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ENGLAND'S SCHOOLS 1962–88

A THEMATIC STUDY

Geraint Franklin, with Elain Harwood, Simon Taylor & Matthew Whitfield



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Frontispiece: The Bishop Wilson Memorial Library of 1986 at the Bishops' Primary School in Chelmsford, Essex was designed by Colin St John Wilson & Partners (job architect Rolfe Kentish). The tiny library bears the name of Wilson's father, the Bishop of Chelmsford from 1929 to 1950. The remainder of the school was designed by Thomas, Mowle & Chisnall. Photograph by Martin Charles; reproduced by kind permission of M.J. Long and the British Architectural Library.

Front cover image: the Vanessa Nursery School in West London, built in 1972-73 to the designs of Fitch & Co Ltd. Reproduced with permission from Architectural Review, vol.154, no.919, September 1973, p.180.

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SUMMARY

This thematic study of later-twentieth-century school buildings was commissioned by English Heritage's Schools Working Group. Post-war demand for places encouraged local authorities to think in terms of programmes of schools rather than one-offs. To this end, prefabricated systems of construction were organised into school building 'consortia', but from c.1973 ceded to 'rationalised traditional' construction, usually in brick. Falling pupil numbers and cuts in public expenditure made the last quarter of the twentieth century an era of contraction, rationalisation and rehabilitation of building stock. Prescient themes of the 1980s include energy conservation, more enclosed plans and the introduction of market forces.

Primary school design facilitated informal, 'child-centred' learning in various ways. A variety of group sizes and activities was encouraged by the sharing and inter-connection of teaching space. The 1963 'Newsom report' on secondary education challenged traditional subject boundaries and called for specialised resources and informal plans. Secondary education was dominated by questions of selection and transfer between educational stages, and middle schools were as much an element of non-selective reorganisation as an educational concept in their own right. Assimilation was a major theme, with facilities for the wider community and disabled children integrated into mainstream schools.

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Last but not least, we would like to thank the staff and children who welcomed us into their schools.



Figure 1.1: Britain's New Schools, a booklet on British school building distributed to an international audience at the 1960 Milan Triennale, where a school designed in the Architect's Department of Nottinghamshire County Council won the Gran Premio con Menzione Speciale (page 131).

British post-war schools were studied and visited by architects throughout Europe and North America, and international collaboration was abetted by initiatives such as the Organisation for Economic Co-operation and Development's Project on Educational Building (Banham 1961; Saint 1987, 208-13). Institute of Education Archives: ME/U/8.

INTRODUCTION

Aims and Scope

This national thematic survey of late-twentieth-century school buildings was commissioned in 2008 by English Heritage's cross-departmental Schools Working Group. A need was identified for further investigation into schools of this period, many of which were being replaced or altered (the wider context of which is set out below). The aim was to provide a historical context to inform and underpin processes of evaluation, protection and adaptation of our more recent school heritage by identifying key educational and architectural developments and distinguishing the characteristic from the distinctive. The principal end users of this document will be the Designation and National Planning Departments of English Heritage, local planning authorities and those responsible for maintaining, protecting and renewing historic school buildings.

The scope of the present study is the group of purpose-built schools designed and built, broadly speaking, in the decades of the 1960s, 1970s and 1980s. The adaptive reuse of existing schools falls outside these terms of reference, although it was a crucial element of educational provision. Neither are extensions or ancillary buildings included, with the exception of a few projects of particular architectural or educational interest. The report covers each stage of compulsory education as well as pre-school education. All educational sectors, including voluntary and independent bodies, are considered, and the administrative structure of education during the period is set out in Part I. Institutions for children and young people administered outside the Ministry of Education and its successors, such as reformatory, industrial and hospital schools, junior training centres, day care centres, remand homes and orphanages lie outside the scope of this study.

Structure and Sources

This report is divided into four sections. The first, entitled 'Frameworks of School Design' presents an overview of the circumstances, processes and protagonists of school building programmes, including the interaction between administrators, educationists, architects and other professionals. This is followed by a survey of school building types which relate to educational stages (nursery, secondary and so on) or to specific requirements, such as special education or the integration of community facilities. Part III profiles wider aspects of school design such as construction, lighting and landscaping.

The final and largest section highlights regional responses and profiles school building in nine local education authorities notable for their architectural or educational approaches. Part IV is bookended by studies of voluntary and independent schools and the Architects and Building Branch of the Ministry of Education. Each regional study concludes with a gazetteer of school buildings which illustrate characteristic or innovatory approaches to educational thinking or architectural design. Cross references to gazetteer entries are indicated in **bold type** and the survival and condition of buildings are noted where known. The name of a school was usually decided after it had been designed but before it opened; it is this 'original' name which is referred to here, as schools are apt to change

their names on reorganisation. Current school names are provided in parentheses where this seems helpful. At the end of the report may be found a glossary of abbreviations and acronyms (Appendix 1) and an inventory of listed post-war schools (Appendix 2).

The report is based on a combination of primary and secondary documentary research, interviews with architects and visits to schools. Documentary and archival sources varied considerably: school building was well documented in the official records of some authorities whilst in others architectural or educational journals proved more fruitful sources. The Archive of the Institute of Education at the University of London holds several key resources for the study of post-war school building, including the papers of the school designers David and Mary Medd and the slide collection of the Architects and Building Branch of the Ministry of Education. In some cases, first-hand recollection of projects and programmes derived from oral-historical interviews has been correlated to information derived from documentary sources. Architectural plans and other drawings were consulted where possible.¹

Understanding and Protecting Post-war Schools

The management, adaptation and protection of historic school buildings has long been underpinned by an understanding of character, significance and context. The first histories of post-war school building, by Stuart Maclure and Andrew Saint, were published in the mid-1980s and remain the definitive accounts.² They were part of a broader reconsideration of public building and public buildings, topics hitherto neglected by scholars and then architecturally and politically unfashionable. At around the same time, in 1987, the first post-war building was listed, upon the basis that a building can be listed if it is older than thirty years or, exceptionally, ten years if it is under threat and of 'outstanding' significance.³

In 1992, English Heritage embarked upon a programme of thematic listing reviews commissioned by a 'Post-War Steering Group' (PWSG). These set out a historical and architectural framework for a number of building types against which buildings could be assessed for listing and included a selection of examples.⁴ Educational building was the subject of the first of the PWSG 'thematics', jointly produced in 1992 by Andrew Saint, who contributed the section on schools, and Diane Chablo (née Kay), who looked at higher education. The 1992 report identified a number of exemplars, dating from 1946 to as late as 1981, but those postdating 1962 were then ineligible for listing due to the 'thirty year rule'.⁵ Consequently, the dozen post-1962 schools on the statutory list at the time of writing (Appendix 2) have been designated not as the result of a thematic listing programme but of largely threat-driven 'spot listing'. The present study thus takes 1962 as its start date; 1988, the year of the Education Reform Act, was chosen as a 'cut-off date'.

The last two decades have seen great changes to post-war schools and our understanding and appreciation of them. Recent research has identified new priorities and hitherto-neglected topics. As is often the case, research into particular buildings and building types has often been prompted by the designation process, and key cases have informed the present study as appropriate. The chronological scope of the present study



Figure 1.2: The Bretton Woods Community School opened in 1977 to serve the first of Peterborough's new townships, Bretton, begun in 1970. Community facilities were shared with the adjoining Cresset Centre. The snaking teaching block, designed by Ken Matthews and Stuart Denham of Cambridgeshire County Council, included a set-back upper floor which, together with the sloping cross walls, created a ziggurat effect. The school's demolition in 2007, after an unsuccessful attempt to list the building, highlighted the need for more research into later twentieth-century school buildings. Patricia Roberts – © English Heritage.

encompasses the 1970s and 1980s, applying an historical perspective to buildings erected within living memory. The extensive media coverage of recent listing cases is a reminder of the considerable popular interest of the topic and its capacity for controversy.

But as public attitudes to late-twentieth-century buildings alter, so too does the building stock. The first decade of the present century was marked by a return to large-scale programmes of school building, such as Building Schools for the Future (BSF) and Primary Capital Programme (PCP).⁶ The scale and pace of change was considerable, and the amount of renewal probably unprecedented. At the local authority level, programmes of rationalisation, educational reorganisation or asset disposal can result in the closure and loss of historic schools (fig. 1.2). Others suffer gradual attrition of character and architectural integrity through incremental change. The changed economic circumstances of the past few years have again altered the pattern of interventions to historic school buildings. Repair and extension are currently more likely options than wholesale replacement, but recent increases in the birth rate suggest that this is unlikely to be a long-term trend.

PART I: FRAMEWORKS OF SCHOOL DESIGN

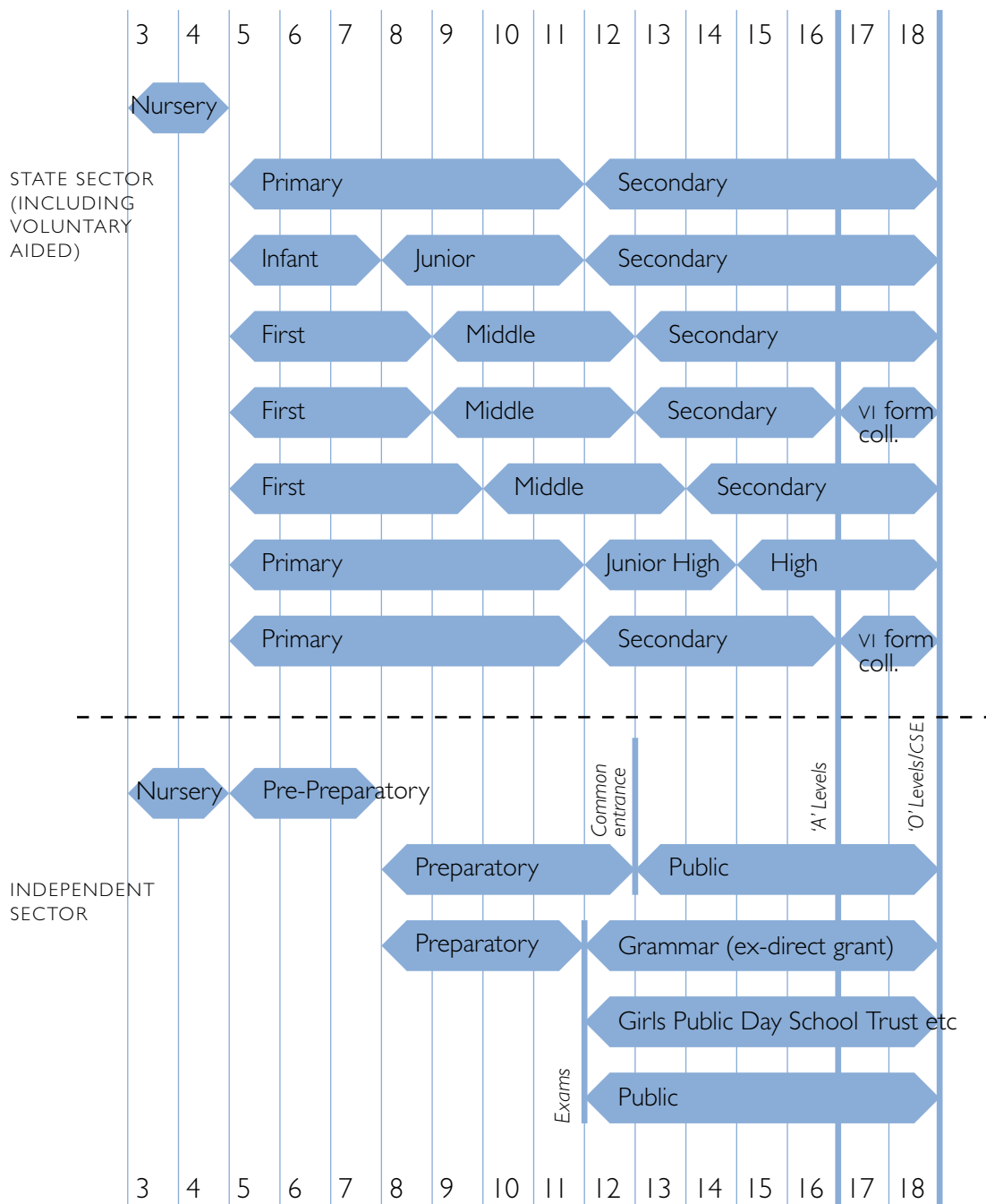


Figure 1.3: Stages of education in England and Wales after 1944.
 (Redrawn from a diagram by Jeremy Wilson on p.253 of Tutt, P. and Adler, D. (eds) (1979) New Metric Handbook. London: Architectural Press; original illustration crown copyright and reproduced under the terms of the Open Government Licence).

The Organisation of Education in England

The post-war educational settlement was realised through the reform, not the transformation, of an existing legal and administrative framework. The respective duties and responsibilities of regional and central government in the provision of education, in a delicate balance of power occasionally summarised as a 'national service locally administered', were established by the Education Acts of 1902 and 1903.⁷ The 1944 Education Act, based on the 1943 White Paper Educational Reconstruction, provided a free and universal system of education up to age 18.⁸ The provision of secondary education became a duty—not merely a power—of local education authorities. All schools were subject to a single Code of Regulations, which stipulated standards of accommodation and class sizes.



Figure 1.4: One architect's view of the 'relentless demand for school places'. A cartoon by a member of the Essex County Council Architect's Department, published in *Education*, 22 February 1963, p.388. Reproduced with permission of Essex County Council.

The provision of school buildings was the largest and costliest of the services provided by the elected local government bodies designated local education authorities (LEAs).⁹ Between 1903 and 1974 the number of LEAs decreased by a third.¹⁰ Local government reorganisation in 1974 Act consolidated fragmented municipal boroughs but divided other authorities into several metropolitan districts, a reform which resulted, for example, in the dissolution of the educationally-progressive West Riding of Yorkshire. School building, although a decentralised activity, was nevertheless subject to the checks and controls of central funding. 'RAB' Butler's Education Act of 1944 replaced the Board of Education with the Ministry of Education as the central body responsible for schools and colleges. In 1964 the Ministry (hereafter MoE) was reconstituted as the Department for Education and Science (DES), headed by a Secretary of State.¹¹ After 1949 school building was overseen by the 'territorial' architects of the Ministry of Education's Architects and Building Branch (page 101).

'Maintained' schools, which accounted for a large proportion of the total number, were commissioned, designed, staffed and run by LEAs. Second in number and status were the 'voluntary' schools run by a non-governmental body such as a religious denomination or charitable foundation. The coexistence of maintained and voluntary schools, known as the 'dual system', had long been formalised by a complex grant-aiding arrangement (page 367). On the whole, buildings and sites were provided out of private funds, although

running costs and staff salaries were met out of taxation; voluntary schools were usually classified as lying within the public sector on this basis.¹² The third and oldest category was the grammar schools, which were brought within the ambit of the state by the 1902 Education Act to form the basis of a national system of secondary education. Their number was augmented by County Grammar Schools founded by the LEAs. Between 1918 and 1975 a small subcategory of 'direct grant' grammar schools was directly funded by central government and run by their own governing bodies.¹³ Finally, the independent sector was wholly funded from private sources, usually endowments and school fees. Those institutions charged with the provision of their own school buildings (broadly speaking, voluntary, independent and direct-grant grammar schools) are considered further in part IV.

The 1944 Education Act established three stages of education: primary, secondary and further (fig. 1.3). A small number of nursery schools accommodated children under compulsory school age. The primary stage was either divided into separate infant schools (ages 5-7) and junior schools (8-11) or took the form of a single primary school for ages 5-11. From the 1960s a number of authorities provided middle schools, usually for the age ranges of 8-12 or 9-13. The organisation of secondary schools depended on whether LEAs or constituent divisions operated a 'selective' or a 'non-selective' policy. In the former, pupils took an 'eleven plus' examination in the final year of primary education, which sorted the children into what was considered the most appropriate types of secondary education, usually grammar, technical and secondary modern schools (page 41). Non-selective or 'comprehensive' schools did not discriminate on the basis of ability. Mainstream secondary schools were usually co-educational. In some areas sixth form or junior colleges were provided for those staying on beyond the age of compulsory education. (These fall within the scope of this report, whereas colleges of further education do not). Lastly, special schools were provided for children with physical or mental disabilities. These were the permitted 'all age' schools and a proportion were residential. The intake and hence size of a school is sometimes stated in terms of the number of the number of classes per year: a 'two-form entry' infant school, for example, would comprise six classes, a pair for each of the three year groups; some comprehensive schools were as much as ten-form entry.

'In the Right Place, at the Right Time': Population and Provision

Providing school buildings involved balancing several factors such as supply and demand, the quality and quantity of accommodation, and local and central government policy. How could school places be anticipated and provided, in advance, where and when they would be required? By analysing trends in the birth rate and in the movement of population, educational administrators could go some way towards ensuring that the right design was built 'in the right place, at the right time, at the right price', in the words of MoE Chief Architect Stirrat Johnson-Marshall.¹⁴ An account of school building after 1944 could be related in terms of a balance between creating new school places and upgrading existing ones. The period from the end of the Second World War to c.1960 was broadly a race to put up 'roofs over heads', by rebuilding bomb-damaged urban sites and erecting 'green field' schools in new housing estates, new suburbs and new towns. A formidable supply side was built up, providing three million new school places between

1945 and 1962 within straitened economic circumstances; allowing for inflation, a new school of 1962 cost half the amount of its 1949 predecessor.¹⁵

Yet attention was soon drawn to how the deficiencies of existing accommodation could be remedied. This usually meant the replacement, refurbishment or extension of older buildings reckoned to be overcrowded or 'obsolete' (fig 1.5). In the mid-1950s, Education Minister David Eccles provided additional funding for the reorganisation of all-age village schools and the upgrading of their facilities.¹⁶ To this initiative the Architects and Building Branch contributed two exemplars, Finmere in Oxfordshire and Great Ponton in Lincolnshire.¹⁷ The government White Paper Secondary Education for All, published in May 1959, encouraged the rebuilding of obsolete buildings and facilitated the assembly of sites by compulsory purchase. To the LCC Housing Committee it 'marked the end of a restrictive period when new schools have been directed by the increase in the birth rate or new housing development.'¹⁸ In the 1960s attention shifted to schooling in deprived inner-city areas, often as part of wider urban renewal strategies. The Conservative administration that came to power in 1970 initiated a substantial programme of upgrading or replacing Victorian primary schools, many of which were in inner-city areas. Between 1972 and 1976 some 2,000 pre-1903 primary schools were altered or improved in this way.¹⁹ From the 1970s, as school rolls fell and local authority expenditure fell, 'basic needs' provision returned in the form of new schools for developing and expanding settlements.²⁰ Elsewhere, the quality of existing accommodation was managed not by replacing buildings but by the strategy of rationalisation.



Figure 1.5: Old and new in Ardwick, Manchester: the 1877 Armitage Street School mid-demolition, with its CLASP replacement in the foreground. The 1967 Armitage County Primary School formed part of the Thomas Street comprehensive redevelopment project (page 112). Institute of Education Archives: ABB/B/1/41/4.

Demographic Patterns and Allocation

The post-war 'baby boom', which peaked in 1947, was unforeseen by those preparing the 1944 Education Act, and served as a reminder of the importance of demographic projections (fig. 1.6).²¹ After stabilising, the birth rate again began to pick up in 1955, as the country experienced greater prosperity. It peaked in 1964, three years after oral contraceptives ('the pill') were permitted to be prescribed on non-medical grounds.²²

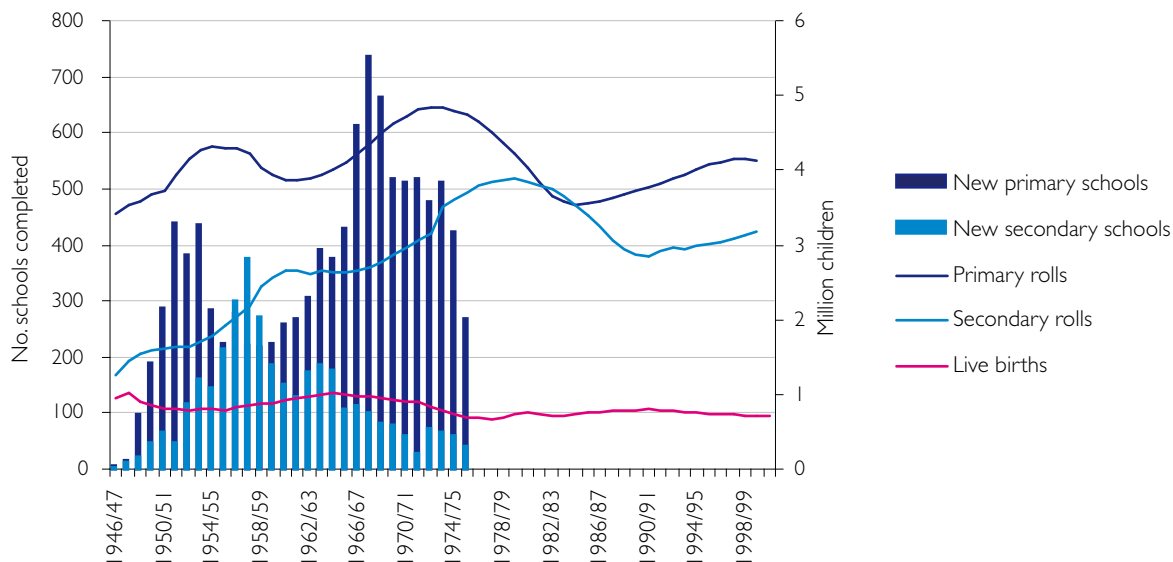


Figure 1.6: The numbers game. A graph showing the relationship between the birth rate, the number of children in full-time education in maintained primary and secondary schools, and the number of new schools completed per financial year. The DES stopped publishing statistics on new schools in 1976. Source: Department of Education and Science, Statistics of Education.

