

## THE MONUMENT OF VICTORY AT BERLIN.

EVERY newspaper reader knows that the Monument of Victory at Berlin was unveiled by the Emperor of Germany with considerable military display on September 2, and as sketches of the event have appeared in the illustrated papers some notion of the column may be formed, but hitherto no technical description of the structure has been published. The monument, as is well known, is intended to commemorate the three distinct Prussian triumphs, first over Denmark, then over Austria, and, lastly, over France; and although the last of these was still in the womb of time when the first stone was laid in 1869, the original design had to be but slightly altered when its object became the witness to future generations, not of two, but of three successive triumphs.

The monument consists, in the first place, of a square pedestal of dark red Swedish granite, 93 feet by 93 feet and 23 feet high, having cornice die and base, with flat piers at the angles. Upon the die, between the piers, are affixed four bronze reliefs illustrating various scenes of the drama which the edifice commemorates. Upon the east side, a work by Candrelli depicts the preparation and departure of troops, as also the storming of Düppel; upon the north Moritz Schultz has reproduced the Battle of Königgratz, choosing the moment when the king, accompanied by Moltke and Bismarck, meets the Crown Prince. The western relief, the work of Karl Keil, shows the capitulation of Sedan, the delivery of the Emperor's letter to the king by General Reille, and the entry into Paris. The last, on the south side, is by Albert Wolff, and represents the re-entry of troops into Berlin at the close of the campaign on June 16, 1871. It was the architect's intention to gild these bronze reliefs, but he was (fortunately) overruled by his sculptor colleagues, and the castings retain their original hue.

Upon the square pedestal rises a circular sort of temple, consisting of sixteen Doric columns about 20 feet high, standing upon a circular flight of four steps, the diameter of the top step being about 51 feet. The columns have architrave, frieze and cornice, the cyma recta of the latter being ornamented with lions' heads. The columns and cornice are of red polished granite, and the inner paneled ceiling is of green marble resting on ornamental bronze girders. From the centre of this circular space rises a column of grey sandstone, 24 feet 6 inches in diameter at the base, and, passing through the low-pitched stone roof, reaches a height of 115 feet, measured from the platform of which it stands; a bold attic base rests upon the circular roof, and above this the shaft is divided horizontally into three tiers of flutings, the lower portions of each tier being filled with Danish, Austrian, and French cannon, connected by wreaths of laurel festooned from one cannon to another. All the metal work is strongly gilded, and is said to produce a very brilliant effect. The cap of the column is 9 feet in height, ornamented with Prussian eagles and wreaths of laurel, above which the abacus is octagonal, with a diameter of 15 feet. This forms a platform, which is reached by a circular stair passing up the centre of the column, and is protected for that purpose by a strong iron railing of rich design. Springing from this platform is the pedestal of the colossal figure which crowns the whole. The latter is draped in flowing skirts and tunic; the lifted wings measure 26 feet from tip to tip; in her right uplifted hand she holds a victor's laurel crown, whilst in her left is grasped a furled standard surmounted by the "iron cross;" and on her head is perched the Prussian eagle, apparently ready to soar off once more at any moment.

The entire structure, from the ground to the top of the standard, is 199 feet in height. The cost of the whole is stated to be 9,000*l*, and the architect from whose designs and under whose immediate superintendence the monument was erected was Herr Strack, whose official title, by the way, is an appallingly long one, to wit, Mr. Secret-Chief-Court-Councillor-of-Buildings. With him were associated the architects Hollin Luthmer, Jacobsthal, Haberland, and Hosfeld, in minor capacities, the contractor having been M. Rasche, of Berlin. With regard to that portion of the great column which stands within the circular hall above described, it should be mentioned that a periphery of 74 feet by a height of 12 feet (888 square feet) affords a good opportunity for pictorial decoration. This is being prepared at the Salvati Mosaic Works at Venice, from designs by A. von Werners, the subjects chosen being—the French declaring war, the banding together of all Germans in

the face of a common danger, and the proclamation at Versailles of the Prussian King as German Emperor.—*The Architect.*

## BEES AS ARCHITECTS.

Now we exercise a patient observation on Nature, analyzing, investigating, calculating and combining our facts, and say coolly with Professor Haughton, "Bees construct the largest amount of cells with the smallest amount of material;" or with Quatrefages, "their instinct is certainly the most developed of all living creatures with the exception of ants." "The hexagons and rhomboids of bee architecture show the proper proportions, between the length and breadth of the cell, which will save most wax, as is found by the clo *st* mathematical investigation," says another great authority. Man is obliged to use all sorts of engines for measurement—angles, rules, plumb lines—to produce his buildings, and guide his hand; the bee executes her work immediately from her mind without instruments or tools of any kind. "She has successfully solved a problem in higher mathematics, which the discovery of the differential calculus, a century and a half ago, alone enables us to solve at all without the greatest difficulty." "The inclination of the planes of the cell is always just, so that, if the surfaces on which she works are unequal, still the axis running through its inequalities is in the true direction, and the junction of the two axes forms the angle 60° as accurately as if there were none." The manner in which she adapts her work to the requirements of the moment and the place is marvelous. A center comb burdened with honey was seen by Huber and others to have broken away from its place, and to be leaning against the next so as to prevent the passage of the bees. As it was October, and the bees could get no fresh material, they immediately gnawed away wax from the older structure, with which they made two horizontal bridges to keep the comb in its place, and then fastened it above and at the sides, with all sorts of irregular pillars, joists, and buttresses; after which they removed so much of the lower cells and honey, which blocked the way, as to leave the necessary thoroughfares to different parts of the hive, showing design, sagacity, and resource. Huber mentions how they will find out a mistake in their work, and remedy it. Certain pieces of wood had been fastened by him inside a glass hive, to receive the foundation of combs. These had been placed too close to allow of the customary passages. The bees at first built on, not perceiving the defect, but soon changed their lines so as to give the proper distance, though they were obliged to curve the combs out of all usual form. Huber then tried the experiment another way. He glazed the floor as well as the roof of the hive. The bees cannot make their work adhere to glass, and they began to build horizontally from side to side; he interposed other plates of glass in different directions, and they curved their combs into the strangest shapes, in order to make them reach the wooden supports. He says that this proceeding denoted more than instinct, as glass was not a substance against which bees could be warned by Nature, and that they changed the direction of the work before reaching the glass, at the distance precisely suitable for making the necessary turns—enlarging the cells on the outer side greatly, and on the inner side diminishing them proportionately. As different insects were working on the different sides, there must have been some means of communicating the proportion to be observed; while the bottom being common to both sets of cells, the difficulty of thus regularly varying their dimensions must have been great indeed. The diameter of the cells also varies according to the grubs to be bred in them. Those for males have the same six sides, with three bezenges at bottom, as those for workers, and the angles are the same; but the diameter of the first is 3½ lines—that for the workers only two-fifths. When changing from one size to another, they will make several rows of cells intermediate in size, gradually increasing or diminishing, as required. When there is a great abundance of honey, they will increase both the diameter and the depth of their cells, which are found sometimes as much as an inch and a half in depth.—*Good Words.*