LAPIS
Laboratoire des Arts pour les Sciences

Directeur
Nicola Braghieri

 Assistants
Patrick Giromini
Boris Hamzeian
Sibylle Kössler
Olivier Meystre
HARVEY COURT AND HOSTEL FOR CAIOUS COLLEGE

Sir Leslie Martin and Colin St. John Wilson

from
The traditional English collegiate layout of dormitory blocks assembled around a quadrangle and of the rooms themselves grouped around common central access stairs has frequently been adopted as a model for new university residential developments.

In this new residential building for Caius College, Cambridge, the well-established model has been reinterpreted. This reinterpretation, derived from tradition primarily, in raising the quadrangle or court and its surrounding dormitories to the level of the first floor. This elevation isolates the two rooms and the central court from the ground and these offices of most of the rooms towards the north have lost the effect of producing a somewhat more introverted structure than the traditional collegiate type.

The building is situated in an extensive area of college land on the west side of the River Cam about half a mile from the main college buildings. It has been placed at the north-west end of its site in West Road close to the road, so as to take maximum advantage of an extensive garden on the south side. It is set back slightly so as to permit a small amount of forecourt parking for bicycles and to provide a car access to garages within the ground floor of the building on its eastern and western side. The remainder of the ground floor accommodates bulk storage, service rooms, a small central kitchen, and two relatively large communal spaces comprising a south facing communal room opening on to the garden and a top and breakfast room situated approximately in the centre of the ground floor under the central court.

A principle this building has been thought out as an additive solution to the problem of providing halls of residence. At present only one court of a proposed continuous series of courts has been built. Whether subsequent courts are added or not the fact remains that this building only becomes fully comprehensible in terms of its being one of a series of similar buildings when looked together. By elevating the quadrangle to the first floor level a car free pedestrian area is created at this level which if continued would finally connect a whole series of courts, making a continuous structure to which cars would only have access at ground level.

The unorthodox stepped section used in terracing the rooms themselves was adopted primarily out of two considerations. Firstly it was a means by which to extend the space of the central court both vertically and laterally thereby enabling the upper rooms to participate directly in this space, by affording each student immediate access to continuous public terraces on each floor overlooking the central court, and secondly because such a section afforded a more economic and flexible means of stair access to the rooms, with the maintenance of a measure of direct light to both living units and service rooms.

The main access to the central court from the West Road frontage is via a narrow flight of steps running from the point of entry down to the communal rooms with the ground floor. A similar, but broader flight of steps is led into the southern face of the base providing a direct link between the internal court and the garden. Two entry foyers open off the court, one on the west and one on the north and give access to a broad continuous enclosed access gallery which wraps around the building on three sides, under the stepped section, of the setback above. All the staircases giving access to the rooms above are fed from this continuous gallery and run in straight flights parallel to the sides of the internal court stopping off initially at the second floor and finally at the third floor landings. This device enables all the rooms on the upper two floors to be seen privately grouped around either second or third floor landings.

By this means of access the reduction of access staircases was achieved and larger "sits" became possible in which some of the rooms run right through the section of the block and have a dual aspect. The floor space saved by this reduction in stairs has been thrown back into the horizontal circulation, mainly in the form of a broad access gallery at first floor level, the generosity of which offers ample space for informal meeting.

Each landing group of three to five living units is provided with its own separate provision of service facilities, family bathrooms and "gyp" rooms. A total of about 100 living units is provided, for undergraduates and fellows within the block. The size of basic living room accommodation varies from 14 to 17 sq. ft. of about 250 sq. ft. consisting of a study bedroom plus a small dressing room, to the full set of 220/300 sq. ft. which is provided with a small bedroom in addition to a separate study.

The materials have been kept as simple as possible in order to preserve the unity of the building. The structure is load bearing brick throughout with precast concrete floor slabs spanning between the brick cross-walls. These cross-walls are supporting pairs under the set back of the study bedrooms. The window and screen frames are out of timber douglas fir and the interior decoration is kept to a minimum.

The roof is a timber roof, covered with lead coated copper and this material is also used for all exposed flashings, roof coverings, etc. Brick paving slabs have been used for all external floor surfaces and on some of the interior floors. The heating is provided in each living unit by a 0.5 kw. gas hot water cylinder which runs around the perimeter of the building off every floor. This cylinder is encased in a duct, the top of which forms a broad cold air channel to all the windows of the rooms. The background heat of all rooms is provided by the convection unit. When more heat is required additional convection is assisted by an individually operated fan. The communal spaces are heated by similar hot air blowers. The hot water required both for heating and sanitary use is provided by a boiler situated in a separate building.

architects Sir Leslie Martin and Colin St. John Wilson
engineers Felix Samuely and Partners

HOSTEL FOR CAIUS COLLEGE
CAMBRIDGE
HARVEY COURT AND HOSTEL FOR CAIOUS COLLEGE

Sir Leslie Martin and Colin St. John Wilson

from
This unit of residential accommodation for undergraduates and fellows had to be built on a separate site from the main college where space for expansion was not available. The building has been conceived to form the nucleus of a later development. The geometry of the square courtyard is deliberately broken, and some of the rooms face outward as an anticipation of a larger and looser grouping. The building relies for much of its effect on the resulting tension. A compact building has been achieved by packing dining room and other service accommodation into the centre, under a podium which forms the courtyard. Construction is of concrete slabs and pieces, which are however concealed in the brickwork.
CHAPTER THREE: Oxbridge and Beyond

Housing, health and education were the foundations on which the Labour government elected in 1945 (to the delight of Philip Powell and Jacko Moya) began to build the Welfare State. Powell & Moya had been launched, spectacularly, on the basis of Britain’s largest public-housing project. Although housing did not become, after the completion of Churchill Gardens, a mainstay of the practice, both education and health (the latter in particular, right through to the 1990s) figured hugely in its workload. Indeed, the firm was able to exist for half a century with scarcely any work outside the public sector – a fact that the founding partners, at least, never regretted.

The post-war school-building programme had its roots in the tempestuous world of architectural education in the 1930s (when the AA was rent between traditionalists and socially minded Modernists – the latter eventually winning the day, and creating the ethos in which Philip Powell and Jacko Moya came to maturity). The Butler Education Act of 1944, enacted before the Labour election victory, provided another stimulus to school building, with its guarantee of secondary education for all. Led by Hertfordshire, with its heroic development programme launched by Stirrat Johnson-Marshall (later chief architect at the Ministry of Education), local authorities responded to the urgent need for new schools. Michael Powell left Powell & Moya in 1950 to join the housing division in the LCC Architect’s Department, then led by Robert Matthew, and became its Schools Architect in 1956. The school-building programme was, above all, a triumph for public-sector architects, but there was work too for private practices – Yorke Rosenberg and Marshall (YRM); Architects’ Co-Partnership; Ernő Goldfinger; H. T Cadbury-Brown; Denys Lasdun; and Chamberlin, Powell and Bon were all commissioned to design schools in London during the 1950s. Powell & Moya’s Mayfield School, completed in 1955 for the LCC with Bob Henley as architect in charge, was one of the most notable of these projects.

Ian Nairn described Mayfield as ‘one of the best modern buildings in Britain’, praising its ‘burning humanity, its devotion to the job it has to do and the avoidance of any kind of self-conscious architectural effect. There is plenty of architectural effect, but it is natural and integral.’ Powell & Moya’s task was to expand an existing girls grammar school, founded in 1907 and catering for 500 pupils, to a comprehensive

Opposite: The Cripps Building of St John’s College, Cambridge
embraced land freed up by wartime bombing, and there were a number of mature trees which were, as far as possible, retained. In contrast to the irregular layout of the existing school buildings, Powell & Moya’s additions were arranged on strictly orthogonal lines at the heart of the site — with three classroom blocks of three storeys each extending off a central assembly hall, and a separate gymnasium block to the west. In contrast to the Tulse Hill approach, Mayfield reflected a strategy of humanising the comprehensive by breaking it down into manageable units.

The Architectural Association Journal felt that the external effect of the new buildings was more successful than its ‘hard, mechanistic’ interiors.5 In fact, the low cost of the project, and the fact that it was completed ahead of schedule, was the result of a hard-headed approach to construction, using relatively traditional techniques and eschewing the use of a standardised system. The teaching blocks used load-bearing brick cross- and end-walls, rather than a framed structure — this at the time of a continuing steel shortage — with floors of pre-stressed concrete planks. Internally, they were all arranged with rooms along central corridors (not overlaid but necessarily devoid of natural light): a practical and economical diagram. Externally, the blocks were clad in a bespoke system with timber frames housing metal-framed window units — a pragmatic approach typical of Powell & Moya which, thanks to careful detailing,
produced an extremely elegant aesthetic. The central assembly hall block, also used for dining, was, according to the *AA Journal*, "fine, majestic and exciting." Sliding screens allowed the principal space to be expanded to seat 1,800—a device that subsequently proved difficult to utilise. This block was steel-framed, its roof structure consisting of two space frames covered in hardwood boarding, their ends resting on rolled steel columns that were left uncased and painted. The steel shortage appears to have kicked in again by the time the gymnasium block, housing three spaces with changing rooms in between them, was designed, since great exposed timber trusses of African mahogany spanning 11 metres (36 feet) were used here for the roof structure. Revisiting the school five years after its opening, the *AJ* found its principal defect to be that of communications—the decentralised plan meant regular, time-wasting movements of pupils and staff across the site. There was also a worrying problem with the deflection of the roof trusses in the gymnasium block, while the studded rubber floors used extensively in the buildings had largely worn out and were being replaced with linoleum. Generally, however, the school was 'standing up well to hard and efficient use' Today, its merits can only be appreciated via photographs, since Powell & Moya's buildings were radically and disastrously altered in the 1980s by Wandsworth Council.

