

there was a moment's pause. Hugh's face had blanched, and he waited in evident apprehension.

Mr. Clifford was busy with the books. Suddenly he held one page open before Hugh, and said sternly, though there was a quiver in his voice—

"Hugh Corrance, I have found you out."

Hugh's hands shook, beads of perspiration stood on his forehead, and he sank into a chair. Well he knew at a glance what was meant, and he covered his face, with a bitter groan—a groan which Mr. Clifford, thinking of his daughter, echoed.

"I did mean to put it right. I did not mean you to lose," faltered Hugh, when the silence had become intolerable.

"No; but you would have let me engage my daughter to a thief. You knew while you were making love to her that you had stolen her father's money."

Hugh shivered. It was all true, he owned—as he covered before the justly angry words. His conduct came home to him in a flash—he was a thief. He had only meant to borrow the money, and had persuaded himself it was

no great harm to alter the accounts a little—it would be easy enough to put back the small sums he had used without being detected. To do him justice it must be owned that he had had no idea of not replacing what he had taken out. Even while he falsified the accounts he told himself he would put all right, and replace the money with interest. He had managed so effectually to put these transactions out of mind, that in all his intercourse with Winnie they scarcely troubled him. Now and then his conscience pricked him, but he had salved it with promises; and, indeed, of late he had not touched Mr. Clifford's money, but the very wrong-doing had terribly blunted his sensibilities. Now in the silence he saw his conduct in its true light, and shuddered with horror. Money had before come to him for the asking. He wanted it when his cousin could not give it, and had helped himself, resolutely stifling the voice of conscience. Now, as he thought of Winnie's sweet face averted from him, and changed from its look of trustful satisfaction, his burden became more than he could bear, and he rose and stumbled blindly to the door with an idea

of getting away from it all. Mr. Clifford saw his purpose, and quietly put the key in his pocket; then, looking at the changed figure before him, felt a pang of sorrow, remembering what he was to his daughter.

"Sit down," he said. "Corrance, I don't want to be hard on you; you may have been sadly tempted, but it must be at an end between you and my daughter. You must leave here; but I will try and help you somewhere else."

"I will go right away," said Hugh, miserably. "No one will miss me now. Oh, sir, let me see her once more—just once? I know she may be nothing to me now—she is too pure, and sweet, and good; but let me see her once more, as hopelessly as Dives looked on Lazarus?"

"Hush, hush! don't talk so wildly. I cannot give you an answer now. Look, Corrance, you must promise me this—that you will go straight to your rooms and not leave them till you hear from me." Mr. Clifford said this feeling uneasy at the look of despair on the young man's face, and Hugh promised.

(To be continued.)

THE LARGEST CHURCHES IN EUROPE.

(See Frontispiece.)



UR girls will probably be inclined to think that there can be no great difficulty in finding out the dimensions of the important cathedrals of Europe, and then comparing them together. They will say, truly enough, "Surely, with so many archi-

tectural books of reference, guide books, etc., one has only to turn to a plan or description of a certain cathedral and you will find the figures given exactly. What can be more simple?" And, at first sight, it does really seem simple enough. But in point of fact it is nearly impossible to obtain the exact dimensions of any very large building erected upon a complicated plan; and you will not find any two authorities agreeing as to the dimensions of the five or six largest cathedrals even in England. Singularly enough, one of the most important works upon English Cathedrals speaks of York Minster as "the largest cathedral in this country." But we shall be able to prove that the statement is thoroughly incorrect. When one comes to the question of foreign cathedrals and their comparative sizes, difficulties are immensely increased, owing to the plans being sometimes taken in the French "mètre," sometimes in the "elle," at others in the Italian "palm"; and so much has the matter become involved and confused that, although there can be no manner of doubt which is the largest cathedral in Europe, there have been no end of disputes as to which hold the second, third, fourth, and fifth places.

We will point to one or two circumstances which have led to the disputed dimensions of these vast buildings. In the first place, writers of guide books, and even of architectural works, have an absurd way of stating the dimensions of a building. Nothing is more common than to find such a passage as the

following:—"The cathedral of — is so many feet long, so many feet wide, so many feet high." Now what is the use of such a statement as this? It does not tell us whether it is the internal or the external measurement; it does not tell us whether it includes porches, buttresses, or irregular projections; it does not tell us whether the width is that over the nave and aisles, or over the transepts. Another absurd practice is this: Writers of guide books, etc., even when they have got the correct width and breadth of a building, measured externally, will go and multiply the two together under the ridiculous notion that that very simple operation will give them the superficial area of the building, forgetting that there is scarcely a church in Europe which is an exact rectangular parallelogram.

