

CONSTRUCTION OF A WALL¹.—The corners or *leads* are first built to a height of several courses (see U, Fig. 2) and the walling between the corners is completed course by course. Normally the leads should not exceed 3-ft. in height.

Each quoin is set truly vertical by placing an edge of the plumb-rule (leaning slightly towards the body to allow room for the plumb-bob to swing in and out of the hole) against one of the faces, any adjustment of the bricks being made until the cord coincides with the gauge-line marked down the centre of the rule; the return face is then plumbed. The gauge-rod is used to ensure that the brick courses and joints are correct and of uniform thickness. Each course is now constructed, aided by the line and pins; one of the pins is inserted in and near the top of a vertical joint (usually on the return face of the wall) and, after the line has been stretched taut, the second pin is inserted to bring the line level with the top of the course to be built and at a slight distance (about $\frac{1}{8}$ -in.) from the face.

Before being laid in position the bricks should have been wetted² (particularly in hot weather) to prevent them from absorbing moisture from the mortar too quickly and reducing its adhesive qualities. The mortar should be of the correct consistency, otherwise labour is wasted in "working it up" with the trowel.

In constructing a wall, the bricklayer collects sufficient mortar on the trowel and spreads it on the last completed course for several bricks ahead (not less than 3-ft. length of bed being recommended). He then presses the point of the trowel into the mortar and draws it in zigzag fashion along the centre of the layer to form a level and uniformly thick bed. A brick is taken, placed in position, and pressed into the mortar against the last laid brick; a smart tap with the edge of the trowel or the end of the handle may be necessary to bring the brick into line. The mortar which has been squeezed out beyond the face of the wall is "cut off" by and collected on to the trowel³ and returned to the heap of mortar on the board. The cross joint is then formed, a small portion of mortar being taken on the trowel and pressed on the end or side of the brick to form a vertical joint against which the next brick is pressed.⁴

"Plumbing-up" by means of the plumb-rule should be frequently resorted to as new brickwork has a tendency to overhang; the work is corrected and a vertical face obtained by tapping the handle of the trowel (or using the brick hammer) against the bricks concerned.

Perpends must be kept vertical; this is checked as the work proceeds by placing the straight-edge flat on the course and slightly projecting beyond the face. The stock of the square is set against the underside of the straight-edge with the blade coinciding with the last-formed vertical joint and (if the work is satisfactory) with that in the course next but one below.

The plumbing of the reveals of openings and the perpends adjoining them should receive special attention.

In the construction of thick walls, mortar is spread on the bed and the outer bricks on both faces are first laid as described above; the inner bricks are then pressed and rubbed into position to cause some of the mortar to rise between the vertical joints, which are finally filled flush with liquid mortar or grout.

Hand-made bricks, having only one frog, should be laid with the frogs uppermost to ensure that they will be completely filled with mortar. Machine-pressed bricks, having two frogs, should have the "lower" frogs filled with mortar before being laid in position. Care must be taken that certain textured or rustic bricks are laid on their proper beds; it is not uncommon to see these laid "upside-down."

JOINTING AND POINTING.—Joints on the face are usually compressed by one or other of the methods referred to below so as to eliminate pore spaces along

¹ The setting out of buildings is described on pp. 67—70 in Vol. II.

² Certain smooth-surfaced machine-pressed bricks should not be watered, otherwise they are difficult to lay.

³ The mortar may be left slightly projecting if the surface of the wall is to be plastered.

⁴ The projecting mortar which has been removed is often trowelled on to the end of the brick to form the vertical joint. When this is the only mortar applied, the joints are inadequately filled and inferior work results.

which water may pass. The nature of this finish depends upon the type of bricks used and the appearance required.

When this finish is done in sections as the brickwork proceeds the operation is called *jointing*; when it is deferred until afterwards it is known as *pointing*.

The following examples are illustrated at T, Fig. 17.

Struck Joint.—This is probably more extensively used than any other. It is a good weather joint as it permits of the ready discharge of water. Its appearance is not entirely satisfactory for every class of work as it exaggerates any inaccuracy of the lower edges of the bricks (owing to the difference in the thickness of the bricks which may exist); its smooth mechanical character detracts from the appearance if adopted for bedding and jointing sand-faced bricks of good texture. It is best used in conjunction with smooth-surfaced machine-pressed bricks of uniform colour.

This joint is formed when the mortar is sufficiently stiff (usually after four stretchers or their equivalent have been laid) by holding the handle of the trowel below the bed joint and smoothing the mortar several times in one direction with the blade to an approximate bevel of 60°. The vertical joints are usually formed by pressing the tip of the trowel down the centre to produce a V-section, or these joints may be flush (see below). The vertical joints are first struck, followed by the bed joint.

Overhand Struck Joint (see broken line at X).—It should not be adopted as water collecting on the ledge may pass through the mortar to cause dampness on the inside, or frost action may destroy the upper edges of the bricks, especially if they are not of good quality.

It is indicative of *overhand* work (constructed from an internal scaffold from which the bricklayer must lean to form the joints as the work proceeds) which is apt to be scamped.

Flush or Flat Joint.—As shown, the joint is flush with (in the same plane as) the face of the brickwork. When rubbed, it forms an excellent finish for first class faced work.

The mortar is pressed into the joints during the progress of the work, any depressions are filled by the addition of mortar, and when the mortar is "semi-stiff" each joint is carefully rubbed in one direction by a piece of rubber which is held as flatly as possible against the wall. This gives a satisfactory texture to the joint which agreeably conforms with that of a sand-faced class of brick.

Provided the mortar is of good quality, this joint gives a satisfactory finish to rustic brickwork if it is just left as the mortar is cut off with the trowel, no attempt being made to smooth the surface of the joint. The fairly rough texture of such joints gives to rustic brickwork a more satisfactory appearance than smooth struck joints.

The flush joint is also adopted for walls requiring smooth internal faces such as may be required for factories, cellars, coal-houses, garages, etc.

Recessed Joints.—This finish is very satisfactory for facing work of good textured bricks and good quality mortar. The bricks should be carefully selected of uniform thickness and the bed joints should be at least $\frac{3}{8}$ -in. thick.

This type of joint is made as follows: The jointing tool is used immediately after the projecting mortar has been cut. This tool may be similar to the jointer (see