A much later, and less well-known, school project by Powell & Moya, Plumstead Manor Comprehensive, completed in 1973 for the GLC, involved a similar mix of existing and new buildings. Indeed, in this project, designed at a time when old buildings were increasingly valued, the restored King's Warren School of 1913 was given a pivotal role in the development of the site. New, low-rise buildings were laid out in small blocks linked by corridors around landscaped courtyards. As Sherban Cantacuzino commented in the *AR*, these blocks 'are not just domestic in scale; they could, quite simply, be housing.' The extensive use of brick and pitched roofs reflected Powell & Moya's 'deep concern with the place they build in.' Contemporary with the Plumstead project came a commission (in 1973) from a very different school: Eton College. The brief was to provide a refectory for boys and a university-style common room, with bar and restaurant, for masters. The site was a garden close to the heart of Eton. The building—initially known prosaically as 'the central feeding building,' later Bekyllton—is an elegant single-storey, steel-framed structure with covered walkways extending around enclosed courts, the interiors illuminated by monopitch clerestones. 'Admirably crisp,' is the *Buildings of England's* comment.

While Mayfield School neared completion, Powell & Moya became involved with the first of a series of projects for Oxford and Cambridge colleges. Brasenose College, founded in 1509, was neither the largest nor the most prestigious of Oxford's colleges.
it had long been renowned for sporting, rather than academic, prowess. However, it occupied a site close to the very heart of the city, wedged between the High Street and the Bodleian Library and with Gibbs’s Radcliffe Camera and the University church of St Mary as near neighbours. Towards the end of the 19th century, the architect Sir Thomas (‘Graham’) Jackson had extended the college towards the High Street, where his elaborately decorated Gothic frontage is often assumed by the uninitiated to be genuinely medieval. Wedged into the west by Lincoln College, Brasenose (‘BNC’ as it is always known in Oxford) had little space for further growth, but there was a small L-shaped sliver of land behind the shops on the High Street and to the west of Jackon’s splendid New Quadrangle, which had acquired the nickname of ‘the Arab Quarter’. The Baroque church of All Saints, later converted into a library for Lincoln College, loomed over the wall. Philip Powell recalled a gloomy area ‘filled with decomposing lavatories and baths’, a truly dilapidated backyard. The genesis of the building project that was to occupy this unpromising space came as early as 1954. Derek Stow, who worked on the project in its early stages with Philip Powell, recalls that the college wanted a building that would last 200 years. The client brief, wrote Powell, was simply to ‘fit in, squeeze in, as many rooms as you can without being anti-social about it’.

The mid-fifties was a period of transition for architecture in Oxford. In the immediate post-war years, the University was still completing laboratory buildings in a broadly traditional style by Hubert Worthington, Lanchester & Lodge and others. Sir Edward Maufe’s Dolphin Quad at St John’s College was a competent, if lifeless, exercise in pre-war Neoclassicism. The new buildings of Nuffield College, a bizarrely stretched reprise of Cotswold vernacular completed in 1962 to designs by Austen Harrison, were described by the authors of New Oxford, a guide to new buildings in the city prepared by a group of students, as ‘Oxford’s biggest monument to barren reaction’.

J. M. Richards in the AR called Nuffield a missed opportunity of a really tragic kind. In this climate, the completion of the ‘Beehive’ building at St John’s in 1960, with a further scheme by Maufe (who was an honorary fellow of the college) dropped in favour of designs by Architects’ Co-Partnership, seemed a major breakthrough and paved the way for the rest of the traditionalists. The prime mover in the Beehive project was a young don, Howard Colvin, subsequently to become the best-known architectural historian of his day but no advocate of historicism in new architecture.

The building boom that gripped Oxford from the late fifties on was largely driven by the demand for more residential accommodation for students. Not only were numbers growing (up to 9,500 by 1965) but there was also a consensus that undergraduates should be able to spend at least two years of their time at Oxford living in college — before the Second World War, over half of the undergraduate population was obliged to live in extramural lodgings. It was clear that the new accommodation could not duplicate that in existing buildings dating from the 14th to the 19th centuries: ‘sets’ were out, bedsits in.

It remains unclear why Brasenose chose Powell & Moya, and college archives give no evidence that anything approaching a selection process was established, though.
the installation around this time of a new bursar, Norman Leyland — his predecessor had been in office since 1929 — was probably significant. Leyland had been appointed Fellow in Economics in 1947. He had an astute grasp of finance, enjoyed playing the stock market and proved an excellent manager of the college's finances — BMC was not a rich college. He was also modern-minded, a lover of jazz and of modern architecture — a member, it seems, of an exclusive club of like-minded dons that included David Henderson of Lincoln College (later a professor at University College London). Leyland went on to become first director of the Oxford Centre for Management Studies (founded in 1965). He approached Powell & Moya to design the Centre's building, which became Templeton College, but Philip Powell declined the job on the grounds that the practice had too much work, and recommended his former assistant, Richard Burton, as architect — Leyland subsequently moved into a house designed by Burton's practice.

The formal decision to commission development proposals for the Arab Quarter site at BMC was taken by the college's governing body in December 1955. By the following February, Powell & Moya was the chosen practice. Early sketches for the new building show something distinctly removed from what was eventually built. It was to be clad in traditional Oxford stone, perhaps the Clipsham limestone popularised by T. G. Jackson towards the end of the 19th century. Although unequivocally modern, the building was to feature a type of mullioned window. The overall form of the building was to be rigidly rectilinear. In 1957, Richard Burton joined Powell & Moya, and after working (with Paul Koralek for a time) on the nurses' housing at the new Swindon hospital was in due course put in charge of the Oxford project under Jacko Moya, following on from Robert Huddleston. Burton, later a founding partner in the practice of Ahrends Plan of the ground floor of the additions to Brasenose College
Burton Koralek, had come from the LCC after training at the AA. His contribution to the evolution of the project was undoubtedly considerable. (The third partner in ABK, German-born, South African-raised Peter Ahrends, though never formally employed by Powell & Moya, designed much of the furniture for Brasenose.) Burton recalls reworking the scheme - 'the first version was a mess' - with Moya, though Powell was also much involved. Planning consent was given in 1959, after an unexpected referral to the Royal Fine Art Commission, and the scheme went on site with locally based N. Collison Ltd as contractors. The nature of the site produced strained relations with neighbours. Lincoln College complained about noise from the construction works and the collapse of a wall, which destroyed a compost heap belonging to its Rector.

The new buildings at Brasenose College were clad in Portland stone, rather than the Oxford stone originally envisaged.

In fact, though the site was very confined, it presented a challenge that the architects rather relished. 'We tried to treat the new work not as a separate building but as another piece of the existing jumble,' Philip Powell commented later. It was imperative to capitalise on such views as were available and to maximise natural light within the 32 student rooms provided. An irregular plan was the result, with most of the rooms accommodated in a four-storey block consisting of two 'bastions' (each with its own staircase and connected only at ground- and top-floor level) at the south end of the site, close to the High Street and overlooking the churchyard of All Saints. The narrower strip extending along the rear of the New Quad contains a series of one-storey pavilions, with rooms approached through small entrance courts. Like the Beehives at St John's, the buildings are faced in Portland, rather than Oxford, stone - in fact, the stone walls are load-bearing, not a veneer - with sliding plate-glass windows and plentiful use of lead sheet on external surfaces. Inside, one shower or bath was provided for every eight students - 'quite enough', it was argued by the college.
The strongly modelled form of the buildings reflected a break with Powell & Moya's previous work, and with initial ideas for Brasenose — indeed, not everyone warmed to the 'peculiar' geometry of the building, though *New Oxford* judged it 'one of the most important post-war contributions to Oxford's architectural heritage'. There are clear hints in the scheme of the direction in which ABK was to move — Richard Burton left Powell & Moya when the new practice was launched in 1961, Peter Skinner recalls the project as one that, whatever its satisfactions, 'made us no money'. However, it soon acquired a reputation as a highly innovative intervention into a historic context, and the college was swamped by visiting parties of architects, students and planners. George Pace, the York architect then working on designs for a new library at Durham University, came at the suggestion of the Dean of Durham (a BNC man) — it is not hard to detect the influence of Powell & Moya in the building he completed there in 1966. So did the Master of St John's College, Cambridge, which had already appointed Powell & Moya as the architects for a much larger new building, funded by an alumnus of the college.