In the early 1960s, the continued expansion of school building was widely predicted; the realisation that the falling birth rate was not a blip but a long term trend seems to have come late.²³ It was not until 1975 that demographic projections were drastically revised, prompting a reconsideration of expenditure on provision.²⁴ With the raising of the school leaving age to 16, announced in 1964 but not implemented until 1972 on economic grounds, an extra 250,000 extra ‘stayers on’ became the new priority. Over the 30-year period from 1947 to 1977 the school population increased by over 4.4 million.²⁵ The post-war population was also a mobile one, and internal migration patterns made it difficult to predict school numbers.

The Inner-cities: Decline and Renewal

The period 1962-88 saw changing attitudes towards urban planning, a recognition of the social problems of the post-industrial city and the reciprocal relationship of these things with education. From the mid-1950s inner-city schools also saw greater numbers of immigrant children, who by 1972 accounted for 3.3% of all children in maintained schools. Many were from new Commonwealth countries such as the West Indies, India, Pakistan, Kenya and Cyprus.²⁶ The 1967 Plowden report on primary education suggested that specialised teaching methods, teaching assistants and in-service courses could lessen language and cultural barriers.²⁷ Slum-clearance and comprehensive redevelopment on the basis of strict zoning policies were the norm at the beginning of the 1960s. Recognition of the social costs of these policies and the longer-term depopulation and industrial decline of inner-cities slowly filtered from academia and the ‘social professions’ to government. By the end of the 1980s, the balance was being redressed through mixed use planning, rehabilitation of historic fabric, and regeneration through the new mechanisms of Urban Development Corporations, Urban Development Grants and Enterprise Zones.²⁸

The planning strategies of inner-city renewal demanded investment in inner-city schools. The case for investment was highlighted by high-profile media accounts of low standards, violence and vandalism in urban schools. The Plowden report of 1967 introduced a policy of 'positive discrimination' towards disadvantaged children by providing special funding for new schools in designated Educational Priority Areas (EPAs). Some 5% of the annual capital budget was reserved for EPAs, supplemented from July 1967 with a special allocation of £16m over a two year period. Salary incentives aimed to attract good teachers: from 1968, teachers in 572 primary schools in England and Wales received a £75 annual increment, which rose to £276 in 1975. Additionally an EPA action research programme was launched in 1968 in five local districts. The policy faltered in the 1970s in the face of financial cuts and changing social policies on inner-city deprivation.²⁹

New and Expanded Towns

The designation of ten new towns under the New Towns Act 1946 was planned to ease the post-war housing shortfall and perpetuate the long-term strategies of regional development and the dispersal of the population from the inner cities. The development of the new towns was placed under the control of a Development Corporation, funded and planned in cooperation with the local planning authorities who continued to provide statutory services such as education. A second generation of new and expanded towns was initiated in the 1960s. Some, like Milton Keynes, Buckinghamshire (1967), were products of the South East Study launched in 1964 by Minister of Housing and Local Government Keith Joseph and thus a continuation of the long-standing strategy of dispersing London's residents into new and expanded towns in the south east. Others, such as Redditch, Worcestershire (1964); Runcorn, Cheshire (1964); Warrington, Cheshire (1968) and Central Lancashire New Town (1970) were attempts to bolster the Midlands and the North against emigration.³⁰ One consequence was that new school buildings were required in large numbers. Government allocations for school building in 1977-78 were highest in Hampshire (4.3% of the national total), Cambridgeshire (3.8%), Kent (3%), Norfolk (2.7%), Staffordshire (2.6%), Essex (2.5%), Cheshire (2.5%) and Northamptonshire (2.3%). Between them this represented almost a quarter of the government capital allocation, much of it going to schools in the new settlements.³¹ As the primary school roll started to decline from the early 1970s, these began to represent bright spots in an otherwise bleak picture of retrenchment.

With the new and expanded towns, especially provided for so-called 'London overspill', came social concerns and frictions surrounding the integration of newcomers into existing communities. Schools, with their precisely defined catchment areas, offered authorities the opportunity to 'engineer' a degree of social assimilation amongst the youngest residents. The populations of the new settlements were young and tended to marry, start families and seek housing earlier than previous generations. Housing tended to be completed at occupied at different rates, giving LEAs a tricky balance between under- and over-provision of school places. One solution was to provide a primary school whilst the catchment area built up, which after a few years could be re-designated as a junior school and joined by 'feeder' infant schools. More difficult to cope with was the diminishing school populations that some new settlements faced after the initial 'bulge', this effect was even noticed at large inner-city estates. Much of the new housing

took the form of estates of low-density housing, sometimes in Radburn-type layouts. A lack of community facilities was amongst the most common complaints.³² The schools of Hampshire and Milton Keynes were an attempt to imbue these estates with a civic focus.

‘The Tripod’: Protagonists and Collaborations in School Design

David Medd, a post-war authority on school building, talked of school design as a tripod, an interdependent and equal collaboration between three professionals: the educationist, the administrator and the architect.³³ So much have models of public-sector procurement changed since the period considered here, it is worth outlining the crucial relationships in central and local government.

I: the Educationist and the Pedagogical Context

Significant developments in school design at the start of the twentieth century were driven by the medical schools inspectorate and can be seen in the wider context of public health reforms. Buildings were opened up to fresh air and daylight, and outdoor activity encouraged.³⁴ The influence of educationists on local authority school building before 1944 was limited outside the work of Henry Morris in Cambridgeshire (page 51). In the post-war period, certain local authorities and their architects started to catch up with ‘child-centred’ teaching methods.³⁵ The 1960s and 1970s, were generally regarded as the heyday of innovation, optimism and expansion in British education, and close relationships between teaching practice and school design were developed.³⁶ The architectural critic Reyner Banham summed this up with a characteristically snappy catchphrase: ‘form follows curriculum’.³⁷ Yet the national picture is kaleidoscopic and suggests more fragmented and complex narratives than the spread of educational progressivism. The contributions of many key individuals, networks and partnerships remain obscure, perhaps because working practices were poorly documented, the multi-disciplinary nature of the subject or the inherently decentralized set-up of English education.

The elite of education policy makers were the Chief Education Officers employed by most LEAs. The larger Authorities had teachers’ advisory committees which influenced design briefs, the Inner-London Education Committee being the most well known. The most productive partnerships between architects and educationists were often informal and took place at ‘officer’ level, although in other cases it was the deputy education officer who liaised with the County Architect. A wide range of educational professionals were involved, including deputy education officers, educational advisors, inspectors (HMIs) and teachers.³⁸ A handful of counties took a special interest in educational policy and teaching practice. The educator Sir Tim Brighouse emphasised the challenges and opportunities of the urban school: ‘rural authorities tend[ed] to have very strong governing bodies; urban authorities ran the whole damn thing, micro managed the lot, because it’s a challenging urban situation’.³⁹ Henry Morris (Cambridgeshire, Chief Education Officer 1922-54) and Martin Wilson (Shropshire, 1936-65) were pre-war pioneers. They were followed by a post-war generation which included John Newsom (Hertfordshire, 1940-57); Alec Clegg (West Riding, 1945-74); Stewart Mason (Leicestershire, 1947-71); Robert Logan (Worcestershire) and E. Marianne Parry (Bristol).

At Oxfordshire, Alan Chorlton (1945-70) and Tim Brighouse (1978-89), primary officers Edith Moorhouse and John Coe and HMIs Robin Tanner and Len Comber encouraged curriculum innovation in rural primary schools.⁴⁰

Reaction and Regulation

For the four post-war decades, the organisation and content of school curricula was not regulated by central or local government but devolved to head teachers and their staff. Teachers were free, within the bounds of professional standards, to establish their own methods and to respond to changes in pedagogy and wider society. Inevitably, this meant that the organisation and methods of teaching in a given school were much more fluid and diverse than had previously been the case, varying within LEAs and even within schools, the latter especially where rates of staff turnover was high. This *laissez faire* approach to teaching practice has always tended to check the dominance of the prevalent pedagogical orthodoxy.

The final two decades of the twentieth century saw a transformation in British education. Institutional autonomy, parental choice and diversity of provision combined with the emergence of a new centralism, seen in the acquisition of new powers by national government and the regulation of the curriculum. The union between child-centred education and the welfare state was transformed by backlash and political turbulence. An early indicator was the crisis at Risinghill School, an Islington comprehensive which opened in 1960 in buildings designed by the Architects' Co-Partnership. The liberal headship of Michael Duane prompted media coverage and dispute with staff and the inspectorate of the London County Council, which led to the reorganisation of the school in 1965.⁴¹ By the time of a similar episode a decade later at William Tyndale Junior School, also in Islington, lines of division had clearly been drawn.⁴² In the intervening period came a backlash from academics and intellectuals. In 1969, Brian Cox and Tony Dyson edited 'Fight for Education' and 'Crisis in Education' in *Critical Quarterly*, targeting the comprehensives and what was perceived as the lack of quality and accountability of progressive education. In one of several *Black Papers*, Rhodes Boyson MP commented scornfully that 'learning needs discipline, not the atmosphere of a Butlin's holiday camp'.⁴³ Such views did not necessarily follow party lines but nevertheless politicised and polarised a polemic between the advocates of equality and progressivism and the defenders of educational standards and traditions.⁴⁴

The turbulent years of the 1970s saw doubts about education ripple out from what was initially a private debate amongst teaching professions to parents and employers, via a coterie of academics and thinktanks. A 1976 report by Neville Bennett of Lancaster University which attempted to measure and compare the effectiveness of 'formal', 'informal' and 'mixed' teaching was seized on by the media and political parties.⁴⁵ The clearest indication of a new political climate was the speech by Labour Prime Minister Jim Callaghan in October 1976 on the occasion of the laying of a foundation stone to an extension to Ruskin College, Oxford. The Ruskin speech anticipated most trends in education policy over the next two decades, including a 'core curriculum' set by central government (the National Curriculum of 1988).⁴⁶ Callaghan found fault with 'new, informal methods of teaching' and a lack of accountability and standards. Strongest of all was his criticism of the teaching of science and technology and of poor links with

industry, reflecting the technocratic preoccupations of the first Wilson administration of 1964-70. In a deeper sense, Callaghan's remarks were a reminder of the perpetual dichotomy of the individual and the state. Was education the fulfilment of each child's potential or the instrument of a productive, competitive nation state?⁴⁷

Keith Joseph's 1985 White Paper *Better Schools*, much to the later embarrassment of the government, contained an assurance that the government would not assume greater powers over the school curriculum. Such a move would have indeed been consistent with the government's deregulatory approach, but the implementation in 1988 of the National Curriculum offered the political incentive of reining in LEAs, the educational establishment and, in particular, teachers' unions and progressive bodies such as the Schools Council. Under the Education (Schools) Act 1992, the schools Inspectorate, formerly based within LEAs, was reconstituted as the centralised Office for Standards in Education (Ofsted).

II: the Administrator and Cost Planning

Most of the upfront capital for the construction of school buildings was raised by authorities in the form of loans from central government. The loan repayment period, typically 35 years, indicates the anticipated use life of the building, although in many cases this has proved a conservative estimate. The costs of urban school building varied widely immediately after the war: Huddersfield and Wakefield were building primary schools for £80 per place for example, whilst the equivalent at Leeds cost £240.⁴⁸ Effective organisation was necessary if expenditure on school building was to be controlled and distributed equitably, and if phased, planned programmes of building were to replace isolated, one-off responses. The administrative framework for school building was established in 1949 by the Ministry of Education as a contribution to the deficit-reduction measures instituted by Chancellor Stafford Cripps. A 'floor' of building regulations and minimum space standards, prescribing minimum standards for space, lighting and ventilation and so on was joined after 1950 by a 'ceiling' of cost limits, calculated per school place.⁴⁹

Additionally, authorities were required to submit annual building programmes to central government, spurring them to prioritise expenditure and plan well in advance, considering the effects of demographic change and house building.⁵⁰ Cost limits were blunt instruments: unlike housing yardsticks, they did not distinguish between regional differences in building materials and labour. And although the cost limits were periodically reviewed, they tended to lag behind inflation. If a small project was left off an annual programme, it was just about possible to build using 'minor works' grants from the Department of Education and Science, intended for repairs and refurbishment only. In 1949-50 Ernö Goldfinger built two schools for the LCC on a war damage budget.⁵¹

The imposition of controls on building, and above all the introduction of cost limits, was the catalyst for a total reconsideration of school planning. The mechanisms of equitable building—amongst them the fledgling disciplines of cost planning, bulk ordering, serial and selective contracting, standardisation and the partial industrialisation of school building—depended on the cooperation of administrators, quantity surveyors and

architects, and an inquisitive and creative attitude to resources. Jim Nisbet, the quantity surveyor at Hertfordshire County Council and later the Ministry of Education, pioneered elemental cost analysis, the itemisation of the elements of a building from foundations to plumbing and painting to obtain the maximum value for money. The cost plan was checked at significant stages, and could be taken heed of in the planning of the next school.⁵² David Medd explained how this gave architects choice and priorities:

Through cost planning you could decide at the start that you were going, say, to afford a certain lighting system, generous pin-up space, a pool or whatever, and build them into the cost plan at the start, instead of things hanging on precariously on the end of the cost sum and thus liable to being easily cut off. Thus such things as drains and foundations could be made to pay for what was going to give pleasure.⁵³

The procedure of cost planning was written up as a Building Bulletin in 1951 and widely adopted in local educational authorities.⁵⁴ At first, much fat could be cut from school design, in excessive circulation, grand entrance foyers, separate dining areas, over engineering, or inefficient construction methods. By the mid-1960s, most authorities had pared non-teaching areas back to the bone, leaving little room for manoeuvre as the economy worsened and inflation increased. Despite cost planning, the 'cost squeeze' led to space standards being cut to DES minima and the use of cheaper materials and finishes. By the oil crisis of 1973-74, the building industry was already overloaded and contractors started to decline tenders or submit claims. In 1974, cost limits were replaced with a greater degree of case by case assessment.

III: the Architect

Public Offices of Salaried Architects

The size and influence of the public sector in the post-war period is illustrated by the fact that most education authorities possessed their own Architect's Department. Yet their size and status varied widely, and whilst the County Architect was a powerful figure in some local authorities, at Hertfordshire, Leicestershire and other counties the post was created around 1945. The County Borough of Ipswich turned to the local firm of Johns, Slater and Haward as established school builders (page 331).⁵⁵ In-house architectural teams benefited from continuity of experience and the ability to pool knowledge and resources. Smaller projects could usually be seen through from start to finish, and programmes of building offered the opportunity to close the cycle of school design through user appraisals or by establishing close partnerships with building contractors, such as Nottinghamshire's 'Research into Site Management' programme (page 137). Departments of any size could afford to establish small teams, sometimes termed development groups, to focus on a particular technical challenge which could later be widely applied. There was also a notable expansion of 'scientific' research and development undertaken by government-sponsored agencies. In particular the Building Research Station at Garston, Hertfordshire made significant advances in questions of construction, lighting, heating and colour.

The role of the architect in the design process was transformed from a passive role of responding to a fixed brief to one of investigation, observation and collaboration. Stirrat Johnson-Marshall, the dynamic Chief Architect of the MoE Architects and Building Branch discussed the aspirations and challenges of such an approach in a talk at the Sheffield School of Architecture in 1952:

Somehow one must get closer to the client—to know what his aspirations are [...] in terms of what he wants to do and how he wants to live. [...] In our world the Education Officer is the official spokesman of the client [...] It is not a bit of good going to him and saying “what do you want?” You have got to ask him what he and his teachers want to do in every school and every part of every school. And you have got to keep on asking him because his subject and methods, like ours, is changing all the time.

And when you start your language will be unfamiliar to him and his to you, so it will take you quite a time to meet on common ground. You will never achieve this if you see him only once a quarter at pompous meetings. But—once you have begun to know his subject and he yours, your work attains a source of inspiration which is far more exciting and rewarding than the text book and “plan type” approach of our predecessors.⁵⁶

The percentage of British architects in public offices reached a peak of 45% in 1955.⁵⁷ After building controls were lifted progressively in 1952-54 a building boom encouraged something of the ‘brain drain’ from the public sector. Many of the brightest designers, after a spell in architect’s departments such as that of the LCC, set up their own offices to do public as well as commercial work. An early indication of the new trend was Johnson-Marshall’s defection from the MoE in 1956 to form Robert Matthew Johnson-Marshall and Partners. The *Architectural Review* complained in 1965 that authorities were ‘finding the greatest difficulty in recruiting staff’.⁵⁸ Local government reorganisation in 1974 prompted the departure of many key county architects such as Fred Pooley of Buckinghamshire (page 239) and the dispersal of whole offices in the cases of West Suffolk (page 309) and the West Riding (page 151). For others, such as Colin Stansfield Smith of Hampshire (page 265), reorganisation provided a crucial break and the opportunity for fresh thinking. The contraction in public building from the 1970s had an effect on architect’s departments: at Nottinghamshire, Henry Swain reluctantly made 70 of his staff redundant in 1976 when the capital programme was reduced by a third.⁵⁹ Over the last quarter of the twentieth century, under mounting economic and political pressure, most architectural offices were scaled down, merged with planning, engineering or property services departments, or outsourced wholesale to the private sector. Few survive in recognisable form today.

Private Architects

The commissioning bodies of independent and voluntary schools had a long tradition of employing private architects, who were often permitted to directly consult senior teaching staff and parents (page 369). Such was the volume of post-war school building that LEAs ‘farmed out’ work to trusted private practices, sometimes drawing up lists of



Figure 1.7: A 1966 design study by Team 4 (Su Brumwell, Wendy Cheeseman, Norman Foster and Richard Rogers) for the Homefield Preparatory School in Sutton. The drawing emphasises connections and contrasts: quiet/noisy; private/public; open/closed. The designation of 'entrance locks', service areas and dirty/clean processes is a reminder that the practice was then working on the Reliance Controls building in Swindon. Private practices often 'cross-fertilised' school design with their experience of other building types. Few public architects experienced such variety. (P5925001)

'approved' architects. Leslie Martin compiled such a list for the LCC in 1949.⁶⁰ This was an important element of managing peaks in annual programmes without expanding in-house teams; in times of cuts the 'outsourced' programme could be dropped without the loss of in-house staff. Local authorities had other motivations for bringing in private architects, too: to supply a prestigious project, to use up budgets at the end of the financial year, or to sort out a project which had gone wrong.⁶¹ Nowhere was public patronage of private architectural practices more successful than in London (pages 184-86). For the Architects' Co-Partnership, 'there was no need to seek work or to compete for it; invitations to design primary and secondary schools arrived in the mail.'⁶²

The importance of school commissions to private architects varied. Some celebrated practices such as Alison & Peter Smithson did not get further than a single school whilst others, such as Lyons, Israel and Ellis, Yorke Rosenberg and Mardall, the Architects' Co-Partnership, Sheppard Robson and Stillman Eastwick-Field developed considerable expertise in educational building over a long period. In larger practices, a single partner might specialise in educational work, such as Gordon Taylor of Sheppard Robson. Other practices confined themselves to a region, often working in partnership with an LEA, yet built up a national reputation, as did the Ellis Williams Partnership in the north west or Plinke Leaman and Browning in Hampshire. As private architects were not permitted to advertise there were clear professional and financial incentives for the publication of their work in the architectural press.

What was the contribution of private architects to post-war school building? Some public-sector architects doubted their capacity to effect significant innovation of the type and sensed a preoccupation with aesthetics. For David Medd they could do 'little more than decorate what they know about. It is not their fault, because they are not in a position to evolve, only to take orders from the client.'⁶³ But this was not universally true. Indeed, his mentor Stirrat Johnson-Marshall entered private practice with hopes of establishing 'a third arm' for the public sector. The simile was probably most apt within the sphere of higher and further education, where private architects enjoyed greater

autonomy and higher budgets.⁶⁴ Desmond Williams and Birkin Haward brought to the private sector collaborative working processes developed in public offices, whilst Richard Sheppard, Sam Morrison and the Edcon consortium developed their own constructional systems. Other ex-Hertfordshire architects continued school building under the names of Barron and Smith, Twist and Whitley and Green Lloyd and Adams Architects, enjoying a stream of local authority commissions. Some public offices such as those of the LCC/GLC and the West Riding used private commissions as a source of innovation and competition. At best the private sector ensured that the 'gene pool' of school design remained sufficiently diverse, providing architectural stimulus that countered contemporary trends towards standardisation (fig. 1.7).⁶⁵

ENDNOTES

1. Many authorities have scanned their drawing archives in recent years, usually disposing of the originals; other collections of drawings in local authority ownership remain uncatalogued, or have been 'weeded' or dispersed on reorganisation. The prevalence of computer-aided drafting (CAD) techniques from the 1980s means that permanent paper records may never have existed for more recent buildings.
2. Maclure 1984; Saint 1987.
3. Department of Environment, Circular 8/87.
4. Cherry and Chitty 2009.
5. Saint 1992.
6. DSCF 2007; Department for Education and Skills 2006.
7. This phrase may have an origin in the Report of the Royal Commission on Local Taxation, Parl. Papers, 1901.
8. Board of Education 1943b; Education Act, 1944. (7&8 Geo VI, c.31), London: HMSO.
9. Education Act, 1944. (7&8 Geo VI, c.31), London: HMSO, s.6 (1); Pile 1979, 23. The term 'local education authority' has now fallen out of official use, but is employed throughout this report as a historical term.
10. In 1903, about 315 LEAs were created from some 2,500 school boards. The Butler Act of 1944 reduced this number to 146, which further shrunk to 104 on local government reorganisation in 1974 (Thompson nd, 1).
11. Subsequently renamed Department for Education (DFE, 1992), Department for Education and Employment (DfEE, 1995), Department for Education and Skills (DfES 2001), Department for Children, Schools and Families (DcSF, 2007) and Department for Education (DfE, 2010).
12. Pile 1979, 23-24.
13. Pile 1979, 67.
14. Saint 1987, 249; Oddie 1963, 180.
15. Institute of Education Archives: ME/M/1/13, 'Educational Building in the United Kingdom', p. 2.
16. Alexander 1977, 381.
17. Their designers, David and Mary Medd, returned to the subject of village schools in a series of Welsh projects in the mid-1970s (Welsh Education Office 1975).
18. Unpublished report of January 2000 by Elaine Harwood for the English Heritage Historic Buildings and Areas Advisory Committee, deposited in deposited in the Historians' Files, English Heritage London Region, file reference LAMI80.
19. Pile 1979, 107.
20. *Building*, vol. 231, no. 6956(42), 15 October 1976, p. 71.
21. Pile 1979, 10.
22. http://news.bbc.co.uk/onthisday/hi/dates/stories/december/4/newsid_3228000/3228207.stm, accessed 15 August 2012.
23. As late as 1969 the architect Michael Webb considered that 'the post-war need to build schools quickly, in large numbers and at reasonable cost, is as great as ever' (Webb 1969, 65).
24. DES Statistics of Education 1975; Ward 1976, xiii; Pile 1979, 12. The implications of falling roles were belatedly considered in DES circulars 5/77 (Falling numbers and school closures) and 2/81 (Falling roles and surplus places).
25. Pile 1979, 11.
26. Immigrant pupils were defined by the DES for statistical purposes as 'children [...] of overseas origin and children born in the United Kingdom to parents of overseas origin who had been in the country for less than ten years' (Pile 1979, 11).
27. Central Advisory Council for Education (England) 1967, 69-74.
28. Urban Development Corporations (UDCs), loosely based on the older New Town Development Corporations, were suggested in a 1977 White Paper on inner cities and implemented by the Inner Urban Areas Act 1978 and the 1980 Local Government, Planning and Land Act. From 1981 to 1993, twelve UDCs were set up in England, the largest being the London Docklands.
29. Smith 1987.
30. MHLG 1964.
31. *Building*, vol. 231, no. 6956(42), 15 October 1976, p.71.
32. Alexander 2009, 77.
33. Medd 2009, 22.
34. Mary Medd's father, Dr Ralph Crowley was Medical Officer to the Educational Committee of the City of Bradford before becoming Senior Medical Officer for the Board of Education (Saint 2003, 79).
35. 'The Evolving School' in *Trends in Education*, no. 2, April 1966, p. 3-8.
36. Lowe 1992, 50.
37. Banham 1981, 189.
38. 'Umbrella men': Oddie 1963, 180.
39. c.2007 interview between Estelle Morris and Sir Tim Brighouse, <http://archive.teachfind.com/tv/www.teachers.tv/videos/tim-brighouse.html>, accessed 15 August 2012.
40. Heller and Edwards 1992, 106.
41. Temple 2008, 419-21.

