

The following is a description of a possible design for a major new museum development. It should be pointed out at the beginning that it is the concept of the present Keeper of Technology, and that it may not take shape in entirely the manner described. Thus the views expressed may not necessarily be those of the Curator of the local authority who established it.

Swansea Maritime & Industrial Museum was established in 1974 with great foresight by the City of Swansea, and it is housed in the former 'Coast Lines' warehouse at the South Dock, both of which had ceased commercial operations some years previously. It was conceived as an integral part of a large and diverse leisure complex, part of which has already been completed. The primary objective of a museum of this nature must be to show the visitor the rich variety of trades and projects which, though some have risen to prominence and since faded away, have made the City world famous. It is not intended to stop at a particular and arbitrarily chosen time in the past, for there is continuity: coal is still mined in quantity, tinplate is now made in continuous form rather than by hand processes, ceramics have been replaced by glass and in the processing of non-ferrous metals copper, zinc and lead have waned but nickel and aluminium have come to the fore. Neither should the City encourage belief in the idea of some golden age which has now passed. To this list should be added relatively new industries such as oil refining and chemical manufacture and, most recently, the making of silicon chips. Many of these activities depend directly on port facilities which have developed accordingly, Swansea's association with the sea being pre-industrial and having commenced in Viking times.

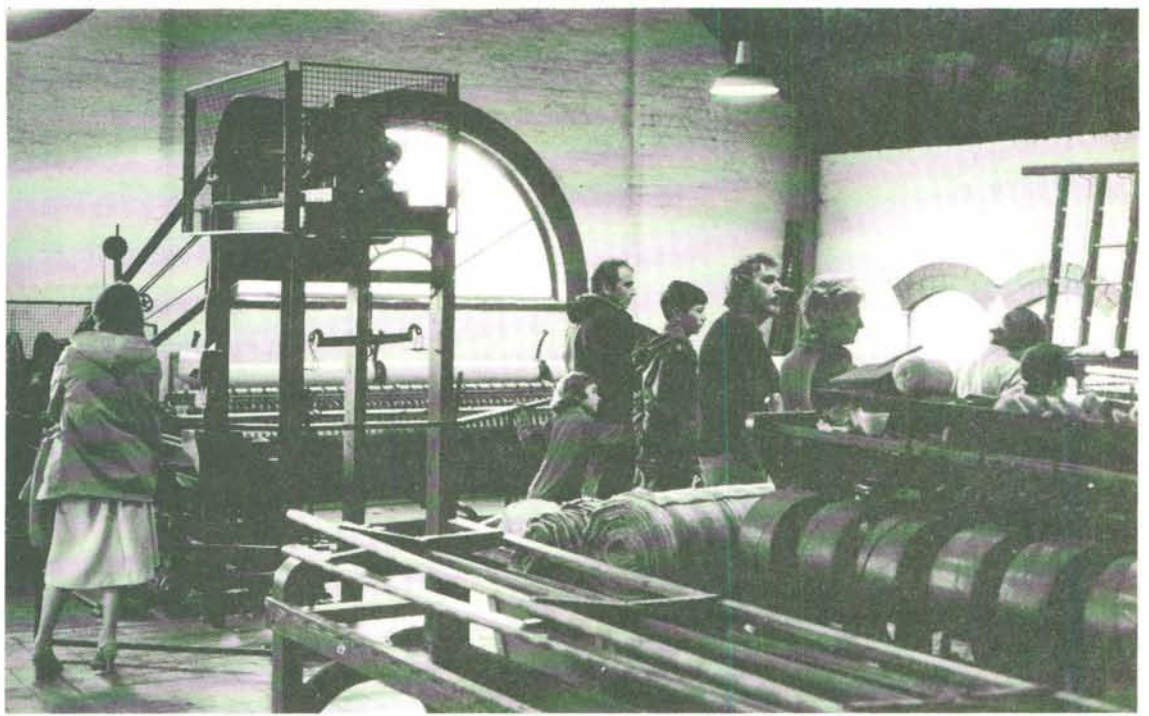
A museum depicting these roots of the City's prosperity would be a great asset in itself, but the diversity of activity in the area is such that another theme can be interwoven among the displays. It is thus hoped to illustrate major technological innovations which have shaped our society. This theme bears directly on design education, for technology is a design process and at once broadens the appeal of the Museum beyond the local level and that of a superficial source of entertainment, and makes it of more fundamental importance. The products of technology, the machines and processes, are optimum solutions to man's problems and are therefore unique, unlike the general conclusions of scientific discovery, and thus the essence of technology can only be appreciated by studying the object; a museum is therefore an ideal place to do this.