There is, however, another difficulty which we have to allude to, and that is, the act of measuring a building which is some three or four hundred feet long, and the troubles and perplexities which one comes across. The writer was once travelling in Belgium with an architect of considerable experience, and we came to examine a very magnificent church. After making sketches and notes, we determined to measure the internal length of the building, so we set to work with a measuring-tape some 30 feet long. We made it 325 feet, measuring from wall-surface to wall-surface, and we noted it down. My friend the architect, however, suggested that we had better go over it again. Next time we found that it came out 318 feet. We measured it a third time, and it came out 322 feet. Now I can imagine some clever girl saying, "Well, you must have been a pair of simpletons. Why not take a string, and one hold it at one end of the building and one at the other; then cut off the string the proper length of the building; then, if you had measured the string, of course you would have had the correct length of the building." Not so fast, my fair friend; there are several unsurmountable difficulties in doing this. In the first place, there was a magnificent rood-screen in the way, and if one passed the string through the centre doorway of the screen, some 20 yards beyond it was a vast marble altar and reredos, both of which the authorities would

have objected to having pulled down to satisfy the curiosity of two English tourists.

But now, suppose that we have obtained the exact dimensions of the building, and we proceed to make the plan of it to scale, making it, perhaps, one thousandth of the size, and we then add a correct scale of feet to enable it to be measured in all its parts. Surely there can be no difficulty here. Let us see what Lord Grimthorpe says about this in his *St. Alban's Cathedral and its Restoration*. He gives a plan of that church on the scale of one-eighth of an inch to four feet, most carefully prepared by the clerk of the works; yet he tells us, "either the damping of the paper or some other cause has made the plan and the scale not everywhere accordant with the dimensions now given, nor would any amendment of the scale rectify it." And so our girls must not regard the plans that we have given as *absolutely* correct in their dimensions, but as only approximately so; yet the writer believes that they will be found sufficiently correct to give our girls an idea of the relative sizes of many of these vast buildings.

As we have previously said, there can be no doubt whatever as to which is the largest church in Europe. St. Peter's, Rome, so very far exceeds all others that none have ever been compared with it. Owing to difficulties which we have previously explained, authorities differ as to its exact measurements, but it would seem that, omitting the vast colonnade, sacristies, and other adjuncts—that is to say, confining oneself alone to the portion of the building used for religious worship, and measured outside the walls at their base, the building covers the enormous superficial area of 169,600 square feet, or nearly $3\frac{1}{4}$ acres.

The length measured from the outer face of the wall of the western apse to the outside of the columns of the east front is about 710 feet. The external width over the transepts is 480 feet. The internal length of the church, exclusive of porches, is in the clear a little over 600 feet. The ground plan of St. Peter's, Rome, is represented in our diagram worked out to the same scale as that of the other cathedrals. It is grey in colour—see Group I., letters A A A A. It is again indicated in Group III., letters A A A A. A

scale of feet is provided at the side. It will be noticed that we have divided the churches into four groups, as it was found that the diagram would become too complicated if all were included in one single group.

In case some of our readers should not exactly know what the ground plan of a building is, we cannot explain it better than by saying that it is a map made of a building at that particular point where it rises out of the surface of the ground, so that if one could imagine some giant cutting off a building exactly on a level with the ground, and you were to look down upon the building so operated upon from a height, what you would see is the ground plan.

At first sight our girls may be a little frightened at the complicated appearance of our diagram, but we think that a little explanation will render it intelligible. It will be noticed that in Group I. are the plans of four great cathedrals, which are coloured grey, blue, red, and black, to distinguish them from one another. In Group II. are three plans of cathedrals, coloured blue, red, and black. In Group III. are three plans of buildings, coloured red, blue, and black; but the outline of the plan of St. Peter's, Rome, is here repeated for the sake of showing its comparative size to the other buildings represented in the group. Two English parish churches are represented in Group IV., one coloured black, the other red.