42. The William Tyndale Junior School in North London became notorious in 1974–75 when a highly-progressive and informal regime led to acrimony between staff, managers and parents, the intervention of the Inner-London Education Authority and a public enquiry. The episode received much publicity in the national press.
43. Lowe 1997, 60. The Black Papers were a series of five pamphlets published between 1969 and 1977 and edited by C.B. Cox, A.E. Dyson and R. Boyson MP. They carried a series of articles, mostly authored by academics and headteachers which criticised child-centred teaching methods amongst other things.
44. Pile 1979, 20.
45. Bennett 1976.
46. Will Woodward, 'Landscape Architect', *The Guardian*, 5 April 2005.
47. Saint 2003.
48. Cooke and Gosden 1986, 59.
49. Changes in cost limits were reflected in the revisions to the 1945 Regulations Prescribing Standards for School Premises dated 1951, 1954, 1959, 1971, 1972, 1981, 1996 and 1999.
50. Up to 1969, LEAs submitted annual 'starts' major works programmes, listing projects proposed to start on the year in question, along with a justification for provision and a costing for each project. After negotiations with the DES, an approved programme was issued, comprising a list of authorised projects and their cost. In 1969 the DES introduced a three-year rolling programme. This comprised three consecutive lists: a 'preliminary list', three years in advance of construction; a fully-costed 'design list' and a 'starts list' of projects ready to proceed to tender (Pile 1979, 78).
51. Harwood forthcoming.
52. Brian Whitehouse, pers.comm., 25 June 2012.
53. Quoted in Saint 1987, 121.
54. Ministry of Education 1951 (Building Bulletin 4).
55. Saint 1987, 62.
56. Institute of Education Archives: ME/M/1/6, Stirrat Johnson-Marshall, notes for talk to students at Sheffield School of Architecture, 7 May 1952.
57. In 1938, 31% of 10,000 architects were employed in the public sector; by 1955 it was 45% of 17,500 and by 1964, 39% of 20,000.
58. *Architectural Review*, vol.138, no.824, October 1965, pp.243-45.
59. *Building Design*, no.327, 10 December 1976, p.3.
60. Harwood forthcoming.
61. Harris FE College, Preston is an example of the latter. The project was run by the Development Group of the Ministry of Education, but the Architects' Co-Partnership had to be brought in, much to the embarrassment of the Ministry (Saint 1987, 187-88).
62. *Architects Co-Partnership: the First Fifty Years*. Unpublished pamphlet available at <http://www.acparchitects.co.uk/History/50th%20booklet%20150.pdf>, accessed 15 August 2012.
63. Institute of Education Archives: ME/Q/9/1: Letter of 6.4.1970 from David Medd to Stephen Gardiner, page 6.
64. Saint 1987, 184.
65. *Official Architecture & Planning*, vol.29, no.9, September 1966, p.1308; Classey 1998, 18. Powell (1916-71) was the brother of Phillip Powell of Powell and Moya.

PART II: SCHOOL TYPES

Nursery Schools

The development of 'child-centred' educational practice in early-twentieth-century England owed much to a small number of independent nursery schools. Those run by Margaret and Rachel McMillan and others were established as voluntary initiatives responding to the effects of urban poverty and unsanitary domestic conditions on the child population. They were homely places, characterised by close and informal relationships between adults and children and an emphasis on health, nurture and pastoral care where it was thought to be lacking at home. Some, such as the Malting House School established in Cambridge by the educational psychologist Susan Isaacs, occupied old buildings. Others made a virtue out of the necessity of 'temporary' buildings; Margaret McMillan's requirements anticipate an economising, anti-monumental strain in post-war public architecture:

The old style of buildings, however handsome, will not do. Nursery school buildings are cheap and they must consist of self-contained shelters, built of asbestos, and costing a third of the usual price for buildings.¹

But for all the influence of the early-twentieth-century nursery and the recognition of its value to society, the independent pioneers proved difficult to translate to local authority provision on a large scale. A major expansion of nurseries had been necessary during the First and Second World Wars as mothers took on war work and with the evacuation of children in 1939-45. The successive increases in the school leaving age in 1918, 1947 and 1972 saw no corresponding lowering of the threshold of entry to compulsory education. Despite the growing economic importance of the female labour force after 1945, central government could spare no resources for pre-school education; this was in part due to the fact that nursery places were usually more expensive than infants'.² The West Riding Development Plan of 1948 included the provision of 9,600 nursery places on 241 separate sites, but primary schools had to take priority and the proposal was quietly dropped in the 1950s.³ Authorities were more likely to build nurseries in areas with a high percentage of women in full-time employment, such as Burnwood Nursery School, Stoke on Trent, completed in 1949 for the children of skilled women working in the potteries.⁴ Such was the need for primary school places that the Ministry of Education actively discouraged authorities from building nurseries under permissive legislation from 1960.⁵ In 1970, one in four nursery places were in post-war, purpose-built accommodation (table 2.1). As many were accommodated in wartime huddled buildings. For these reasons nursery education has been dubbed the 'Cinderella of the education system'.⁶

Post-war developments in nursery education came from two directions. The findings of educationists and developmental psychologists such as Jean Piaget (1896-1980) suggested that ages 2-5 represented a critical stage in mental and physical development and education in its widest sense was key to cognitive development.⁷ Socio-psychological studies indicated the cumulative effects of poverty and 'culturally disadvantaged' home backgrounds on the learning capacity of children.⁸ Pre-school education, always dependent on close cooperation between school and parents, could be seen as an additional social service for the most vulnerable families. Like Margaret McMillan, Mary

Medd emphasised the importance of school–home relations for the youngest children, but stressed that the parental role was as important a factor in the intellectual and emotional development of the youngest child as their socio-economic background:

We cannot ignore the homes from which these children come [...] Many come from homes in which there is nowhere to make a noise, nowhere to make a mess (the white-carpeted living room, the “open plan”, the sixteenth floor flat), homes with no grass or trees, nowhere to find a place of your own; homes in which parents have no “child’s time” to spare, no books, no talk to widen the vocabulary.⁹

Children and their Primary Schools, the 1967 report of the Central Advisory Council for Education (England) chaired by Lady Bridget Plowden, clearly bore the imprint of Piagetian and sociological insights.¹⁰ The targeted expansion of nursery provision was one of several policy measures advocated by Plowden to alleviate urban deprivation. The report was unequivocal: ‘there should be a large expansion of nursery education and a start should be made as soon as possible’.¹¹ The opportunity was the Urban Aid Programme of 1968, in which central government provided additional funds for local authorities to build nurseries in their deprived areas, termed Educational Priority Areas by Plowden.¹² An additional 24,000 nursery places were provided through this scheme.¹³ The 1972 White Paper *Education: a Framework for Expansion* and the associated Circular 2/73 set national targets of nursery expansion at levels advocated by Plowden: to provide places for 50% of three year olds and 90% of four year olds by 1983, of which 15% would be full time.

For a short period c.1967-72 a national breakthrough in nursery education seemed imminent. The programme demanded 250,000 new places over a 10 year period but only a small number of new nurseries were completed before the curtailment of local authority building programmes in the mid-1970s.¹⁴ Pre-school education did indeed expand in the last quarter of the twentieth century (fig. 2.1), but growth took the form of a patchwork of uncoordinated measures, with much reliance on voluntary, part-time and informal arrangements and the contribution of parents. Mary Medd identified

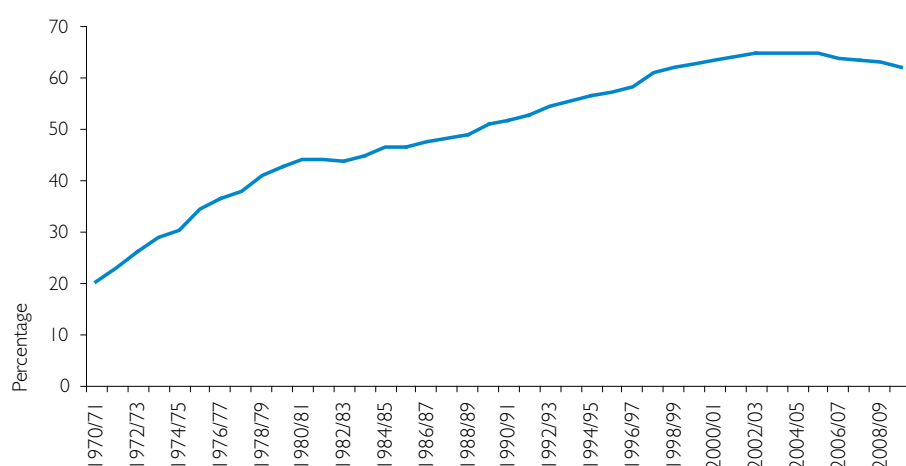


Figure 2.1: Children under five in UK schools. Pupils aged three and four at 31 December each year as a proportion of all three and four-year olds. Source: Department of Education. Data reproduced under the terms of the Open Government Licence.

five categories of purpose-built pre-school provision: nursery units in primary schools, nursery schools, day nurseries, nursery centres and play groups. Falling primary roles provided the opportunity for nursery units within infant or primary schools. Although it was little more than a formalisation of the 'reception' or 'babies' classes that had long been part of maintained infant schools, the Plowden report emphasised that the nursery-infant school enabled a smooth transition between educational stages. Architects and Building Branch duly issued guidance on the subject of converting redundant spaces in primary schools to nursery units.¹⁵

Smallest in number but often the educational and architectural pacesetter was the purpose-built nursery school, either on its own site or sharing with a primary school. The tradition of private nursery schools continued, some, like the Dartington Hall Nursery School (pages 383-84), affiliated to boarding schools for old children. Elsewhere, the financial impasse faced by LEAs was broken by charitable organisations like Save the Children. The construction of the Vanessa Nursery School in Hammersmith was founded by a charitable trust, the LEA taking charge of the maintenance of the completed school (page 194). Day nurseries or crèches were more orientated to childcare than education in their origins and practice, and were overseen by the Department for Housing and Social Services. The fourth category, the nursery centre, was an amalgam of school and crèche, although funding and management arrangements could be complicated. An example is the Ordsall Nursery Centre, Salford of 1974, designed for children of 9 months to 5 years. Lastly, play groups and play centres were often provided by parent groups such as the Pre-school Playgroups Association (renamed the Pre-School Learning Alliance in 1995) and charities like Save the Children.¹⁶ Many functioned as 'drop-in centres', providing a level of parental support and liaison that nurseries could not.¹⁷

Day nurseries and day centres were sometimes included in large, urban housing schemes, the pre-war model being the Day Nursery at Kensal House, London, built in 1936-38 to the designs of Maxwell Fry with Elizabeth Denby. The huddled forms of the children's day centre in Eddington Street for the London Borough of Islington, designed by Darbourne and Darke, complement their nearby Athelstane Estate.¹⁸ Designed in 1972-73, it included a 60-place nursery with medical facilities and a kitchen.¹⁹ Spaces for play groups were provided at some London housing estates such as Cressingham Gardens in Lambeth (page 194) and the modernist Ainsworth Play Centre at the Alexandra Road estate, designed by Kisa Kawakami of the renowned Camden Architect's Department.²⁰

The Design of Nursery Schools

Nursery schools were generally based on one to three classes each of about twenty children with staffing ratios of four adults, perhaps two of them qualified assistants, to every ten children. Nursery units benefitted from the facilities of the primary schools to which they were attached, whereas stand-alone nurseries sometimes forewent kitchens and staff rooms. To encourage parents to visit and assist a private consultation room and attractive foyer with waiting area was sometimes provided. Little published design guidance was available, so empirical observation of children and teachers was the logical starting point for architects. The Architects and Building Branch emphasised



Figure 2.2: David Medd's sketch of typical nursery activities, reflecting his view that their layouts needed less enclosure than infant schools. Institute of Education Archives: ME/Z/5/1/31.

the importance of first-hand sensory experience to develop and to stimulate the curiosity and imagination of pre-school children, and the need for improvisation and even risk.²¹

The DES architects identified seven 'zones of activity': table work, acting, music, messy work, quiet work, moving and construction, but most could be accommodated in a single playroom. There was accordingly less enclosure

and differentiation than at infant schools, and flexible arrangements of furniture were generally found more useful than partitions (fig. 2.2). Access to a covered veranda and outside play areas were considered essential. It was found that rationalised traditional construction better suited the intimate scale and domestic atmosphere than prefabrication.²² An eye level less than one metre from the floor meant that floor surfaces, thresholds and low, wide window sills were the most important elements. The provision of a variety of floor surfaces—vinyl and lino with carpeting for quiet areas, quarry tiles for messy work and flags and grass outside was a practical measure yet gave experience of tactility. The Medds suggested that the variety of the interior might be described by the way you might clean it: 'some parts will have to be cleaned by hosing down, some by a good brush, others by the flick of a feather mop'.²³ Interior floors, walls and ceilings were all potential display surfaces. Low-pitched ceilings, open to the roof offered exposed beams to hang things from.²⁴

Catchment area	%	Buildings	
Immediate area	28	Pre-1939 purpose built nursery school	29
Neighbourhood unit	41	Post-war purpose built nursery school	21
Scattered area	31	Classrooms in 1870-1900 primary school	11
		Classrooms in 1900-1920 primary school	7
		Classrooms in post-war primary school	6
Situation		Wartime prefabricated nursery	24
Inner-city 'twilight' area	26	Converted house	2
Industrial area	17		
Pre-1939 housing estate	34	Amenities	
Post-war housing estate	16	Self contained	100
Residential 'leafy suburb'	6	Outdoor playing space or garden	100
		Covered outdoor playing area	43
Admission		Own kitchen	68
All groups	38	Transported meals	31
Less than 10% of children from overseas	20	Class remote from main primary school	7
Over 50% of children from overseas	6		
Less than 10% children of working mothers	22		
Over 50% children of working mothers	14		

Table 2.1: A snapshot of nursery provision. Information from a Schools Council survey of 95 nursery schools and classes conducted in 1969-71.²⁵

Primary Schools

The 1944 Education Act reaffirmed the 1926 recommendations of the Hadow committee to divide schooling into primary and secondary stages with a break at age 11.²⁶ On the ground, it was a further twenty years before the last all-age schools were reorganised.²⁷ Patterns of provision were at the discretion of the local education authority: some provided separate infant and junior schools with a break at age 7 plus; others, primary schools for the 5-11 age range. School sizes likewise varied from two-class village schools of about 50 pupils to primaries of 480 pupils; special permission from the MoE/DES was necessary for rolls greater than this. Single-form entry schools, with one class in each year group, facilitated closer pupil-teacher relationships, although the scope for teacher collaboration was limited. Two-form entry schools were recommended in the 1967 Plowden report on primary education, although three- and four-form entry were possible depending on age range and class size. Average class sizes were 30-35 in 1965, but the popularity of group work and greater numbers of teaching assistants led DES in 1969 to replace class size with teacher-pupil ratios as a statistical yardstick.²⁸

Child-centred Approaches

Teaching in the post-war primary school is often characterised as ‘child-centred’ or ‘progressive’.²⁹ Such approaches were underpinned by principles of self-development and experiential learning and based on an understanding of the intellectual development of young children. Having developed in the pre-war independent sector, child-centred ideals and methods were taken up after 1944 by educationists within the Ministry of Education, a few progressive Authorities and at teacher training colleges and in-service courses. Architects and Building Branch was no less instrumental in demonstrating how school design might assist new approaches to teaching and learning, and the same processes of reception, interpretation and compromise are apparent in local authority-designed schools. The introduction of non-selective reorganisation plans freed primary schools from the constraints of the eleven plus exam, one of the main factors in the retention of whole-class teaching.

Although child-centred practice was endorsed by central government from an early stage, its reception, interpretation and adaptation varied widely from authority to authority and school to school. Traditional, didactic modes of teaching—so-called ‘chalk and talk’—persisted, even at the MoE’s flagship Woodside Junior School in Buckinghamshire.³⁰ The reputation of Oxfordshire, amongst the most educational progressive authorities, rested on as few as twenty ‘pace-setting’ schools, its former Primary Adviser John Coe has suggested.³¹ The Plowden report is customarily described as the apogee of child-centred education in England.³²

Learning through first-hand experience and enquiry implied diverse and unpredictable patterns of activities, movement, resources and working groups, and a pedagogic balance between flexibility and structure. The teacher’s role typically became less didactic and more informal; two or more teachers might pool their cohorts and resources for a planned session (sometimes dubbed ‘team teaching’), and topic work might be

structured without the constraints of a fixed timetable ('the integrated day').³³ The class usually remained the pastoral unit, but whole-class teaching was substituted, to a greater or lesser degree, by groups of varying size and age, according to the activity. Infant age groups in particular especially tended to enjoy greater freedom of movement and self-direction. The principle of creative and active learning inevitably led to a greater emphasis on practical work and play, demanding wet or messy areas, plentiful storage and cleaning-up facilities and easy access to outdoor verandas.

Planning Primary Schools

In certain authorities, educationists developed a consistent approach to teaching practice and liaised with their architect colleagues to determine its spatial implications. An astute Chief Education Officer might impose a standard brief; elsewhere educationists and architects enjoyed the autonomy to work through the challenges of individual schools; in still other places the educational stimulus was contradictory, weak or absent. Where the pastoral needs of young children and whole-class teaching was valued, dispersed arrangements of fully or partly self-contained classrooms tended to result. More fluid approaches, stressing teacher cooperation and vertical grouping, resulted in the aggregation of teaching space in a more compact and open plan.



Figure 2.3: This 1958 textbook features a typical 'hen and chicks' plan. The school is Kingswood Junior School, Clay Hill Road, Basildon by Poulton and Freeman. From Jean and David Gadsby, *Looking at Everyday things*. London: A & C Black, p.69. Illustrations reproduced by permission of Essex County Council.

Pedagogy was one of a number of interrelated influences on the design of the post-war primary school. Minima and maxima were determined by central government in the form of space standards and cost limits (page 18). Up to c.1970 high levels of daylighting were prescribed, resulting in dispersed plans and multi-lateral lighting (page 83).³⁴ Methods of construction, whether traditional or prefabricated, each imposed their own peculiar constraints on planning. A balance between divergence and convergence, between seclusion and communality, was achieved with the 'hen & chicks' or 'cluster' plans developed at the Architect's Department of Hertfordshire County Council c.1949 at around the same time that cost limits were being announced.³⁵ Pairs of classrooms with a shared

entrance, cloakrooms and lavatories were ranged around a central hall, dining areas and staff accommodation (fig. 2.3). They had the additional benefits of generous daylighting and plentiful ‘bays and backwaters’ for diverse activities.³⁶ The versatility of such layouts ensured their dominance in primary school planning until the late 1960s, when economic pressures dictated still more compact plans.³⁷

Finmere and ‘Built-in Variety’

The Architects and Building Branch of the Ministry of Education was instrumental in developing and promoting planning techniques which facilitated child-centred teaching practice. The breakthrough in education-led primary school planning was Finmere Primary School in Oxfordshire of 1958-59, a fifty-place village school designed by David and Mary Medd of Architects and Building Branch (page I06). Responding to certain characteristics of village schools—mixed-age groups, more informal pupil-teacher relationships and teacher cooperation—the Medds provided a ‘built-in variety’ of spaces of differing character.³⁸ Their compact, squarish plan had a central shared area with a high ceiling and exposed roof trusses that could be divided from the two classes by sets of folding doors (fig. 2.4). Each class had an enclosed room for rest and storytelling and three bays for practical work. Structured space was thus provided for a range of working groups, from individuals and small groups to activities involving the whole school. The design elements of Finmere—‘home bases’ for each class, enclosed quiet rooms, shared areas, practical bays and verandas—became widespread in the planning of English primary schools in the later twentieth century. The Medds went on to extend built-in variety to a range of briefs and school types, including larger primary schools, middle schools and the lower school of a comprehensive (page I05).

