

THE LOFTIEST CHURCHES IN EUROPE.



HERE has always existed among men an inclination to erect lofty buildings, and it will be found, upon an examination of the subject, that this idea has, from the earliest times, been associated in some way with religion.

There can be little doubt that some theological sentiment (possibly a false one) prompted the erection of the Tower of Babel. There is nothing in the Scriptures

to show that the building of this tower was of itself condemned, because we are told (Genesis xi, v. 6): "And the Lord said, Behold, the people is one, and they have all one language; and this they begin to do: and now nothing will be restrained from them, which they have imagined to do. Go to, let us go down, and there confound their language, that they may not understand one another's speech. So the Lord scattered them abroad from thence upon the face of all the earth: and they left off to build the city."

Now it will be seen that there is not a word of condemnation here of the tower, and probably the idea that the tower was an object of false worship would not have arisen at all but for the interpolated words, "may reach" in the fourth verse, which reads thus: "And they said, Go to, let us build us a city and a tower, whose top *may reach* unto heaven; and let us make us a name, lest we be scattered abroad upon the face of the whole earth." Now if we omit the words "may reach," which from their being printed in italics form no part of the original text, and take it to mean "whose top *may be* heaven," it may be regarded as meaning that a temple dedicated to heaven stood upon the top of the tower; whether dedicated to the worship of the Almighty or to some false worship of the heavenly bodies it is of course impossible to say.

It is a singular thing that in the city of Rome one of the loftiest eminences should be called the "Araceli," or "Altar of Heaven," which serves to show that temples or altars erected upon lofty spots did receive this appellation. Some writers are of opinion that the dedication of the "Araceli" in Rome refers to the erection of an altar set up for sacrifices to the true God by Numa Pompilius, who, it is thought, introduced Monotheism in Rome, from his becoming acquainted with Hebrew writings. If this is the case, the Tower of Babel might really have been a religious structure dedicated to the worship of the Almighty. It will be noticed at once that the people dwelling in the land of Shinar expected to be scattered abroad, and probably they had already had some Divine command not to settle in great numbers in any particular spot; and it was the disobedience to this command, not the building of the tower or of the city, which was punished by the confusion of tongues.

The allusions in the Old Testament to high places being set apart for worship are too numerous to be here referred to. Horeb, Sinai, and Zion are cases in point. In later times, after the establishment of Christianity, when the necessities of mankind often forced them to inhabit the plains and flat districts of the world, it was of course impossible always to erect places of worship upon lofty hills or eminences, and possibly this may have suggested the idea of providing sacred edifices with a tower or spire.

It is a somewhat remarkable fact that all very lofty spires will be found attached to churches which are situated upon low sites in the midst of level plains. In England, for instance, the greatest number of lofty church spires are to be found in Lincolnshire, Northamptonshire, and the flat parts of Nottinghamshire, whereas in the hilly counties spires are very rarely met with.

In very early times towers were only of moderate height, but it can be distinctly proved that, even in the time of Constantine, churches possessed this feature, and early writers tell us that Old St. Peter's, Rome, which was erected by the Emperor Constantine, was provided with two towers of moderate height. Of course, as the art of building developed, both the churches themselves and their towers became more and more lofty, till in the thirteenth century the Gothic tower and spire had become a thoroughly developed feature, and at this period our own countrymen could boast of having constructed the loftiest spire erected up to that time.

An exact measurement of St. Paul's Cathedral, taken in the year 1312, informs us that the height of the tower steeple from the level ground was "CCLX. foot"; the height of the spire of wood covered with lead which stood upon the tower was "CCLXXIV. foot"; yet the whole tower and spire together did not exceed "five hundred and twenty foot!" Of course it will be noticed at once that 260 plus 274 equals 534, and if the spire of Old St. Paul's was really 534 feet high, it has never been equalled, as the loftiest spire ever erected—that of Ulm Cathedral—is only 530 feet high.

