

tions and the attendant items, such as planking and strutting, filling and ramming; and, finally, any other small or particular items. Then describe the concrete foundations, after which the surface concrete and any brick rubbish under, then the concrete floors, roof and stairs. If the walls of a building are in concrete, I would take these immediately after the concrete foundations, of which they then would almost form a part. Under drainage describe the manholes first, then the pipes with the concrete, then the gulleys and other similar items. The items under the trade of pavior are so simple that any order might serve, but take first the important items of internal paving and follow on with the smallest items, and finish with the external paving.

In bricklayer commence with the general walls of the building, then the damp course, hoop iron and other attendant items. Then those parts in cement, such as rough arches, trimmer arches, piers, sleeper walls, half-brick walls and dry areas. Then the external facings and pointing, gauged or other external arches, dressings, moldings and ornaments, external glazed brickwork or flint facings. Then the internal facings and pointing, glazed brickwork and wall tiling. Boundary and retaining walls, and such-like distinct items, should come last, and be described separately and completely by themselves. Terra cotta facings might either come with other external facings or be kept as an item by itself after the description of the other general work, and before such items as boundary or other walling.

In mason commence with the rough stone, such as templates and corbels, if not elsewhere described, and follow on with the thresholds, sills, copings, internal pavings, staircases, hearths and chimney pieces. Then the external paving, steps and curbs. If the walls are built or faced in stone, I would describe these first completely, with all the labors, moldings and ornaments on them, and then follow on with the rough stones and internal items, and finally with the external items, such as pavings, steps and curbs. I would not trouble to keep all stone of a similar nature under the one heading, unless it should happen to come in that order.

Many make carpenter and joiner two trades. In a large work perhaps it is better to separate them, but in a small work I should certainly keep them together. But it is immaterial whether they are separated or not as long as the descriptions are clear. Personally, I prefer them generally under one heading; you will perceive the reason from the order of the items I will now give you under these trades. Lintels, breastsummers, posts, cradling, floor and ceiling joists and plates, sound boarding roof or flat timbers, felt, battens, gutters, and all external joiners' work to the roof or flats, except windows, doors and skylights, such as rolls, fascias, large boards and such-like items. Then would come quartered partitions, followed on with flooring, windows, skylights, external doors, internal doors, framed partitions, skirtings, dadoes, wall and ceiling panelling, staircases, sinks, and water closets and bath casings, and other internal fittings, such as shelves, cupboards and such-like domestic fittings. Fencing, weather-boarding or other outside work should be complete items by themselves and come last. Half-timber work with all its attendant items might, I think, come after the description of the rough timbers. I would not separate hardwoods from softwoods, but describe them as they come on each separate story.

In smith and founder take this order: Lintels, chim-

ney-bars, straps, girders, floors, columns, roofs, carriages, iron windows, gutters, stack pipes, external railings and gratings, stoves and ranges and heating. Heating may come under heating engineer.

Under slater and tiler, roofs first, then vertical slating or tiling, shelves, cisterns and such-like smaller items.

In plumber, take gutters, flashings and other roof finishings, flats and their gutters and finishings, then drinking water supply pipes, cisterns, sinks, lavatories, baths and fittings. Then water-closet supply pipes, cisterns, water-closets, slop sinks, urinals and fittings, soil and ventilating pipes, hot water circulation.

#### ZINC WORKER AND COPPERSMITH.

Take flats, gutters and finishings, pipes, lightning conductors. In plaster describe first the general plaster work to ceilings, partitions and walls, then follow with cornices, coves, center flowers. Then those parts in cement, and finally the external plaster or cement work, or, if preferred, take the external work first.

#### GLAZIER.

External glass to sky-lights, windows, doors, then internal lights and screens, and pavement lights last.

#### PAINTER AND PAPERHANGER.

Internal work to ceilings, walls, wood and ironwork and polishing. Then external painting to wood, iron and cement work. As to the order in the trades I have mentioned, such as bellhanger, gasfitter and electric lightning engineer, which are not generally of any considerable variation, there is very little to suggest, but keep the order of the work, such as the main items first and fittings afterwards. I might mention that the order adopted in bills of quantities is not precisely the same in all parts as that of the specification. The order in quantities is placed to an extent to facilitate the pricing, and the order in the specification should be to distinguish quickly the position of the work.

#### PRICES.

One word before I come to the last part of this paper. If the prices in a bill of quantities are not to be taken into account in the settlement of extras and omissions, or if quantities have not been supplied, then a schedule of items should be provided for the builder to fill in, and be attached to the specification and form part of the contract upon which variations may be valued.

#### ADDITIONAL HINTS.

I have now, I think, stated the various points which are necessary to be observed for efficient specification writing, and I will just mention a few matters which are worthy of attention and which are not always found to be clearly stated in a specification, but are sometimes omitted altogether, taking preliminary items first. Always state that the plant and temporary erections are to be removed when directed, such as scaffolding, hoarding, shorting, clerk of work's office, and any other items temporary in their character. The provision of these items is usually stated in the specification, but their removal is not always mentioned. State if the hoarding is not to be let to an advertising contractor. Clearly define what you mean by prime cost and provisional amounts. State if the employer's business is to be carried on during the building operations. Mention that the contractor is to give due facilities to other tradesmen who may be employed on the premises, and also that the contractor is to allow such other tradesmen the use of his scaffolding and plant. State to whom