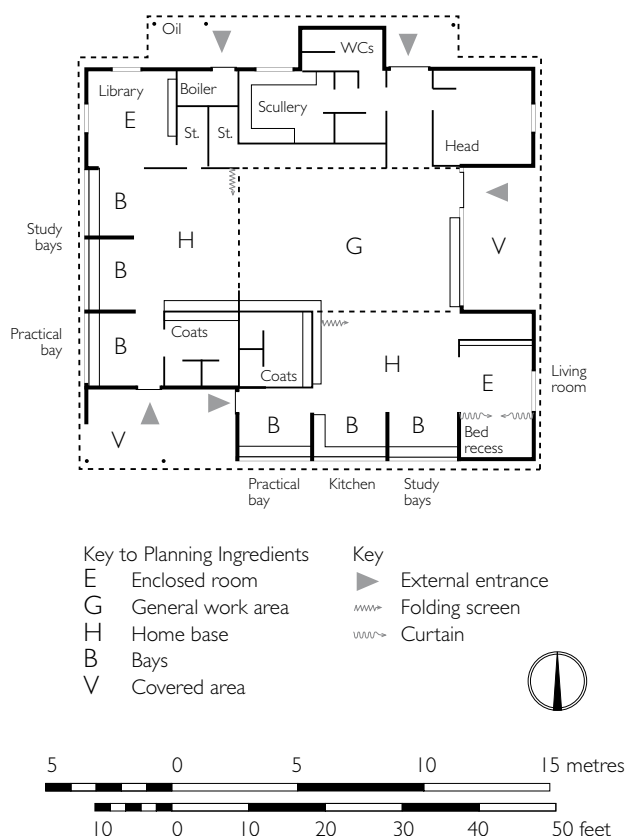


Figure 2.4: *Finmere Primary School, Oxfordshire; MoE Development Group (job architects David and Mary Medd), 1958-59. 1:300.*

The case studies of individual authorities in Part Four of this report demonstrate a wide variety of regional responses to the ideas and techniques promoted by Architects and Building Branch. The planning techniques of built-in variety and planning ingredients can be seen most clearly in the educationally-progressive counties of Oxfordshire, Leicestershire, Bristol, the West Riding of Yorkshire, Nottinghamshire and Derbyshire,

and the voluntary schools designed by the Ellis-Williams Partnership. Many of these authorities were early adopters of non-selective education with the consequence that primary education could develop without the pressure of the 'eleven plus' examination (page 41).

Compact and 'Open' Plans

The introduction of cost limits in 1949 forced architects to develop cheaper and more efficient construction techniques and materials and to reconsider the proportion of circulation to teaching space in the primary school plan. Economic factors above all led to the gradual compaction of the primary school plan over the third quarter of the twentieth century. Circulation was first to be cut: corridors were staggered, partially absorbed into teaching areas with folding doors or replaced by circulation through teaching areas or outdoors.³⁹ Grand yet seldom used spaces like entrance foyers, dining areas and assembly halls were telescoped into inter-connected areas. Primary plans later became deeper with daylight provided through roof lights or small internal courts.⁴⁰ Although cost pressures were largely responsible for the increasing compaction of the primary school plan, they also had the potential for greater freedom of movement, sharing of resources and teacher cooperation.

Very different from built-in variety was the open-plan school, which had origins in the 'loft plans' and 'schools without walls' promoted in the United States. The ideal was a flexible and unenclosed space, capable of accommodating multiple classes and activities. This usually took the form of large, deep and open plans, mechanically-serviced and divided up with low screens or furniture. In the UK these ideas were limited to a very few schools, amongst them Eastergate Church of England Primary School in West Sussex, the Ilford Jewish Primary School, St Paul with St Luke Primary School in east London and the Halifax Primary School in Ipswich, their layouts all now subdivided. The ensuing open plan debate generated more heat than light, and our understanding of the reception and influence of these ideas is limited due to the tendency to confuse open plan with built-in variety, conceptually its opposite.⁴¹

But most authorities were not as bold educationally, making gestures in the direction of child-centred education whilst placating the traditionalists who persisted with whole-class teaching. A typical compromise was to make the classroom sufficiently large and flexible to accommodate multiple activities and group sizes: one corner, perhaps opening onto a veranda, could be tiled and equipped for practical work and another carpeted or semi-enclosed for retreat and quiet study. Pairs of classrooms might be divided by a sliding door, thus allowing a newly-qualified teacher to work with a more experienced colleague, and might share a supplementary area. Rows of these expanded classrooms were often accessed from a shared practical area. From the mid-1970s Buckinghamshire and Hampshire cast these ideas into linear or centrally-planned layouts (pages 244 ad 272-74). The return of the cellular plan coincided with a return to a more traditional, subject-orientated curriculum.

Middle Schools

The story of the rise and fall of the middle school neatly sums up post-war tensions between the resources and priorities of government and the needs of the individual child. The term middle school is thus encountered in two contexts: organisationally, to describe a specific scheme of educational re-organisation as implemented by a local education authority; and educationally, as an approach to a transitional stage in a child's development. Both have implications on school design. Because of the highly devolved nature of education in England and because middle schools were bound up with the debate about non-selective secondary education, the middle school had no standard age range, although 8-12 and 9-13 years were most common, and sometimes different age ranges were encountered within a single authority.⁴² The picture is further complicated by the phased, district-by-district implementation of middle school reorganisation.

Middle Schools and Educational Reorganisation

An early experiment with a three-tier system, but one which retained selection at age 11 plus, was the 'Leicestershire experiment' implemented from 1957-69 by County Education Officer Stewart Mason (pages 223-24). When the Leicestershire scheme was proposed for a West Riding district, the Chief Education Officer Alec Clegg came up with an alternative: a non-selective scheme of 5-9 first schools, 9-13 middle schools and 13-18 upper schools (pages 156-57).⁴³ But the 1944 Education Act stipulated transfer at age 11, and Clegg's plan could not be permitted without a change in the law. The 1964 Education Act, drafted by Conservative Education Minister Edward Boyle partly in response to Clegg's petitioning, received cross-party support.⁴⁴ It permitted LEAs to propose other ages of transfer than 11 and gave the middle school an experimental status.

In January 1964 Boyle set a date of 1970-71 for the raising of the school leaving age to 16, a policy recommended by the Crowther and Newsom reports.⁴⁵ Circular 10/65 of July 1965, which implemented the incoming Labour government's policy of non-selective secondary education, suggested 'the establishment of middle schools with age ranges of 8 to 12 or 9 to 13 has an immediate attraction in the context of secondary reorganisation on comprehensive lines'.⁴⁶ Secretary of State Anthony Crosland was initially hesitant about the number of three-tier schemes he would authorise but such was their popularity with LEAs of all political affiliations that general consent for middle schools followed with Circular 13/66, allowing LEAs to determine ages of transfer. The following year the Plowden report recommended setting ages of transfer at 8 and 12, but had already been pre-empted by the Circular.⁴⁷

Three-tier reorganisation (and hence middle schools) allowed education authorities to respond to the twin challenges of 'comprehensivisation' and an increased leaving age.⁴⁸ The structure was naturally non-selective, and by shortening the secondary age range, made smaller comprehensives viable. Crucially, this meant that an authority could 'go comprehensive' without a costly programme of new secondary schools. Caroline Benn of the Campaign for Comprehensive Education wrote that 'the main moving force behind most middle school schemes has been the desire to go comprehensive'.⁴⁹

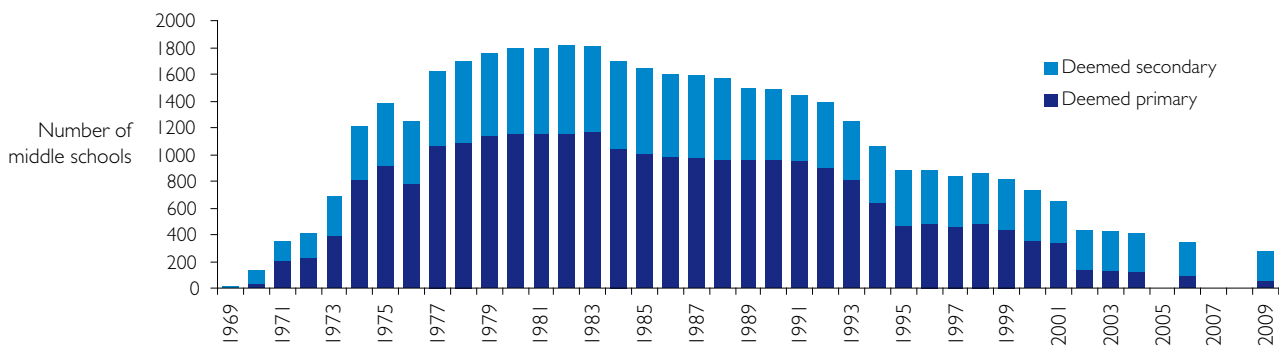


Figure 2.5: The rise and fall of the middle school. Source: Wyatt 2010, 6; reproduced by kind permission of Nigel Wyatt.

The national number of middle schools rose sharply in the 1970s, reaching a peak of 1,816 in 1982 (fig 2.5).⁵⁰ Since then there has been a sustained decline, with steeper drops in the early 1990s and early 2000s, when authorities reverted to a conventional primary-secondary structure. Several explanations can be offered for the decline of the middle school. If take-up was dependent on cross-party support, the lack of consensus that prevailed in the more fractious political climate of the 1970s and 1980s was likely to reverse the trend. The diversity of schemes, the lack of a national policy on the age of transfer and the presence of different teaching cultures all contributed to an identity crisis.⁵¹ The introduction of the National Curriculum in 1988 made transfer at ages 12 or 13 problematic, as Key Stage Three was split between middle and secondary stages.⁵² Education professionals with more child-centred conceptions of the middle school did not welcome the National Curriculum's emphasis on subject teaching and assessment, supplemented from 1998 by National Literacy and Numeracy Strategies. The viability of middle schools was further reduced by falling pupil numbers and the 1990 Audit Commission report *Rationalising Primary School Provision* proposed the conversion of middle schools to two-tier systems as a method of reducing surplus school places. The National Middle Schools' Forum was founded in 1991 to coordinate the isolated regions which still employ a three-tier system.⁵³ In 2011, 215 middle schools remained, of which 27 were deemed primary and 188 were deemed secondary.⁵⁴

Inside the Middle School

Middle schools were one way of bridging the transition from child-centred primary education to a more subject-orientated secondary approach by providing the appropriate space, curricular specialisation and pastoral environments needed at this transitional stage. Some, like Alec Clegg, viewed the middle school as a place where the arts and crafts could thrive in the absence of examination pressure and where, unlike the lower secondary schools, younger pupils could retain their own teacher and enjoy a continuation of informal and individual modes of learning.⁵⁵ For Plowden too, the middle school was an upwards extension of the junior school, and indeed the pedagogy, staff and facilities of most middle schools were inherited from existing primary practice.⁵⁶ The oldest year groups were provided with more specialised facilities for science, crafts, language teaching and music. The thinking of the DES Architects and Building Branch—indicated by a Building Bulletin of 1966 on the design of new schools and the conversion of existing ones—was similarly primary-orientated in approach.⁵⁷

Unsurprisingly, the primary ethos was especially strong in the 8-12 schools recommended by Plowden; over 750 new middle schools of this type were built between 1968 and 1979, more than any other type of middle school.⁵⁸ Combined 5-12 schools developed alongside 8-12 schools in some areas such as Buckinghamshire (page 244).⁵⁹ Postponing transfer by a year brought about significant differences, as the 9-13 age range embraced an intermediate stage in the mental and physical development of children. 9-13 schools tended to be secondary in spirit and in curriculum and were staffed by secondary-trained teachers. That the middle school bore the imprint of the old two-tier system was confirmed by the DES's legal requirement that 8-12 middle schools were deemed primary and the smaller number of 9-13 schools were deemed secondary. This had significant implications on funding and staffing as cost places, space standards and other crucial yardsticks continued to be calculated on a two-tier basis.⁶⁰

Generous pupil-teacher ratios of 22-26:1 or a flexible pattern of working groups reconciled a relatively wide range of abilities with a small age group.⁶¹ The DES anticipated that some groups be 'as small as three or four; some of eighteen or twenty; others of thirty, forty or even of sixty or more – depending on the aptitudes of the pupils and the work they are doing'.⁶² This was an opportunity for an integrated curriculum which loosened the boundaries between traditional subjects. In designing Delf Hill in Bradford, one of the first purpose-built middle schools, David and Mary Medd assumed the pupils would spend 30% of their time on scientific, mathematical and environmental studies, 30% in the field of language, literature and religion, 20% on 'making and doing' and 20% on music, movement, drama, gymnastics and games (see below, page 39).⁶³

The majority of middle schools were converted from existing, non-purpose-built schools. At first the extent of reuse caught the Architects and Building Branch unaware, as former DES architect Guy Hawkins recalls:

I was asked by one of our QSS [quantity surveyors], Maurice Sturt to talk to his children's school PTA [Parent-Teacher Association] about Delf Hill, as Surrey were going to go Middle School. I was taken aback when, at question time, someone said "This is all very interesting, but our middle schools will be using the present buildings!" I had no answer to that, but suddenly realised that there was a whole world of existing buildings which we were almost ignoring in the Development Group, and that ideas we were promulgating in new projects were beyond the reach of the majority of schools.⁶⁴

An HMI survey of 50 5-12 combined schools and 8-12 middle schools undertaken in the late 1970s found that 20% were housed in purpose-built accommodation, 12% in former secondaries and the remainder in former primaries.⁶⁵ Most 9-13 schools were housed in ex-secondary modern accommodation, and a survey found that in one in four instances no adaptations had been made to cater for new age ranges and curricula.⁶⁶

Most middle schools were organised horizontally into year groups or 'centres', each containing three or four classes. When c.1965 David and Mary Medd of Architects and Building Branch commenced collaboration with Alec Clegg on the design of a West Riding middle school, they reached an impasse on the role and degree of specialisation



Figure 2.6: Sketch design of 1966 by David and Mary Medd for an experimental middle school in the West Riding of Yorkshire. Institute of Education Archives: ABB/A/66/18

of the centre (fig. 2.6). Clegg wanted the centres to be as self-sufficient as possible, whereas the Medds expected older, more experienced pupils to venture out more, spending no more than 30% of their time in their bases.⁶⁷ The Medds instead teamed up with Bradford District Council on what became Delf Hill (fig. 2.7). It would appear that Clegg's conception of the middle school prevailed nationally. When Architects and Building Branch visited a number of middle schools in the late 1970s, by which time teaching practice had 'bedded down', they discovered that the two youngest year groups were most mobile, starting the day with their form teachers before venturing further afield for topic and practical work. In a small number of cases this pattern held for the entire age group, but in most schools older pupils spent more time in their own bases, only occasionally making use of specialised facilities.⁶⁸

Three broad layouts emerged in the 1970s.⁷⁰ At Delf Hill, blocks for the lower and upper age groups were separated by communal teaching facilities. The model was followed at the Mayfield Church of England Middle School in Ryde, Isle of Wight, designed c.1968 by Guy Hawkins, a member of the Delf Hill design team.⁷¹ In the plans prepared in the West Riding Architect's Department c.1967 to Alec Clegg's schedule of accommodation, centres were more isolated and self-sufficient.⁷² Bedfordshire's prototype, the 600-place Linnear Middle School designed by job architects David Mennett and Allan Bigg in 1969-70, was organised around self-contained year groups.⁷³ Almost all combined enclosed or semi-enclosed class bases with access to shared practical areas. About half had specialist rooms such as language laboratories or workshops in addition.⁶⁹

Elsewhere compact and deep plans were adopted, with perimeter teaching bases around specialist rooms and a central hall. At the Blackthorn Middle School in Northamptonshire of 1978-79 four courts provided light to a deep plan.⁷⁴ The ultimate example was probably The William Morris Middle School, London Borough of Merton, designed within a progressive Architect's Department under Bernard Ward. The Conservative-controlled authority was one of the earliest to adopt middle schools. One of the earliest built projects of noted architects Spencer de Grey and Richard Padovan, the school demonstrates the influence of the American schools without walls concept and Norman Foster's competition entry for Newport High School on a younger, aesthetically-aware generation of architects (page 50).⁷⁵ Its design was highly reliant on artificial lighting and

air-conditioning, and comprised a series of open spaces divided by sliding partitions fixed to rails on a one-metre ceiling grid.⁷⁶ The school was rebuilt after a fire in 1993.

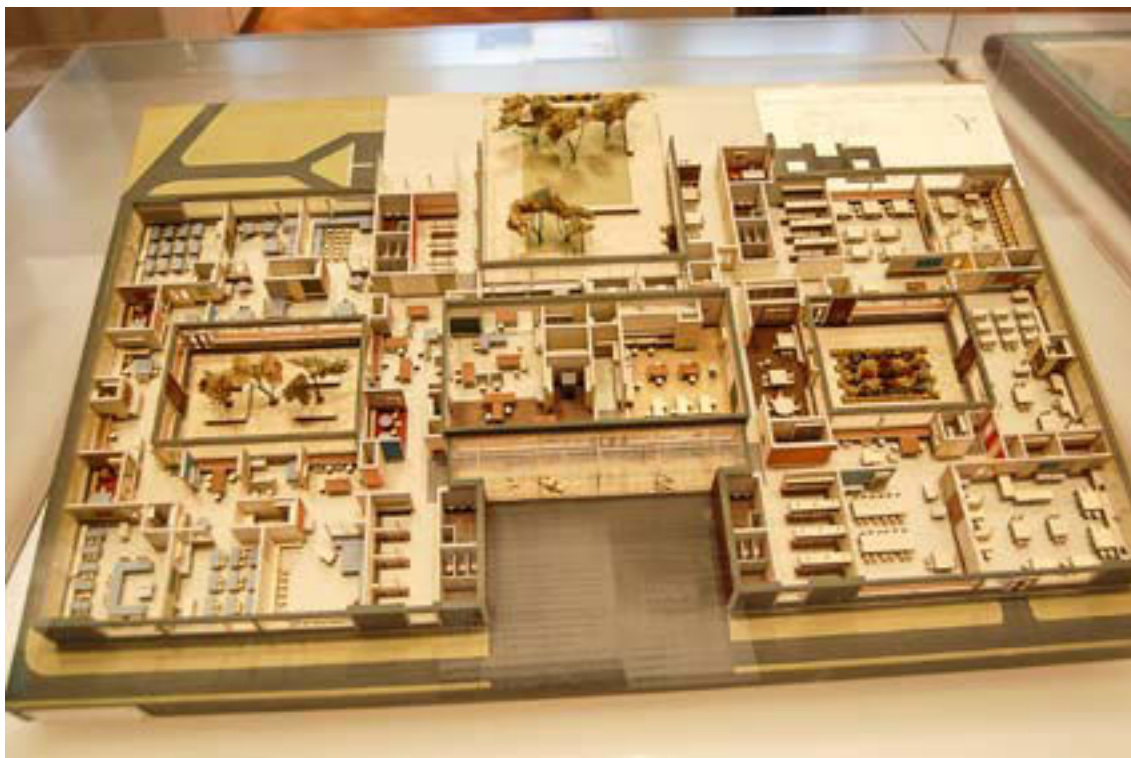


Figure 2.7: Delf Hill Middle School, Low Moor, Bradford; DES Development Group (job architect David & Mary Medd, Guy Hawkins) with Bradford Metropolitan District Council, designed 1966, built 1968-69, demolished 2001. This DES model now forms part of the RIBA Drawings, Archive and Manuscripts Collection housed at the Victoria and Albert Museum in London. Photograph © Fitim Mucaj.

Delf Hill was one of the first purpose-built middle schools and catered for the 9-13 age group. The Medds collaborated with B.J.R. Parker, the Deputy Director of Education at Bradford District Council, and they were feted by J.S. Nicholson, the first head and author of 1870-1970 Education in Bradford, as the latest in a line of educational pioneers working in the city.⁷⁷ The layout of Delf Hill comprised two ranges of teaching areas, for 105 pupils of age 9-11 and 11-13, separated by shared space for arts & crafts, domestic science, wood- and metalwork, music and a library. The layout of the main entrance, dining area and hall is clearly

derived from Eveline Lowe.⁷⁸ The planning elements of verandas, practical bays and so on, devised by the Medds for primary schools, are supplemented by outward-facing classrooms of varying size, demanded by the more specialised middle school curriculum).

Bradford was a member of the SCOLA consortium. The architects would have preferred to use CLASP and were critical of the technical performance and appearance of SCOLA, but the system nevertheless proved pliant enough to realise the Medds' characteristically-intricate layout.⁷⁹ Guy Hawkins designed fibreglass rooflight linings and pressed-steel convector heaters for the school: many such trappings were contributed to the consortia systems in this way.⁸⁰ The interior was enlivened with a carefully-coordinated colour scheme in dark shades of red, blue and green that extended to the linoleum chalkboards and furniture and a set of bespoke tungsten light fittings designed by David Medd. Delf Hill was demolished in 2001 after Bradford reverted to a two-tier educational system.

Secondary Schools

The post-war period was dominated by the accommodation of competing conceptions of the secondary school and an ongoing debate about curricula, teaching methods and social relationships, all of which informed school design. Central government attitudes to secondary provision shifted from an early emphasis on consensus, empiricism and devolution to a more interventionist stance on selection and the curriculum. Comprehensive schools were large and complex organisations. Timetables and layouts had to accommodate a seven year age range, a range of abilities and aptitudes and the need to provide pastoral care and community facilities. The structure and 'bias' of curricula could be more or less academic, scientific/technical or vocational but the lower years generally shared a common curriculum, with exam preparation in the middle years and diversification into a range of different courses for the final few years. Progressive methods of teaching and learning included cross-curricular subject groupings and a mixture of study techniques. Teacher cooperation and a favourable pupil-to-staff ratio allowed greater emphasis on project work and private study. An increasing array of audio-visual resources became available including, from the 1980s, the personal computer.