But how can we reconcile the statement that it was only 520 feet although the dimensions of tower and spire added together make 534 feet? It is absurd to suppose that it is merely an arithmetical mistake, because the word "although" shows that the statement was prepared to surprise one. In all probability the tower was crowned by a very lofty parapet, and part of the spire ran down behind this. The measurements of the tower, given as 260 feet, probably included this parapet; and that of the spire, given as 274 feet, included the portion that was concealed behind the parapet. Under any circumstances, however, the great spire of Old St. Paul's (Fig. 4) was not only the loftiest building in the world at the date of its erection, but was unequalled in height until the year 1890. Of course we do not include such structures as the Eiffel Tower, because we are speaking of architecture, whereas the Eiffel Tower, Crystal Palace, the Forth Bridge, etc., are engineering works; and however wonderful as examples of mechanical ironmongery, cannot in any way be compared with architectural structures.

The spire of Old St. Paul's shared the fate which befell so many of the lofty buildings of antiquity. It was destroyed by lightning in the reign of Elizabeth, and never reconstructed.

In point of date the spire of Salisbury Cathedral is the earliest of all the great stone spires. It is just a very little over 400 feet in height from the ground, and from the level of

the roof of the Cathedral upwards was erected in the reign of Edward III. Of course both England and France contain spires of an earlier date than Salisbury, but none that approach its colossal proportions. Salisbury also has the merit of being one of the best designed spires ever erected, though it unfortunately suffers very much from the ugly modern weather-cock. Salisbury is represented in Fig. 1 of our illustration.

The spire of the Cathedral of Vienna, completed in the year 1433 (Fig. 2 in our illustration), is 435½ feet high. Unlike Salisbury, it rises direct from the ground, and not over the centre of the church. It has one great peculiarity—that it commences to diminish in stages from the ground itself, so as to give the appearance of a superimposed series of lanterns piled up one over the other. Many architectural authorities consider this a mistake, but when the enormous mass (it is over 70 feet square), is taken into consideration, it would have been difficult to have obtained a graceful outline without such a treatment; and it must be acknowledged that, notwithstanding its vast bulk, the steeple of St. Stephen's, Vienna, looks singularly light and graceful.

The great spire of Strasburg (represented in Fig. 3) was completed in 1439 by an architect of the name of Johann Hültz, of Cologne, and is 480 feet high. As this is the loftiest ancient spire in existence, one would be glad to praise it; but apart from the elegance of its detail, and its beautiful workmanship, it cannot be regarded as a satisfactory work; it is too broken up and restless in design. The lantern does not fit well on to the tower, nor does the spire rise gracefully out of the lantern.

The next steeple we have to describe is that of the Cathedral of Ulm (Fig. 5), which is probably the loftiest building ever constructed, as it rises to the enormous height of 530 feet. The tower, 260 feet high, was erected towards the end of the fifteenth century by an architect of the name of Matthaus Boblinger, and carried on from 1500 to 1507 by Burkhard Engelberger, at which time the gigantic structure was left incomplete, and so remained until the year 1890. It is said that the ancient design has been strictly adhered to in the new work; but, with all the very best and noblest intentions, there is something not quite pleasing about it. It possesses the same defects that are so obvious at Strasburg, and one is led to the conclusion, that when these structures get beyond a certain height they become unmanageable, and fail to produce the desired effect.

The spire of St. Martin's, at Landshut (represented in Fig. 6.), though built of brick, very much plainer, and only 454 feet high, is a much more satisfactory work. It was erected between the years 1432 and 1580.

The beautiful spire of the Cathedral at Freiburg is represented in Fig. 9. It was erected in the earlier part of the fourteenth century, and is 386 feet high. Kugler says rightly that it is one of the most nobly designed works produced during the Middle Ages. It strikes us as being remarkable that every one of the difficulties which the architects of Ulm, Strasburg, and Cologne have failed to overcome, are here completely conquered, and it still remains, and probably ever will, by far the most perfect and the most pleasing spire in Germany. We have not given a drawing of the whole structure from the ground, because both Freiburg and Landshut are represented in the illustration accompanying the account of Gothic spires given in our papers upon architecture (see vol. vii. p. 393).

