

Mr. Faraday referred to the long period of annealing (gradual cooling) which glass had to undergo as a necessary consequence of glass waving. He concluded this part of his subject by describing the mode of casting plates, and the successive processes which gradually produce the perfect polish of their surface. 2. Mr. Faraday next exhibited to the audience the mode of silvering glass plates as commonly practised. He made them observe that a surface of tinful was first bathed with mercury, and then flooded with it. That on this tinful plate of glass, having been previously cleaned with extreme care, was floated as to exclude all dust or dirt; that this was accomplished by the intervention of $\frac{1}{4}$ in. of mercury (afterwards pressed out by heavy weights) between the reflecting surface of the amalgam of the mercury and the glass; and that when the glass and amalgam are closely brought together by the exclusion of the inter-vening fluid metal, the operation is completed. 3. The great subject of the evening was the invention of Mr. Drayton, which entirely dispenses with the mercury and the tin. By that gentleman's process, the mirror is, for the first time, literally speaking, silvered, inasmuch as all that is precipitated on it from its nitrate (lunar caustic) in the form of a brilliant lamina. The process is this: on a plate of glass, surrounded with an edge of putty, is poured a solution of nitrate of silver in water and spirit, mixed with ammonia and the oils of cassia and of cloves. These oils precipitate the metal in somewhat the same manner as vegetable fibre does in the case of marking ink—the quantity of oil influencing the rapidity of the precipitation. Mr. Faraday here referred to Dr. Wollaston's method of precipitating the phosphate of ammonia and magnesia on the surface of a vessel containing its solution, in order to make intelligible how the deposit of silver was determined on the surface of clean glass, not (as in Dr. W.'s experiment) by mechanical causes, but by a sort of electric affinity. This part of Mr. Faraday's discourse was illustrated by three highly striking adaptations of Mr. Drayton's process. He first silvered a glass plate, the surface of which was cut in a ray-like pattern. 2nd. A bottle was filled with Mr. Drayton's transparent solution, which afterwards exhibited a cylindrical reflecting surface. And 3rd. A large cell, made of two glass plates, was placed erect on the table, and filled with the same clear solution. This, though perfectly translucent in the first instance, gradually became opaque and reflecting; so that, before Mr. Faraday concluded, those of his auditors who were placed within view of it saw their own faces, or that of their near neighbours, gradually substituted for the faces of those who were seated opposite to them.

INSTITUTE OF BRITISH ARCHITECTS.

JUNE 3.—T. B. Papworth, V.P., in the chair.

Mr. C. H. Smith resumed the subject commenced on the 29th of April "On the Magnesian Limestones, especially with reference to those employed in the New Houses of Parliament." Previously to the Commission appointed to investigate the choice of a material for the Houses of Parliament, the proper selection of stone for building purposes with regard to its quality had been strangely neglected. Public attention was first called to this subject by Mr. (now Sir H.) De la Beche in 1836, and the inquiries originated by that gentleman resulted in the establishment of the Museum of Economic Geology and the Commission of which Mr. Smith was a member. On the first preparations for rebuilding the Houses of Parliament, efforts were made by our neighbours in Normandy for the introduction of Caen stone, and a great number of specimens were sent, comprising stone of every quality, from the best to the worst, all passing under the same name. In selecting the stone for the Houses of Parliament, the Commissioners had to take into consideration a variety of circumstances, independent of the mere quality; as the situation of the quarries, the facility of water-carriage, and the assurance that the supply of stone would not fail during the progress of the work, and that the cost of labour upon it should not greatly differ from that upon the building stones in general. Upon comparing the produce of many quarries,

the Balover Moor stone appeared to the Commission to be the best adapted; and a bed of stone of nearly the same quality extend over a tract of about fifteen miles from north to south, the quarries of North Aston were finally selected, as uniting in the greatest degree all the conditions demanded. In this locality an ample supply of stone lies at a depth of from ten to fifteen feet. Eight beds of stone, of the best quality, are found lying nearly level, the uppermost striding blocks of four feet thick, and the remainder from two feet and a half to eighteen inches. The quantity of stone supplied from the North Quarry at North Aston, between February 1840, and April 1844, amounted to 265,853 cubic feet. Mr. Smith made some remarks on the effect of lichen on the surface of stone, which has been supposed favourable to its preservation. His own observation had led him to a different conclusion, as he had found stone covered with lichen reduced to powder to the depth of a sixteenth of an inch on its removal; and he suggested that the lichen had had the effect of absorbing some of the elements of the stone. In some specimens of magnesian limestone the lichen appeared to have taken up the lime, and left the magnesia. A model was exhibited, and a description read of a new and simple system of scaffolding for high chimneys, and columns; also of his machine for raising bricks and other materials.

CHURCH EXTENSION.