Brasenose proved to be a problematic project for Powell & Moya: here, as elsewhere, innovative design was out of step with the building technology of the day. By 1965, there were complaints that lead sheeting was detaching itself from the walls and damp was soon penetrating through roofs. Moya came to the college to discuss the problems, bringing with him Powell & Moya's regular engineering consultant, Charles Weiss — 'a very tough customer', the bursar commented. In due course, the problems were resolved, though not before the architects had made an *ex gratia* payment of £1,000 towards the cost of repairs.
The commission from Christ Church, Oxford, to design a more substantial residential development came directly out of the Brasenose job. The college, one of the largest and wealthiest in Oxford, wanted accommodation for around 60 undergraduates in study bedrooms, with eight sets for eight research fellows. The site, mostly used for parking, was long and narrow, extending 90 metres (300 feet) along Blue Boar Street, a narrow thoroughfare, perhaps best known for the Bear pub, separating the northern edge of Christ Church from the Town Hall. On the edge of it was the Old Brewhouse, a listed building that had to be retained. Other structures there were cleared.

Discussions with Oxford planners produced an immediate difference of opinion. The planners wanted the stone wall along Blue Boar Street demolished, so that the street could be widened. Powell & Moya resisted: instead, the wall remained imperforate, wrote Philip Powell, 'and was used as a podium for a low superstructure of north-facing staircases, landings and bathrooms following its curve but broken up into small "towers" a kind of castellated coping. Here is a setting of street, not college architecture, yet with a hint of collegiate life behind - a common event in Oxford.' The AR liked the way in which the new development, completed in 1968, broke with the monumentality of Christ Church, being arranged as an irregular quad of almost medieval character, 'separate, distinct, organic'. It used much the same palette of materials as the Brasenose scheme - Portland stone for load-bearing walls and dominant vertical buttresses, lead panels and exposed concrete floor slabs - but the aesthetic was stretched sideways, producing, it was felt, 'a looser and for that reason lesser architecture'. Student rooms were placed on three floors, with rooftop sets for research fellows arranged as pavilions in order to produce, along with the strongly modelled water tank housings, a castellated roofline of decidedly picturesque aspect (which Pevsner, who admired the scheme, felt was a trifle self-indulgent). The interior of the site was excavated by around 1.2 metres (4 feet) in order to allow for the requisite height, while restricting the impact of the building on Blue Boar Street. Rooms were grouped around four stairs, with each landing serving three rooms, and with bathrooms, WCs and pantries at half-landing level. As at Brasenose, the Christ Church development was to suffer from practical problems, especially with regard to roof coverings, which led the college to consider possible demolition. That option closed when Blue Boar Quad was listed at Grade II*. In 2008, a major refurbishment scheme by Purcell Miller Tritton, including upgrading of all rooms with en-suite bathrooms, was under way and promised to give the buildings a century or two of useful life.

Blue Boar Quad shared much of the language of Powell & Moya's largest Oxbridge project, the Cripps Building at St John's, Cambridge - the timescale of the two schemes overlapped in the office. From Christ Church, however, there was another commission, producing one of the practice's most satisfying buildings, Christ Church's outstanding

The Picture Gallery at Christ Church was designed to slot into the Dean's Garden with minimum disruption.

The Picture Gallery at Christ Church housed the college's rich collection of paintings and drawings.
art collection, included not only a splendid array of paintings, chiefly by Italian primitives, but also around 2,000 drawings which were the real glory of the collection. The aim was to provide a place where this collection could be safely conserved and also shown to the public. The only site available was the Dean’s Garden, which lay to the east of the great Tom Quad. One assumes that the then Dean was happy with the invasion of his private domain, for Powell & Moya’s project preserved much of the amenity of the garden, sinking the new gallery into the verdant lawns. Philip Powell, who was particularly fond of this project, wrote:

A tunnel burrows its way through the basement, suddenly revealing a glassed-in cloister around a lawn and the interior of the main Gallery itself, half-sunk into the Dean’s garden, white, top-lit and of stone, plaster, concrete and wood. Outside and unseen by the public the lowered Gallery is a rough stone wall no higher than the garden walls which surround it. A series of sunken, ramped and elevated lawns, weaving their way around and over the Gallery, give the Dean his garden back.13

Inside, the aesthetic is one of bare plaster, stone and tiled floors: rather too monastic, one reviewer felt, especially for Tintoretto and Van Dyck. There was too little space, some felt, for displaying drawings (in a tiny, artificially lit strongroom). Nonetheless, 40 years on, in the aftermath of many art museum projects in which the works of art seem a lesser consideration than the ego of the architect, the Christ Church Picture Gallery has aged gracefully. Indeed, it prefigured a series of gallery projects, including those by Louis Kahn and Renzo Piano, in which architecture and art coexist without deference on either side.

Compared to the work at Brasenose and Christ Church, Powell & Moya’s addition to Corpus Christi College, completed in 1969, is a more modest proposition. With 41
study bedrooms, the building overlooks Magpie Lane but is accessed from the rear. It is seen to best advantage at roof level, where a varied roofscape provides interest. At street level, it is still possible to regret the loss of the early 19th-century houses demolished to make way for the development.

It may seem surprising that Powell & Moya was not commissioned for one of the new universities which so transformed British higher education in the 1960s. The explanation might be found in the sheer volume of work that the practice was handling at the time, notably at Oxford and Cambridge and in the hospital field — 'it restricted the amount of new work we could decently take on,' Philip Powell recalled. Some idea of how the firm might have tackled such a commission can be gained from Wolfson College, which occupies a self-contained campus in north Oxford. The foundation of the college as a graduate society, camping out in a series of old houses, reflected the rapid increase during the post-war years in the number of postgraduate students at Oxford, especially in science subjects. The aim of Wolfson's founding members was to establish a permanent graduate college, where there could also be accommodation for married graduates and their families. Initially known as Iffley College, it was to occupy a picturesque site in the village of the same name — unfortunately far too remote from the centre of Oxford to be a practical base. After Professor (later Sir) Isaiah Berlin was
elected (in 1966) as the college’s first president, £1.5 million of funding was secured from the Wolfson Foundation for the buildings, to be erected on a site donated by the University of Banbury Road and close to the River Cherwell. Berlin sensibly sought advice on the appointment of architects. Nikolaus Pevsner suggested Powell & Moya as one notable ‘outstanding’ practice. A selection committee was subsequently formed and visits made to new university buildings in Britain and abroad. In Finland, they met Alvar Aalto (disliking his use of ‘harsh red brick’). The search extended to the USA, where visits were made to Princeton, Yale and other campuses: ‘The journeys in Britain alone extended to almost 4,000 miles.’ The resulting shortlist was somewhat eccentric, consisting of Gordon Bunshaft of Skidmore, Owings and Merrill (architect of the Beinecke Library at Yale), the Finnish husband-and-wife team of Heikki and Kaija Siren (best known for their work at the University of Technology in Otaniemi), and the practice of Powell & Moya. The appointment of Powell & Moya (in May 1967) came after the firm had been selected as architects for the prestigious British Pavilion at the Osaka Expo, due to be held in 1970.

By January 1968, the large Victorian house at the centre of the site had been demolished, and in May the Queen laid the foundation stone. The buildings were completed...
Geoffrey Tyack, comparing the romantic planning of Wolfson with the rigid rationalism of Arne Jacobsen’s St Catherine’s and praising the integration of Powell & Moya’s buildings with the landscape, nonetheless found the architecture of Wolfson ‘somewhat monotonous’. Yet the college remains, later additions notwithstanding, one of the major works of the practice and an expression of its commitment to humanity and appropriateness over mere display.

One major Oxford project remained unbuilt. In 1967, Powell & Moya was commissioned to work with the great Italian engineer Pier Luigi Nervi on a new building for the Pitt Rivers Museum, an extraordinary anthropological and archaeological collection given to Oxford University in 1884 and housed in an adjunct to the Victorian Gothic Museum. The designs, for a circular building with a tropical garden housed beneath a glazed dome at its centre, reflected the curatorial programme — to present material in a typological sequence, as the museum’s founder, Lt-General Pitt Rivers, had always intended. The project was not uncontroversial, since it involved demolishing existing Victorian buildings on Banbury Road, but its abandonment — the requisite funding was not forthcoming — was lamented by Howard Colvin, who wrote: the project was, perhaps, the last chance for the University to build in the twentieth century something that would take its place with the Divinity School, the Radcliffe Library and the Ashmolean Museum as a major work of European architecture.