Fig. 10 represents the lantern or steeple over the crossing at Milan Cathedral, the upper portion of which is a modern work, of no particular beauty. It reaches an elevation of 350 feet.

Fig. 11 shows the Cathedral of Cologne, with its two modern spires and central lantern. As there is a peculiar interest attached to the Cathedral of Cologne—it may in fact be looked upon as the great national cathedral of Germany, uniting the old empire of the Fatherland with that of the present time—we sincerely wish that we could praise these modern spires; but notwithstanding the vast size and their enormous height—518 feet—by far the highest pair of spires in existence—it must unfortunately be acknowledged that they are not a complete success. It is true that they follow an ancient design which was preserved in the Cathedral, and therefore it may be said that the modern architects are not responsible. One thing, however, is quite clear, and that is this—that no mediæval architect would have carried out that design in the way which has been done at Cologne. There does not exist in the whole of Europe a single example of an ancient cathedral or church with two towers and spires which are *precisely alike*. Some variation was always introduced into the design, in order to avoid that effect of dull and dreary monotony which always proceeds from one portion of a building being the exact counterpart of another.

Perhaps the two towers which appear to be most alike are those of Notre Dame, Paris; but, upon measuring them, it will be found that in every single dimension they differ from one another, the south tower being both wider and broader than the north, its windows slightly larger, its buttresses more solid.

The two western towers of York Minster, which at first sight appear to be similar, will, upon close examination, be found to present several variations, and are not exactly the same size.

The modern western spires at St. Ouen, at Rouen, are an example of the reverse; here both are precisely similar, not only in dimensions, but also in detail, and anything more uninteresting than their effect it would be difficult to conceive. Very probably the slight variations which the mediæval architects introduced into a pair of towers or spires would not be shown in a drawing representing the general scheme, but would be set out as the work proceeded; and thus, even if we suppose that the mediæval architects intended to carry out the scheme represented in the Cologne drawing, we may be absolutely certain that they would have avoided in some way or another the monotony of the present work.

There is also another, perhaps even worse, defect about the Cologne spires, and that is, the coarseness of their detail. The finials at the tops of the spires, for instance, are so huge that they dwarf the whole building. The central lantern of the Cathedral of Cologne, which is a purely modern design, and in no way follows the ancient plan, has exactly the same defect, and has done a great deal in the way of decreasing the apparent scale of the great church.

Fig. 13 represents the steeple of Antwerp Cathedral. It will be noticed, upon looking at the design, that the composition does not in any way form a spire, but is really a series of lanterns placed one upon the other, terminating at the top with arches formed by flying buttresses supporting a heavy stone mass, which, in its turn, supports the cross and vane. This very beautiful tower was commenced in the year 1422 from the plans of an architect by the name of Appelmanns, and completed by Jean Amelius in 1518. It is the most thoroughly satisfactory structure of its kind ever erected, and, singularly enough, it is the only very lofty steeple which looks higher

than it really is. Its absolute height is 403½ feet. Certainly no one seeing Cologne or Ulm would suppose that they were loftier than Antwerp, yet the one is 114½ feet higher, and the other 126.

The skeleton sketch (Fig. 12), indicates the height of the spire which was formerly attached to the Cathedral at Prague, which was struck by lightning in 1590, after which it was diminished to its present height—about 360 feet. The original spire is said to have been of stone, and was 505 feet high. If this was the case, it was probably the loftiest stone spire erected during the Middle Ages, because there is no proof that the great spire which is said to have existed at the church of St. Peter, Louvain, and to have been 535 feet high, was ever erected. The drawing of it, which is still preserved, may have been only a "project."

We must now consider another very grand feature which Christian churches, especially of the Renaissance period, often possess, and that is the dome. Probably the dome is quite as early in its introduction as the spire.

The church of St. Sophia, Constantinople, is the largest very early example which we possess of the dome or cupola erected on a very grand scale. It must, however, be acknowledged that it was not until the close of the Middle Ages that the very lofty dome, such as we see at St. Peter's, Rome, or St. Paul's, London, was invented. St. Sophia, Constantinople, for instance, only rises to a height of about 150 feet from the ground; and the idea of placing a dome on the top of a great circular tower or drum is one which could only have emanated from the gigantic mind of Michael Angelo.

