

on plan, the side joints of the face stones are only dressed square for about 3-in. from the face which is usually only quarry-dressed (see p. 36). Another form of snecked rubble is shown at F, Fig. 23.

(b) (ii) SQUARED RUBBLE, BUILT TO COURSES.—The stones are similar to those used for snecked rubble, but, like the random rubble built to courses class, the work is levelled up to courses of varying depth. The squared face stones may be arranged as shown at B, Fig. 20, or each course may consist of quoins, jamb stones, bonders and throughs of the same height, with smaller stones built in between them up to the height of these larger stones, to complete the course. This latter arrangement is sometimes known as *Coursed Header Work* and is shown at G, Fig. 22.

(b) (iii) SQUARED RUBBLE, REGULAR COURSED (H, Fig. 22).—This type of walling is built in courses of varying height, but the stones in any one course are *all* of the same depth. The stones vary from 2 to 9-in. thick and are from 6 to 9-in. wide on bed. The faces may be pitched to give a rusticated appearance, or they may be dressed to a smoother finish, the straight-cut dressing described on p. 36 being particularly effective.

This work is very popular in certain parts of the country where there is available a plentiful and convenient supply of hard stone of good colour and satisfactory weathering quality. The majority of buildings in many towns in Lancashire and Yorkshire are built of this class of external walling.

Regular coursed rubble walling which consists of large squared blocks that are usually either hammer-faced or pitch-faced is sometimes called *Block-in-Course*. It is usually associated with heavy engineering work, such as in the construction of sea walls, retaining walls, etc., and is not often used in general building work.

(c) MISCELLANEOUS.—There are many variations of walling which may be classed under Rubble Work. These variations are due to the particular characteristic qualities of the local materials available and the traditional forms of construction peculiar to those localities. The three examples mentioned under class (c) on p. 39 are all well known, and hence their inclusion. It should be observed that, owing to the comparative cheapness of bricks, they have, to a certain extent, replaced the local material and thus none of the following three examples are adopted for new work to the same extent as formerly.

(c) (i) POLYGONAL WALLING (A and B, Fig. 23).—The stone used for this class of wall, although tough, can be easily split and dressed to any shape. It is hammer-pitched on face to an irregular polygonal shape and is bedded in position to show the face joints running irregularly in all directions.

In one class of this work the stones are only roughly shaped, causing them to fit together only approximately. This is *Rough-picked* and is shown at A. A second class shows more accurate work as the face edges of the stones are more carefully formed to permit of the small blocks to fit more intimately into each other to form what is called *Close-picked* work (see B). Walls faced with this material are generally backed with brickwork. This work is perhaps better known as *Kentish Rag* on account of a limestone found in Kent which has been used fairly extensively for this

purpose. It is common in the southern counties. A soft sandstone has also been adopted to give a similar appearance.

(c) (ii) FLINT WALLING (C and D, Fig. 23).—The stones used in this class are flints or cobbles. They vary in width and thickness from 3 to 6-in. and in length from 6 to 12-in., being irregularly shaped nodules of silica. Although extremely hard, they are brittle and can be readily snapped across. They are sometimes employed for the construction of walls in those counties where the flints are readily obtainable from the gravel beds which are often associated with chalk or limestone. Buildings near the coast have been constructed of walls in which the rounded flints from the beach have been used.

The external walls, which are generally from 14 to 18-in. thick, may consist of either (1) a facing of flints which have been snapped transversely across the centre, with a backing of the undressed flints as in section GG, or (2) similar but with the broken surfaces of the facing flints squared at the edges as shown at D or (3) undressed flints throughout. The face arrangement may be either uncoursed, built-to-courses or regular coursed. Uncoursed flint walling especially is deficient in strength on account of the small-sized material. This is partly made good by the introduction of through stones (two to every superficial yard), or continuous courses—known as *lacing courses*—of long thin stones or bricks or tiles at vertical intervals of 3 to 6-ft. and stone or brick piers at about 5-ft. intervals; alternatively, brick headers may be inserted in diagonal lines across the face to give a diaper appearance.

An elevation and section of a portion of a wall faced with split flints, backed with undressed flints, and provided with brick lacing courses and piers are shown at C. The snapped flints are laid in courses. This is known as *polled* facing.

The facing flints are placed in position with the black or dark grey split surfaces outwards. This facing may either be built up with the body of the work, or, the wall may be constructed by bedding the face flints on both sides to a height of about 9-in., when a thick layer of soft mortar is spread in between into which the nodules are placed to force the mortar up between them—this is known as *larrying*; alternatively, *grouting* may be adopted, liquid mortar being poured over the nodules packed in the heart of the wall to fill up the interstices. The split or polled flints should be at least 4-in. long from front to back, and the internal facing flints are laid as headers in order that they may be well tailed into the body of the wall. Thin flakes removed from the flints may be used to gallet the joints for the reasons stated on p. 40 and shown at L.

*Knapped* flint facing, in conjunction with a brick quoin, is shown at D. The larger cobbles are snapped across, and the split surfaces are dressed (knapped) to give faces which are approximately 4-in. square. This is the best type of flint walling and is sometimes known as *gauged* or *squared* flint.

The facing flints are laid very close together so that little, if any, mortar joints are visible. Knapped flint work is sometimes arranged to form panels between stone or brick dressings, when the flints are sometimes unbonded, *i.e.*, the vertical joints are continuous.

When the flints are undressed throughout (as for cottage work) the external and internal face flints are laid as headers and the hearting of headers and