A typically bold perspective by Jacky Moya of the first proposal for the Cripps Building at St John’s College, Cambridge.
The Cripps Building occupies a green site on the fringe of the college

England’s other ancient university seemed, for a time, to have taken the lead over Oxford as a patron of new architecture. ‘Cambridge’, wrote Pevsner, ‘is one of the happiest hunting-grounds in Britain for specimens of the architectural style and fashions of the nineteen-sixties.’ Like Oxford, the University had grown (to over 10,000 students by 1967) and there was a demand for more residential accommodation. In 1956, Leslie Martin, Chief Architect to the London County Council, had become head of the University’s department of architecture (Oxford famously declined to teach architecture). He was to exercise a potent influence on new university architecture across the country (recommending Chamberlin, Powell and Bon, for instance, to masterplan the expansion of Leeds University). When St John’s College was offered a remarkably generous benefaction by an old ‘Johnian’, Humphrey Cripps (1915–2000), Martin was one authority consulted. Cripps’s family business was in the manufacture of pianos but he had amassed a fortune by diversifying into motor parts, employing over 1,000 people in his Northampton works. Cripps had developed an association with Nottingham University, where he entirely funded the construction of Cripps Hall, a hall of residence on the campus designed by the Neoclassicist practice of McMorran and Whity and completed in 1959 at a cost of over £100,000. St John’s had launched a development appeal, both to refurbish and modernise its existing residences and to build new ones. In 1958 Cripps offered ‘to deal with the new buildings part of the appeal’. The then master, Sir James Wordie (who had been Cripps’s tutor at the college), wrote of the offer: ‘we must show immediate appreciation; this may be the largest benefaction the college has ever received’. Cripps’s approach was initially cautious. By the end of 1959, he had offered £75,000 with an equal sum in a year’s time – his donation was eventually to top £1 million. Donald McMorran, he suggested, might be a suitable architect for the new buildings. A delegation from St John’s, led by the new master, the Rev. J. S. Boys-Smith, went to see Cripps Hall – its reactions are not recorded, but Leslie Martin was already being consulted both on the siting of the building and on the selection of an architect. This would clearly not be a traditionalist if Martin had his way. The site was a fairly obvious choice: a parcel of land owned by the college at Fishpools Close, north of the 1830s Gothic Revival New Court and Magdalene College’s Benson Court designed by Sir Edwin Lutyens close to the end of the Backs where the Bin Brook flows into the River Cam. Martin advised against an...
open competition, but suggested that a shortlist of practices be invited to present ideas. Members of the college’s governing body were asked for suggestions. Interestingly, one of the first names put forward was that of the young Cedric Price, who had graduated from the college as recently as 1955 and had as yet built nothing. David Roberts and Hughes & Bicknell, both with a strong track record in Cambridge, were more practical suggestions. The names of Arne Jacobsen, Sir Hugh Casson (another Johnian), RMJM and Leslie Martin himself also featured on the list. Early the following year, Sir Nikolaus Pevsner (who had held a fellowship at St John’s while Slade Professor of Fine Art at Cambridge between 1949 and 1955) submitted a list of possible architects, including Powell & Moya, Denys Lasdun, Chamberlin, Powell and Bon, Architects’ Co-Partnership, Denis Clarke Hall and James Cubitt. Martin added the names of James Stirling and Alison and Peter Smithson, the leading advocates of the ‘New Brutalism’. As the deliberations progressed, those of a number of eminent foreign architects featured: from the USA, Louis Kahn, Gordon Bunshaft of SOM and Philip Johnson;

A covered route, with access to staircases, forms the ground floor of the Cripps Building at St John’s College.

Humphrey Cripps, founder of the Cripps Building at St John’s, went on to fund a major addition to Queens’ College, Cambridge.

Italy’s BBPR and Ignazio Gardella; and Alvar Aalto from Finland. Aalto was a significant influence already on Leslie Martin and his assistant Colin St John Wilson, and since Martin was due to visit Finland in the summer of 1961 he undertook to approach the eminent Finn. Pevsner was doubtful: Aalto, he told the master, was ‘not an easy man to pin down’ in due course, Martin reported that Aalto ‘would not commit himself’ and regretfully would have to be discounted.21

The selection process for St John’s Cripps Building is remarkably well-documented and reflects the ambition of the college to acquire a building of outstanding quality. Chamberlin, Powell and Bon, masterplanners of the Leeds campus, and Richard Shipyard, appointed architect of the new Churchill College in July 1959, were judged to be too busy. Max Fry’s practice was ‘not as good as it used to be’. Andrew Renton, who had worked with Basil Spence on the Erasmus Building at Queens’ College, was simply ‘not the man’. By August 1961, Aalto having been finally ruled out, it was resolved to approach Lasdun and Powell & Moya, and both made their initial presentations in
October. The final presentations took place on 24 April 1962. The governing body met on 4 May and a vote was taken: for Lasdun, 22; for Powell & Moya, 28. A week later, a better-attended meeting produced 29 votes for Lasdun and 35 for Powell & Moya, who were subsequently invited to undertake the project. Lasdun’s proposal, with echoes of the ‘ziggurats’ he was to build for the University of East Anglia, consisted of four pyramidal blocks linked by walkways, and would have been at odds with the context of the Backs. (Indeed, Lasdun does not appear at his best in Cambridge – his projects for Christ’s and Fitzwilliam colleges, both only partly realised, are among his weakest works.)

The Cripps Building was a major extension to St John’s, the largest since the completion of New Court, with accommodation for 200 undergraduates (a mix of study bedrooms and two-room sets), plus eight larger sets for Fellows. Typically for Oxbridge, space standards were considerably higher than those in other universities – the then University Grants Committee norm was 11 square metres (120 square feet) for a study bedroom, while those in the Cripps Building were half as big again. Rooms were arranged in the traditional way, on staircases with bathrooms and WCs on the same floor. The building was designed for a long life – Mr Cripps specified 500 years and was prepared to pay for high-quality materials – but the college wanted an element of flexibility (which was lacking in the Brasenose project). Hence, structural cross-walls were dispensed with in favour of a concrete frame with columns (housing ducts) along the perimeter of the building supporting in-situ floor slabs. Internal partitions were of non-structural blockwork. Externally, the building was faced in Powell & Moya’s (by now) favoured mix of Roach and Whitbed Portland stone. As at Brasenose, what attracted critical attention was the architects’ response to place and their ability to work in context in a frankly modern manner. The building was arranged as a sinuous line, snaking across the site from the Clore on the east, where it reached down to a pont dock on the river, towards the ancient School of Pythagoras (long pre-dating the college) on the west. While not arranged in the form of traditional courtyards, the building evoked the atmosphere of the classic Cambridge court. As Philip Powell explained, whilst never containing courtyards itself, it gives the effect of courtyards by its confrontations with other buildings or with other parts of itself, continuing the collegiate pattern of court following court established by older parts of the college. A covered route extended along the building at ground-floor level. Projecting bay windows allowed the rooms to take full advantage of the varying views.

The Cripps Building remains a magnificent climax to the superb sequence of spaces that form St John’s. A photograph taken at the opening party in 1967, with mini-skirted girls sipping champagne on the roof of the building (now closed off on health-and-safety grounds), captures its optimism and sheer style. The critics were unstinting in their praise. Pevey described Cripps as ‘a masterpiece by one of the best architectural partnerships in the country’. For the young bloods at Cambridge New Architecture (the third edition appeared in 1970), the building, however, was in some respects problematic. It was simply too traditional: ‘by its very nature it reinforces the glorious
The success of the St John’s project led Humphrey Cripps to commission Powell & Moya in 1971 for a second Cambridge scheme, at Queens’ College. The architects came with the offer of the funding, and the college was given no choice in the matter and was not even aware of the budget. Since Cripps managed the project, directing the contractors personally. He took a great interest in the project, even visiting our site Portacabins to review aspects of the ongoing design and telling risqué jokes, recalls Roger Burr, who joined Powell & Moya in 1969 as a newly qualified architect (he had had a summer job in the office while still at school) and later became a partner, working on the second phase of the Queens’ project. Burr recalls Jaco Moya as a very much hands-on partner in charge, attending weekly meetings – and enjoying spare moments punting on the Cam. The site was the last one available anywhere on the Backs, across the river from the picturesque older buildings of the college and behind Queens’ College’s Fisher Building (Neo-Tudor of the 1930s and memorably described by Pevsner as ‘looking exactly like a friendly block of Flats at, say, Pinner’). Again, the project was a large one: 166 student rooms, some fellows’ sets and a new dining hall to seat 250. The scheme was completed in three phases: the first in 1975; the second phase, including the dining hall, in 1978. (The final phase, including sports facilities, was completed only in 1989, to designs by locally based Bland, Brown & Cole.) In contrast to the romantic and irregular layout of the St John’s building, that at Queens’, laid out around a square court, is highly formal and rigidly orthogonal, deliberately continuing the sequence of existing courts. As at St John’s, structural cross-walls were replaced by a framed structure, allowing for long-term flexibility. The structure was expressed at Queens’ as a framework of exposed, hammerd concrete columns, which used a white aggregate, supporting floor slabs and sills – producing an aesthetic that some have judged too severe for the context of the Backs. The contrast between Cripps Court and the warm red brick of the older buildings at Queens’ is certainly dramatic. The critic Stephen Gardiner, who was always generous to Powell & Moya, felt that their work at Queen’s was ‘easily the best piece of modern architecture by a British architect anywhere’; yet there is a precise, even slightly clinical quality to Cripps Court that is not present in any of the other Oxbridge projects.