It will be noticed, on referring to our diagram (Fig. 8), and also to those of St. Paul's (Fig. 7), and Milan Cathedral (Fig. 10), that these buildings are represented in what is called "section," whereas the spires are represented in "elevation." Now, in case some of our girls should not exactly understand what a section is, we will explain it this way. Suppose you take a wooden bowl and saw it in halves; then sit down opposite to the part which is cut through and make a drawing of what you see—that will be a section.* Now the object of representing buildings in section is, that one can see and measure both the exterior outline and the interior.

It will be seen, upon looking at the section of St. Peter's, Rome (Fig. 8), that although the exterior of the dome is only about one-fourth higher than that of St. Paul's, yet the interior is nearly double as lofty; and this arises from the fact that the inner and outer shells of the dome at St. Peter's are only 10 or 12 feet apart, whereas at St. Paul's they are about 70 feet apart.

The lantern—that is, the little structure at the top of the dome of St. Peter's—is supported upon the dome itself, both the inner and outer shells of which are stone; but at St. Paul's, although when seen from the outside the lantern appears to stand on the dome, it is really supported upon a hollow cone of brick constructed like an extinguisher (see E). The inner shell of the dome of St. Paul's is below this cone (see F), whereas at St. Peter's nothing intervenes between the inner and outer shells of the dome except the space marked L L. The outer dome at St. Paul's (marked J J J J), which appears to support the lantern K, is really nothing more than a structure of wood covered externally with lead.

Of course Wren adopted this method of building a dome to avoid the enormous cost which would be involved in following the method adopted at St. Peter's, and perhaps he may be held to have been justified. His great object appears to have been to erect a

grand feature, which should be a central object of the rebuilt City of London.

One must not, however, overlook the defects of the scheme. The first and greatest is this, that the thing is not what it pretends to be, but is, in fact, an architectural sham, as it is not a dome at all, but an extinguisher concealed by a wooden dome-shaped roof. The next defect is that internally some 70 feet of the height of the building is lost; thirdly, that the whole thing is a dangerous structure, because nothing could possibly render it fire-proof, and the whole thing might be reduced to ashes in about a quarter of an hour.

In comparing the designs of the domes of St. Peter's and St. Paul's, we see at once that the idea of St. Peter's was to obtain a magnificent interior, and the exterior was a secondary idea; whereas at St. Paul's everything was sacrificed for external effect, and the interior seems to have been regarded as a matter of very inferior importance.

The entire external measurement of the dome of St. Peter's is 434½ feet high; that of St. Paul's appears to be 350, though nearly every authority consulted gives it differently. Some make it 404 feet, others 365 feet, and others reduce it to 330 feet. In all probability these measurements are all correct, only are taken from different ground levels; 404 is probably the height above the bed of the river, and 330 the height from the floor of the church, whereas 365 may be the measurement from the floor of the crypt.

The greatest contrast as to dimensions between St. Peter's and St. Paul's will be found in the body of the churches (see St. Paul's—G., H., and St. Peter's—M, Figs. 7 and 8).

The nave of St. Paul's, measured from the pavement to the crown of the vaulting, is 88 feet, whereas the nave of St. Peter's is 152 feet. The vast size of this portion of St. Peter's may be best realised by the fact that the church of St. Martin's at Trafalgar Square may be placed bodily in it, steeple and all, without touching either the ceiling or the piers which support it (see Fig. 19).

Here we would mention that the diagram which we give differs entirely from any which have been previously published, because it shows not only the height of the towers or spires, but also the internal height of the various churches. It also exhibits the way in which the various buildings rise up from the ground; that is to say, whether the towers are supported upon columns, like York (Fig. 14), or like Vienna, rise direct from the ground, or like Strasburg, form a portion of the great *façade* of the Cathedral.