The meeting of the Incorporated Society for promoting the Enlargement, Building, and Repairing of Churches and Chapels, for the present month, was held at St. Martin's-place, Trafalgar-square, on Monday last; his Grace the Archbishop of Canterbury in the chair. There were present the Bishops of London, Durham, Winchester, Lincoln, Gloucester, and Bristol; Bangor, Norwich, Ripon, and Lichfield; Sir R. H. Inglis, Bart., M.P.; Revs. H. H. Norris, B. Harrison, and C. B. Dalton; Messrs. J. S. Salt, H. J. Barchard, N. Conoop, W. Davis, Arthur Powell, &c. The committee ordered the payment of several grants to parishes where the works have been completed, and, among other business transacted at the meeting, voted new grants of money towards building eight additional churches or chapels, re-building one, and enlarging or otherwise increasing the accommodation in fourteen existing churches or chapels; making twenty-three grants in all. The places of worship are to be erected for districts in the parishes of St. Michael, Lichfield; St. Clement, Truro; Kingsclere, near Newbury, Berks; Barnstable; Wooley, near Wells; Godalming, Surrey; Windsor, Berks; and St. Lawrence, Kent. The churches to be enlarged, &c., are situated in the parishes of Castle Church, Staffordshire; Bromsgrove, Worcester; Wormley, near Waltham Cross, Herts; Beoly, Worcester; Coombe Bisset, Wilts; Ilkeston, Derby; Uppington, near Shrewsbury; Buckleigh, Devon; Chetnam Chappelry, in the parish of Manchester; All Saints, Hereford; Penn, near Wolverhampton; Llanwdyn, Montgomeryshire; Jarnington, Sussex; Duke's-place, London; and Worcester (Block-house Church). Four of the districts in which new churches are to be erected are situate from two to two and a half miles from the nearest church; and in all the districts assisted, the bulk of the population consists of the poorer classes of society, for whom no provision of church accommodation now exists. The twenty-three parishes above referred to contain a population of 420,394 souls; they have at present church accommodation for 58,429 persons in sixty-seven churches and chapels, or less than one-seventh of the whole number; and of that provision only 18,460 sittings are free, being one free seat for twenty-three persons; by the erection of the eight additional churches, and the enlargement, &c., of the existing buildings, 6,679 seats will be added to the present insufficient provision of church room, 5,604 of which will be free; raising the proportion of free sittings to one seat for seventeen persons. The importance of providing the means of attending public worship for the poorer classes is every day becoming more apparent; it will be seen by the above statement that more than two-thirds of the whole additional accommodation is to be free

and unappropriated, and in several instances the whole of the church will be thrown open without reserve. The deficiency of church accommodation in particular parishes as it now exists will be better understood when it is stated that Ilkeston, near Nottingham, contains 5,329 inhabitants, and one church with 448 seats, or for about one-thirteenth of the population, not one of which is free. St. Clement's parish, Truro, has a population of 3,436 souls, and sittings for one person in eleven, with only ninety free seats. St. Michael and St. Chad, Lichfield, contain together 5,359 inhabitants, with 950 seats in the two present churches, 500 of which are free. Bromsgrove has a population of nearly 10,000 persons, with accommodation for one-seventh of that number, including only 268 free sittings; and Barnstable, with nearly 8,000 inhabitants, possesses church room for 1,456 persons, including only 100 free seats. In these six parishes, containing together more than 31,000 souls, upwards of 27,000 persons have been hitherto unprovided with the means of attending public worship, while the free accommodation in the present churches is only 658 seats.

**ARCHITECTURAL GEOMETRY, No. V.—
TO FIND THE CENTER FOR STRIKING ANY
SEGMENTAL ARCH.**



The rule is founded on the principle that, As the versed sine (a) is to the half chord (b), or the right sine of half the arc, so is b to the complement (c) of the diameter; therefore a added to $\frac{b^2}{c}$ is the whole diameter, half of which is the radius of the curve; thus, if the rise of an arch be 2 ft., and its half span 6 ft., its radius will be 10 ft. Example—

a	b	c	r
As 2 :	6 :	6 :	10
		6	
		2136	
		18 A. complement of the diameter.	
		2 A. rise of arch.	
		2136 A. whole diameter.	
		10 ft. radius.	

Wherever in the semicircle the angle d is placed, the angle $d f c$ is right or of 90°; hence the rule which is fitting columns, if the flats are of a semicircular plan, the angle of a builder's square moved round in them will touch in succession every part of their concave.

SOCIETY OF ARTS.—At the fifty-seventh anniversary held in the great room of the society, John street, Adelphi, on Monday week, the silver medal was presented by his Royal Highness Prince Albert, president to the society, to A. E. Brax, Esq., of Leeds, for his improved chimneys for house chimneys.

His Royal Highness Prince Albert laid the foundation-stone of the new Hospital for consumption and diseases of the chest on Wednesday week, at one o'clock, on a spot at the north side of the Fulham-road, a little west of Pelham crescent, Brompton.