

The museum therefore must include within its walls a laboratory and workshop, where the nature of unknown substances, and the powers of new machines, may be investigated, and a library where the literature of industrial science may be available for the guidance of the officers of the institution in classifying the contents of the museum. Further an essential appendage of an industrial museum is a lecture-room, where detailed prelections may be given on the contents of the museum, and where, in addition, the various industrial arts may be expounded in relation to the laws and principles on which they are based, and may be illustrated not only by the objects in the exhibition galleries, but by maps, diagrams, drawings, chemical and mechanical experiments, the exhibition on the small scale of manufacturing processes, and of machines at work; as well as through the medium of the other appliances employed in university and other class-rooms by teachers of the physical sciences.

All the existing industrial museums, except that at Kew, are supplemented by laboratory, library, and lecture room in the way mentioned. All three likewise have, from the first, been associated with the industrial museum of Scotland, which moreover, is the only museum of the kind, or indeed institution in the country, having a special chair of Technology attached to it.

V. Apart, however, from the importance of those supplementary institutions in enabling the curators of the museum to render it more instructive to the public, two of them, namely, the laboratory (including the workshop) and the library, may themselves be made directly serviceable to the community.

The laboratories of the industrial museums, besides affording those in charge of the latter the means of examining substances of general economic interest, are at the service of the public in two ways:—1. As schools of analytical chemistry; where for moderate fees, young men may learn the art of chemical analysis as applied to industrial objects. 2. As analytical laboratories; where likewise, for moderate fees, merchants or others may have confidential analysis made of substances whose composition they seek for their own guidance to know; and where the officers of the museums may be consulted by those engaged in legal contests, or in other transactions where the services of scientific advisers are required.

An engineering workshop, as distinguished from a chemical laboratory, has not yet been fully recognised, so far as I am aware, as one of the complements of an industrial museum, but sooner or later I cannot doubt it will be. I indulge the hope also, that it may be made serviceable to the general public, for the testing mechanical inventions, as the laboratories are for the testing chemical products and manufactures. Certainly, whether in connection with industrial museums, or with other institutions, it is very desirable that ingenious workmen and others of limited means should be able, at a moderate cost, to ascertain confidentially the value of embryo inventions before expending labour, time, and money on their perhaps unwise elaboration. Meanwhile, however, I only name the workshop as a subsidiary appendage to the laboratory.

VI. The libraries of our industrial museums, as at present organized, are chiefly intended for the officers of these institutions, including to some extent the students in daily attendance for each session. Nor is it necessary or desirable that an industrial museum should provide reading for the general public, which is, or, if it chooses, may be, well cared for in the way of libraries. But a collection of books on applied science in French, German, and English, including, the records of the patent offices or similar institutions of the civilized countries of the world, geographical, geological and the like, would greatly add to the utility of an industrial museum, if arranged in its library, so as to be accessible for reference and consultation by practical men. Such a library, it cannot be doubted, would receive many donations, and in all likelihood would prove the least costly, though not the least useful, complement of the museum.

Such then, is the fourfold idea embodied in the galleries, laboratory, library, and lecture-room, which together constitute an industrial museum. As the counterpart of this, the merchants of the world have a fourfold duty to discharge:—

1. To gather workable materials from the ends of the earth.

2. To send forth finished products, derived from those, to the four quarters of the heavens.

3. To employ the most perfect mechanical and chemical appliances which can change the one into the other, and facilitate their transmission throughout the world.

4. To encourage new arts and hope for still newer ones.

Before I close, let me indulge in two brief moralisings.

What are the ends of commercial enterprise? I will name but two:—1. The making of money.

2. The civilising of the world.

Firstly, I suppose you will not blame me for saying that the immediate end is the making of money, or for adding, that this money-making seems to me one of the most honest, innocent, and pleasant of occupations. I am not fortified in this original opinion by remembrance of any passage in Adam Smith's 'Wealth of Nations,' which indeed I never read. I am thinking of a passage in one of the writings of the poet Southey, who like myself, never lost the pleasure of money-making by having a surfeit of it. To "owe no man anything," and that it is to be worse than an infidel" not to provide for his own household, are as certainly divine precepts, as that "the love of money is the root of all evil," and that "hasting to be rich multiplieth sorrows." There is only the difference that a blessing goes with the first, and a curse with the last. Southey was right. Honestly earned wages are as true a *quiddam honorarium*, a gracious largesse, as any sum which the lawyer or physician, looking the other way, finds fall into his palm. To know that, by work of brain, or heart or hand, or rather by all together you have earned a penny, copper or golden as the case may be, which you may honestly expend on some lawful want, in gratification of some innocent intellectual taste, or æsthetical desire, for the carrying out of some moral purpose, or for the comfort of some beloved relative or friend, is one of the truest delights left to us, after the flush of early youth has passed away.