It is a very disputed point which is the loftiest cathedral of Europe *internally*. Milan is 153 feet to the roof of the nave (see N., Fig. 10). Beauvais is also 153 feet—that is, they are each of them one foot higher than St. Peter's; but, unfortunately, authorities all seem to differ as to the height of the Cathedral of Cologne. Murray gives it as 161 feet, which would of course make it the most lofty church in Europe. Helmkin, however, in his carefully-written *Guide to Cologne Cathedral*, gives it as 147½ feet; but Kügler, in his *Kunstgeschichte*, gives it as 140 feet, which would make it the same height as Amiens Cathedral, and 13 feet lower than either Milan or Beauvais. I am, however, inclined to believe that Helmkin is right, because the width of Cologne Cathedral is 49 feet, and, measuring the published section of the building, the height seems to come exactly three times the width of the nave from centre to centre of the columns—that is, 147 feet, or very slightly more, to allow for the thickness of the bosses in the roof.

There can be little doubt that Milan, Cologne, Beauvais, and St. Peter's, Rome, are within some two or three feet of being the same height.

* Where the walls are cut through they are represented in the diagram as solid black.

Until the metrical system is universally adopted, we shall never be able to tell the exact size of any of our great buildings. The variations between the different scales which are now in use render it simply impossible to make an exact calculation. Nearly all countries on the Continent now are fortunately adopting the metrical system, and perhaps when everyone else has established it, the English may give up the present absurd system of inches, feet, and yards, and the Italians their palms. We are glad to say that nearly all architectural works which are being published out of England give the scale of their plans in centimetres and millimetres. The great advantage is simply this—that instead of making out an elaborate scale, as we do in England, by which the plans may be measured more or less incorrectly, you simply state that the plan is a millimetre or a centimetre to a metre, so that no calculation of any kind is required.

Another very lofty cathedral internally is that of Ulm, the nave of which appears to be about 134 feet high; but the choir is considerably lower (Fig. 5, D). The higher arch represents the height of the nave, the lower that of the choir.

The loftiest churches in England internally are York (Fig. 14), where the height of the chancel (represented P.) is 102 feet, and Westminster Abbey, which is the same height.

The gigantic size of Milan and Cologne (N. and O.), can be appreciated best by the fact that the central towers of the cathedrals of Peterborough (Fig. 17) and Chester (Fig. 16) could stand within them without nearly approaching the highest point of the vaulting, and this although both Peterborough and Chester are lofty churches. The internal ceiling of Peterborough (R.) is nearly 80 feet high. Fig. 15 represents the little church of Skelton, in Yorkshire, called "Little St. Peter's"; and Fig. 18 the church of Seasalter, near Whitstable, which the writer believes to be the smallest church in England.

The height of the nave of Salisbury (A., Fig. 1) is 88 feet. Vienna is internally only 80 feet, but the vast external roof rises as high as the point B., Fig. 2, and that of Strasburg to the point C., Fig. 3, though the internal vaulting is not more than 123 feet in height, and is on a level with the great rose window.

We must here give our girls the same caution as we did with regard to the plans of building; mere height, like mere length and breadth in a building, do not alone give magnificence or even grandeur. As an example of this, we may refer to the fact that the interior of Westminster, which is 102 feet high, is more striking than the interior of Cologne, which is 147 feet high; the interior of Amiens far more beautiful than that of Beauvais, though the latter is 13 or 14 feet loftier; that the interior of Lichfield Cathedral, which is only 60 feet high to the vaulting, is far more pleasing than York, which is 102 feet high; and that the moderately lofty steeples of Antwerp, Freiburg, and Salisbury are incomparably more elegant and beautiful than the gigantic structures at Ulm, Cologne, and Strasburg.

As a rule, our English cathedrals are far less lofty than the continental ones; yet no one would venture to say that they are internally less impressive or less excellent as works of art. In architectural design mere size counts for little unless the genius of the architect knows how to make use of it.

H. W. B.

A LIFE PICTURE.

By MARIA DE TRÈS ROIS.



"O the Gardener's going to marry Blanche Calystegia, is he?" said one officer to another, speaking of a young brother officer thus commonly nicknamed.