The Ministry and the 1944 Act

The 1944 Education Act required local education authorities to implement a system of free and compulsory education between the ages of 5 and 15, organised into three progressive stages: primary, secondary and further education. The Act was silent on the subject of types of secondary school, specifying only that they be

sufficient in number, character and equipment to afford for all pupils opportunities for education offering such variety of instruction and training as may be desirable in view of their different ages, abilities, and aptitudes, and of the different periods for which they may be expected to remain at school, including practical instruction and training appropriate to their respective needs.⁸¹

As much was made clear by James Chuter Ede, a former teacher and Parliamentary Secretary to the Board of Education, in a speech reported in *The Times* of 14 April 1944:

I do not know where people get the idea about three types of school, because I have gone through the Bill with a small toothcomb, and I can find only one school for senior pupils – and that is a secondary school. What you like to make of it will depend on the way you serve the precise needs of the individual area in the country.⁸²

Where, then, did 'the idea about three types of school' come from, if not the 1944 Act? 'RAB' Butler, the last president of the Board of Education (1941-44) and the first Minister of Education (1944-45), suggested that the Act that popularly bears his name was 'really codifying existing practice'.⁸³ A tripartite structure of grammar, technical and secondary modern schools, with entry determined by an examination at the age of 11 plus, was explicitly recommended in the advisory reports and papers upon which the Act was based, including the 1926 Hadow report; the 1938 Spens report; *Education*

after the war, the Green Paper of June 1941; the 1943 Norwood report and *Educational reconstruction*, the 1943 White Paper.⁸⁴ A ready-made collection of school types needed only slight amendment, and in many cases, existing buildings were simply relabelled. The grammar school enjoyed the cachet of being long-established and widely-recognised; its academic curriculum had long been emulated by maintained secondary schools.⁸⁵ The secondary modern school had been advocated by the Hadow committee, and had an origin in the central and senior elementary schools which emerged as a response to the 1902 Education Act.⁸⁶ Technical schools, proposed in the Spens report, grew out of trade schools and the junior departments established at technical colleges.⁸⁷

The newly-formed Ministry of Education implicitly assumed that LEAs would submit tripartite education plans. *The Nation's Schools*, a pamphlet issued in May 1945 by a Conservative caretaker government assumed 'three broad types' of secondary education, making it clear that so-called multilateral schools, which provide more than one type of education, were an 'extreme measure', anticipated in areas of dispersed population or as a 'judicious experiment' to meet local conditions.⁸⁸ The tripartite course was cautiously held by the Education Ministers in Clement Attlee's Labour government, 'Red' Ellen Wilkinson (1945-47) and George Tomlinson (1947-51), encouraged by senior officials Sir John Maud and Anthony Part.⁸⁹ *The New Secondary Education* of 1947 professed 'to lay down no set guides for organisation', yet devoted 37 pages to describing grammar, technical and secondary modern school and only half a page to 'multilateral' or 'comprehensive' schools.⁹⁰ The latter, it was feared, would have to become excessively large in order to offer a sufficiently diverse range of courses.⁹¹ The occasional comprehensive in the right place was permitted as an element of this empiricist, pluralist approach but a national policy of comprehensive reorganisation was, as Tomlinson remarked in 1950, 'not for our lifetime'.⁹²

How are we to evaluate Wilkinson and Tomlinson's position? For David Rubinstein and Caroline Benn 'the relative ineffectiveness of the Labour left between 1945 and 1950 [...] 'helped to delay this reform [the comprehensive movement] for the best part of twenty years'.⁹³ Post-war constraints (shortages of teachers and building materials) and priorities (primary schools had to come first) no doubt stifled the opportunity for major social reform. Although the multilateral schools had their supporters in the 1940s there was by no means a left-wing consensus, especially amongst the Labour-controlled authorities. Most in the Labour Party accepted tripartitism as a realistic means of securing equality of educational opportunity; they could, after all, point to R.H. Tawney's seminal tract of 1922, *Secondary Education for All*:

All normal children [...] may be transferred at the age of eleven + [...] to one type or another of secondary school. [...] The [Labour Party] looks forward to the time when Central Schools and Junior Technical Schools will be transformed into one part of a system of free and universal Secondary Education [emphasis added].⁹⁴

Secondary Provision 1944-64

The population 'bulge' began to swell secondary school numbers in the mid-1950s, and the rate of secondary school completions peaked in 1958, the year of the government

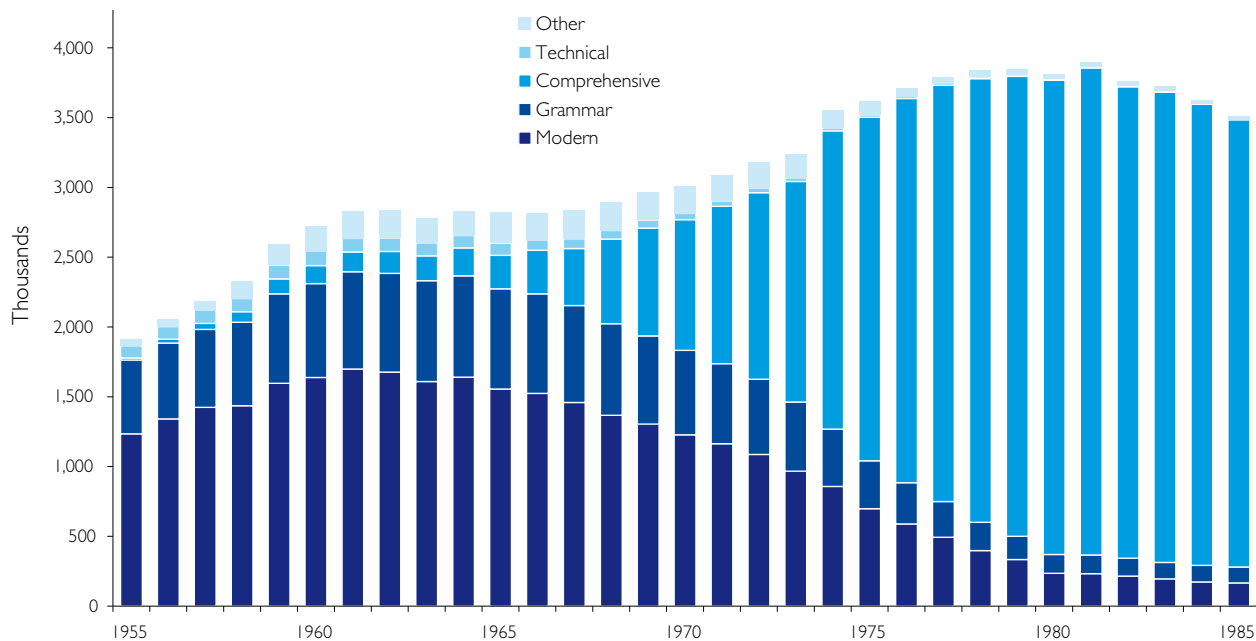


Figure 2.8: Maintained secondary schools by type in England and Wales, 1955-85. Source: Bolton 2007, 9. Data reproduced under the terms of the Open Parliament Licence.

White Paper *Secondary Education for All: a New Drive*.⁹⁵ By this time primary rolls were levelling off, and the Ministry turned its attention to improving secondary accommodation, particularly in science, technical and practical subjects. Most authorities opted for selective schemes, building secondary modern schools with a smaller number of grammars (fig. 2.8). Most took the form of phased expansions of existing sites. Despite the imposition of cost limits in 1950, secondary modern schools were generally better equipped for craft and physical education than pre-war grammars, and many had separate libraries.⁹⁶ For some Labour-controlled authorities in the north of England, the 1944 Act was an opportunity to extend the education franchise of the grammar schools.⁹⁷ They were geared to external examinations at age 16 and 18 and the number of 'early leavers' (those leaving at age 15), dropped throughout the 1950s.⁹⁸

Nothing much became of the technical stream, except in those northern cities like Doncaster and Tynemouth which boasted a strong manufacturing tradition. Their numbers peaked in 1948 at 319 and had fallen to fewer than 100 by 1970.⁹⁹ Why did the technical schools falter? Many doubted that technical aptitude could be tested for at the age of 11. For this and historical reasons, a range of ages of admission existed: of the 268 technical schools recorded in 1960, 1455 admitted at 11, fourteen at 12 and 101 at the age of 13. Technical schools were expensive to build, equip and staff; the alternative, junior technical schools within technical colleges, was tainted by pre-war associations with 'trade instruction'.¹⁰⁰ The 1980s saw the re-emergence of science and technology in the curriculum with the Technical Vocational Educational Initiative (TVEI) of 1983, City Technology Colleges from 1986 (page 119) and the role of Craft Design Technology in the 1988 National Curriculum.

A small number of authorities proposed amalgamating two ('bilateral') or three ('multilateral', later 'comprehensive') streams within a single building or site, which

allowed the entrance exam to be dropped. The Labour-controlled LCC had supported multilateralism as early as 1942, followed by Middlesex, Coventry, Oldham and the West Riding.¹⁰¹ In Middlesex, Coventry and Bristol comprehensives accompanied large programmes of house building; they were also adopted in rural areas such as Anglesey in Wales (scheme approved in 1946) where population was small and dispersed. By the end of 1948 the Ministry had approved 16 comprehensive schools and rejected five; there were just over 100 schools by 1959.¹⁰²

The strategy of comprehensive reorganisation adopted by the LCC was based on economies of scale: only schools with a roll of between 1,000 and 2,000 pupils, it was thought, would attract specialist teachers and a large enough intake of academic pupils to provide a lively sixth form. Planning strategies varied. Split sites resulted from combining groups of existing schools or where sites of sufficient size could not be immediately acquired. In 1976, one in five secondary schools occupied two or more sites (in Greater London the figure was closer to two in five).¹⁰³ The most insurmountable barrier to non-selective reorganisation was the perpetuation of the direct grant and voluntary aided schools in the 1944 Act (page 367). Where grammar schools could not be reorganised (where voluntary schools owned their buildings or trusts forbade), they 'creamed' the most able and brightest pupils from the neighbouring comprehensive schools, termed 'county compliments' in London. Where comprehensive schools entered into competition with their grammar neighbours on their own terms, the results could be a preoccupation with examination results at the expense of educational innovation.

Leicestershire, under Chief Education Officer Stewart Mason took a different approach to the upper and lower ends of the secondary school range (page 223-24). Mason's was a selective scheme in which secondary moderns became 11-14 Junior High Schools. At the age of 14 the brighter pupils, at their parents' request, commenced two-year Ordinary Level courses in the better-equipped grammar and technical schools, the rump staying for a final year of compulsory education in the High Schools. The plan was compatible with the county's existing building stock.

Going Comprehensive: National Policy 1965-88

The 1950s saw doubts cast on the efficiency and equality of the tripartite model and growing acceptance of non-selective education. It was clear that the much vaunted principles of the educational new deal, 'parity of esteem' and ease of transfer at age 13, had not transpired. The Crowther report of 1959 noted the benefits of comprehensive schools, and from the late 1950s the Ministry became more favourably disposed to non-selective reorganisation proposals.¹⁰⁴ The validity of selection at eleven plus was questioned, notably in *Educational Opportunity*, a 1963 pamphlet by Conservative Education Minister Edward Boyle.¹⁰⁵ 'Grammar schools for all' was Harold Wilson's perplexing slogan in the 1964 general election.¹⁰⁶

Labour came to power in 1964 on an electoral platform that pledged reorganisation 'on comprehensive lines'.¹⁰⁷ Secretary of State Anthony Crosland's Circular 10/65 of July 1965 duly 'requested' authorities to submit plans for non-selective reorganisation. The number of comprehensives rapidly grew, although the wording of the Circular was not

strong enough to prevent LEAs as diverse as Birmingham, Kent, Bexley, Halifax, Southend and Reading from submitting plans which retained degrees of selection, or pursuing dilatory policies.¹⁰⁸ The internal organisation of the schools was considered a matter for governors and headteachers to determine: some schools introduced selective streams or sets whilst others opted for mixed ability groups. Most existing schools required extension to offer a sufficiently broad range of courses, and the DES offered practical guidance on adaptation.¹⁰⁹ Government backing for non-selective reorganisation waxed and waned with changes of government in 1970, 1974 and 1979, but with limited effect on local authority reorganisation plans.¹¹⁰ As Education Secretary from 1970 to 1974, Margaret Thatcher sanctioned more plans for comprehensive schools than any other education minister before or since.¹¹¹

The Sixth Form

The growth of the sixth form was one of the success stories of the post-war secondary school and contributed to the expansion of higher education in the 1960s. The raising of the school leaving to 16, coupled with the growing number and variety of pupils 'staying on' voluntarily and the greater demand for further education, led to a further transformation of the sixth form. Those schools which abandoned entry restrictions to the sixth form now had to provide a transition to the working world in addition to higher education. The recognition that students were maturing earlier and demanding greater responsibility and freedom in the sixth form resulted in more free time, study choice and a closer pupil/teacher relationship. The expanding 16-19 age group in schools—which trebled between 1956 and 1972—could be accommodated in different ways.¹¹² The retention of the attached sixth form, often through the addition of a separate block, was welcomed by teachers who enjoyed the more informal and self-directed study it offered and the stability that a mature sixth form brought to the secondary school as a whole. Attached 'sixth-form centres' were most often added to grammar schools, such as the Rosebery Sixth-Form Centre, Epsom, Surrey, built in 1966-67 to the designs of the DES Development Group (pages 115-16).

From the late 1960s, the sixth form college emerged as a separate building type, uncoupled from a secondary school and provided with a comprehensive intake and an adult learning environment. These functioned as an 'academic top' fed by a variety of secondary schools within a district. By 1988 around a hundred six-form colleges existed.¹¹³ A third option was to integrate all education from 16-19 into a comprehensive further education college, such as Nelson and Colne College in Lancashire, blurring the boundaries between upper secondary and higher education. Falling rolls encouraged the concentration of sixth form education in sixth form or higher education colleges where numbers justified richer curricula. From the late 1970s awareness of youth unemployment brought about number of training initiatives for 14-18 year olds: some such as the Technical Vocational Educational Initiative (TVEI) of 1983 were school based. The 1980 MacFarlane report advocated a widening of the sixth-form curriculum to include technical and vocational emphases.¹¹⁴

The Secret Garden: Newsom and Curricular Reform

By 1960, the Ministry could point to numerous new primary schools (including their own development projects) which facilitated ‘child-centred’ approaches to teaching and learning in different ways (pages 32-34).¹¹⁵ Reforming the fragmented secondary sector was a more protracted and contentious process. Timetables, staffing, departmental structures and, in turn, the design of buildings were traditionally compartmentalised according to subjects and teachers could be reluctant to exchange the specialisms in which they had been trained for a generalist approach.¹¹⁶ But the move towards non-selective education, with its larger scale and ranges of abilities and ambitions, invited broader approaches and central government came to dominate curricular reform in the later twentieth century. An assertive tone was first struck in 1960 when Education Minister Sir David Eccles informed the House of Commons of a ministerial ‘sally into the secret garden of the curriculum’.¹¹⁷

A number of governmental initiatives subsequently investigated aspects of secondary school teaching practice, and it was the job of Architects and Building Branch to articulate possible implications on school design. In 1961 Eccles commissioned the Central Advisory Council for Education (England) to examine the education of pupils aged 13 to 16 of ‘average and less than average ability’.¹¹⁸ The committee was chaired by John Newsom, Chief Educational Officer of Hertfordshire from 1940 to 1957, and its 1963 report *Half Our Future* reflected his convictions that educational reform could go some way to addressing social disadvantage. Despite its reformist tone—the report advocated the raising of the school leaving age to 16 and cast doubt on the intelligence and attainment tests that determined pupil selection—the timing of *Half Our Future* seems unfortunate in hindsight. It was widely assumed that its terms of reference were limited to secondary modern schools, and the policy of central government soon turned towards non-selective education. The Newsom report was consequently undervalued.¹¹⁹ Yet it had a broader relevance to secondary pedagogy, particularly in its fresh thinking on the role of practical subjects and occupational interests, the contribution of social and extra-curricular activities and the relationship of schools to the wider community.

The Architects and Building Branch Development Group, working with senior advisors Leonard Gibbon and Eric Pearson crystallised the spatial implications of the Newsom philosophy.¹²⁰ They include the following:

that [pupils] will be able to carry through a particular job of work, or pursue a particular interest with reasonable continuity - i.e. that the day will not be fragmented into 35 minute particles;

that each will have some degree of choice in the work he or she does;

that it will be hard to draw firm demarcation lines either between subjects or between the practical and the academic;

that for part of the time pupils will work individually on both practical and reference studies, but with experts and helpers always available; and for part of the time in groups of varying sizes (half a dozen or so for special coaching; 15-20 for a discussion group; 50 or 60 listening to a lecture or watching a film);

that the pupils will similarly be divided into socially identifiable groups, each with accommodation reflecting in some way or other the group's identity, and each with a stable relationship with one or more members of the staff.¹²¹

As part of the Newsom investigation the architects David and Mary Medd, at the suggestion of Architects and Building Branch's administrative head Derek Morrell, developed a series of theoretical studies and sketch designs, some of which were published in the ensuing report (fig. 2.9).¹²² They include a science and craft centre, drama, music and art centre, arts centre, centres for younger and older pupils and a 'club house' which combined social facilities for older pupils and adults with acquisition of 'home management' skills. Large schools were to be broken up into upper and lower schools on a single campus, realised at the Abraham Moss School in Manchester (page 117). The Medds' work acknowledged a move away from a compartmentalised curriculum to more informal and flexible aggregations of related topics into 'centres of interest'.¹²³ This implied the cooperation of two or more teachers of related subjects and the sharing of resources in a more fluid layout. The legacy of the 1960s move towards more integrated and inter-disciplinary learning is a latter-day emphasis on investigative project work, such as the coursework component of the GCSE qualification introduced in 1988.¹²⁴ Aspects of Newsom's pedagogical aspirations and the Development Group's architectural response recurred in the secondary schools subsequently designed by Architects and Building Branch and by likeminded authorities such as Nottinghamshire (page 139).

Other curricular initiatives of the 1960s varied widely in their aims and agendas. The Curriculum Study Group (CSG) was established in 1962 by Sir David Eccles on the model of the Architects and Building Branch's Development Group, and Derek Morrell was transferred from Assistant Secretary of Architects and Building Branch to head it.¹²⁵ When the CSG aroused the suspicions of the teaching profession it was reconstituted in 1964 as the independent Schools Council for Curriculum and Examinations at Morrell's suggestion. Extending

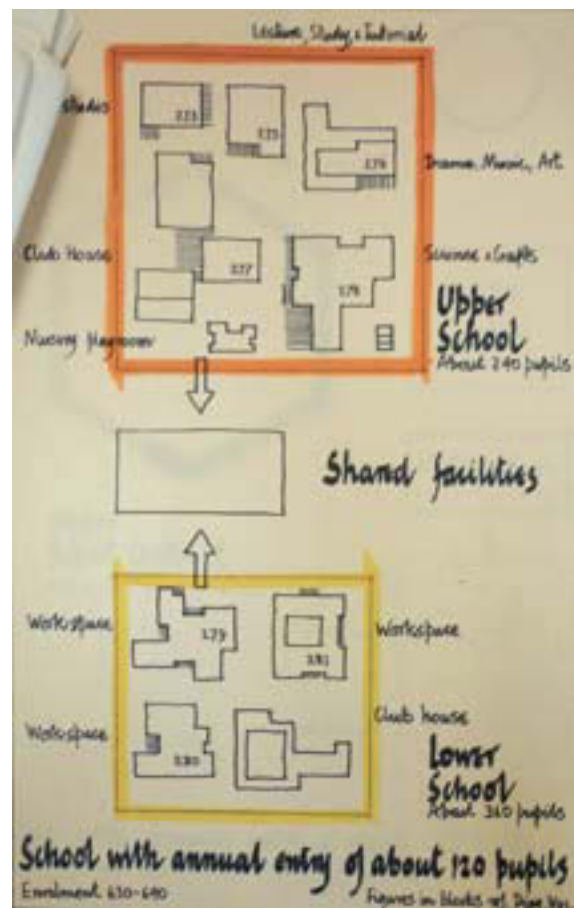


Figure 2.9: A design study of 1962 for a small secondary school organised into upper and lower schools, each with its own pastoral and social facilities. It formed part of the evidence submitted by the MoE Architects' and Building Branch to the Newsom committee. Institute of Education Archives: ME/T/1

the range of curricular resources became a goal of the Nuffield Foundation, which undertook influential projects on mathematics, science, languages and the humanities in cooperation with the Schools Council, inspired by the curriculum reform movement in the United States. The Curriculum Laboratory, established by Charity James at Goldsmiths' College, London in 1965, encouraged the assimilation of subjects into interdisciplinary 'themes' or 'interest areas'.¹²⁶

It followed that an interdisciplinary curriculum required a wide armoury of study techniques and resources. DES educationist Eric Pearson called for the assimilation of the investigative, 'multi-media' teaching associated with technical and science subjects with the academic approach of the humanities: 'we bring books to the benches and benches to the books'.¹²⁷ Cross-curricular approaches could be facilitated with more open layouts of the American variety, and Michael Hacker of Architects and Building Branch suggested in 1971 that 'for close and free interaction, nothing less than the dissolution of the physical boundaries surrounding subject group and activity will be necessary'.¹²⁸ Books were supplemented with tapes, slides, films and, from the 1980s, computers, although some cautioned that technology was subsuming first-hand discovery with more passive, retrogressive modes of learning.¹²⁹ Audio-visual media required more space for individual study and account for the popularity of the 'learning resource centre' in the late 1960s.¹³⁰

Planning Secondary Schools

In the years after 1944 there was no generally-accepted layout for the new types of secondary school, due in part to the absence of a confident educational brief. The challenge was how to break up a big school into manageable, mixed-ability units which addressed educational and pastoral needs. Architectural ingenuity was required to overcome problems of scale and congestion (particularly in pupil transfer between lessons). The first secondary moderns built at Middlesex under Architect C.G. Stillman took the pre-war form of rows of classrooms off a spinal corridor. In early 1950 he commissioned seven experimental schools, three from three private architectural practices and four from his own department. Responding to limited sites and the imposition of cost limits, Stillman specified a compact plan, with as much teaching accommodation as possible within a two-storey block. The first to be completed was the Woodfield Secondary Modern School, Cranford, designed in 1950 by Denis Clarke Hall and built in 1953-54. It set first-floor classrooms around a double-height, top-lit core of hall, gym and entrance hall.¹³¹ Smithdon School, Hunstanton of 1949-50, the first built work of Alison and Peter Smithson, was the winner of an architectural competition assessed by Clarke Hall. It retains the tight and formal double-courtyard plan of the pre-war county grammar, with a series of steel staircases ascending to paired first-floor classrooms with bi-lateral lighting.¹³² On constrained sites, there was little option but to opt for teaching blocks or slabs of four storeys or more, adjoined by single-storey halls, gyms and workshops. Disapproved of by Architects and Building Branch, this became the default mode of planning in London, where the bulk of the block could be leavened by massing, materials or detailing (page 182).