The finest element in the scheme is undoubtedly the dining hall, with its dramatic roof structure, delicately engineered and clad in warmly textured timber – impressive, but at the same time intimate and a really successful reinterpretation of the traditional Cambridge hall. Powell & Moya was always good at designing social spaces and the geniality of the practice shine through at Queens’. The extended schedule of the project reflected the changing economic climate of the 1970s. In the wake of the oil crisis of 1973, Roger Burr recalls Humphrey Cripps’s close involvement: as at St John’s the metal components for the buildings were made in his factory – window frames, handrails, door hinges (actually the same type of hinges as those made for pianos). Moya, who loved working on the detailed design of such items, collaborated with Cripps on the specifications. Jaco Moya also designed a new foothold to supplement the college’s famous ‘Mathematical Bridge’, a structure to be made entirely of stainless steel tubing.
formed as hoops, criss-crossed to form a lattice. Charles Weiss had doubts about the practicality of the designs, but Moya developed them with members of the Cambridge engineering faculty and proved them workable. Sadly, the bridge was never constructed. Cripps’ business was hit hard by the economic downturn and he was forced to scale back his contributions to the project, completing the phase 2 fit-out with labour drafted in from his factory. He returned to Queens’ in the mid 1980s, selecting the architects Bland, Brown & Cole for phase 3, a ‘pastiche of the earlier phases’ in Roger Burr’s view although Julian Bland of Bland, Brown & Cole was, in fact, an ex-employee of Powell & Moya, and had worked on the Queens’ scheme. The more recent addition (completed in 2007 to designs by Bland, Brown & Cole) is a top floor, clad in grey-coated metal, to the residential buildings around the central court addressed the continuing need for more accommodation but showed little respect for Powell & Moya’s architecture.

Beyond Oxford and Cambridge, which had provided Powell & Moya with outstanding commissions, there were other university projects. For the University of Bristol, the practice designed a School for Advanced Urban Studies and some residential buildings. The former, completed in 1980, was an extension to an existing Georgian building in the Clifton area of the city, designed in a quiet and appropriately subdued reinterpretation of the vernacular, with pitched roofs and rendered walls. It was demolished after the University disposed of the site in the late 1990s. (Powell & Moya had, in fact, explored this theme many years before, in the new dining room for the Bath Academy of Art at Corsham. Set in the garden of an old mansion and completed in 1970, this building featured an exposed timber roof internally and the use of local stone as an external facing. The Academy quit Corsham in the 1980s. The mansion is now flats and Powell & Moya’s extension has been demolished.)

More significant than the Bristol project was Powell & Moya’s work, extending over more than a decade, for Royal Holloway and Bedford New College (RHBNC), a college of London University located outside the capital at Egham, Surrey. Royal Holloway College (which later absorbed Regent’s Park-based Bedford College) was founded by patent-medicine magnate Thomas Holloway as a pioneering women’s college. Holloway funded its vast and magnificent premises, completed in 1887 to designs by W. H. Crossland in a fantastically ornate French Renaissance manner. The merger with Bedford College, driven by government spending cuts and announced in 1981, meant that the number of students on the site would double to over 3,000 (15 years later, numbers had topped 5,000) and Powell & Moya was commissioned in 1983 to draw up a masterplan for future development. New development, not all of it especially distinguished, had already occurred on the wooded land north of the Grade I listed Founder’s Building and consisted of random, unrelated buildings. Powell & Moya's strategy was to knit these buildings together with new development, eight blocks in total, designed to create intimate, courtyard-like spaces between buildings. Parking was pushed to the edge of the site. Given the imminent move of Bedford from Regent’s Park, the focus was on rapid construction — some departments had to occupy temporary, prefabricated buildings for a few years — and economy, since the scheme was largely dependent on

University Grants Committee funding. Working with Ove Arup & Partners, Powell & Moya developed a system-building strategy based on standardised components: an in-situ concrete frame with columns at the perimeter (clad in brick) and centre, exposed timber mullions to contain the external-wall system of fibre-cement panels and strip windows, and profiled metal sheeting as a covering for the pitched roofs. All the buildings were between 12 metres and 15 metres in depth (40–50 feet), allowing for a variety of internal layouts and providing ample natural ventilation and daylight. The black-and-white grid of the cladding provided the theme linking the new buildings, and furnished the growing campus with a welcome continuity.

Critics Martin Spring found the RHBNC buildings, completed and occupied during 1986, 'cheap and cheerful rather than elegant', though Stephen Gardiner perceptively saw them as a 'village', nesting under the bulk of Mr Holloway's 'castle'. The aesthetic was neo-vernacular in flavour, as at Bristol, reflecting the rise during the 1970s of a new, user-friendly approach to design seen particularly in the work of Peter Aldington, Edward Cullinan and Richard MacCormac. The college library, completed in 1993,
The Library at Royal Holloway College, completed in 1993, reflects a new direction in Powell & Moya's architecture.

occupies a central location on the campus and complements the existing library in the Founder's Building. Constructed in 12 months at a cost of just over £1.8 million, it is, like the other Powell & Moya buildings, a three-storey structure (set into a slope, so that the main entrance is at first-floor level) but deeper in plan than the other blocks (35 x 25 metres / 115 x 82 feet) and externally clad entirely in brick. The top-floor reading room, with its exposed timber roof beams and generous natural lighting, is the finest element in a building that John Haworth (Powell & Moya partner from 1984) fairly describes as 'a building of evident quality achieved within a tight budget'.

From Putney in the early fifties to Egham in the 1990s Powell & Moya's architectural transformation reflected the rise of Modernism and, equally, its catastrophic decline into unpopularity from the late sixties onwards. If any British practice was able to keep the Modernist flame alight, it was surely Powell & Moya - a practice which had steered clear of the high-rise housing and banal city-centre developer schemes that were increasingly singled out for opprobrium, and had pioneered a modern architecture in tune with context and history. But for Powell & Moya, too, the times were changing.

Notes
5 "Comprehensive School Architects' Journal, 7 April 1960, p.544.
8 Philip Powell, 'New grafted on the old (Four additions to Oxford colleges)' Monumentum, vi-xi, 1975, p.56.
12 Philip Powell, 'New grafted on the old' p.58.
14 Philip Powell, 'New grafted on the old' p.90.
17 Geoffrey Tyack, op. cit., p.316.
20 St John's College, Cambridge, building committee minutes and correspondence re. Chrys Building in college archives, quoted by permission of the Master, Fellows and Scholars of St John's College.
21 Ibid. The archives also contain drawings and perspectives for the project.
23 Pevsner, Cambridgeshire, p.168.
25 Pevsner, Cambridgeshire, p.138.
26 Stephen Gardiner, 'Masterpiece by the Cam' The Observer, 11 May 1990.
CRIPPS BUILDING, ST JOHN'S COLLEGE IN CAMBRIDGE
Powell and Moya

from
In much of today's building programme, the architects are asked to meet immediate needs as cheaply as possible with a short-life fabric. In this case the wish of the college was for a building which would match up to the famous buildings of the city, be capable of adaptation by future generations, and last five hundred years. The architects have responded to these requirements in a positive way: the building is of large scale, as many of the central colleges in Cambridge are. Although linear in form, it creates courtyards by setbacks which relate to the positions of the existing buildings surrounding it. Broken masses on the roofline, together with setbacks on plan, create a varied silhouette and avoid the disturbing effect which might have resulted from introducing a bland mechanical regularity in association with the accidental play of turrets, pinnacles and chimneys in the surrounding buildings.

The structure is a reinforced concrete frame with clear spans which will permit flexibility in future adaptations. The building is clothed almost entirely in Portland stone, although the sloping edges are in specially finished concrete. Careful attention to landscape — trees, grass and water — has given the whole a rich and varied character.
FLOREY BUILDING IN OXFORD
James Stirling

from
James Stirling
Florey Building, Queens College, Oxford, 1968

This building comprises some seventy-four study-bedrooms for undergraduates, three rooms for research fellows and one apartment for a fellow. All rooms face on to a courtyard which itself faces north towards the river and towards views of Oxford. The rooms are raised on structural legs and at ground level a cloister runs around under the building, with access to the paved courtyard. A breakfast room, accessible from the west end of the cloister, projects into the corner of the court forming a raised terrace. The main staircase and lifts are drawn away from the building on the south-east face.

The building is constructed in a concrete frame, with red brick facing, and windows in regular patent glazing with opening lights restricted to louvres. Aluminium fabric roller blinds can be individually adjusted for privacy. The corridors on the sunny sides contain all the storage and toilet facilities and also, at intervals, wider spaces for taking tea and 'tasting'.
SCHOOL AT HUNSTANTON
Alison and Peter Smithson

from
Max Risselada (ed),*Alison & Peter Smithson a critical antology*, Barcelona: Ediciones Poligrafa, 2009
School at Hunstanton
Philip Johnson

comment by Philip Johnson as an American follower of Mies van der Rohe

This is an extraordinary group of buildings. To an American architect like myself, and especially to a Mies van der Rohe follower such as I have been, it seems probably more extraordinary than to an Englishman or a Frank Lloyd Wright boy.