"Yes, and he's going to exchange at once because she doesn't like India, and won't follow him there."

"What's all that? Who is he going to marry?" asked a third, looking from some dried flowers he was busily arranging at a little table in the corner of the room.

"Aha, old Naturalist, so you're curious to-day! Well, she's the daughter of Lady George Howard by a first marriage. The father was of a very good old Greek family. She's a beautiful girl, tall and fair—very fair, and quite bewitching, I believe; at least, she has quite bewitched Savill—he's quite mad about her beauty."

"Ah, well, I've seen her then. She is beautiful. But from what I've heard about her I rather wonder that she accepted him, for he hasn't much money."

"Why, what do you know about all that, with your head full of flowers?"

Captain Rayburn (nicknamed the Naturalist) smiled, and said—

"This—if I asked her to-morrow, that she would not have me."

"Well, you're not heir to Lord Savill."

Spencer Savill shortly afterwards married Blanche Calystegia, and exchanged into a home-staying regiment, while his former friends sailed for India. Of course he felt the parting; but then, on the other hand, was not his lovely young wife there to console him; and though at first he felt strange among his new comrades, did she not exert herself to attract him friends?

Yes, he was generally allowed to be a happy man. A few years had passed when the Ashantee war broke out, and Savill's new regiment was ordered there. He came in one day and found his wife in a passion of tears, her usually pale cheeks flushed, and her lovely fair hair flowing dishevelled on her shoulders.

"Oh, Spencer, you must not go to Ashantee! I shall die if you do!"

"But, my dear one, I must."

"No, no! If you do I shall know you do not love me."

She sobbed and pleaded in vain, till at last, starting upright from his loving arms she exclaimed—

"Tell me now, Spencer, can you not exchange?"

"I can," he faltered, "but do not ask me to do so now."

"Then you don't love me."

Great was the surprise and wonderment when it was known that on the eve of going to the seat of war a young and strong soldier elected to stay at home. Others were eager to take his place—he had no difficulty in arranging an exchange. To balance the ill-concealed scorn of his whilom comrades and surprise of his acquaintances, Savill had only Blanche's kisses of gratitude.

The regiment sailed, but Savill could not go and see them off. He got leave from his new colonel and went to the Black Forest, to try and forget, alone with his wife, the scorn of his friends. But at last he was obliged to join his new regiment; and now in every paper were long paragraphs of battles he might

have shared in, and deeds that might have been his; and several times, in public places, he felt himself pointed out as the soldier who had shirked going on service. Blanche's kisses became bitter to him, and he was a pitied man. He could bear it no longer, and he sold out. Blanche had long been run after and *fêted* as one of the London beauties of the day, and people now began to wonder, and say at the clubs and in the drawing-rooms, "How odd Lord Savill is!" (He had succeeded to his uncle's title and estates.) "He lets his wife visit anyone, and ask them to his moor, and down to his country seat, and never seems to care how far it may go. And yet he was such a devoted husband!" And thus they pitied him. He knew it, and grew bitter, hard, and indifferent.