But many educationists wished to dispel such monumentality in favour of more informal, diffuse and less institutional models. At St Crispin's Secondary Modern School,

Wokingham, Berkshire of 1951-53, David and Mary Medd of the MoE Architects and Building Branch devised a loose and informal single-storey layout, anchored by a four storey teaching block. Their education-led methodology, developed in the design of primary schools, translated in the secondary modern school to groups of classrooms adjoined work rooms with sinks and benches for joint practical projects. Where sites and budgets allowed, the constituent parts of a secondary school could be articulated as a series of freestanding blocks, linked by paths, corridors or covered ways, as at the MoE Development Group's Lyng Hall Comprehensive School in Coventry of 1953-55.¹³³ Such 'campus plans' permitted the prescribed levels of natural lighting and satisfied the Ministry's preference for single-storey buildings. A group of separate buildings was easy to extend, boasted good acoustic insulation and lent itself to selective community use, but circulation could be dispersed and confusing, and there was little opportunity for the traditional 'processional' entry into a foyer or crush hall. Christopher Dean, a job architect at Lyons Israel Ellis, a private practice who favoured campus planning, recalled 'the angst of the entry into a corridor instead of a space'.¹³⁴

Campus plans and other layouts were sometimes based on social groups and a system of pastoral care. From independent boarding schools came the idea of a house system, with its connotations of separate social bases, a mixture of age groups and decentralised dining. Houses were adopted in the early comprehensive schools of London, Coventry, Nottinghamshire and Staffordshire. At Arnold Grammar School, Nottinghamshire of 1957-59, the Ministry's Development Group adopted a selective approach, with houses only for the middle years (page 127). The Wyndham School, Egremont in Cumbria of 1962-64 was organised into a reception group for year one, houses for years two-five and a self-contained sixth form.¹³⁵ The house system fell out of use in the early 1960s, although it persisted at Coventry (eg. President Kennedy School of 1965-67), the David Lister School in Hull of 1964-66 by Lyons, Israel & Ellis and Stillman and Eastwick-Field's Clissold Park Comprehensive School, north London of 1967-70. In its place, horizontal groupings of year groups gained dominance. The first London school planned with year rooms rather than houses was Malory School, London of 1958 by Bridgewater and Shephard. The logical conclusion of horizontal organisation was separate upper and lower schools on a single site. Acland Burghley, Camden of 1963-66 by Howell, Killick, Partridge and Amis was organised into lower, middle and upper schools with year rooms rather than houses (pages 199-201).

Increased emphasis on private study and centralised resources led to a greater convergence in the planning of secondary schools and colleges from c.1970. At Leicestershire, a 'new wave' of school plans emerged at Manor High School, Oadby (finished 1968); Bosworth College, Desford (1967-70 by Gollins Melvin Ward); Wreake Valley College, Syston (1969-71, also GMW) and Countesthorpe (1967-70 by Farmer and Dark).¹³⁶ Fluid layouts of teaching areas, planned around a central library or resource centre, encouraged private study and small group project work. Sixth-form, youth and adult facilities were separated out, as were sports facilities, creating an amorphous plan with a central core and long limbs (pages 224-25). The Leicestershire schools were widely published in the architectural journals, where they were favourably compared with John Bancroft's 1,725-place Pimlico School in Westminster, built in 1967-70.¹³⁷ This took the form of a long, low spine block with an internal 'street' (pages 201-03). The street

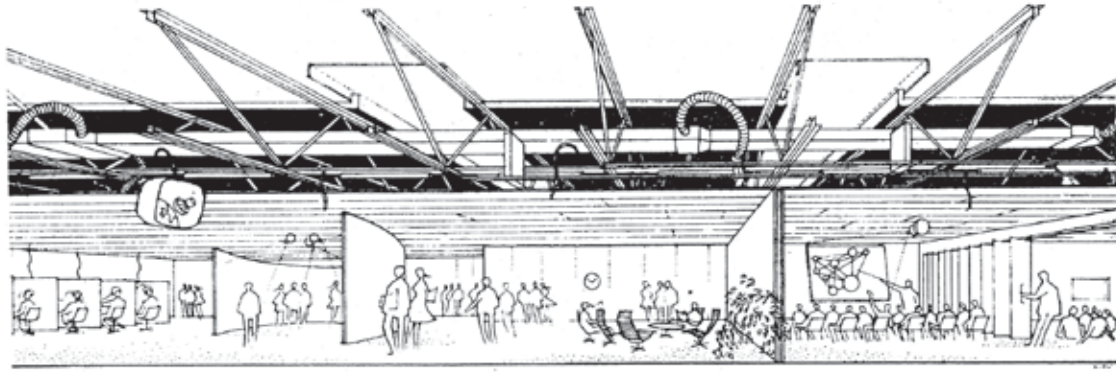


Figure 2.10: This sectional perspective, from Foster Associates' competition entry for Newport High School in South Wales, reflects the influence of North American concepts of the flexible subdivision of a 'universal' space. Reproduced with permission from the *Architectural Review*, vol.147, no.875, January 1970, p.367.

recurred at Hampshire County Council's Crestwood Secondary School of 1981-82 (page 302-03). In the United States, the idea of a single space flexibly divided with screens or furniture was promoted by the Ford Foundation's Educational Facilities Laboratory and adopted by Ezra Ehrenkrantz in his *School Construction Systems Development (SCSD)*.¹³⁸ SCSD was the key influence on Norman Foster's 1967 competition entry for the Newport High School in South Wales (fig. 2.10), the us-designed American School in London of 1969-71 and the GLC's Waterfield Secondary School in Greenwich, c.1971-76 (pages 205-08). Few open plan layouts survive today.

Like Pimlico's street, late-twentieth-century attempts to humanise secondary school planning took cues from established urban typologies. Informal 'village' layouts were chosen for the DES community schools at Central Lancashire New Town and Victoria Centre, Crewe (page 118-19). The influence of 'low rise-high density' housing schemes was apparent at Lowton High School, Wigan, Lancashire, designed in 1975 by the Ellis Williams Partnership (page 363).¹³⁹ Further afield, Léon Krier's unbuilt design of 1977-79 for a school at the French new town of St Quentin en Yvelines took the form of a compact axial layout inspired by the classical city.¹⁴⁰ Christopher Alexander's Eishin Higashino High School and College Campus of 1982-85 was similarly 'urban' in character, with narrow streets, broad squares and a mixture of private and public space.¹⁴¹

The Community School

The principal of community education, a recurring thread in twentieth-century school building, was based on the enlargement of the range of resources provided by a school and the widening of access to those resources by combining building types, users and uses hitherto kept separate.¹⁴² For Colin Ward, 'the trend for schools to become larger and more lavishly equipped underlined the absurdity of keeping the school as a separate and segregated community'.¹⁴³ Others stressed the social value of integrating schools with their communities, strengthening links between home and school, and embodying the principle of universal access to education.¹⁴⁴ The community schools of the 1960s and '70s anticipate a late-twentieth-century move towards mixed use as an agent in urban regeneration. The smooth running of a community school was dependent on synergies between its users and rapprochement between its managers.¹⁴⁵ In this sense, it was one of the key educational symbols of the post-war consensus (page 153).

Rationale and Precedents

At its simplest, community use meant making existing facilities available out of school hours. Sir Donald Gibson made the point at an RIBA conference in 1968: 'why should acres of playing fields and school swimming baths lie idle in the summer holidays when many children have only the street to play in?'.¹⁴⁶ The idea was not a new one: board schools had long been available for use by youth clubs, adult education classes and institutes of various kinds in the evenings, weekends or holidays. But the facilities of new buildings could be greatly enhanced by the post-war administrative innovation of 'joint provision' in which additional facilities, suitable for use by the general public, were funded by non-educational monies. Some amenities, such as sports halls, were managed and maintained by other service departments of the local authority. Rural or urban district councils might fund additional sports facilities, a parish meeting room or enlarged kitchen or dining room.¹⁴⁷

The 1960s crop of community schools drew on two precedents. Henry Morris, Director of Education at Cambridgeshire County Council from 1922 to 1954, added social and educational amenities to all-age 'village colleges', which served large and dispersed catchment areas. The most well known was Impington Village College of 1938-40 by Walter Gropius and Maxwell Fry. Morris established contact with a younger generation, including John Newsom, Stirrat Johnson-Marshall and Stewart Mason, who would take his ideas forward after the war.¹⁴⁸ The challenge was how to adopt village colleges to more densely built-up districts with their smaller catchment areas and more complex patterns of users and needs. The second precedent was the 'youth wings' added to many secondary schools from the early 1960s on the recommendation of the Albemarle report of 1960.¹⁴⁹ These were used as informal drop-in centres in the school day and as youth clubs in the evening, and provided with their own entrances and sometimes a distinct architectural treatment from the school proper, as at Powell & Moya's additions of 1970-73 to Plumstead Manor School in Greenwich (page 204).

Dual Use

The influence of the village college movement was most apparent in the new secondary school buildings, usually in semi-rural locations, which included ‘dual use’ leisure, cultural or educational facilities. Halls, gyms, libraries, sixth-form common rooms and cafeteria as well as outdoor sports pitches and courts were usually most useful to the community at large. Joint provision was made feasible by certain developments in secondary schools: they became larger, reaching the critical mass for more specialised equipment, and some were organised around cross-curricular ‘centres of interest’ rather than subjects (pages 46-48). The balance of funding, conventionally shared between the county council and urban district council on a 40/60 basis, dictated that education priorities came first, and plans expressed a balance between integration and segregation which was determined by the local education authority, with varying degrees of consultation with teaching staff and users.¹⁵⁰

Gordon Bessey, director of Education at Cumbria, was behind the integration of district sports centres into big new comprehensives such as Wyndham School, Egremont, Cumberland of 1962-64 by job architects Fred Bell and R. Clementson.¹⁵¹ At Nottinghamshire, Patrick Shallard, Chief Education Officer from 1968-74 was another advocate of joint provision.¹⁵² Wyndham was Nottinghamshire’s model for the generous sports facilities in secondary schools at Bingham, Worksop, Newark, and Carlton



Figure 2.11: At the Cresset Centre, Peterborough (completed 1978, demolished c.2006) a sophisticated gradation was planned between exclusive and communal facilities, which allowed the Bretton Woods Comprehensive School its own site whilst pupils enjoyed use of the library and sports hall of the adjacent community centre, planned by the Peterborough Development Corporation.¹⁵⁶ See also fig. 1.2. Institute of Education Archives: ME/E/19/18.



Figure 2.12: The Abraham Moss Centre in Cheetham Crumpsall, North Manchester, built 1971-74 to the designs of the DES Development Group. An ambitious attempt to collocate a comprehensive school and further education college with a wide range of community facilities. Institute of Education Archives: ABB/B/1/41/1.

Cavendish (pages 139-40). Leicestershire, under Director of Education Stewart Mason, built three new community colleges in 1967-71 in which a central resource centre, and facilities for art, drama and sports could be shared with the community (pages 224-27). And at the new and expanded towns, the development corporations part funded dual use facilities at the large secondary schools to boost the limited community facilities of local centres (fig. 2.11).¹⁵³

The Plowden committee suggested that the community use of primary schools take the form of a parents' room or a bigger hall with storage for community groups.¹⁵⁴ The DES Architects and Building Branch accordingly included a family centre at the Chaucer School at Ilkeston and Guillemont Junior School was 'zoned' so that facilities available for the community were separated from learning areas (pages 113-15). Exceptionally, a small number of places of worship, most of them Roman Catholic churches, were built with attached primary schools (page 380).

The Multi-use Centre

The logical conclusion of community education involved breaking the schools mould by co-locating educational provision along with other facilities into a new and urban building type, a single, multi-use 'centre' or 'complex'. This combined one or more schools with a wide range of community facilities, sometimes expanded to include civic and commercial functions in addition to sporting and arts facilities. The community centres were often envisaged as focal points in the renewal of deprived areas, as at the Abraham Moss Centre, Manchester and the Sutton Centre in Nottinghamshire (pages 117 and 146-47).

The concentration of a diverse range of functions and users under a single (usually sprawling) roof was a powerful expression of the integrationist, mixed-use philosophy of community schools, and can perhaps be related to the architectural interest in 'megastructures' briefly fashionable in the 1960s.¹⁵⁵ Part of the novelty for both planners and users was the blurring of public and private realms, also occurring in shopping centres. Indeed, some of the community schools of this period feature an internal street or 'mall' for pupils and adult users alike. The architectural challenge was how to produce

a welcoming and readily navigable layout, and how sets of users and activities were prioritised and segregated. Funding and managing such complex and ambitious entities called for co-ordination and compromise at all levels, from local authority departments and managers to groups of users. The privatisation of leisure and cultural facilities which became prevalent in the 1980s also had implications on community schools.

Aside from dual management, the biggest problems of the community school were balancing the need for security and supervision with encouraging access, a dilemma exacerbated by the prevalence of vandalism and arson in the 1970s. But to exponents of community education such as Ron Mitson, the first principal at Abraham Moss, accessibility was a principle to be upheld:

‘the openness of the centre, exemplified by the public right of way, 25 different entrances, and the fact that once inside you can go virtually anywhere, makes security difficult. We must encourage use, not place physical or psychological barriers against entry, if we are to attract those who are most in need of our resources’.¹⁵⁷

A series of 1970s designs by the DES Development Group reformed the single building multi-use centre, breaking it down into a series of separate buildings or ‘sub centres’ linked by open or covered paths. Components were thus clearly articulated and could be phased, funded, and managed as discrete entities. At the Victoria Centre in Crewe, Cheshire, community provision formed part of a wider strategy for urban renewal (pages 118-19).

Special Schools

The post-war era was a time of expansion and change in the provision of specialised education for disabled children.¹⁵⁸ By 1973, 7% of all new schools were special schools.¹⁵⁹ The trend reversed in the 1980s with the ‘mainstreaming’ of disabled children. The history of special education illuminates contemporary debates and conventions surrounding people with disabilities. The changing terminology used to describe and categorise disability is part of this history: adjectives such as ‘delicate’, ‘defective’, ‘educationally sub-normal’ and later ‘handicapped’ fell out of use in favour of terms such as ‘disabled’, ‘learning difficulties’ or ‘special educational needs’.

The development of special education can be divided into four phases which relate to models of attitudes and policies towards disability.¹⁶⁰ In the charity model, the disabled individual is the recipient of welfare, provided by special services or institutions. The medical model emphasises the diagnosis and treatment of a particular condition in the individual, and implies greater specialisation. The social model, developed in the 1970s, views disability as the product of barriers within society, including prejudice, discrimination and exclusion from participation. Central to the rights-based model is a belief that people with disabilities have human rights to access, equality and participation; individual empowerment and institutional accountability is paramount.

‘Building for Disablement’

Special schools have an origin in the blind and deaf schools provided from the mid-nineteenth century by charities, churches or the Poor Law for pupils whose disabilities excluded them from mainstream education.¹⁶¹ The 1870 Education Act made no special provision for disability, but a small number of urban school boards erected special blind and deaf schools. Children exhibiting other types of disability were less well understood and generally excluded as ineducable or detrimental to the education of other children. The Elementary Education (Blind and Deaf Children) Act of 1893 compelled the boards to educate children between the ages of 7 and 13 with visual or hearing impairments, and a second, permissive Act of 1899 empowered the boards to train physically and mentally ‘defective’ and epileptic children. Classes were smaller and discipline



Figure 2.13: Meldreth Manor School, Hertfordshire, designed by the Architects' Co-Partnership for the Spastics' Society (now Scope). Reproduced from *Era*, no.29, November-December 1972, by kind permission of RIBA East.

and teaching methods could be more relaxed and liberal than in the elementary schools, but a vocational emphasis was also present, particularly in the industrial schools for maladjusted children.

In the early twentieth century, special educational provision became increasingly based on medical diagnosis and isolation. This can be seen in the light of more general trends such as the reform of school design to provide improved health and hygiene and the universal provision of medical schools inspections. The special education service provided by LEAs developed independently from their programmes of primary and secondary education. Some special schools reused redundant elementary schools or took the form of annexes or 'centres' to existing buildings. Detached country houses were acquired for residential special schools. Open-air schools, which usually took the form of light-weight, prefabricated and partially open-fronted pavilions were influential attempts to improve health and sanitation through ample natural ventilation and sunlight. Although usually provided for children identified by the Schools Medical Officer as tuberculous or 'delicate' (ie. underweight, undernourished or suffering from anaemia, asthma or heart conditions), some open-air schools also accommodated physically-disabled and partially-sighted children.¹⁶²

Post-war Special Schools

After the Second World War disability continued to be seen as a medical matter and advances in diagnosis and treatment led to an increasingly classificatory approach through which children were fitted to a range of special schools. The Education Act of 1921 had charged LEAs with providing for four classes of disabled children: blind, deaf, defective (including physical and mental disability) and epileptic. In 1945 this was increased to eleven: blind, partially sighted, deaf, partially deaf, delicate, diabetic, educationally subnormal, epileptic, maladjusted, and physically handicapped and those with speech defects.¹⁶³ Some debilitating conditions such as poliomyelitis, tubercolosis and spina bifida virtually disappeared in the 1950s and numbers within the delicate and blind categories sharply declined. But advances in medical practice meant that more babies with severe and multiple disabilities survived birth and early childhood, and more children were diagnosed with severe learning difficulties due to a greater understanding of neurodevelopmental disorders such as autism, Asperger and Down's syndrome.

Specialisation often meant all-age schools, long since banished in mainstream education and large catchment areas. Teaching was generally characterised by small classes, more teaching assistants and informal teaching methods with an emphasis on individual work and practical activities, anticipating similar developments in mainstream school design.¹⁶⁴ Buildings had to accommodate therapeutic treatments (hydrotherapy pools and housecraft units appeared from the late 1950s) and technological aids such as induction loops for the hard of hearing. From the early 1980s, computers came to play an increasing role in special education. A group of authorities in north-eastern England cooperated to form a regional education service for children with rarer conditions.¹⁶⁵ The larger cities, especially London, had the demand and the means to develop considerable educational and architectural expertise on design for disabilities, and to invest in technically-sophisticated facilities. By 1980, half of the places at some inner-London



Figure 2.14: Flight, a bronze of 1960 by Heinz Henghes at the Elm Court School and Clinic for Deaf Children in West Norwood, Lambeth. Behind is the school, designed by the celebrated British practice of Fry, Drew and Partners. Reproduced by kind permission of Ian Henghes (www.henghes.org).

schools were filled by children from neighbouring authorities.¹⁶⁶ Sites were designed to cope with bus services that ferried children large distances from home to school.

Challenging educational briefs, interpreted by designers with expertise in working with disabled people could result in highly-specialised buildings of intrinsic architectural quality. Special schools were usually tightly planned and inward facing. Load bearing cavity-wall construction was generally favoured for its acoustic performance and comforting solidity, and fairly deep plans were combined with more enclosed teaching areas than were encountered in mainstream schools. The GLC Bromley Hall School for the Physically Handicapped of 1966-67 (pages 209-10) featured enclosed home bases opening on to small courtyards. Spaces could be staggered for greater informality and enclosure as at David White's unbuilt design for St Francis Special School in Hampshire (page 277). At Foster Associates' schools for the Spastics Society at Hackney and Liverpool a single open plan space was divided by four service cores and moveable screens (page 363).¹⁶⁷ Administrative suites were often expansive and set apart, reflecting complex staffing patterns which included peripatetic or part-time specialists, student teachers or voluntary helpers. More provision was usually made for circulation, with wide corridors and doors, and lifts and slide emergency exits in multi-storey buildings. Much-needed design guidance came with *Designing for the Disabled* of 1963. Its author, Selwyn Goldsmith (1932-2011) contracted polio after graduating from the Bartlett School of Architecture in 1956.¹⁶⁸

'Mainstreaming' and Universal Access

Only in the later 1960s did arguments emerge for greater assimilation of disabled children. First to receive attention were those children deemed 'incapable of receiving education at school' under the 1944 Education Act, for whom junior training centres, day care centres or hospital schools were provided by local health authorities or regional hospital boards.¹⁶⁹ Such buildings were not designed by schools architects under DES cost limits and often had a different appearance and layout to special schools. The

Education (Handicapped Children) Act of 1970 abolished the legal distinction between those children who were, and those who were not considered educable in schools, and transferred responsibility for the latter from the Department for Health to the Department of Education and Science (DES). Perspectives on children with severe, multiple and long-term learning disabilities became less medical and more educational, and the switch resulted in a small group of all-age schools for severely disabled children. The DES issued a Design Note on *Designing for the Severely Handicapped* in 1972.¹⁷⁰ The Queen Elizabeth II Jubilee School, Westminster of 1974-77 by GLC architect Brian Goldsmith was singled out by the schools inspectorate as a model of provision for the severely disabled.¹⁷¹

The integration of the majority of disabled children in mainstream schools soon followed. A more inclusive attitude to education was underpinned by the ideal of comprehensive education in its widest sense and rights to equal access and participation in society. Following the advice of the Warnock report of 1978, the 1981 Education Act replaced the statutory categories of handicap with a 'continuum of need' within a single, legally-defined term of Special Educational Need (SEN). Warnock later recalled:

Children as far as possible who had special educational needs were to be educated with other children: they were no longer 'a race apart'. And we did try very hard to get away from the medical model in which one was concentrating on what was wrong with the child, [instead] thinking in terms of how far they could get along the common educational road.¹⁷²

The Warnock report contended that although special education had been developed for one in fifty school children, a figure closer to one in five would require some form of special educational provision at some time in their school career, and much of this could be based in mainstream schools.¹⁷³ The report had an immediate effect on local authorities: Hampshire County Council cancelled a school for the severely disabled within months of its publication (page 277). Many special schools were closed and children were taught in special classes or units within larger mainstream schools. Warnock's presumption was that the school should fit the child rather than the other way around, but the new SEN framework was implemented without additional funding and often without adequate alterations to existing buildings.

