ENGINEERING AND ARCHITECTURE.

BUT these suggestions bring uppermost once more a much debated question, and that is the relative importance of the two professions of engineering and architecture in the design of any great work. The scheme to build a 28 storey building, and the construction of an Eiffel tower, are works in which the engineer takes a special delight, but they are a style of construction which the architectural examples of past ages cannot parallel, even in the very interesting catalogue of circumstances and result provided in the paper which Mr. Behrendt recently read before the Victoria Institute of Architects. The Eiffel tower is scarcely "a thing of beauty," and the 28 storey house of the future is unlikely to provide a better field to the architect for delighting the eye than do the new tall buildings in these Australian cities. The scheme seems rather to open up a new field for engineering science, in construction and sanitary arrangements, and in a still further development of that branch of it which has devoted itself to the speedy and easy conveyance of passengers from floor to floor. We have had a very interesting discussion carried on in these columns under the heading of "Friends in Council," in which the division of duties between the engineer and the architect has been much debated, and there is an increasing number of enlightened minds who are accepting the views, that, in these days of rapid progress in, and fresh developments of the scientific arts, specialists will more and more command a leading position in them; that the vast strides being made demand too much attention for one mind to successfully grasp and practice them all, and that great architectural undertakings need the work of a specialist in engineering to overcome the dangers of constructive defects. On the other hand, there are not a few who dissent from these views, and no doubt many mistakes which do occur are the result of an unsettled practice and of much friction between professional men who see only dangerous competition in the introduction of the specialist's advice, for Sir Gilbert Scott's view, that architecture results in the first instance from necessity, beauty being a superadded grace, chimes in harmoniously with the paper on "Origin and Development of Styles," which appeared in our last issue, and this view emphasizes a point which has lately been receiving a good deal of attention, viz., that in the training of architects, the scientific or constructive studies should receive much more attention than has been devoted to them. Here again, aptly apply our remarks upon fireproof construction in theatre buildings, where the simple adaption of many well-tried appliances would, under the master mind, speedily provide the fireproof building. The crowding in larger cities, which is such a characteristic of the history of the last fifty years in all parts of the world, imperatively demands that our scientific professions should keep pace with the requirements of the times in this respect in constructing hotels, theatres, and all large public buildings, and it clearly emphasizes the view that the practical and useful in architecture is its most important feature, while its ornamental and decorative work should be the outcome of refined taste sufficiently controlled to yield no sacrifice excepting to strictly utilitarian principles. The specialist in sanitary matters, or in the acoustic properties of a building, is finding today full occupation for all his energies; the decorative artist has recently had opened to him fresh fields for his special proclivities, and the constructive art in the more modern building is rapidly assuming a phase which demands that the training of an architect should be on a much higher plane, and his admission to practice controlled by much stricter laws than have prevailed among us hitherto. The question of a University training and a University certificate has been fully discussed in these columns, and the Victorian Institute has led the van in asking Parliament to appoint a professor of architecture in the local University. These are questions which are engaging much attention in other places than the Australian colonies, and it is desirable they should be fully discussed here, but that that discussion should be so widely published that the public will become interested and assist by their "silent vote" in effecting a radical change in the existing state of affairs. Only recently a case was heard before a colonial court in which heavy damages were awarded against a so-called architect for faults in construction, which led to the subsequent very serious injury of the shops, and in the newer style of building in which ground space and value compels the addition of many stories in the height, it is imperative in the public interest that highly skilled professional advice should be secured as a preventative to disasters, which may be even more startling than the destruction by fire of a flimsily-constructed theatre building.—Sydney, N. S. W., *Building and Engineering Journal.*

STEREOTOMY.

By John A. Pearson.

TO WORK A MOULDED ARCH STONE.

Fig. 1 represents an arch stone.

Fig. 2 is the moulded portion of the arch stone, made twice the size of figure 1.

Having worked the face A B, the top portion A being cleaned and drafts run along the joints and arris of the intrados to save labour, scribe upon this face the face mould with the radiating joints and soffit. Work the

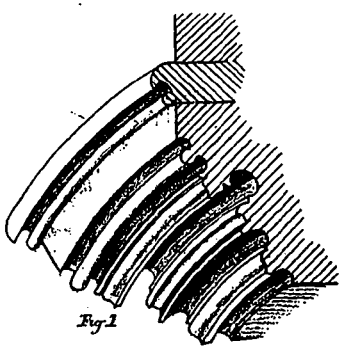

Fig 1

soffit square with the face and clean from E C backwards. Knock off the rough stone in D B E to the plane D E. Mark the mould on the joints of the stone, then mark the outer lines A F G H I J K L and convey the lines till they intersect the plane D E. Work these different faces through the whole length of the stone. The different sweeps may be obtained from reverses made from the corresponding lines on the face mould.

To work the head roll member, the faces, trammel the line *m* from the arris F and sink the scotia to the depth *n* with a little moveable square or

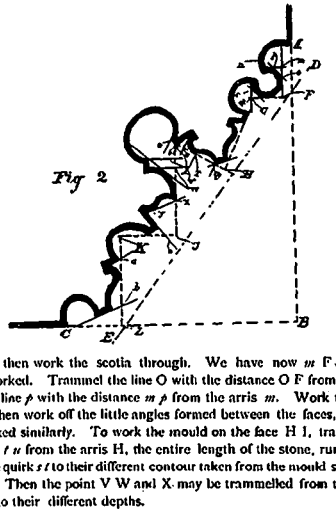

Fig 2

shiftstock, then work the scotia through. We have now *m* F and E G already worked. Trammel the line O with the distance O F from the arris F and the line *p* with the distance *m p* from the arris *m*. Work this plane through, then work off the little angles formed between the faces, the face *c d* is worked similarly. To work the mould on the face H I, trammel the point *q r s t u* from the arris H, the entire length of the stone, run the core *r q* and the quirk *s t* to their different contour taken from the mould scribed on the joint. Then the point V W and X may be trammelled from the arris J and sunk to their different depths.

The face *z y* and *x y* may be trammelled from J and cut into their required shape, and the points a b may be tramelled from L on the face L K. When deep cores occur as in *a u* they should be sunk to the depth first and cleaned right through rough being left on the arrises S and U to prevent them from being abraised or snipped. All the other points of the different members of the mould may be easily obtained from the face given.