University of Brighton library: the development of a building type

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Abstract

With construction about to begin on a new library for the University of Brighton, the architect, who has worked on various library projects in the past 25 years, draws on that experience. The volume of published material since the Second World War and the beginning of the electronic revolution made 'flexibility' a major consideration even in the late 1960s and early 1970s. This paper considers this along with other issues in the gradual transformation of a building type.

It is always exhilarating for an architect to work on a new building type; to be forced by the unfamiliarity of the task to explore the roots of the problem. But it is equally rewarding to keep returning to the same type of building over a long enough period of time to be able to participate in its development and the gradual transformation of the typology. That has been my relationship to the design of libraries.

Construction is about to start on the new library for the University of Brighton, a project won by competition in 1994. Our clients proved to be as interested as we were in the relationship between the design for their building and its predecessors; in the generic issues whose shifting balance was leading to a new sort of 'Learning Resource Centre'.

In the late 1960s and early 1970s when I was involved in researching library design and putting together the brief and preliminary design for the British Library, there were two issues uppermost in the minds of the Librarians and Library Consultants. The first was that the volume of published material had increased almost beyond belief since the Second World War, and although compact methods of storage were being developed, few older libraries had the floor structures to support them. Secondly, the beginning of the electronic revolution in library science was producing huge problems of cable distribution in older bearing-wall buildings.

'Flexibility' became the first (and even last) requirement in every library brief, and a generation of libraries resulted, the characteristics of which were:

- Deep plan as nearly square as possible
- Square structural grid based upon stack spacing dimensions
- Uniform ceiling height and lighting system
- Floors designed to take compact shelving
- A uniform system of cable distribution.

The deep plan, equipment loads, and tightly specified environmental conditions resulted inevitably in fully air-conditioned buildings.

As we developed the British Library during that period, it seemed to us that the principal criticism of some of these libraries was that they could be stupefyingly monotonous, and, for all their seeming simplicity, quite disorienting in use. We therefore developed a system of public spaces which were carefully located in relation to the entrance and key routes in the building, and which are designed to afford the long-term reader a much needed distant view as a rest from the close reading task. We tried to retain some of the spatial delight as, for example, Labrouste's Bibliotheque Ste. Genevieve in Paris.

These large spaces are held in a matrix of more neutral 'flexible' space, so that each large public area

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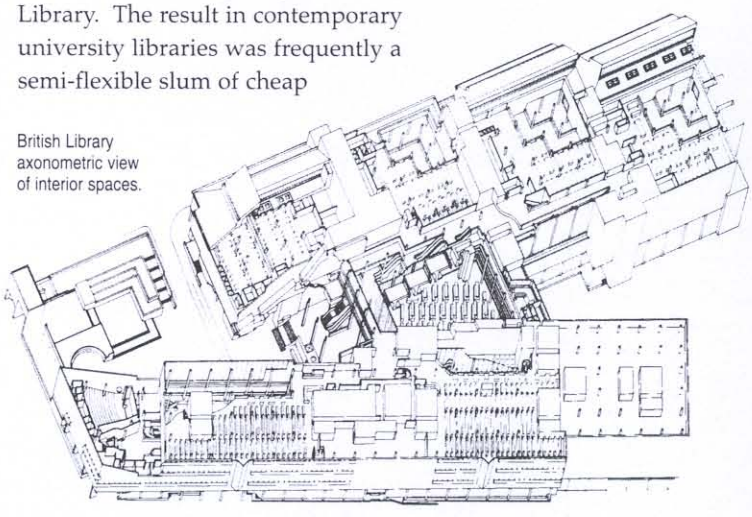
British Library Rare Books Reading Room.

is bordered (in plan, section or both) by such space into which it can expand in a variety of ways. The ratio of readers to stack and to staff can therefore be hugely varied. The building is fully air-conditioned and provided with platform floors throughout.

When it came to the design of the new library for Queen Mary College, University of London in the mid-1980s, it seemed that the conventional wisdom about such libraries was out of step with the budgets available. 'Flexibility' is expensive, and the budget for QMC (similar to other University Grants Committee funded libraries at the time) was a fraction of the cost per square metre of the British Library. The result in contemporary university libraries was frequently a semi-flexible slum of cheap suspended ceilings and light fittings, a basic air-conditioning system with crude controls, an inadequate provision of electrical distribution (platform floors being beyond the limits of the budget), and a confusing spatial order.



British Library axonometric view of interior spaces.

A shift in design priorities seemed to be in order. We set ourselves the task of doing away with air conditioning, keeping the use of short-life finishing materials to a minimum, giving priority to the long-

term distribution of power and data cabling to every reader, and developing a pleasing and intelligible sequence of reading areas. (See *The Architects' Journal*, 17 May 1989).