And for many reasons:

1. We in the United States do not give out school jobs in open competition. An architect must have already built a dozen with the identical programme before he is considered at all; then he is picked by a committee. (Now a young architect gets started in this country is a marvel even to me.) Competitions are frowned on. "Mies the unknown winner is inapplicable and impractical." "The scheme may look well only on paper!" Apparently the Board Commission is made of sterner stuff. For here we have an unknown team, admittedly of talent but unknown as school architects, being allowed to win and to build.

2. Most surprising are they allowed to build not a conventional school, not even a Hettich-inspired plan, but something quite opposite of the prevailing trend: a formal, symmetrical, two-storied project. What a jury! It is the usual fate of competitions here to have a safe, second ranking project as a winner simply out of the desire of the jury for unanimity.

The scheme with the least faults wins and the startling innovations come in second. If a strange design should somehow be chosen as first its fate is to be deflected until the programme is sufficiently changed for a safe architect to be hired out of hand. "Radical prize winners never get built" is a safe axiomatic in this country. It would be interesting to find out how all these wonders came to pass in England.

3. The prize is not only radical but good Mies van der Rohe, yet the architects have never seen Mies's work. And though the Smithsons may not agree, much of the excellence of their work is a tribute not only to themselves but also to the genius of Mies van der Rohe.

For it is Mies who has codified the exposed steel-glass-and-brick-loaded-frame grammar for the rest of us to use if we wish. Since the Smithsons this school the Smithsons no longer wish to use it; therefore all the more credit is due them for mastering and using the language as well, in my opinion as well as anyone ever has on either side of the ocean, not excluding the midwesterners who have worked directly with Mies. The Smithsons' success is not by chance for Mies's main thesis is that architects should work to create generally applicable ideas, not sports or exciting individual buildings. He will create so that others may build well.

The Smithsons admirably had their troubles. The programme is shoe-horned into the formal pattern very successfully (except the caretaker's cottage). Especially good is the use of the second-story height for the auditorium. (The up-sticking galleries and gymnasium is the base of the human dimension, ranch-type schools we see so much of in Amerika.) The things the architect could not force in stick out (which is one of the dangers of formalism). The chimney, the water tower and the kitchen by projecting unimportantly in front of the main-loaded facade distorts the formal composition, which is so clear from the rear. But then the Smithsons are only formal at times. The gymnastics facade, the most formal, is also the most successful part of the building. Symmetry unites the programmes and the openings, the framing and the brick are well proportioned indeed.

There are additional troubles inherent in any attempt to do Mies on the cheap. One should remember the reproach often thrown at Mies: "As simple as possible, no matter what the cost." It is correspondingly difficult to save money and keep the elegance. The Smithsons have succeeded in many ways, and where they have not it is sure they not so displeased as I am apt to be. The glass panels, for example, are ingenious and show a fine tolerance that in itself is a tribute to the steel fabricators and engineers.

This detail alone makes the building light in appearance and I should imagine, reasonable in cost. On the other hand is there no other solution for roof leads and electric conduit?

4. Perhaps the most unusual prize for an American to find a surprise is in the quality of the steel engineering. Much

* In fact, the writer had a single course, Russia Church Brief.
of the refinement of the building Ps-ecially due to the efforts of the Sinhala's engineer, Mr. Jenkins of Ove Arup and Partners. The frame of the building shows a 4-inch 1-beam (a shape we do not have) to span 34 feet, and a glance at the thin timber members in the photograph reveals to make it (at least Americans) wonder. Is it our building code? Is it our engineers? Is it the high cost of engineering free compared to the low cost of steel which keeps us conservative? Or is it the weather? At any rate, our steel is heavier.

Of course there are troubles again. By using a 'frame' system the architects have given themselves a difficult problem where the frame meets at right angles. Their solution is to have two separate columns almost touching but with their axes at right angles. In the main hall we have, for example, three different conditions in one room. Definitely not elegant!

But there are always difficulties and we cannot avoid in the base of all such distinction. Now that the Sinhala have turned against such formulaic and 'composed' design toward an Adult Age type of Anti-Design which may call the New Brutalism (phrase which is already being picked up by the Sinhala's contemporaries to defend architecture) one wonders whether their new executed work will show the same inelegant architects. I like to think of them as younger architects who utilize what can of their elders' philosophies (a sounder beginning than the 'express yourself at twenty-one' group of architectural school seniors) and who then proceed, having, one hopes, digested their early lessons, to go on from there.

Design Principles: The importance of this building is manifest at sight, and rests upon a radicalism, which becomes increasingly manifest upon inspection. This radicalism makes the building distinctive, but it is a quality which has clear English precedent—as in the architects' name-sake's work at Hardwick Hall, or in All Saints', Margaret Street. But it is here a radicalism which owes nothing to precedent, and everything to the inner mechanisms of Modern Movement. It does not merely imply a special label of plan or structure, but a peculiar ruthless-ness—overriding gentlemen's agreements and routine solutions— which pervades the whole design from original conception to finished details. While it is but one of many designs which have lately rejected the loose disorder of the free-plan school, it goes further than any in insisting on formal legibility, as well as compactness and economical circulation, and it may be read from all sides as a block unfolding inner courtyards. The architectural axiom given by the block plan is balanced by the risk of spatial in interior courts, and if the architects' claim that it is a school, not a prison is justified, it is because they saw that without a radical solution to the courtyard problem, pretty detailing and applied art-work could only make a more artistic prison. Their solution employed maximum glazing as a first principle, and took in its turn implied a steel frame. But such a frame was another first principle in the conception of the classroom blocks which enclose the courts, curved in H-frames welded up from 8-inch RSFs, the 8-inch dimension being implicit in the use of Plante Theory as a stressing discipline, and that, in turn, made possible by welding. But both Plantie Theory and welding stem from a conception of steel as a unique material—not as a kind of abstract stiffness cut to length, but as a ductile, weldable substance with elastic and plastic limits, a surface, feel, and appearance of its own, to be appreciated and used as Queen Anne builders used brick, or Renaissance engineers used stone.

That is why architects and engineer unite, as in all other matters, in asserting that there is a traditional building, free from the sentimentality of Frank Lloyd Wright or the formalism of Mies van der Rohe. This may seem a hard saying, since Mies is the obvious com-parison, but at Hamberton, every element is truly what it appears to be, serving as necessary structure and necessary decoration. The brick panels in the end elevations are not only to set off the glass visually, not only to stiffen the frame though that in Plastic Theory they must do. They were conceived from the very first, as were all other elements, as performing structurally, functionally and decoratively as parts of an integrated architecture.

This imposes an existential responsibility upon the architect for every brick laid, every joint welded, every panel offered up, for, apart from pipes laid in ducts (the interests of maintenance and because a duct could serve to resist overturning moments), apart from these, literally every structural and functional element is visible, and, since there is nothing else to see, they are the total of the architectural elements. For this reason the architects must scrutinize every subcontractor's drawing, and the Clerk of Works begins to assume an almost-forgotten status.

Equality, there must be a new aesthetic of materials, which must be valued for the surfaces they have on delivery to the site—since paint is only used where structurally where functionally unavoidable—a valuation like that of the Dadaists, who accepted materials in finds, a valuation built into the Modern Movement by Moholy-Nagy at the Bauhaus. It is a valuation of materials which has led to the appreciation 'New Brutalism', but it should now be clear that this is not merely a surface aesthetic of untrimmed edges and exposed services, but a radical philosophy reasserting back to the first conception of the building. In this sense this is probably the most truly modern building in England, fully accepting the moral load which the Modern Movement lays upon the architect's shoulders. It does not come close to concrete casting. But like it or dislike it, demands that we should make up our minds about it, and examine our consciences in the light of that decision.

Allison & Peter Smithson / A Critical Anthology
hardcore was brought to the site for this, although some chalk from the boiler-house, the revetment, and dust excavation was also used. The site slab is 4 in. of concrete on building paper on hardcore.

The structural framework is fabricated by welding the beams and stanchions of rolled steel section into frames on the site. So that all the welding could be carried down hand, a jib was specially designed for the job to allow each frame to be turned upside down. The complete frame was then picked up by a caterpillar crane, carried to its position on the site slab and bolted down. It was then held steady with temporary ties and bracing until angle ties could be welded on at eaves and floor level.

Apart from the assembly hall and gymnasium, the building is constructed of trellis frames of 20 ft. or 24-ft. span placed at 10 ft. 6 in. centres.

Facing frames, built up of 2 in. by 2 in. angles, 3 in. by 3 in. flats in 1 in. plate pressings, were welded together into full bay widths and two-storey height on the site and then applied to the main frames at right angles. The facing frames were first bolted with countersunk bolts to the outer flanges of the stanchions at eaves level, roof-level, and ground-floor level and by four cranked rod bolts to the site slab. The facing of the facing frames was completed by a vertical fillet welded to the frames of the stanchions. These facing frames act as lateral bracing to the structural frames and at the same time as window mullions and transoms and as a facing to the first floor and eaves.

