

INDUSTRIAL MUSEUMS IN THEIR RELATION TO COMMERCIAL ENTERPRISE.

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III. Commercial enterprise is as much interested in sending finished products to a distance, as in bringing raw materials to its own door. The perfected results, accordingly, of industrial art, are as much the concern of an industrial museum, as the raw materials from which they are elaborated; and so also are the machines and tools needed for their elaboration, and in effecting the useful application of the elaborated products.

A large portion, therefore, of the exhibitional galleries of the museum must be assigned—1. To such finished products as wrought iron, steel, glass, porcelain, paper, leather, cotton, linen, woollen, and silken tissues, naphtha, sugar, sulphuric acid, soap, bleaching powder, lucifer matches, and the like. 2. To all the intermediate products which intervene between such products and their raw materials; for example, between iron-ore and steel; between sand and glass; between clay and porcelain; between rags and paper; between skins and leather; between cotton wool, flax-fibre, merino-fleece, and cocoon-floss on the one hand, and chintz, linen-damask, broad-cloth, tartan, carpeting, and satin or velvet on the other; between coals and naphtha; cane-juice and loaf-sugar; sulphur and oil of vitriol; palm-oil and soap; common salt and bleaching powder; burned bones and lucifer matches. 3. To the tools, machines, and apparatus required for the conversion of raw materials into finished products, such as agricultural, mining, and paper-making machinery, furnaces, mills, lathes, moulds, looms, gas-retorts stills, printing presses, and the other engines of the graphic arts, and all the manipulative implements of handicraft trades. Many of the objects of this third division would of course be shown only in model, not of their actual size. 4. Besides machines or instruments of the kind described, the object of which is to transform workable materials into wrought goods, a prominent place in the museum galleries must also be given to those forms of apparatus which are employed in the application to useful purposes of finished products, and in the exercise of what may be called the Dynamical Industrial Arts. Such instruments are pens, pencils, brushes, thermometers, barometers, compass-needles, lamps for burning solid, liquid, and gaseous fuels, the batteries and other requisites for producing and maintaining the electric light, the whole machinery of the electric telegraph, the whole apparatus of the photographer, and much else. In this department, only the *practical* forms of those instruments which it includes would be shown; such refined modifications of thermometer, barometer, electric machine, optical lens, and the like, as theory pronounces best for the purely scientific student, not falling within its province.

On the one hand, it is important that the idea of the industrial museum should be fully and impartially carried out, and that every economic art should receive its just share of illustration. On the other, it would be culpable folly to collect the same objects in adjoining or neighbouring buildings

and thus needlessly multiply duplicates. The pre-eminently important art of medicine, for example, is so amply cared for by the University, the College of Surgeons, and the College of Physicians, that it would not be necessary for the industrial museum to do more than supplement in certain directions those illustrations of medicine as an art which the medical museums in the city contain. Thus the forms of electrical machine most suitable for therapeutic use, the qualities of steel best fitted for surgical instruments; the similar qualities of caoutchouc and gutta percha; the varieties of distilling and other pharmaceutical apparatus; the different kinds of glass and porcelain vessels useful in the laboratory and surgery; and some other things, would probably find a place in the museum, but the art of medicine as a whole would not be represented.

In the same way, so long as the Royal Agricultural Society and Highland Society watch over the interests of agriculture; the Royal Academy over those of the fine arts; the Architectural Society over those which occupy the builder; the Society of Antiquaries over the ancient progress of all the arts, the extent to which the industrial museum will charge itself with illustrating the scope of agriculture as an art; with collecting the pigments, marbles, bronzes, and other materials with which the painter and the sculptor work; with the accumulation of building materials; and with the acquisition of examples of the earlier and ruder stages of industrial processes, will to a great degree depend upon the limits which may hereafter be agreed to, as bounding the domains of the different societies named. Each of these bodies has a central province peculiar to itself, on which, even if it were unoccupied, the industrial museum would not intrude. Each of them has also a border-land which the museum cannot help overlapping, as it has a border-land which they unavoidably overlap. The extent to which this mutual infringement shall take place must be matter of amicable compromise. In any case an ample area, entirely its own, will be left to each institution, and all will be gainers by a wise division of the debated land.

Such a collection I have supposed, of raw and workable materials, modifying agents, transforming machinery, and finished products, would prove specially instructive—1. To those ignorant of the capabilities of an industrial art, and solicitous to appreciate them; and 2. To those desirous of ascertaining the imperfections of an industrial art with a view to improve it. To the latter only I refer. The chief and ultimate aim of an industrial museum is the improvement of the useful arts, which cease to exist, or exist only as stunted dwarfs where they do not make progress. But it is not only from the ranks of experienced workers in an art, that its improvers always or perhaps most frequently come.

We are accustomed to say that every man knows his own trade best, and to warn the shoemaker not to step beyond his last. Although, however, the improvement of particular arts must mainly be looked for from those who have inherited a special pecuniary as well as professional interest in them, still we must not forget the effect of custom in rendering men indifferent to defects, or of age in making them impatient of change; nor, on the