

described as a DEEP-ARCH-BRACED SCISSOR TRUSS (Fig. 8, IIIId).

T.P. SCISSOR TRUSS: Pairs of truss-blades, at bay intervals, carry side-purlins upon their backs. Scissor-beams start from the base of the truss-blades and intersect on their way to stiffen the opposite truss-blade at a higher level. There may be "deep" arch-braces starting from below wall-plate line to connect with the underside of the scissor-beams (Fig. 16, VIIm).

SIDE-PURLIN: A longitudinal, horizontal beam part way up the slope of a pitched roof, serving to support the common rafters and so the roof-covering. Side-purlins are themselves carried by roof-trusses, partitions and end walls or by other means affording the division of the length of a building into bays. Different regional systems of vernacular carpentry are indicated by the particular method by which side-purlins are supported by roof-trusses (*c.f.* BUTT-PURLIN, THROUGH-PURLIN) (Figs 2B, 3).

SOLE-PIECE: A short, horizontal member lying across a wall top, forming the base of a small triangle sustaining the foot of a common rafter (Fig. 7D) (*c.f.* SOLE-PLATE).

SOLE-PLATE: A short, stout, horizontal member lying across a wall-top, forming the base of a small triangle sustaining the foot of a principal rafter or truss-blade in the case of a truss having no tie-beam or hammer-beam (Fig. 7C) (*c.f.* SOLE PIECE).

SPAN: The clear distance between supports of a beam, arch, or walls carrying a roof.

SPROCKET: A short member extending the foot of a common rafter to form projecting eaves, particularly in instances where the rafter foot is concluded at the wall-plate. The sprocket is attached to the top or side of the common rafter, and necessarily is of a slightly shallower pitch (Fig. 2B).

T.P. STILTED FULL CRUCK-TRUSS: Pairs of cruck-blades, often convex in the upper part, are spaced at bay intervals. The height of the truss is substantially greater than its width, and the timbers are less massive than in other types of truss. There is a tie-beam, extending beyond the cruck-blades to stiffen the timber side-walls, as well, usually, as a pair of cruck-spurs. Collar-beams are normal and a pair of OUTER TRUSS-BLADES (*q.v.*) may be included to fill out the frame to the roof-slope. The truss may be "raised" (Fig. 19, VIIIId).

T.P. STILTED OPEN CRUCK-TRUSS: Pairs of cruck-blades, often convex in the upper part, are spaced at bay intervals. The height of the truss is substantially greater than its width, and the timbers are less massive than in other types of truss. There is a high collar-beam, and

usually two pairs of cruck-spurs, the upper pair anchoring the wall-plates and the lower the middle-rail of the timber side walls. A pair of OUTER TRUSS-BLADES (*q.v.*) may be included to fill out the frame to the roof-slopes. The truss may be "raised" (Fig. 15, VIj).

STRAIGHT CRUCK-BLADES: A pair forms an inverted "V".

STRUT: A minor member, usually short, acting in compression and serving to reduce the unsupported length of a major structural member (Fig. 2A).

STUD: A plank-like member of a series used as infilling of the main structural frame of a timber wall, the studs usually alternating with plastered panels, to which they lend support. Stud normally are vertical, but sometimes are curved or arranged diagonally to form decorative patterns, particularly in gables. Intermediate horizontal RAILS frequently are necessary to reduce the unsupported length of the studs. Studs are less thick than struts, the latter being of much greater structural importance. In internal partitions vertical studs sometimes may alternate with narrow timber panels, an arrangement known as "stud-and-panel work".

T.P. STUB TIE-BEAM COLLAR TRUSS: Pairs of truss-blades, at bay intervals, carry side-purlins upon their backs. Short horizontal beams (stub tie-beams) extend inwards from the wall-tops to receive the feet of the truss-blades and the heads of shouldered principal wall-posts. Deep arch-braces start from the principal wall-posts and form an arch with its apex centrally under a collar-beam linking the truss-blades (Fig. 17, VIIa).