It has been stated by some writers that the cathedral—formerly the Great Mosque—at Cordova is the second largest church in Europe, and Whewell gives its internal area as 129,013 feet. Now even if this were the case, which seems very doubtful, it cannot, under any circumstances, be classed amongst the great cathedrals of Europe for two reasons, which we will explain. In the first place, mere superficial area alone does not qualify a building to be considered vast as to its dimensions. It must be proportionately lofty, whereas the cathedral at Cordova consists, for the most part, of a very extended but low colonnade, divided into nineteen aisles by rows of small columns; the Coro, or cathedral proper, which rises from the centre of this colonnade, forms a church of very moderate dimensions, and was erected when the place was converted into a Christian church over what was probably an open courtyard. In fact, it is a question whether it should not be looked upon as two buildings rather than a single one; and as we have excluded all such adjuncts as cloisters and colonnades from the measurements that we have given of other cathedrals, it would be quite misleading to include these remarkable features in the cathedral at Cordova. But even if they were included, they would certainly not place the cathedral at Cordova amongst the six largest churches of Europe on account of its want of adequate height.

Another Spanish cathedral which, with far greater show of reason, has been put forward as the second largest church in Europe, is the cathedral at Seville, a vast and very magnificent Gothic building, but one the measurements of which it is very difficult to ascertain correctly. It seems, however, improbable, judging from the plans we have been able to obtain, that it can really be the second largest cathedral in Europe. In plan it would appear to measure externally about 400 feet by 270 feet, giving a superficial area (as the building is almost an exact parallelogram) of 108,000 square feet—certainly a vast space to be covered by a cathedral, especially as it is extremely lofty; but it seems that the second place, in point of superficial area at any rate, must be given to the cathedral at Milan, which covers a space of no less than 109,180 square feet—that is, 1180 more than Seville, and Milan is quite as lofty as Seville. The

external measurements of Milan Cathedral, including everything, are as follows: Length, 480 feet; extreme length of transepts, 287 feet; and breadth over the body of the church, 152 feet. The ground plan of the cathedral at Milan is shown in our diagram—Group II., letters E E E E, and coloured blue; that of Seville in Group I., letters B B B B, coloured blue.

The fourth place in point of dimensions must be ascribed to the cathedral at Cologne, with a superficial area of 102,000 feet; extreme external length, 500 feet; breadth across the transepts, 292 feet, and over the nave and aisles, 156 feet. But the superficial area of Cologne scarcely gives one a just appreciation of its vast size, because it is the loftiest cathedral in Europe. In studying its dimensions we see at once that it would be absurd to compare with it such a building as the Mosque at Cordova, even if its superficial area were four times as large as that of Cologne. We enlarge upon the theme because we wish our readers to bear in mind the fact that the cubical contents of a building cannot be settled by reference to a ground plan. Cologne Cathedral is represented in our diagram, Group III., letters J J J J, tinted red.

This immense German cathedral is nearly equalled by the great French cathedral at Amiens, which covers 90,000 square feet. Amiens, however, is some twenty feet less lofty than Cologne as to the body of the church, and has, of course, nothing in its dimensions to be compared with the enormous towers of its German rival. The plan of Amiens is shown in Group III., letters H H H H, tinted blue. It will be noted that the transepts of the German Cathedral are longer than those of the French.

We must here say a few words upon the dimensions of a building which, though, unfortunately, no longer a Christian church, must, both architecturally and historically, be classed as such—we refer to St. Sofia at Constantinople. It is somewhat difficult to class this building amongst our cathedrals because so very much of it consists of colonnades and entrance porches; yet, roughly speaking, it covers an area of 300 feet by about 250 feet—that is, about 75,000 square feet. Whewell gives its internal area as 56,576 feet. The ground plan of St. Sofia is represented in Group I., letters D D D D, coloured black.

Hitherto all the churches that we have described are situated in foreign lands. Those which we shall now describe are English.

The first question which arises is naturally, which is the largest of our English cathedrals? Singularly enough, York is usually accredited with this distinction; but, in point of fact, St. Paul's, London, is much the largest cathedral in England, as will be seen at once from the following figures: Both churches are the same length, including buttresses and projections—that is, 515 feet. York is 235 feet across the transepts, including buttresses. St. Paul's is 240 feet across the transepts without measuring the porticoes, which would really add about forty feet. The width of the nave and aisles of York, exclusive of buttresses, externally is 118 feet. St. Paul's is 122 feet. The width of York at the west front is 120 feet; of St. Paul's, 180 feet. The superficial area of York is about 65,825 square feet; that of St. Paul's, 69,190. The body of York Cathedral, it is true, is rather more lofty than St. Paul's—about twenty feet or so—but what it loses here would be far more than made up by the vast size of the dome. In point of superficial area Lincoln Cathedral is larger than York, being about 67,500 square feet—that is, 1675 square feet more than York. But as the body of York Minster is internally 102 feet high, and Lincoln only 82 in the nave and 74 in the choir and transepts;

moreover, as the nave or great central aisle of York is 44 feet wide in the clear and Lincoln 37, York must undoubtedly be classed as the second largest cathedral in England. The plan of St. Paul's will be found in our diagram on Group I., letters C C C C.