We did this by moving away from the deep plan library to a narrower configuration with the stacks acting as a heat sink in the middle, and the readers around the perimeter where they could read by daylight much of the time, and where they could be served by perimeter trunking carrying power and data cabling to the end of each table.

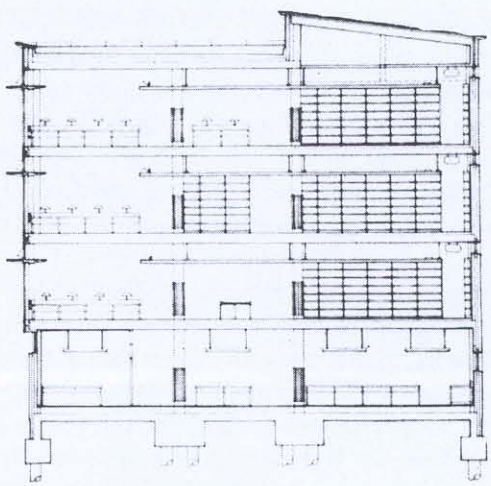
Suspended ceilings were reduced to very small areas, and a variety of environments created by the use of a series of purpose designed light fixtures; wide linear reflectors (at adjustable centres) over the stacks, uplights onto the slabs at the perimeter, and an individually switched reader's task light at each place (made possible by the perimeter trunking). The lighting accounts for a larger part of the building budget than is normal in university libraries, but it creates a variety of spaces, and gives some measure of individual control over the environment. The lighting is more than paid for by the absence of suspended ceilings and air conditioning.

This was all before the discovery of global warming and the hole in the ozone layer, and I cannot claim any energy-conscious policy behind the design of the building at Queen Mary College. It was just a question of the most appropriate use of the capital budget. Now, however, the world has moved on, and when we came to design the new library for the University of Brighton, we were specifically asked not to air-condition the building, and to provide power and data cabling to each reader position.

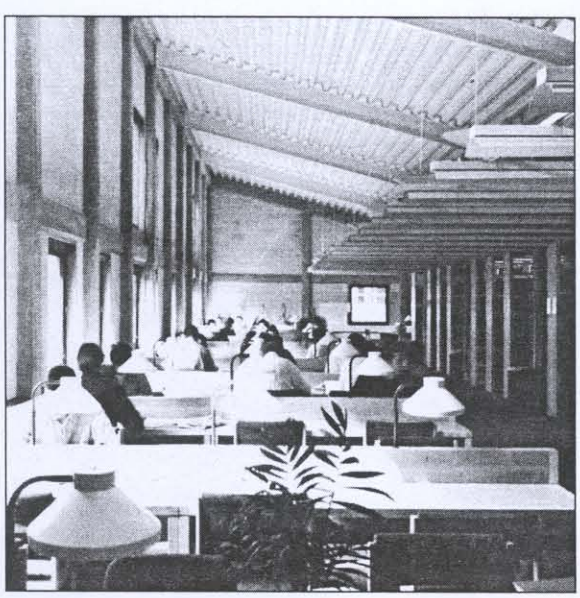
Many of the principles established at QMC seemed to us still to apply; the use of the stacks as a heat sink in a part of the building designed to keep heat gain to a minimum, the location of readers along the perimeter, with good natural daylight, perimeter trunking, and individual task lights have all been retained. Again, the spatial quality of the building is largely established by the system of lighting within a simple structural framework.

At Brighton, although some of the principles derive from the earlier building, the specific shaping and character of the building are unique to the particular situation.

The building is both attached to and entered from an existing university building built in the 1960s on the Moulsecoomb campus for the Department of Engineering. The entry and issue desk, reference, and periodicals reading areas are on the first floor level of this building, from which the new library is also entered. The top three floors of the new building are roughly identical, with a central information area leading to two blocks of stacks and readers on each floor. The exterior walls of the stack blocks are almost entirely solid, and shield the building from south and southwest heat gains. The readers, on the other hand, face an established park and the downs to the north and northeast. A light shelf is used to increase the penetration of good daylight, but reduce heat gain from sun.



University of Brighton Library cross-section.



MARTIN CHARLES

Queen Mary College Library, University of London, reading area.

On the ground floor is a computer centre, which is the only part of the building open all the time. It has its own night-time entrance and has been provided with a full platform floor and air supply through the floor void.