THROUGH-PURLIN: A SIDE-PURLIN (*q.v.*) which is free to run uninterrupted from end to end of a building, limited only by the lengths of timber available. Such purlins are carried on the backs of trusses spaced at bay intervals down the length of a building, and their occurrence is indicative of a type of carpentry structure normal to the Highland Zone of England and Wales (Fig. 3) (see Introduction).

TIE-BEAM: A heavy beam crossing horizontally from side to side of a building at or near wall-top height, usually at regular "bay" intervals (Fig. 2). Its function may be solely to tie together the opposite sides of the roof structure; or additionally to afford support to props sustaining the upper part of a roof; or again, to serve as a primary member of a complete roof-truss carrying the roof covering by the agency of longitudinal purlins. A tie-beam may be CAMBERED or CRANKED (*q.v.*).

TIE-BEAM TRUSS: A truss belonging to a general class which in having a tie-beam is differentiated from the "Open" and "Hammer-

beam" classes of truss. There are two varieties, those with principal-rafters and butt-purlins and those with truss-blades and through-purlins (Figs. 11, 12, 19, 20, 21).

B.P. TIE-BEAM TRUSS: Pairs of principal rafters, at bay intervals, support side-purlins butted on to them (butt-purlins) whilst also serving as common rafters. The outer ends of a horizontal tie-beam receive the feet of the principal rafters. There may be ancillary angle-struts, braces or studs within the triangle of the frame (Fig. 11, Va).

T.P. TIE-BEAM TRUSS: Pairs of truss-blades, at bay intervals, support side-purlins on their backs (through-purlins). The outer ends of a horizontal tie-beam receive the feet of the truss-blades. There may be ancillary angle-struts, braces or studs within the triangle of the frame (Fig. 20, VIII f).

TRAPPED-PURLIN COLLAR-RAFTER ROOF: A roof made up of common rafters inclined together in pairs, linked by collar-rafters about half-way up the roof-slopes. *SIDE-PURLINS* (*q.v.*) are trapped in the acute angles between the collar-rafter and the common rafters, or in the obtuse angles below them by means of angle-struts (Fig. 5, IIa).

B.P. TRAPPED-PURLIN DEEP-ARCH-BRACED COLLAR TRUSS: Pairs of principal rafters, at bay intervals, are of lighter section above the collar-beam but nevertheless are stouter than the common rafters: their backs reach the underside of the roof covering. Side-purlins are trapped into position between the collar beams and "deep" arch-braces springing from below wall-plate line (Fig. 9, IIIh).

B.P. TRUNCATED ARCH-BRACED COLLAR TRUSS: Pairs of principal rafters, at bay intervals, are each truncated by a collar-beam made up of twin parts, trapping side-purlins between them. The upper part is a rafter roof, often of the crown-post type, the crown-post carrying a collar-purlin (Fig. 9, IIIi).

B.P. TRUNCATED COLLAR-AND-TIE-BEAM TRUSS: Pairs of principal rafters, at bay intervals, are supported upon a tie-beam, but become common rafters in the upper part of the roof above a level where side-purlins are carried with the aid of a collar-beam. Various arrangements of struts and braces may fill the space between the two horizontal members. Sometimes there may be additionally one or more pairs of butt-purlins in the lower part of the roof. Also, there may be more than one collar-beam (Fig. 12, Ve).

B.P. TRUNCATED COUPLE-TRUSS: Pairs of principal rafters, at bay intervals, revert to common rafters about midway up the roof-slopes, and support side-purlins on the shoulders thus formed. There may be

collar-rafters or collar-beams under the side-purlins, in which case a truss would be described as a TRUNCATED COLLAR TRUSS (Fig. 8, IIIc).

TRUSS: See ROOF-TRUSS.

TRUSS BLADE: A primary member of a T.P. roof-truss. It follows the slope of the roof and supports longitudinal side-purlins on its upper side which in turn carry the common rafters. In the case of a cruck-truss it is termed a cruck-blade (Fig. 3), turning downwards by a curve or "elbow" to find a seating below wall-plate line. The use of a truss-blade denotes a system of carpentry different from that characterised by the use of a PRINCIPAL RAFTER (*q.v.*).

