

Other conditions enter into the problem of measuring work that still further embarrass the measurer. The work may be new or old, and in various stages of newness and decay. New work differs much in the manner of its preparation for painting, and an old job may be easier to repaint than a certain new job. The proper way to provide for this would be to have a separate schedule for each class of work. Thus new and old work might be divided into class A, best condition for painting; class B, fair condition; class C, poor condition; class D, bad condition. This would be put under proper heads, as "new work," "old work." Removing old paint by burning it off should be noticed under its proper heading, or removing by alkalies or any similar treatment. It is worth 30 cents a square yard to burn off paint from a plain surface.

In measuring balusters it is very difficult to lay down a fixed rule of measurement. The rule is to allow double measurement for square balusters, and treble for round. Say a row of balusters is 12 ft. long and 3 ft. high, including a rail on top. The tape line is run over the rail from one side to the other, giving 6 ft. This being doubled gives 12 ft., and multiply the length, 12 ft., by this height of double 6 ft., or 12 ft., gives a total of 144 ft. The turned baluster would give 216 ft. Balusters, of course, differ in style, and hence much must depend upon the judgment in measuring. Again, take window blinds, or Venetian shutters. If these are large the profit of painting them by the square yard will be large, while doing small blinds the same way will hardly pay, especially at the hands of a slow workman. Some painters, in measuring the front of a house, say, estimate the job "solid," taking no account of windows. Others count windows separately. It certainly takes longer to paint a building that has many windows than one having but few, and unless some separate account is made it is hard to say how a correct estimate can be made. In doing roofs that have turned up seams, say an inch high, it is proper to add two inches for each seam the roof contains. Estimating gable ends, peak roofs, and the like, some halve the distance from the square of the building to the apex of the roof, and count same as below the square. Others, again, taking into account the trouble involved in doing such work, count the work as square.

Other elements affecting cost of doing work consist in such matters as number of colors; number of coats; tints to match certain objects, as wallpaper, carpets, etc.; graining, its quality; varnishing, quality of varnish. The work on a fine house will necessarily cost more to do than that on a cheap house, and these matters can be arranged under the headings suggested and relating to new and old work of various conditions of finish. It is not difficult to lay down fixed rules that will apply to the great bulk of the work done, but the exceptions are the trouble. Graining may be classed as first, second and third quality, or fine, good and "knock-off," as some grainers call quick, cheap work. There can scarcely be any room for other character of work between these classifications.

Having set a standard price on such work, say two shillings per yard, then for first-class work add 25 per cent., and for third-class or cheapest work deduct 25 per cent. This is a sort of sliding scale, and might be made to apply to painting as well.

Painters ought not to guess at the cost, nor take the architect's figures for it. Nor should they conclude that

because a certain similar job cost so much to do, this particular job will cost about the same. Estimate too high, and the job is lost. Too low, and money is lost. There is a certain arrangement among some of the master painters in the States whereby incorrect estimating is somewhat obviated. An association is formed, and when a member makes a bid or tender for a job, he lays his figures before the association, as does any other member estimating on the same work. An average is made of these bids or tenders, the man nearest that average getting the work, or if not near enough, his price is raised to the average, and the others withdraw from the contest. But they are not absolute losers. Indeed, the low bidder is the gainer, because he is sure of receiving a certain percentage of the amount of the successful man's contract price, whereas had he secured the work at his own figure, he would doubtless have had his work for nothing. This plan works very well. It nullifies the evils of competitive bidding, and even those who fail to get the work get a percentage of that work's profits. And when the owner of the work understands this scheme he likes it, too, because he knows that he is getting his work done at a fair price.

THE FOUNDATIONS OF THE NEW YORK CATHEDRAL.

ON a commanding eminence in the outskirts of the Morningside Park, New York City, work has been progressing for some months upon the foundations for a costly and imposing cathedral, which is designed to be one of the largest and finest, if not the most beautiful and important of modern ecclesiastical structures. Its site is on the crest of a bluff overlooking a large part of upper New York and the Hudson river. It lies between Morningside Drive and Amsterdam Avenue, and extends from One Hundred and Tenth to One Hundred and Thirteenth Streets, affording ample area for the display of its architectural beauties, while the handsome buildings of Columbia College and of St. Luke's great hospital adjacent will be consistent environment. The finished building will be about 520 feet by 290 feet in extreme dimensions, about as large as St. Paul's in London, and will have a grand tower about 445 feet high. At present the construction is begun only upon a small part of the edifice, viz., upon the tower and its adjacent choir, for which the foundations are now well advanced.

As the rock outcropped in places at the site, it was believed that solid and most satisfactory foundations could be very easily secured, but when excavation and levelling was begun it developed a singular and troublesome condition of affairs, which has necessitated much delay and expense. The stone, the familiar gneiss of the locality, was disposed in very irregular masses, the formation of which was almost like waves, the surfaces of the outcropping ledges sloping down in places at a sharp angle and intersecting at the vortex of troughs 20 to 45 feet below the surface. At other places the surface of the solid rock was not so deep, but was very irregular, and much of the upper part of the stone was found loose and disintegrated or filled with pockets of earth and clay, so that considerable excavation was necessary to secure an enduring and reliable platform on which to impose the heavy and extensive loads of the enduring structure.

It was, therefore, determined to excavate several large pits which should each contain the piers for sev-