It may be argued that to design a museum on these lines without attempting a preliminary survey of the 'consumers' is putting the cart before the horse. This was done deliberately, not because museums featuring technology are unpopular; 100,000 people visited the Maritime & Industrial Museum last year, but because such museums do not appear to be used in a technological way. A recent study of school parties visiting the Ironbridge

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Museum revealed that the number of groups studying technological or science-based subjects was very small (8½%),¹ and that the majority of groups had little grasp of or interest in the development of technology. An understanding of the process of technology can have two major educational effects. Firstly, it can train the mind in a rational system of thought, the design process, which can be applied in nearly all activities, and secondly the benefits to and dependence of our society on technology can be shown. Current museum thinking as exemplified by Singleton² and Silvester³ dictates that popular taste be pandered to, but the approach described here is felt to be justified by the prominent position of technology in society today and by its lack of general acceptance. If this synoptic view is anathema to some, the balance may be restored, as there is another museum in the City housed in the premises of the Royal Institution of South Wales, the object of which is to show all other aspects of development of the Lower Swansea Valley.

In practical terms, the technologies which it is hoped to cover include production of food and clothing, transport, communications, power, and control. In many of these, it will be possible to show progression from one form to another: the changes in thinking which cause the virtual abandonment of one design system in favour of another. Thus power sources covered, for example, will be animal, water, steam and internal combustion, nuclear power cannot be included. Likewise with transport, there is little likelihood of aviation being incorporated. Fortunately, horology and printing, which have done so much to change society, and which fall within the technologies mentioned above, can be represented in this scheme. Western technological progress is, however, not fully



Interior of part of the Abbey Woollen Mill, the First Permanent Display in the Museum.

represented in breadth; neither is it represented in depth for, unlike certain other museums with industrial collections, it is not possible to show the advances made in, say, the petrol engine from its inception, and still retain the local character of the museum. This does not necessarily detract from the educational potential of the material, for it has been found that many groups using such facilities for educational purposes require only what they consider to be an average or typical specimen.⁴ However, there may be scope for evaluating specific machines in the Museum's possession in relation to modern design criteria. As a further example, consider the first display to be established. This is the Abbey Woollen Mill, which derives its name from Neath Abbey Ironworks where it was situated until the cessation of commercial operations. Superficially it represents a local (and National) industry, but at one extreme it is an extension of the agriculture and fisheries section of the Museum, and at the other, natural fibre can be linked with the first man-made fibre, viscose rayon. The basic processes in mechanisation of carding, spinning and weaving are demonstrated here, and so too is centralised drive from overhead line shafting, as in the early factory system. Automatic control in the form of the 'dobby' system of weft thread selection can be studied on one loom, and in fabric finishing processes another source of power, a water turbine, is coupled to a hydroextractor.

These partial findings in coverage from the technological point of view can be corrected by production of supportive educational aids in the form of a series of publications including guide books. The first guide book, which covers the Abbey Woollen Mill, is in an advanced state and will set the standard for subsequent literature as, rather than concentrating on the economic aspects of wool, it describes the machine and processes, and attempts to place them in evolutionary perspective by tabulating the chronology of important developments in textile manufacture. It also directs the reader to other institutions to see alternative methods of production.

It is appreciated that it is as much more educationally effective to have working exhibits as Hills has shown⁵ and thus the Abbey Woollen Mill has been made fully operational, being in production five days per week. Working machinery, particularly if it is driven as originally intended, has the added advantage of attracting many more

visitors. This appears to be particularly so with more massive prime movers.⁶

The museum is fortunate in having a small design staff to ensure a high standard in all its presentations, and it may be possible to employ an education officer at some time in the future to enable the best use to be made of the facilities and to ensure that its objectives are understood. Part of the foyer, which will incorporate seating, can be made available for formal educational work. At present, relations with schools and individual teachers exist only on an informal basis.

In conclusion, it is hoped that this multiple role for the Museum of providing entertainment and of imparting knowledge; of telling a local story and of illuminating the mainspring of human endeavour, can be maintained, and that its universality of approach is not restricted so that young people may accept technology as a natural human activity essential to our survival.

References

1. A.T. Arnott, *Technology Appreciation: Early Engineering and its Educational Use, with particular reference to the Beam Blast-Furnace Blowing Engine Belonging to the Ironbridge Gorge Museum*, Appendix 3.2 (M.A. Thesis, University of Keele, 1978).
2. H.R. Singleton, 'Museums in a Changing World', *Museums Journal*, Vol. 79, No. 1 (June 1979).
3. *A.I.A. Bulletin*, Vol. 6, No. 4, pp.7-8 (Association for Industrial Archaeology), (1979).
4. *Technology Appreciation*, op. cit., p. 213.
5. R.L. Hills, 'Museums, History and Working Machines', *History of Technology*, Vol. 2 (1977).
6. *Technology Appreciation*, op. cit., p. 213.