The 1980s and 1990s saw a movement for disability rights, and access legislation followed with the addition of Part M of the Building Regulations in 1985 and the 1995 Disability Discrimination Act. In *Designing for the Disabled – The New Paradigm* (1997) and *Universal Design* (2000) Selwyn Goldsmith expanded on the social model of disability to suggest that access should be for all, not solely for the disabled. His concept of 'architectural disability' emphasised how the built environment can embody institutional discrimination against large sections of society including children, the elderly and adults with infants in pushchairs. The principal was applied to schools with *Inclusive School Design*, a Building Bulletin of 2001.¹⁷⁴

ENDNOTES

1. Quoted in Saint 1987, 48.
2. <http://www.ehs.org.uk/othercontent/Walsh30a.pdf> (accessed 15 August 2012); DES 1968 (Design Note I).
3. Darvill 2000, 25.
4. Medd 1976, 98-99.
5. MoE Circular 8/60 stated 'no resources can be spared for expansion and no teachers can be spared who might otherwise work with children of compulsory school age'. This was partially relaxed in 1964.
6. Bradburn 1989, 229.
7. For the influence of Piagetian thinking on English architects see Medd 1976, II.
8. Parry and Archer 1974, xiii.
9. Medd 1976, II.
10. Central Advisory Council for Education (England) 1967.
11. Central Advisory Council for Education (England) 1967, p.132.
12. *Urban Programme Circular*, no.1, October 1968.
13. Medd 1976, 8.
14. Part 1979, 231.
15. DES 1978 (Building Bulletin 56); DES 1980 (Broadsheet I).
16. *A History of the Pre-school Learning Alliance* at www.pre-school.org.uk/document/599.
17. 'The mothers' loneliness and boredom are also major social problems which play centres and groups might help to solve': Note of Reservation on the proposed nursery expansion by Mrs Bannister, in Central Advisory Council for Education (England) 1967, p.486.
18. Cherry and Pevsner 2002, 705-06.
19. *Architect's Journal*, vol. 163, no. 25, 23 June 1976, pp.1225-38.
20. *Building Design*, no. 548, 5 June 1981, pp.22-23.
21. Medd 1976, 12.
22. DES 1968 (Design Note I), 6.
23. Medd 1976, 40.
24. Medd 1976, 39.
25. Parry and Archer 1974, 120.
26. Board of Education 1926.
27. Hansard, House of Lords Debate, 10 February 1965, vol. 263, cc.129-266.
28. DES Circular 16/69. McConnell 1968, 1307-1310.
29. Cunningham 1988, II.
30. Medd 2009, 27.
31. Cunningham 1988, 192.
32. Central Advisory Council for Education (England) 1967.
33. Geen 1985; Cunningham 1988, 87.
34. Ministry of Education 1945.
35. 'Hen and chicks' plan: Saint 1987, 138; 'Cluster' plan: Wigglesworth 1965, 268.
36. Early examples are Aboyne Lodge School in St Albans, built in 1949-50 to the designs of job architect Donald Barron and Limbrick Wood Primary School in Coventry of 1951-52 by MoE Development Group (job architects Michael Smith, Jack Lloyd and E.C. Tory). 'Bays and backwaters': Ministry of Education 1964 (Building Bulletin 24), 4.
37. Ministry of Education 1964 (Building Bulletin 24).
38. Ministry of Education 1961 (Building Bulletin 18), 112.
39. Hertfordshire were again the pioneers. For early examples see Templewood Primary School, Welwyn Garden City (1949-50, job architect A.W. Cleeve Barr); Oakland Infant School, East Barnet (1950-51 by Architects Co-operative Partnership); Morgan's Walk School (1948-49, job architects Bruce Martin and Michael Smith); Greenfields Primary School, South Oxhey (1951-52, job architect Henry Swain) and Kenilworth School, Borehamwood (1951-52, job architects R.I.E. Haynes and L. Hope).
40. Two early Herts deep plans, Summerswood Primary School at Borehamwood (1950-52, job architect Bruce Martin) and Beechwood Day Nursery at Garston (1951, job architect Anthony Williams) were the result of an experiment with a new prefabricated system on a 3'4" module (Saint 1987, 103-05).
41. Brogden 2007; Franklin 2012b.
42. West Riding is the well-known example. In Worcestershire too, different ages of transfer were part of a strategy to maximise the reuse of existing buildings (Nigel Wyatt, pers.comm, 28 March 2012).
43. Benn 1973, 294.
44. Crook 2008.
45. Hansard, House of Commons debate, 27 January 1964, vol. 688, cc.40-164; Central Advisory Council for Education (England) 1959; Central Advisory Council for Education (England) 1963.
46. DES 1965 *The Organisation of Secondary Education*. Circular 10/65. London: HMSO.
47. Wyatt 2010, 8.
48. Crook 2008.
49. Benn 1973, 294.
50. Wyatt 2010, 3.
51. Crook 2008, 15.
52. James Parke, pers.comm., 11 January 2011.
53. Initially established as the Inter LEA Middle Schools Forum (Wyatt 2010).

54. National Middle Schools Forum, Middle School Directory 2011: <http://www.middleschools.org.uk/documents/reports/Middle%20School%20Directory%20-%202011vl.doc>, accessed 15 August 2012.
55. Crook 2008.
56. Central Advisory Council for Education (England) 1967, 142.
57. DES 1966 (Building Bulletin 35).
58. DES 1983 (Design Note 32).
59. HM Inspectors of Schools 1983, 1.
60. Education Act 1964 (c.1), London: HMSO.
61. DES 1983 (Design Note 32), 6.
62. DES 1966 (Building Bulletin 35), 138.
63. DES 1966 (Building Bulletin 35), 137.
64. Guy Hawkins, pers.comm., 16 September 2009.
65. HM Inspectors of Schools 1985.
66. HM Inspectors of Schools 1983.
67. DES 1966 (Building Bulletin 35), 138; David Medd, pers.comm., 3 July 2008.
68. DES 1983 (Design Note 32), 2.
69. A DES investigation of 1979 visited 22 purpose-built middle schools in nine education authorities (DES 1983 (Design Note 32), 3).
70. DES 1983 (Design Note 32), 3.
71. Seaborne and Lowe 1977, 183.
72. West Riding County Council Education Committee 1967, Appendix B.
73. Chalk 2006, 35-36.
74. DES 1983 (Broadsheet 13).
75. De Grey later joined Foster Associates, where he remains to this day.
76. *Architectural Review*, vol. 153, no. 912, February 1973, pp. 111-18.
77. Medd 2009, 34. W.E. Forster, MP for Bradford had been instrumental in introducing the 1870 Education Act. Margaret McMillan and Ralph Crowley (Mary Medd's father) both worked in Bradford in the early twentieth century.
78. Guy Hawkins pers.comm., 10 March 2011.
79. David Medd (2009, 34) felt that Delf Hill was 'not particularly pleasing externally'.
80. Guy Hawkins pers.comm., 16 September 2010.
81. Education Act 1944 (7&8 Geo. 6, c. 31), London: HMSO. According to Lord Alexander, much of the bill was drafted by Maurice Holmes (Alexander 1977, 380-81).
82. Quoted in Chitty and Dunford 1999, 20.
83. Lowe 1992, 15.
84. Board of Education 1926; Board of Education 1938; Board of Education 1943A&B.
85. In the first half of the twentieth century grammar schools were sometimes termed secondary schools (in a more restricted sense of the word).
86. 'Schools of the type of the existing selective Central Schools, which give at least a four years' course from the age of 11+, with a 'realistic' or practical trend in the last two years, to be known as Modern Schools' (Board of Education 1926, 175). The term senior school, tellingly derived from senior elementary school, was occasionally used for secondary modern.
87. Board of Education 1938, chapter 8.
88. MoE 1945b, 13, 22-23.
89. Francis 1997, 145.
90. Francis 1997, 143-44.
91. 'There is not sufficient experience at present to justify a general reversal of past practice which does not favour very large schools' Ministry of Education Circular 73, December 1945. *The Nation's Schools* and *The New Secondary Education* voiced similar reservations.
92. Hansard, House of Commons debate, 17 July 1950, vol. 477. cc.1973.
93. Rubinstein 1979, 161; Benn 1980.
94. Tawney 1922, 7; Francis 1997, 142-43.
95. Seaborne and Lowe 1977, 186; MoE 1958.
96. Seaborne and Lowe 1977, 186.
97. Maclure 1984, 240.
98. Maclure 1984, 240.
99. Bolton 2007, 8.
100. Bailey 1990, 97-98.
101. Classey 1998, 8.
102. Hansard, House of Commons debate, 2 December 1948, vol. 458, cc.209W.
103. *Education*, vol.152, no.21, 24 November 1978, p.505.
104. Pile 1979, 87.
105. Weekes 1986, 13.
106. Wilson 1964, 10.
107. *The New Britain*, Labour Party Manifesto for the 1964 General Election, published as Wilson 1964.
108. Weeks 1986, 32.
109. DES 1967 (Building Bulletin 40).
110. Circular 10/70; Circular 4/74; Education Act 1979.
111. Although Circular 10/70, introduced at the beginning of Edward Heath's premiership, announced that the government would accept no further LEA plans for wholesale comprehensivisation, LEAs continued to submit plans, presented as individual school plans, which were duly accepted.
112. Ward 1976, ix.
113. Lowe 1997, 9.
114. DES 1980; Hawkins 1984, 82.

115. DES 1964 (Building Bulletin 24); Franklin 2012b.
116. Maclure 1984, 249.
117. *Hansard*, House of Commons debate, 21 March 1960, 620 cc. 52. For later attitudes to primary teaching and curricula, see DES 1992.
118. Central Advisory Council for Education (England) 1963, v.
119. Maclure 1984, 243.
120. Maclure 1984, 251.
121. Central Advisory Council for Education (England) 1963, 88-89.
122. Maclure 1984, 252; Institute of Education Archives: ME/T/1.
123. Maclure 1984, 252.
124. Michael Hacker pers.comm., 2 November 2010.
125. Morrell was Assistant Secretary 1959-62. Fries, R 2004 'Morrell, Derek Holtby (1921-1969)', in *Oxford Dictionary of National Biography*, Oxford University Press.
126. *Architects' Journal*, vol.147, no. 26, 26 June 1968, p.148; James 1972.
127. Institute of Education Archives: ME/E/10/3 includes an A&B Branch memorandum of 6 March 1968 by Eric Pearson, written for the Abraham Moss development project.
128. Hacker 1971, 27.
129. 'The Evolving School', *Trends in Education*, no. 2, April 1966, p. 5.
130. *Paul Hamlyn Centre, Slough by Richard Rogers Partnership, 1993-96*, report of 2010 by Geraint Franklin, English Heritage London Region historians' files, ref. OUT916.
131. *Architects' Journal*, vol.119, no.3093, 10 June 1954, p.709-14; *Architectural Association Journal*, vol.69, December 1953, pp.129-32.
132. *Architects' Journal*, vol.120, 16 September 1954, pp.336-51.
133. Campus plans were also termed pavilion, cluster, separate-block or exploded plans.
134. Forsyth and Grey 1988, 107.
135. Maclure 1984, 255.
136. Seaborne and Lowe 1977, 208.
137. *Architectural Review*, vol.150, no. 893, July 1971, pp.3-6, 17-18.
138. EFL 1965; EFL 1967a.
139. Michael Hacker pers.comm., 2 November 2010.
140. *Architectural Design*, vol. 52, nos. 5/6, 1982, pp.59-69.
141. *Architects' Journal*, vol. 186, no. 44, 4 November 1987, pp. 32-39.
142. DES Circular 11/64 / MOHLG Circular 49/64, *Provision for Sport*.
143. Ward 1976, xiii; Grace Kenny, pers.comm., 24 January 2011.
144. Douglas 1964.
145. *Building* 3 November 1978, p.78.
146. Quoted in *Architectural Review*, vol.147, no.875, January 1970, p.70.
147. Michael Hacker, pers.comm., 13 March 2011; David Meylan, pers.comm., 13 June 2012.
148. Institute of Education Archives: ME/B/3, transcript of 1998 interview with Mary Medd by Louise Brodie for the British Library Architects' Lives project.
149. MoE 1960; MoE 1961 (Building Bulletin 20); MoE 1963 (Building Bulletin 22).
150. Fletcher 1984, 50; Grace Kenny, pers.comm., 24 January 2011.
151. Harwood forthcoming; *Building*, vol.210, no.6409, 18 March 1966, pp.100-02.
152. Chalk 2006, 78.
153. James Parke, pers.comm., 11 January 2011.
154. Central Advisory Council for Education (England) 1967, 46.
155. Banham 1976.
156. Hacker 1976; Maclure 1984, 236-37.
157. Ward 1976, xiii.
158. This section has benefited from discussions with Rosie Sherrington and Simon Jarrett of English Heritage's disability history web project.
159. Ward 1976, 230.
160. Silvers 2009.
161. The Warnock report includes a useful historical summary of special education (Committee of Enquiry into the Education of Handicapped Children and Young People 1978, 8-35).
162. The Grade II-listed Newman School, Rotherham of 1939 by local authority architect Geoffrey Raven also accommodated physically-disabled and partially-sighted children, for example.
163. The Handicapped Pupils and School Health Service Regulations 1945.
164. Seaborne and Lowe 1977, 15.
165. Darvill 2000, 25.
166. Ringshall et al 1983, 216.
167. *Architectural Review*, vol. 160, November 1976, pp.270-75.
168. Adrian Cave, obituary of Selwyn Goldsmith, *the Guardian*, 31 May 2011.
169. *Education Act, 1944*. (7&8 Geo VI, c.31), London: HMSO, s.57.
170. DES 1972 (Design Note 10).
171. Ringshall 1983, 230-32; Goldsmith 1979.
172. Interview between Estelle Morris and Baroness Warnock, published in 2007: <http://www.tes.co.uk/teaching-resource/Teachers-TV->

[Baroness-Warnock-6048745/](#), accessed 15 August 2012.

173. Committee of Enquiry into the Education of Handicapped Children and Young People 1978, 50.

174. DfEE 2001 (Building Bulletin 94).

PART III: ASPECTS OF SCHOOL DESIGN

Construction

The Dilemma of Standardisation

The requirement for new school places after 1944 was such that it demanded a rethinking of school building. Reform had long been called for: in 1911 the Departmental Committee on the Cost of School Buildings suggested novel construction techniques and the use of timber, 'ferroconcrete' and steel, and the building regulations and loan period were accordingly revised in 1914. Many authorities built lightweight, 'semi-temporary' schools, usually loosely planned timber-framed structures, whilst others, notably Middlesex, combined a steel frame with brick cladding. There was no shortage of isolated experiments, but it was only in the mid-1930s that demand became sufficiently urgent to put prefabrication at the centre of a consistent, co-ordinated approach. This was best seen at the light steel-framed schools designed from 1936 under C.G. Stillman, the Architect to West Sussex County Council.¹

After the War it was generally agreed that some sort of standardisation of construction was necessary, but a recurring debate was whether to standardise whole designs or provide a prefabricated 'kit of parts'.² The most rudimentary approach, the prefabricated classroom, was pressed into service at times of severe pressure of numbers, and included the Hutting Operation for the Raising of the School Age to 15 (HORSAs), implemented in 1947 and the Raising of the School Leaving Age (ROSLAs) units when the threshold rose to 16 in 1972.³ 6,220 Hampshire pupils were accommodated in HORSAs huts between 1945 and 1949.⁴ Prefabricated classrooms were generally regarded by the Ministry of Education as a temporary measure of last resort. The standardisation of entire school designs were likewise discouraged on the grounds that it coarsened architectural response to site and brief, a volte-face from the recommendation of the practice in the 1944 report of the Wood Committee, set up by the Board of Education in 1943 to investigate prefabrication.⁵

The threat of huts galvanised some public architects to rethink processes of building from scratch. The stance of the Hertfordshire architects was summed up by the slogan 'standardise the means, not the ends'.⁶ The way forward had been pointed by Alvar Aalto in 1938:

The best standardisation committee in the world is nature herself, but in nature standardisation occurs [...] almost solely in connection with the smallest possible units—cells. The result is millions of flexible combinations in which one never encounters the stereotypical. [...] Architectural standardisation must head in the same path.⁷

Clear affinities existed between this position and the call of Walter Gropius for a 'large-scale building set'.⁸ The ideas of Aalto and Gropius on standardisation were more inspirational to British school designers than their architectural style, and seemed to point to the manufacture of a range of building components that could be freely combined and assembled by the designer.

Schools from the Factory: Products and Processes of Prefabrication

Dozens of educational building systems were developed from 1945-75, most based on a light steel, timber or pre-cast concrete frame with lightweight cladding panels and partitions and services accommodated within a flat roof deck. Columns and beams could be assembled rapidly (fig. 3.1) and the roof put up at an early stage, allowing the building to be finished under cover. Load-bearing stanchions permitted flexibility of planning and the possibility of later adaptation. One commonly-held principle was that components should be capable of being removed and replaced without affecting adjacent elements; another was that materials and techniques should be tried and tested: 'we weren't in the business of playing with public money' recalls one designer.⁹ Claims about costs varied, but prefabrication was seldom founder cheaper than traditional building, especially once the 'lifecycle costs' of development and maintenance were taken into consideration. A prefabricated school could generally be completed faster than a traditional one, if the labour force was experienced and if components were delivered to site at the right time.

Prefabrication was developed as a response to exceptional circumstances. The schools programme in Hertfordshire arose from a post-war shortage of bricks, blocks and tiles and a skilled labour force to lay them. The Consortium for Local Authorities Special Programme (CLASP), to take another example, adopted a technical solution to building in subsidence areas (page 126). But these exigencies do not entirely explain why prefabrication became so widespread, especially when traditional materials and labour again became easily available and in non-mining areas. To some prefabrication was simply a logistical means of sharing resources efficiently and equitably. Others were



Figure 3.1: Erecting the steel frame at St Crispin's Secondary Modern School, Wokingham, built to the Hills system in 1951-53. Institute of Education Archives: ABB/B/1/75/1.

motivated by the ideology or the aesthetics of reforming the means of architectural production. Henry Swain, the doyen of CLASP at Nottinghamshire, was concerned with the inhospitable and hazardous working conditions of the building site. Why, he reasoned, should a labourer work in squalor and danger when most of the building could be completed in the better regulated, safer and sheltered environment of a factory?¹⁰

Prefabrication proceeded via an improvisatory approach which owed something to a generation of post-war architects who served in the Second World War.¹¹ Military methodology (and even technology in the case of the aluminium schools manufactured by the Bristol Aeroplane Company) was appropriated and adapted to school building.¹² Prefabrication was more successfully applied to schools than any other building type, notably housing.¹³ Much has been written about the principles and methods of prefabricated school building, especially the immediate post-war period of 1945-57.¹⁴ The focus of this section is accordingly on the maturity and decline of prefabrication in the 1960s and 1970s, which has received less attention. The development of prefabrication was fundamentally a decentralised initiative, and the most significant systems are described from the perspective of their local authority users in part four of this report (table 4.1). This section provides an overview of wider trends and characteristics, with cross references to specific examples.

Grids versus Bays: the Basis of Prefabrication

School design in the years immediately following the Second World War was dominated by questions of construction. It was generally agreed that only prefabricated building techniques could put ‘roofs over heads’ in required numbers, but the technical basis of standardisation had first to be settled, as it had critical implications on planning. The Wood report of 1944 recommended a planning module of 8’3” and a structural framework of light steel.¹⁵ The report raised, but did not successfully resolve, a dilemma over whether a given module should be applied in one or multiple directions. It was, in other words, a question of bay versus grid. The bay method was widely favoured by manufacturers and local authorities in the period c.1947–52: it was endorsed by C.G. Stillman, one of two architects on the Wood committee.¹⁶ The bays, of fixed section and span, gave rise to a limited number of permutations: linear ‘finger’ plans comprising rows of classrooms and corridors, or dispersed pavilion classrooms linked by corridors of in-situ construction. The rest of the school could not be prefabricated. The introduction of cost limits in 1950 made the rigid and inefficient bays, with their pre-war corridor plans, unfeasible.

A square grid, on the other hand, allowed flexible planning in two or three directions, with fewer constraints and easier changes in direction and level.¹⁷ The grid was championed at Hertfordshire and later by many of the same architects at the MoE; it was not without its technical challenges, but essential if school planning was to be approached from first principles. Herts had demonstrated the technical basis of the grid, how its components and junctions related to each other and where the inevitable weaknesses lay. It was merely the starting point for the development of prefabricated school building but demonstrated an important principle: a viable constructional method must allow, not hamper, freedom of planning.