Where the structural frame changes direction, two stanchions are used at the internal corners. The two stanchions are joined together and sealed by an angle welded to both.

The beams and stanchions were delivered to the site with a coat of aluminium paint. After being welded together, they were recoated with aluminium paint. After erection a coat of red lead primer was applied all over, followed by an undercoat of black bitumen paint; after all was completed a final coat was put on inside and out.

There are two expansion joints in the length of the school.
main block. These are filled with two pieces of 1 in.
impregnated cane fiberboard, covered with a 2 in. by 1 in. flat faced one side only inside and out.
The facing frames welded to the main frames are
framed directly without sub-frames, the walls on the
south and west being single glazed and the north and
east walls double glazed. 1 in. wired glass is used up to
3 ft. 4 in. above floor level and a 12 in. horizontally
pivoting ventilator is used continuously round the build-
ing on both floors. Specially designed vertical and hori-
izontally sliding windows are also used.
Direct glazing in this way calls for very accurately
made steelwork, and the glazing subcontractors asked
for tolerances of 1/16 in. between the frames. Their
opinion now is that the accuracy achieved by the manu-
facturers of the steelwork was sufficient and only fifty
square of glass had to be transacted.
The external walls are mostly glazed, but some have
panels of double gault bricks. These walls are of two
4 in. skins, with the outer face of the inner skins painted
with two coats of black bitumen paint. Where the brick-
work affects steelwork, wire reinforcement is used ver-
tically and horizontally and fixed to the steel with bolts
and washers fired from a rapid hardening gun. Where
brickwork had to be cut round steel members a small
round circular saw bench with an 4 in. carborundum-cutting
wheel was used.
The gault bricks were found to be very porous and a
9 in. garden wall built with 1:1:3 cement-lime-sand
mortar, cracked badly when subjected to the local con-
tions of frost after prolonged horizontally driven rain.
The garden wall was rebuilt in 1:2 lime mortar and this
mortar was used for the brick panel walls of the building.
The internal walls are built of 4 in. fair-faced gault
brickwork, with two leaves each of 4 1/2 in. being used
at expansion joints.
The floors are constructed of pre-stressed concrete floor
slabs, 18 in. wide, seated on cleats welded to the steel
beams. They are 4 in. deep, an inverted trough sec-
tion, and covered with a half-inch layer of insulation
where required. On this are laid out the panel heating
coils and the whole is then screened over. The original
intention was to cut away a small portion from the
upper edge of the RSJ to allow the floor slabs to be
dropped in, but it was found that the steel members could be jacked apart sufficiently an inch or two in their centres to make this unnecessary. The floor slabs were then slid sideways into position on a 3 in. by ½ in. steel flat, resting on the beams, and this was slowly withdrawn.

At floor and eaves level, behind the facing frame, an in situ concrete beam was cast, continuity being obtained at the stanchions by passing bars through the holes in the web. The roofs are constructed of the same floor slab as the floors, with 3 in. of insulation served and finished with three layers of bituminous felt and fine white chippings.

Floor finishes are plastic tiles for classrooms and workshops (except for metal-working, which has granolithic floors), terrazzo tiles for circulation areas and kitchen, wood strip for the main hall and gymnasium, and linoleum for the staff rooms.

coreless: The mains services run in a reinforced concrete duct under the floor, with coppered iron used as permanent shunters for the slab over.

The space heating of the school is from a low-pressure, accelerating boiler system with cast-iron boilers and automatic under-feeding mechanical stokers. The intended fuel being bituminous coal.

The classrooms on the first floor, together with their adjacent store rooms, are heated by embedded copper-pipe panels. These panels also supply some heat to the rooms on the ground floor. Where there is not enough, the rooms are further heated by convectors and pipe coils on a two-pipe system. In the case of the gymnasia, workshops, kitchen and adult housecraft rooms, where there is no heat from the ceiling, the full heating load is taken by convectors and pipe coils.

The pipe circuit supplying the convectors and pipe coils is a high-temperature circuit with a maximum boiling water temperature of 180° F. This circuit also serves local hot-water storage calorifiers.

The embedded floor panels are formed from ½ in. nominal bore copper tube to BS 1364/47 of 18 SWG. The separate coils are connected in parallel to the low-temperature circuit mains through horizontal header pipes fixed above the floor in a store or convenient position. The separate coils were designed to have an equal friction resistance not exceeding 7 ft. per ft. so as to give an even heat output.

Rearm in pipe work was considered and cut lengths greater than 15 ft. were used again. The joints were made by using self-curing plastic with silver solder. The coils have to penetrate the web of the 3½ in. span I-beam and they are insulated at these points against electrolytic action by a spiral tape plug. In all first-floor teaching rooms, except those facing north and those facing east and west with one outside wall only, 1½ in. pipe coils on the high-temperature circuit are fixed at low level under the windows to prevent down draughts.

Four forced-air convectors are used in both the main hall and the gymnasium controlled by a thermostat. The duct work in the main hall is arranged so that fresh air can be drawn in in the summer.

A time switch was required to change over to a night setting of approximately 80 per cent day load. It is intended that night setting should operate at week-ends. There are also manually operated valves to prolong either the day or night setting.
18 and 19, opposite: two views of the assembly hall. Looking north-west from the glass-wa
t wall, showing suspended projectors for I.T., lighting equipment, desks, tables and chairs, changing rooms, 18, suspended from the north window in the assembly hall, the view from the west. 19, projectors, 
desks, tables, chairs, and equipment. A general purpose room west of hall, with two iron-plated doors. 20, the stair, benches and equipment will be removed. 21, library, tables and chairs along the south wall. 22, projectors in assembly hall, lighting equipment, tables and chairs.
GARDEN BUILDING, OXFORD
Alison and Peter Smithson

from
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THE PURSUIT OF ORDINARINESS

GARDEN BUILDING,
OXFORD

Architects: Alison and Peter Smithson
Assistants: Christopher Woodward and Kenneth MacGee
Consulting engineers: One Argy and Partners
Quantity surveying: Jamie Ward and Partners
Services: Nikki Heald and Associates

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The women’s colleges of Oxford and Cambridge have long been compelled to assume a humble and subservient role. All, that is, except Girton College, Cambridge, which expanded during the last three decades of the 19th century under the generous sponsorship of Alfred Waterhouse, and so into the full splendor of a large, red brick Basilica, Girton, rather than Old Hall (now Newnham College) which was founded in 1879, embodied the highest aspirations of the Association for Promoting the Higher Education of Women in Cambridge. But for Girton was safely outside the town limits, it might impinge upon the masculine world of Cambridge, but it did not obscure. In Oxford there was no such early or dramatic development. Lady Margaret Hall was initially only in 1879, Newnham College in 1879, and St. Hugh’s in 1886, St. Hilda’s College was founded in 1903 by Dorothy Beale, principal of Cheltenham Ladies’ College; it was formally recognised as St. Hilda’s Hall by the Council of the Association for the Education of Women in 1906. Only in 1920 did the bodies of women full status of a college of the University, with the same rights and duties as the men’s colleges. Compounding the difficulties of acceptance and assimilation have been the relatively sparse enrollments made to the women’s colleges. They have had money for little more than survival. Expansion has been possible only on the occasion of a special bequest or after hidden appear and acquisitions. Miss Beale, presumably, needed to maintain control, made matters.

(St. Hilda’s was one of the famous medical schools at Oxford.)
worse for St. Hilda's. "We do not," she wrote in 1983, "want any contributions to the general fund of St. Hilda's. Building there has, not surprisingly, been sporadic. Miss Bade established her first students in Cowley House, in Cowley Lane, built in 1780 for the Professors of Botany at the University of Oxford, in 1869. By the end of World War I far more accommodation was required, and the Victorian Gothic mansion at the end of Cowley Lane, Cherwell Hall, built by William Wilkins for Vernon Harcourt in 1879 was extended at the north end, in 1897, by Herrington, was purchased and enlarged by the addition of a dining room. The building, which St. Hilda's, South, was opened formally in October 1925. At the same time a temporary chapel was dedicated behind the house. Sir Edwin Cooper designed a library for Cowley House (now known as Old Hall) in 1935, but it was not until 1952 that the building was completed, in 1952, that any comprehensive development was planned. He touched up the facade of Old Hall, built the principal's house (1954-5), transformed the old school building that had separated Old Hall and South (1959) added the entrance lodge (1960-1) and finally erected the Wolfson Building (1962-4). The results of this planned development were not completely successful. The whole to a room. The only point of interest in the college was its site on the banks of the river Cherwell and its isolation, at the end of Cowley Lane. When the Smithsons went to design a building for 71 undergraduates in 1967, they were to design a building for 71 undergraduates and a tutor, they had to fix it on a site. The back of the river (the college has a 1200ft frontage) was clearly the most attractive position, but it would have been uneconomical to string out a building along the river and avoid it, in any case, have formed a barrier between the rest of the college and the river. Dunblane, they abandoned the river banks. They settled on the less prominent site of the temporary chapel of 1925, flanked on one side by Wilkins's Gothic mansion and, on the other, by Richardson's last and only work, the Wolfson Building. But they did have a southern aspect and they overlooked a magnificent copper beech tree. In addition, it seemed likely that an existing service yard to the north of the site, linking the kitchens of South and the rear yard of the Wolfson Building, they might utilize a service route for the entire college that would divert all traffic from the old front drive between South and the river. The Smithsons might then be forced from the dirt and the noise of construction. The building that the Smithsons have now completed, Garden Building, has, amongst its many more humble virtues, the great advantage of bringing a sense of coherence to the heterogeneous collection of buildings.