B.P. TWIN-COLLAR BASE-CRUCK TRUSS: Pairs of crucks, at bay intervals, are each truncated at collar-beam height, where side-purlins are sandwiched in position between the two elements of a twin collar. There may be angle-struts or arch-braces from the truncated cruck-blades to the underside of the twin collars. For the rest, the roof is a rafter roof, often with crown-post and collar-purlin in the upper part (Fig. 9, IIIk).

B.P. UPPER BASE-CRUCK TRUSS: A BASE-CRUCK (*q.v.*) on an upper floor, the truncated crucks usually starting from the floor-beams thereof. In the case of the upper base-cruck however, the side purlins usually are carried *upon* the collar, there giving intermediate support to common rafters which in the upper part of the roof may have collar-rafters linked by a collar-purlin standing on crown-posts rising from the main collar-beam (Fig. 9, IIIm).

T.P. UPPER FULL CRUCK-TRUSS: As a FULL CRUCK-TRUSS (*q.v.*) but on an upper floor (Fig. 19, VIIIc).

UPPER KING-POST: A vertical post extending from a collar-beam to the apex of a roof, where it passes between the principal rafters or truss blades. Usually, but not invariably, it supports a ridge-purlin. It may carry a wind-brace to the ridge-purlin (Fig. 17, VIIa, 2c).

UPPER KING-STRUT: A vertical member extending from a collar-beam to the underside of the upper junction of a pair of principal rafters or truss blades (Fig. 15, VI, 2b).

T.P. UPPER OPEN CRUCK-TRUSS: As a T.P. OPEN CRUCK-TRUSS (*q.v.*) but on an upper floor (Fig. 14, VIe).

VALLEY RAFTER: A timber following the internal angle formed at the junction of two sloping sides of a roof, and receiving the ends of pairs of jack-rafters descending from the ridge.

"VEE" STRUTS: Inclined struts meeting at the base to form the letter "V". Frequently used in the upper part of a truss, springing from a collar (Fig. 14, VIb, d), or as infilling to a tie-beam truss. Double

Vee struts are sometimes found below the collar of a collar—tie-and beam truss, springing from the tie-beam (Fig. 11, Vd, 4f).

VERGE: The slightly-overhanging edge of a roof-covering along the sloping gable-ends of a roof. Instead of a verge, there may be a **GABLE PARAPET**. Alternatively, the roof may overhang the gable, the timbers sometimes being covered by a plain or ornamental **BARGE BOARD**.

WALL-PLATE: A timber running horizontally along a wall-top to receive and distribute the load from common rafters and other roof members (Figs. 3; 7j).

WALL-PIECE: A vertical timber against the upper inside face of a solid stone or brick wall, usually serving to receive an angle-brace or arch-brace related to the timber roof-structure above (Fig. 7k) (*c.f.* **PRINCIPAL WALL-POST**).

T.P. WALL-POST, COLLAR-AND-TIE-BEAM TRUSS: Pairs of truss-blades, at bay intervals, are supported at their base by shouldered principal wall-posts linked by a tie-beam. There is a collar-beam, and there are arch-braces between the principal wall-posts and the tie-beam (Fig. 19, VIIIe).

WIND-BRACE: A member embracing the angle between a principal rafter or truss blade and a side-purlin, ridge-purlin or wall-plate (Fig. 18). A wind-brace may be **STRAIGHT** or **CONCAVE** or **CONVEX** in relation to the angle it embraces, or again, **OGEE**: a **NORMAL OGEE** is one of which the curve leaves the truss member almost at right angles, as compared with its opposite, a **REVERSED OGEE**. In the plane of the roof-slope wind-braces may be **UPPER** or **LOWER** in relation to the roof panel in which they occur. They may be decoratively cusped or plain.

YOKE: A piece of timber serving to secure together the upper ends of a pair of truss-blades or principal rafters. There are three types: a **COLLAR YOKE** fills the upper triangle between the timbers; a **LINK YOKE** is a short horizontal member interposed between them; and a **PLATED YOKE** is a plank-like member across the face of the two main timbers (Fig. 14, details 3c, 3d, 3e).