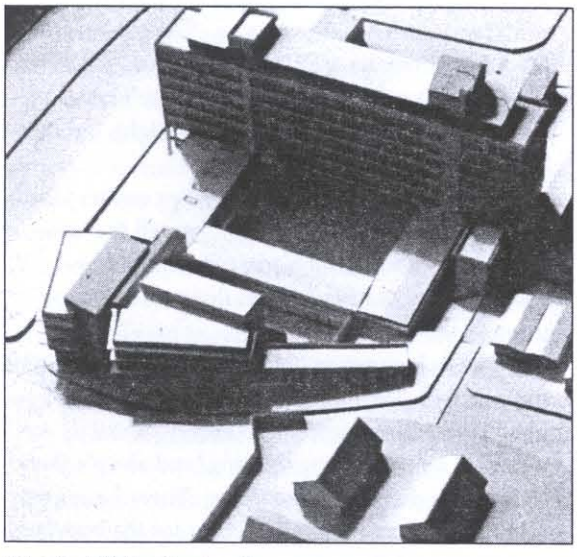
The two University libraries make an interesting comparison. They both have an anatomy based upon a systematic attitude to library flexibility as provided by its lighting, heating, and electrical and mechanical distribution systems. These have been used to create an intelligible order for the building, and positive differences of visual environment

within a simple structural shell. Their character is nevertheless markedly different. While the narrow cross section at QMC has been turned into an urbane brick clad L defining a new square for the campus, at Brighton the reading facades are splayed at an angle to the stacks (giving a larger centre-to-centre dimension for the tables), and the two blocks of stacks and readers have been designed as a lively punctuation mark at the end of a row of classroom buildings.

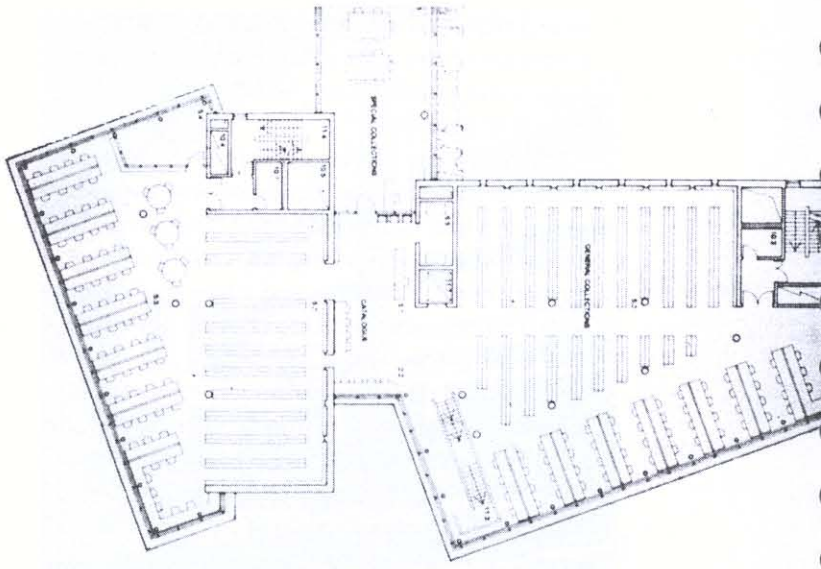
Technically, Brighton is an advance of Queen Mary College in two ways; only the extract ventilation is mechanically assisted. Supply air is provided naturally through 'light shelves' which have attenuated air paths built into them. These shelves (both in the curtain walls and on some of the internal partitions) house the uplights which light both perimeter reading areas and the central circulation spaces. The metal halide light sources used at QMC have been replaced with compact fluorescent sources which are more economical to maintain and more stable in colour.

It is always interesting to speculate on the direction of the next move in the development of the building type. Over the last few years university libraries (in common with other building types), have found ways of providing students with hitherto unimagined levels of electric and electronic servicing, and at the same time have drastically reduced the energy consumption of the buildings themselves. At a tactical level, it seems to me that library designers are now faced with two design problems which seem mutually contradictory: one suggests internal spatial continuity, and the other demands a measure of spatial compartmentation.

On the one hand, we will continue to look for simpler and more energy efficient ways of keeping our buildings comfortable. As we went from mechanically assisted supply and extract at QMC



University of Brighton Library model.



University of Brighton Library upper floor plan.

(partly because of air pollution) to mechanical extract only at Brighton, we might expect to go further in the direction of natural ventilation in the future. This suggests designing interconnected spaces in which we rely on natural patterns of air movement. An atrium acting as a natural chimney for internal air is a tempting possibility. At the same time, students working at computer monitors seem increasingly to want to work in groups - which are often quite noisy.

This tendency towards group working may reduce in the future when students become more competent at using the available data bases; they may not require mutual support to find what they require. In the meantime, we will have to pay attention to the competing demands of free air movement and acoustic isolation. At Brighton, we have developed a light shelf which includes attenuated air passages both between rooms and between the inside and outside of the building, and perhaps this is the direction to be explored; building components shaped carefully to achieve both a free passage of air and acoustic separation, and doing so without the need for moving parts or complex systems of control.

We are searching, it seems to me, for ways of designing with more systematic rigour, but at the same time providing much greater variety in the quality of the architectural environment.