One of the many few English architects, it should be noted, to be represented in Voelk in Blair's "Rehabilitation Movement."

Client's Instructions

Conversations with St. Hilda's in the summer of 1967

The college had already decided the total size of money they could spend, and that their most immediate need was for a "maximum number of study-bedrooms, together with some Fellows' rooms."

This was the first time we had been asked to arrive on how to divide up the money between alterations to existing buildings and garden, access systems, building, fees, furniture, garden, and so on - a poor college was well aware that its spending must have the maximum representative effect on the college as a whole. Studies were therefore made to see what best could be done to improve the present general arrangement of buildings, at first pursuing one-sided linear blocks to fill the gaps where the College's space looked cut out, and to run along the river bank. These were abandoned as expensive, and because it was generally felt that the final plan should be kept as open as possible. The final pattern for the present and possible future study-bedrooms buildings as one of linked pavilions vehicular-served from the back, with the river front and garden to be the final plan graduated relieved of motor vehicles and turned roads.

Detailed instructions were simple - the undergraduates wanted maximum sound insulation and as much variation as possible, the Building Committee didn't want long corridors, we wanted to give the undergraduates the possibility of re-arrangement of the furniture in their rooms, that the beds should be able to be against any wall, including the window wall and we were absolutely about not having wash basins in the rooms.

Early detailed planning studies gave each room a private shower in its bed-head. But the girls wanted baths (what else do they do on Sunday mornings when you're nothing to eat?).

The final design was accepted in May 1968, the contract signed April 1969, and the job completed in October 1970.

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around it. Unlike most new buildings it does not disrupt its surroundings, rather it enhances them. Yet it is disturbing and odd. It has an indeterminate quality; it lacks definition; it appears to be sinking, almost into the ground. And what, any visitor will be compelled to ask, is the significance of the curious interlaced oak screen that envelopes the main façade, barely touching them. Certainly it is not structural. Could it then be decorative? It is surely inspired by the decorative timber bridge in the grounds of Magdalen Boys School, to be seen through the trees to the south of Magdalen Bridge, on the approach to the college, so that some historical link up with the immediate neighbourhood is obviously intended. But can this be all? The Smithsons themselves have a further explanation:

Starting from the fundamental English problem of needing a lot of light, we have provided big windows. But to prevent the girl's being too exposed [their psyche as well as their person is exposed with much pain] there is a separate external screen of timber members, which we hope will cut down the glare, obtain some sense of intimacy, and prevent the casual eye from breaking too easily the 'skin' of the building. The timber screen is a kind of yasmata.

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The timber screen is, in fact, a very late Tudor yasmata: a fusion of inspiration from Tunisia, where the Smithsons went for a holiday in the summer of 1968, and from Louis Macerson Hall, Chislehurst, which they visited in October 1960. Peter Smithson remarks on this specimen of the Elizabethan black and white style, that it resembled the last attempt at making 'polly' architecture in England. Thus, the oak lattice at St. Mild's, whatever functional purpose it might serve, is conceived as a use (spatial) a playful adjunct, lurking back to the architecture of the past, to the latticed screens of Tunisia, to the black beams of sixteenth century England and to a more localized garden bridge. This is the same the Smithsons have plied before. Their excellent interpretation of the Economic towers on the flanks of Boodle's Club is one of the most monotonous examples.

For all this fancy and display, however, Garden Building is calm and restrained. Absolutely it is unpretentious. No new architectural image is offered—to the budget allowed and by the very nature of the commission such a condition might seem to have been imposed. Other architects, however, admitted with more money to spend, have not thought that a small university residence called for anything less than the fullest display of their design talents. Howell, Krick, Partridge and Amis at Sidney Sussex College and Denys Lasdun at Christ's College in Cambridge, and James Stirling in the Florey Building for Queen's College, Oxford, have all, in their varying ways, sought to make architectural statements of the most spectacular kind. They have all focused attention on the...
incongruous qualities of their architecture. The Smithsons, it appears, are no longer interested in incongruity as such. It is unlikely that they could today design a building in the manner of their school at Hanington or their proposed buildings for Sheffield University of 1953. They are, it seems, not only uninterested in such totemic architecture: they have excised it. The form of the Garden Building was apparently adopted, without much painstaking consideration, from their Economist towers. A ship, one might imagine, off the old block. The vertical mullions and rain water channels are taken from the Economist buildings - used in the interiors and developed as sound baffles for their housing at Robin Hood Lane, London. The Smithsons’ overriding concern here was not to provide a new vocabulary of forms but to ensure an acceptable and useful vernacular. Reasonable standards are what they are offering. Determinedly they have sought them. In adopting - for practical reasons - their own vertical mullions and rain water channels they have been prepared to do violence to their original concepts. The solutions offered, on the Economist towers, not only as vertical rain water channels, but as vertical expressions of the framed structure behind. This meaning was rejected at Robin Hood Lane, which is a concrete slab construction, and even more arbitrarily at the Garden Building, which is supported on 9" brick walls. Most of the building, that is, is supported on 9" brick walls. The cavity is very large and two of the top floor rooms do indeed have concrete framing. Yet externally the whole building is presented as a framed structure: the concrete mullions and quadrants (coloured, incidentally, to hint at Courtauld stone) adapt the conventions of any framed structure of the 20th century, and even the decorative finisher inlay is deliberate with the idea of a framed construction. In addition, the architect has allowed by a framed construction (a floatation which Colin Rowe has astutely analysed in AD 1970) as a specific aspect of the European movement of modern architecture. In this ignoring, consciously or not, the expressive meaning of their mullions, the Smithsons have made a demonstration of their new-found conviction that tried and reliable arrangements and details are more important than mere ‘architectural’ manipulations. Significantly, though they have looked in a very different way for the basis of some new vernacular, they have not taken much from their predecessors. There is evidence, in the Garden Building, of a sustained liking for the Edwards worthy arrangements so admired by Le Corbusier (and Velue-le-Duc and Rambaud before him). The inner corridors of the building have something of the quality of one of his. The raised thresholds of the rain water channels and laundries derive from those of ships (though they come from Norwegian tradition); but there are other sources, I think. Scouring along the narrow carpeted corridors, flanked on one side by a host of small, tight-packed service rooms, on the other by individual bedrooms, each with its own small washing area, one is transported to the world of Peter Rabbit, Jeremy Pudge and Mrs. Tiggy-winkle of which Alison Smithson has written so nostalgically. In Bruton Porter’s interior, the writer in December 1967, objects and utensils to daily use are conveniently located, often on individual hooks and nail, and are cut the decorations. The ‘simple’ spaces need, in fact, can take. Those things to secondary use or needing long term storage are in special storage cabinets whose fronts define the house space proper - as well as being a convenient place for them. Here, one finds the basic necessities arranged in a practical level, the simple, well done. AD 1967 p.571.

This architecture of rows and cubby holes, of hooks and handy nails, of course, the below stairs room of Beatrix Potter’s childhood. Her lonely, frustrated youth (she lived with her parents until she was forty) was spent in a great, regularly organized house at 2 Boston Gardens. It was there she was exposed to the world of her funny and scatty ancestors. No more than coincidental, perhaps, is the fact that the Smithsons now live just around the corner. They have a sympathy for the shoddy and seedy society of which Beatrix Potter was a part. They seem to know it, as for a world of late Victorian and Edwardian culture - a period in which architects were still suffering from the impact of the architect and his architectural vernaculars not only from Georgian times, but right back to the Middle Ages still to be seen. chimney flues were built to set and reliable rules of thumb; comfortable staircases were constructed by equally well known and straightforward calculations, and handrails were at a convenient height and were designed for the hand to run along. Altogether, the building tradition was sound. The skills and judgements of all workmen could be relied upon; even an estate carpenter could be expected to turn out something decent. It is a harder, possibly, for some such well established building expertise that has led the Smithsons to turn for inspiration to the late great period of the English vernacular - the late Victorian and Edwardian period. They may admire Lutyens’ talents in this connection, but it is not to the gophs and the splendid of this period that they have their Smithsons concede. This is to concede the superlative of the whole modern movement in architecture, but it is to the immediately past period that these have been absorbed, perhaps, enough, to stand off from those sufficiently to be reduced - and satisfactorily to stand off from their vernaculars.