Of course, no other cathedrals in England come anywhere near these dimensions, because, although Winchester Cathedral is 556 feet long—that is, the longest church in Europe next to St. Peter's, Rome—yet its other dimensions bear no comparison whatever with such vast churches as York and Lincoln; and even with regard to length, nearly 100 feet is occupied by the Lady Chapel and Retrochoir, which are only the height of the aisles, so that the high roof-line is only about 400 feet long; whereas in York and Lincoln it is over 500 feet. The plan of York Cathedral will be found tinted black in Group No. II., and letters G G G G. Winchester is tinted red in the same group, and marked F F F F.

It may seem to our readers that we ought to say something about the dimensions of the great metropolitan church of England—Canterbury—which is certainly a very noble cathedral, but in point of dimensions it does not call for any special remark, because, although very long, it is not the longest cathedral in England, neither is it the widest nor the highest; nor does it cover anything like so large a superficial area as Lincoln or York.

There are, however, two English churches about the dimensions of which we must say a few words, though neither of them is a cathedral. The first is Westminster Abbey, which is the largest church in England, not a cathedral, and has, moreover, the distinction of being the loftiest internally, the nave being 104 feet in height. I have represented the plan of Westminster Abbey in Group III., letters K K K K, as it is very interesting to compare its plan with those of Amiens and Cologne, upon which it is superimposed. There are many points of similarity in the planning of these three churches, and one cannot help regarding them, although they are in three different countries, as members of the same architectural family; and we do not hesitate to say that the family to which they belong, and which would include Toledo, Rheims, and Bourges, represents the noblest architectural set of ideas that have ever emanated from the mind of man.

The other English church to which we have referred is St. Nicholas, Great Yarmouth, which has the distinction of being the largest parish church in England, exceeding in superficial area eight of our cathedrals. It is represented in Group IV., coloured black, letter L. Upon it is drawn the little church of Skelton, Yorkshire, which is one of the smallest parish churches in the country. Though not the smallest parish church in England, it is perhaps the most perfect little Gothic church in the country. Though only 50 feet by 36 feet externally, it is a complete church, not a chapel, consisting of a nave and aisles, chancel and aisles, and a porch, all perfectly developed. This interesting building is often called the little St. Peter's, not on account of its contrast as to size with St. Peter's, Rome, but because there is a tradition that when the builders of the transepts of York Minster had completed their work at the great cathedral, they erected this church out of the stone which remained over. There is strong evidence in the architectural style of Skelton of the truth of this tradition. Roughly speaking, the church at Great Yarmouth is externally 330 feet long and 112 feet over nave and aisles. Though it is the largest parish church in England it is not a very striking building; and the aisles being much wider than the nave is a very awkward arrangement, and one certainly not to be copied. It is undoubtedly the result of a later enlargement of the building.

In conclusion, we should caution "our girls" not to be carried away too much by the mere size of any building; not to be led to believe that St. Paul's is the finest cathedral in England because it is the largest; or that York is finer than Lincoln because it slightly exceeds it in dimensions. There can be no doubt that some of the smaller cathedrals, especially those in England, are more impressive than the larger ones. No interior, for instance, in England at any rate, is so solemn and majestic as Westminster Abbey. Of course, it may be a surprise to many of our readers to hear that St. Paul's is the largest church in this country, for it certainly does not look nearly so large as York and Lincoln. But there are probably two reasons for this. In the first place, very large buildings, except in peculiar cases, very rarely look their size; and in the next place, a large "classical" church is certain to lose scale more than a Gothic one, because the idea of Gothic builders in erecting a large church was rather to multiply its parts than to magnify them. Thus, if we compare a large Gothic church with a comparatively small one, we shall not find that the columns, windows, mouldings, etc., of the former are so very much larger than those of the latter, but that there will be double or three times the number of them. This is not the case in a classical church, where every feature has to be enlarged so as to be suited to the size of the building; and thus we see that at St. Paul's and at St. Peter's, Rome, the naves are only divided into four bays, whereas at Westminster, where the nave is about the same length, there are as many as twelve bays. Of course this constant sub-division adds to the apparent size of a Gothic church, and the absence of it deducts from that of a classical building. It is said by many architectural writers with regard to

St. Peter's, Rome, that although the immensity of the building does not strike you at first, yet it grows upon you by degrees, and its colossal dimensions are only realised in the mind after many visits. A very beautiful simile, founded upon this idea, is introduced into *Childe Harold*—

"Enter: it's grandeur overwhelms thee not;
And why? it is not lessen'd, but thy
mind,
Expanded by the genius of the spot,
Has grown colossal, and can only find
A fit abode wherein appear enshrined
Thy hopes of immortality; and thou
Shalt one day, if found worthy, so de-
fined,
See thy God face to face, as thou dost
now
His Holy of Holies, nor be blasted by His
brow."