At last one day he said—

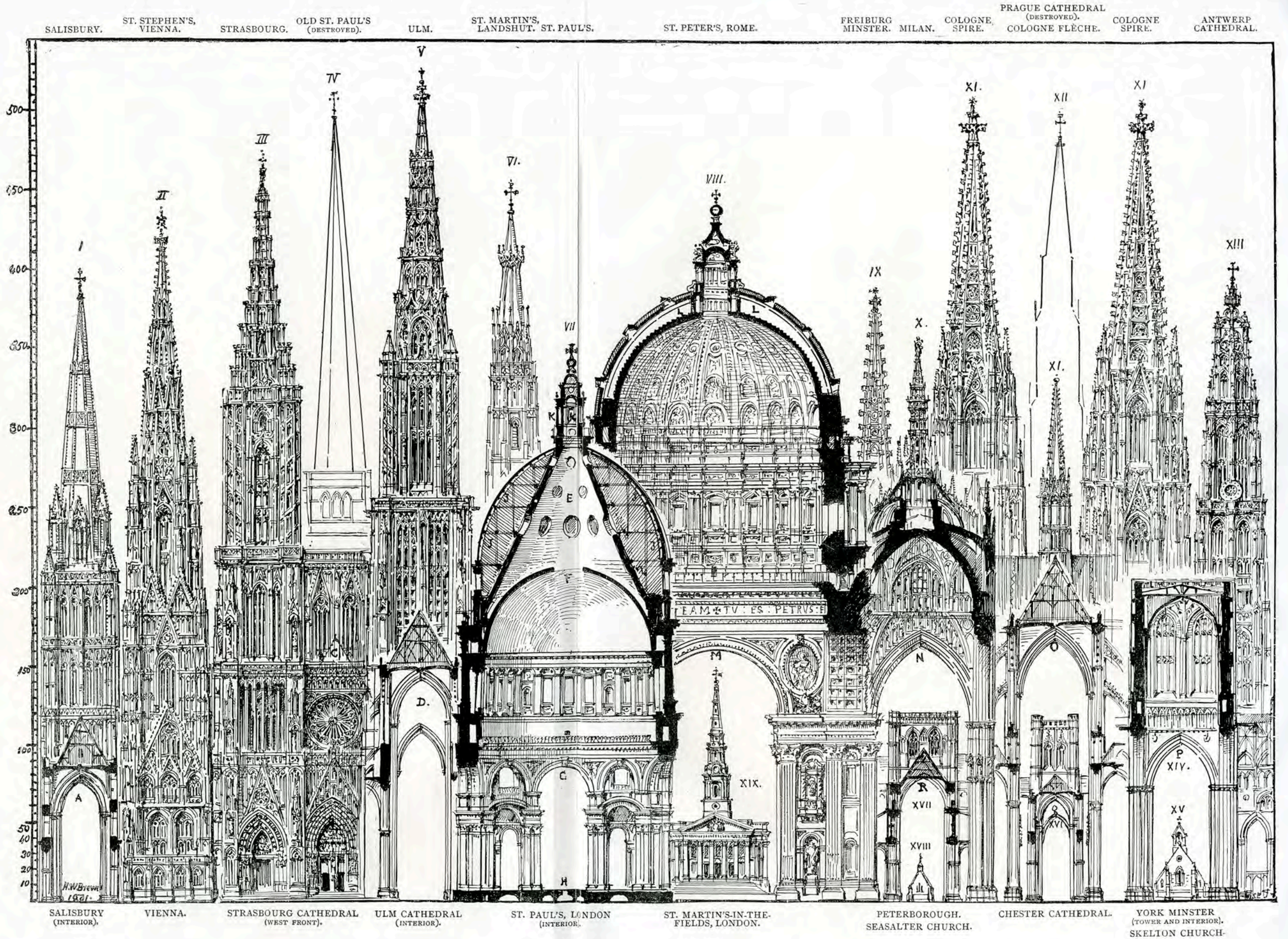
"Blanche, I shall sail to-morrow for India. I have volunteered for that Afghan business, and I shall go."

A few tears she shed, and would have kept him as of old; but her power was gone. He sailed; and she amused herself while people talked and gossiped, led the young man to his ruin, and broke the maiden's heart, encouraged the young wife in her follies, and ruined many a happy home, and, like a spider, entangled in her toils all the foolish flies she could, and as yet still laughed and flirted on the brink of ruin. "*Les absents ont toujours tort*"; and many blamed her husband that he was not there.

At last blame was not heard, and pity spoke instead. In Afghanistan Savill was killed. Some of his early friends from the regiment to which he belonged when he married, spoke thus of his death.

"I cannot be very sorry," said one. "I know he thought life not worth living now, and his one wish was to be killed honourably. She broke his heart, they say. What do you think, old Naturalist?"

"What I always did," replied Captain Rayburn. "That she was a worthless weed, and would do harm to all she came across. A true Calystegia—she was the ruin of the 'Gardener.'"



THE LOFTIEST CHURCHES IN EUROPE.