Although it may be very true that the grand dimensions of St. Peter's grow upon one by degrees, and that each fresh visit impresses the mind more and more, yet this is certainly not the case with the interior of St. Paul's, which, much as it disappoints one at first, does certainly not improve upon acquaintance, and the more one sees of it the more one comes to wonder that a church with such a magnificent exterior, should have such a very unimpressive interior. The story of the American who, when he entered the great doorway of St. Paul's, looked about him to see if he could find the interior of the Cathedral, and failed, is somewhat of an exaggeration, but it certainly does express the disappointment which awaits us every time we enter this great cathedral; and we cannot doubt that, whatever may be said in favour of the classical idea of proportion, the Medieval Gothic plan is far

more impressive, and certainly produces a more solemn effect.

It will be seen from our calculations of the dimensions of these cathedrals that the six largest churches in Europe are, in order, as follows:—

1. St. Peter's, Rome.
2. Milan Cathedral.
3. Seville Cathedral.
4. Cologne Cathedral.
5. Amiens Cathedral.
6. St. Paul's, London.

Thus, of the six largest cathedrals, Italy possesses two, Germany, France, Spain, and England, each one.

Very vast churches would seem to be peculiar to certain countries. Cathedrals of first-class magnitude only exist in Italy, which may be said to possess about four—St. Peter's, Rome; St. Paul's, Rome; Florence, and Milan. Spain possesses about five—Seville, Toledo, Segovia, Salamanca, and Palma, in the island of Majorca. Germany three—Cologne, Ulm, and Spier. France seven—Amiens, Rheims, Paris, Chartres, Rouen, St. Ouen, and Bourges. England six—St. Paul's, York, Lincoln, Ely, Winchester, and Canterbury.

The Cathedral of Antwerp, in Belgium, may perhaps also be included as a church of first-class magnitude. So it will be noticed that none of these very vast cathedrals exist in Norway, Sweden, Denmark, Ireland, Scotland, Holland, Russia, Poland, Portugal, Switzerland, Austria, Hungary, Greece, Sicily, Corsica, or the Principalities.

Drawings which we have seen of the Cathedrals of Nicosia and Famagosta, in the island of Cyprus, represent them as very spacious Gothic churches, but it is impossible to judge of their dimensions without measured plans, which are not to hand. H. W. B.



GREYFRIARS.

A STORY FOR GIRLS.

By EVELYN EVERETT GREEN,

CHAPTER XVIII.

SUMMER DAYS AND DIFFICULTIES.

THE French maid was not dismissed, as Esther had quite expected, after the storm of anger which her conduct had raised, and the very decided way in which Lady Eleanora had spoken on first hearing what had happened. The old lady was one of those persons who feel extreme irritation for a time, and then let a matter drop somewhat out of sight. So when she had rated Thérèse, as Esther had never yet heard a servant rated, she seemed to feel less keenly on the subject, and to Esther's question as to the advisability of giving the woman

notice, replied that she was such a clever maid, and such a favourite with Rosamond, that Lady Eleanora would not like to take such a decisive step in her absence. Esther was willing to take the responsibility, as far as Rosamond was concerned, upon her own shoulders; but Lady Eleanora could not be brought to consent. The master and mistress of the house could not be easily communicated with. They were moving constantly, and letters were frequently lost or delayed. So things went on much as before, the chief change being in Jessie herself, and one that Esther welcomed, for instead of

being engrossed in anticipations of every little summer gaiety that now began to be talked of, she rather shrank from the idea of garden-parties and tennis-matches, and was willing to let Esther impose a course of reading, and superintend a more regular method of practice in playing and singing, than she had ever had patience for before.

Indeed, Esther's difficulties with the girls seemed almost to have come to an end. Ethel was really attached to her, and showed signs of a depth and purpose of character which made her conversation and companionship a real pleasure; and though Trixie still con-