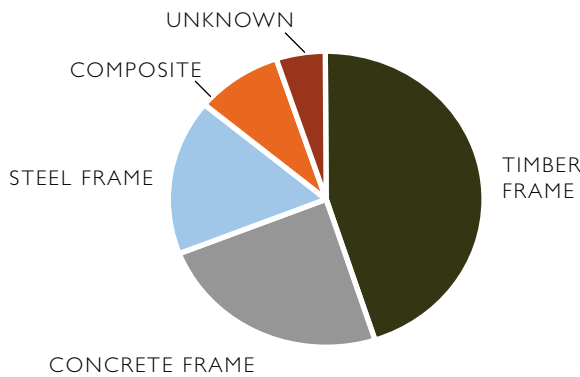


Figure 3.2: A snapshot of proprietary school building systems. Source: System Building and Design, January 1968, pp.63-67.

Proprietary Systems

Although the proliferation of different systems and dimensional bases can be bewildering, the policies of central government on school prefabrication can be summarised in terms of three overlapping phases. At first the Ministry encouraged a wide range of systems based on hot and cold-rolled steel, aluminium and pre-cast concrete. Their development followed a model established by the architects at Hertfordshire County Council from 1947 in which a proprietary system was modified in collaboration with its

manufacturer, Hills of West Bromwich. When Stirrat Johnson-Marshall was appointed as Chief Architect to the MoE Architects and Building Branch, he extended the approach to a series of experimental development projects, each developing a proprietary system in response to a particular educational need or a technical challenge (page 104). If the Ministry deemed an existing system satisfactory, they did not attempt to supplant it. The principal reason that the Development Group did not investigate timber construction was that they approved of the timber-framed Derwent system, developed by Johnson-Marshall's former Deputy Sam Morrison with manufacturer Vic Hallam (page 127, fig. 3.3).

The plurality of the strategy addressed the risks that Hertfordshire had taken on by entrusting an entire building programme to a single manufacturer.¹⁸ Competition on an open market, it was assumed, would naturally drive technical development and respond to changes in the price and availability of materials. Most systems were developed entirely by small-scale manufacturers with a commercial interest in patented technology, although a few large construction firms tried the schools market. By 1968 local authorities could choose from around 80 proprietary school building systems (fig. 3.2).¹⁹ Not all systems were commercially available: some architectural practices, such as Johns, Slater and Haward, developed a method of building for their exclusive use (page 336).



Figure 3.3: Hawkesley Farm Infant and Nursery School in Birmingham, an early 'Derwent' building. Institute of Education Archives: ABB/B/1/28/11.

The Consortia

From one MoE development project evolved an entirely new policy: groups of authorities collectively controlling the development of client-owned systems. The consortia were large enough to effect economies of scale by maximising production runs and bulk purchasing materials. Technical development was usually carried out by the dominant members; later, central development groups were established; in either case, costs and benefits were shared. Managerial innovations such as cost planning, critical path analysis, flow-line production, bulk purchasing and serial contracting were applied from other fields.²⁰ It was for these reasons that the architectural critic Reyner Banham acclaimed the consortia as ‘one of the most remarkable bureaucratic achievements of post-War Britain’.²¹

Name	Active	Ref.
CLASP: Consortium of Local Authorities Special Programme	1957–	p. 125
SCOLA: Second Consortium of Local Authorities	1961-90	p. 268
CLAW: Consortium of Local Authorities in Wales	1962–	
SEAC: South Eastern Architects’ Collaboration	1963-77	p. 314
Method /CMB: Consortium for Method Building	1963-88	p. 72
ASC: Anglian Standing Conference	1964–?	
MACE: Metropolitan Architectural Consortium for Education	1966-77	p. 191
ONWARD: Organisation of North Western Authorities for Rationalised Design	1966-75	p. 351

Table 3.1: the school building consortia

By c.1960, CLASP was the great white hope of school building; it was the first and became the largest and the longest lived of the consortia. A CLASP primary school designed by the Architect’s Department of Nottinghamshire County Council won the *Gran Premio con Menzione Speciale* at the 1960 Milan Triennale. The following year the Ministry of Education devoted a Building Bulletin to *The Story of CLASP*.²² International orders followed, and the system influenced school prefabricators in North America, principally Ezra Ehrenkrantz in devising his School Construction Systems Development (SCSD).²³

The success of CLASP convinced the MoE and many local authorities of the rightness of the consortium approach. The formation of the Second Consortium of Local Authorities (SCOLA) followed in June 1961. Devised under Ralph Crowe and Geoffrey Hamlyn of Shropshire County Council, it had similar aims and approaches to CLASP, although there was no requirement to mitigate subsidence. Like CLASP, SCOLA boasted a range of vernacular-inflected cladding, including shiplap boarding, interlocking tile, slate and brick, but the system was dogged by technical glitches. The third group, the South Eastern Architects’ Collaboration (SEAC), was based around Hertfordshire, Kent and the War Office, where Donald Gibson was Director General of Works.²⁴ Its technical basis was a trio of systems sharing a 2’8” module devised by Jack Platt and other Hertfordshire architects c.1956-58. Herts were reluctant to join a consortium and the deciding factor was probably the liquidation of the manufacturer Hills of (West Bromwich) Ltd in 1962.

The pattern of policy was set: by the mid-1960s the DES was encouraging the formation of consortia, partly in response to the incoming Labour government’s reliance on prefabrication as a means of rapidly completing public sector building programmes.²⁵

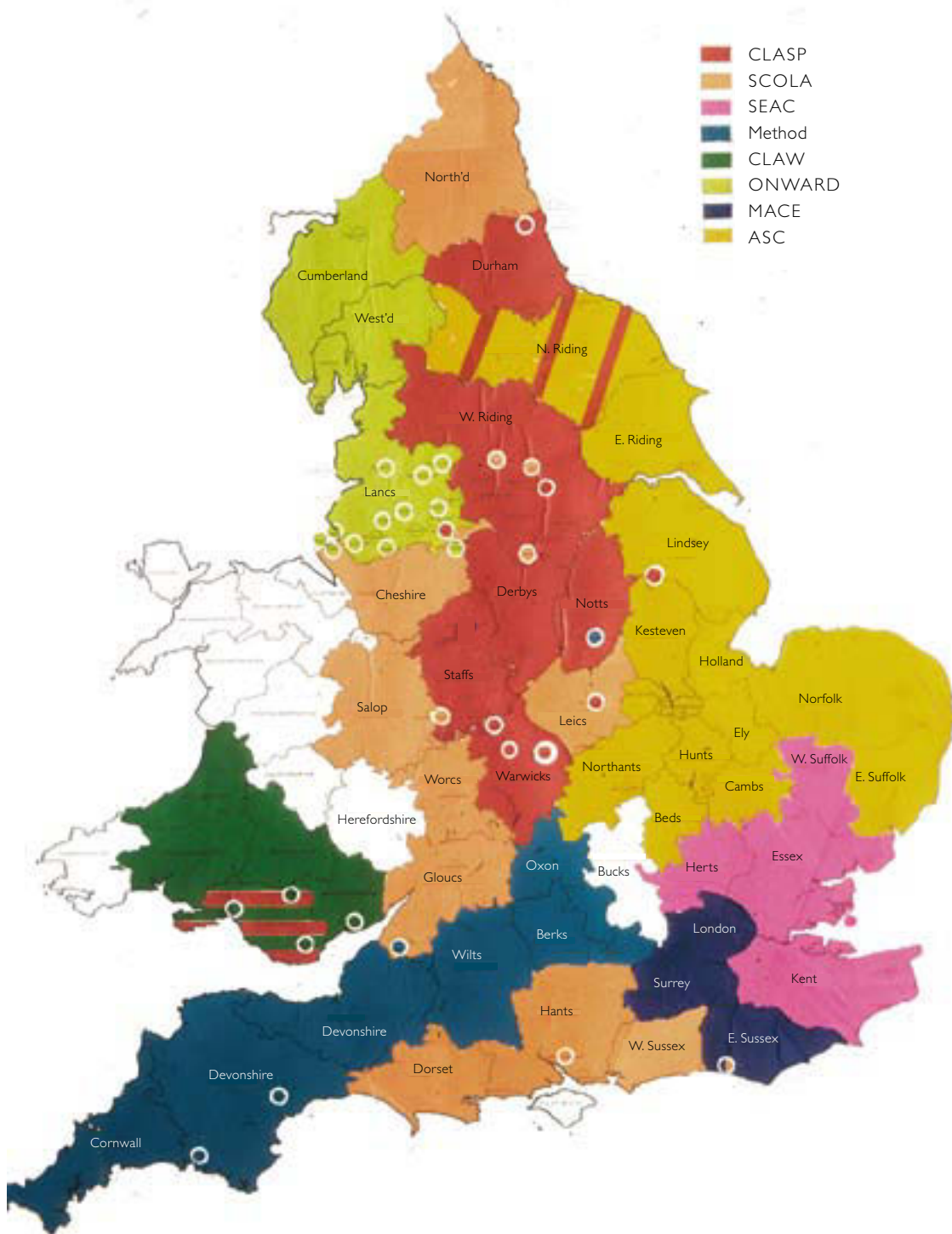


Figure 3.4: The regional distribution of the building consortia is clear in this DES map of c.1970. The conspicuous 'hole' in central England is Buckinghamshire. Institute of Education Archives: ABB/B/9/29/1

Five consortia were formed between 1963 and 1966 (table 3.1; fig. 3.4). The DES were nominally members of all consortia and hosted regular meetings of the Chief Architects of Consortia (CAOC) and a Technical Co-ordination Working Party (page 108-09).²⁶ Most consortia, like the South Eastern Architects' Collaboration and the West Country 'Method', were based on regional proximity (fig. 3.4). Not all were committed to the industrialisation of building: the Consortium of Local Authorities in Wales (CLAW), the Anglian Standing Conference (ASC) and Method, for example, aimed to reform rather than replace existing regional building economies and techniques through standardisation, bulk purchasing and the interchange of ideas.²⁷ The percentage of the annual programmes that used consortia varied from 30-90% from county to county, although full membership usually came with a minimum commitment.²⁸ Schools were the staple of the consortia programmes, but they also included further and higher education colleges and a wide range of public buildings such as libraries, sports centres and social services accommodation.

Alternatives to Prefabrication: 'Rationalised Traditional' Construction

Given the post-war push for prefabrication it comes as a surprise that most school buildings were brick-built.²⁹ Research into calculated brickwork, much of it commissioned with medium-rise housing in mind, had the objective of paring down brick walls to structural minima. Structural cross-walls of brick proved cheap and straightforward to build with good insulation properties, although they tended towards inflexible and repetitive rows of narrow, single-aspect rooms of equal size.³⁰ The architectural profession had been surprised by Powell and Moya's Mayfield School, Putney of 1953-56 which, the *Architects' Journal* reported, was built at 22% under the Ministry's cost limits. Job architects Peter Jones and R.H. Henley choose readily-available materials, combining three-storey classroom blocks of brick cross-wall construction with timber roofs; they switched to a space frame roof for the assembly hall when a supply of steel again became available.³¹ The project inspired Buckinghamshire County Architect Fred Pooley to adopt 'rationalised traditional' construction for primary schools: 'Fred too had seen the figures in the *AJ* and simply pounced. Here was his prayer answered', Bucks architect Jack Speight recalled.³² The London County Council also developed a standard form of construction for schools based on brick cross-walls, pre-stressed concrete floor slabs and glazed timber panels.³³

David Medd's designs for primary schools at Amersham, Buckinghamshire (1956-57); Finmere, Oxfordshire and Great Ponton, Lincolnshire (both 1958-59), opened up cellular construction, alternating stretches of brickwork with storey-height timber and glass panels to provide plentiful daylight (fig. 3.5). The partitions dividing practical bays were also brick-built, and gypsum plastered finishes—more traditional than rationalised—were justified on the grounds that 'uses of traditional load-bearing materials leads to an acceptance of traditional finishes'.³⁴ Even the West Riding, a member of the CLASP camarilla, developed a standardised method of load-bearing construction (page 162). For Buckinghamshire and later Hampshire, brick construction became almost a statement of independence from central government policy. Even authorities signed up to a consortium, such as West Suffolk and Lancashire rewarded their architects with the occasional non-system job. With the decline of the consortia from c.1975 load-bearing brick became almost universal in school building.

Figure 3.5: 'Rat. trad.' construction at Finmere Primary School, Oxfordshire in 1959. Lightweight, exposed timber trusses rests on load-bearing panels of brickwork; the timber-framed window-walling is last to be installed. For the plan of this school see fig. 2.4. Institute of Education Archives: ME/Z/5/2/150.



Open Systems and Method

Any form of construction can be described in terms of a continuum from 'closed' to 'open', according to the degree to which components can be incorporated and interchanged. Most proprietary systems such as Hills and those of the earlier consortia were closed and thus mutually exclusive. In the 1960s, under the encouragement of central government, existing systems were modified to share components, with reluctance in the case of CLASP.³⁵ The later consortia—Method, ASC and ONWARD (Organisation of North Western Authorities for Rationalised Design)—represented relatively loose groupings which accommodated building products available on the open market—including bricks and tiles—within a framework of common dimensions. Specialist contractors could be bypassed and building methods adapted to suit local needs and economies. Such systems were classified by the DES as 'hybrid', as they represented a crossbreed of industrialised and rationalised traditional construction. ASC was established in 1964 as a direct response to Circular 1/64, aiming to 'pursue traditional building methods where they were allied to a high degree of organisation and management'.³⁶ A mere 6% of building materials was supplied through the consortia, mostly doors, windows, ironmongery and sanitary ware.³⁷ Its chairman was Bedfordshire County Council Architect John Barker, Pooley's former Deputy, and an early adopter of 'rat. trad.'.³⁸

The most successful of the open systems was the Consortium for Method Building, known as CMB or Method. When the idea of a consortium for south-west England began to be discussed at 'tea cup level' during 1961, it became clear that any system would have to meet two broad requirements. The first was a design vocabulary flexible and sensitive enough to respond to the character of historic and largely rural landscapes. New forms of construction should be capable of erection by small- to medium-sized building contractors and utilise traditional building crafts and materials. Discussions continued throughout 1962 and, unusually, the formation of the Consortium for Method Building in July 1963 predated the elucidation of its technical basis. This was partly due to the architect's 'decision to assemble the market (consortium) first, rather than to develop a system and later offer it around on a take-it-or-leave-it basis'.³⁹ Method was developed at Somerset by County Architect Bernard Adams, his deputy and prime mover Martin

Kennington and principal development architect Geoffrey Fullman.⁴⁰ Adams had previously been Deputy at Hertfordshire and before that Development Architect at Derbyshire, whereas Kennington had come from the LCC Architect's Department. Unusually, the central development team engaged consultant architects and structural engineers to speed progress. Four pilot projects, three of them schools, were included in the 1964-65 building programme.⁴¹

The architects wanted not a system but a method of building that exploited an open market of components which shared a dimensional framework of 4" (or 10 centimetres). Method had to fit a wide variety of building types, only half of which were schools, and a fine one foot planning grid was found to offer suitable flexibility.⁴² The influence of Jack Platt's work at Hertfordshire (page 314) may be seen in the constructional 'menu' of steel frame, pre-cast concrete frame, or load-bearing brick or block work, which could be used separately or in combination. Secondary components were interchangeable



Figure 3.6: Yatton Junior School, Somerset in construction c.1967. The Consortium for Method Building employed a wide range of materials and components, some prefabricated, others assembled on site. Institute of Education Archives: ABB/B/9/14/1

and roofs could be formed of corrugated metal decking or be pitched with timber or steel trusses. Variations in manufacturing sizes and thicknesses of joints demanded fairly wide tolerances and a large range of standard sizes. A wide variety of cladding types included timber boarding and facing brick (fig. 3.6).

Dimensional Co-ordination

In the mid-1960s central government policy belatedly shifted towards a third position: aligning systems to a common dimensional framework. In 1963 the Ministry of Public Building and Works introduced *Dimensional Co-ordination for Industrialised Building* (DCI), which recommended a series of 4" increments as a standard for all public buildings.⁴³ This in turn formed the basis for DES recommendations of 1964.⁴⁴ Such a protocol had been suggested as early as 1945 by Donald Dex Harrison, a Ministry of Works architect who predicted that the building

industry would become choked with incompatible systems and fail to achieve the economies of scale necessary to make large-scale prefabrication viable.⁴⁵ Production runs for school programmes were small compared with orders from the housing or commercial sectors: former DES architect Michael Hacker recalls a representative of the window manufacturer Crittall who laughed that all the consortia combined would not equal a single London office job—they considered school orders as ‘specials’.⁴⁶

The state, as a sponsor and initiator of building systems, had a role to play in rationalising the building industry. Government intervention, Harrison suggested, should take the form of encouraging standard specifications and in particular the coordination of the dimensions, tolerance and jointing of components. This would achieve a pool of compatible components which could be mass-produced: an industrial vernacular. The Building Research Station based at Garston, Hertfordshire, played an important role in coordinating research and development. In 1953 Bruce Martin was appointed to lead a study team on modular co-ordination at the British Standards Institute and the same year the Modular Society was formed by Mark Hartland Thomas.⁴⁷

But the reform of prefabrication came too late. In 1966 the government halted the development of further complete systems to concentrate on developing a pool of interchangeable components. Further impetus came from metrication, which caused many manufacturers to revise their product specifications around this time. The sharing of components between consortia was to be the first step in another drive to rationalise factory mass production and assembly.⁴⁸ A development group was set up to design standard components which could then be marketed to the consortia. The first such element to be developed, in 1967, was an ill-fated classroom partition system named Industrialised Building in Steel (IBIS).⁴⁹ But the dimensions of a component presented only a single aspect of their performance specifications and thus their fitness for purpose and flexibility. In 1966 David Medd cautioned the RIBA: ‘Of course, size is important, but what on earth is the good of a product that fits if it doesn’t work in other respects[?]. To me “fit” means fit for fire, sound, weight, water, appearance and all the rest of it’.⁵⁰ During the 1970s system building would be found wanting in these very factors.

The Demise of Prefabrication and its Legacy

Prefabricated school building peaked in 1970-71, when the consortia accounted for 52% of capital expenditure on school building. Over the next few years the economic rationale of prefabrication was undermined by reduced public expenditure, falling school rolls and, crucially, inflation in the costs of building materials driven by the rising price of oil. Systems and procurement procedures were not flexible enough to permit one material to be substituted for another.⁵¹ There was also a public backlash against prefabrication in schools and housing. The most common complaints—poor thermal and acoustic performance, seasonal extremes of temperature, high maintenance costs, vulnerability to vandalism—were characteristics not of prefabrication itself, but of lightweight and highly glazed structures in general, whether assembled from prefabricated components or not.

The final straw for the reputation of school building systems was a series of widely-reported fires and structural failures.⁵² ‘There is some comfort in the falling birth-rate’,

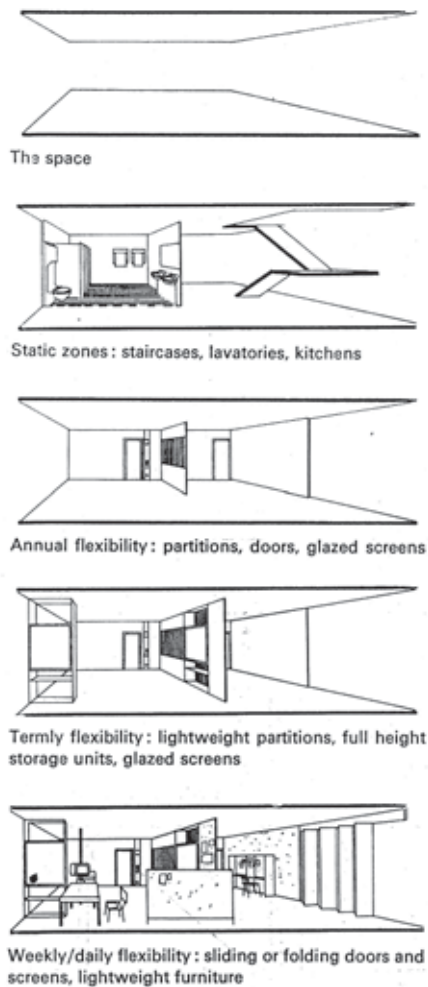


Figure 3.7: Several levels of flexibility, based on anticipated patterns of use and reconfiguration, were built into the ill-fated MACE system (page 191). Official Architecture and Planning, October 1968, p.1291 by kind permission of Built Environment journal.

Richard Sheppard wrote in 1977, 'no future building programme will ever be large enough to justify a fully-automated all-systems system again.'⁵³ MACE and SEAC folded in that year, though Method and SCOLA survived for another decade or so. The great survivor was the CLASP consortium which, having donned brick cladding from 1973-74 and pitched roofs in 1977, still operates in a much revised form under the name Scape System Build Ltd.⁵⁴

What is the legacy of the prefabricated schools? To David Medd 'collectively they encouraged a craft-based industry to accept permanently the implications of industrialisation.'⁵⁵ This was borne out by the 1998 Egan Report, *Rethinking Construction*, which recommended the integration of standardised and prefabricated components into the procurement and planning of construction projects.⁵⁶ Off-site construction, under the guise of 'Modern Methods of Construction' (MMC) is today a growth industry and in 2010-12 the government again investigated the possibility of 'flat-pack schools' of fixed design; it remains a moot point whether future standardisation will be 'of the parts' or 'of the whole.'⁵⁷



Figure 3.8: A complex rhythm of window mullions at South Bromsgrove High School, Bromsgrove; Richard Sheppard, Robson & Partners, 1968. Photograph by James O. Davies – English Heritage; DP030985.

The Image of the School

How much attention did architects pay to the appearance of their schools? How were appearances perceived or valued by different sets of people: professional peers, clients or users? And to what degree can 'social architecture' be classified by style? The broad architectural context for post-war schools was the Modern Movement which, having been tentatively explored in Britain in the 1930s, quickly became a visual shorthand for the welfare state. European modernism contained both a strain of social commitment and an architectural vocabulary that translated easily to public architecture. The exposed construction, big picture windows and articulation of formal elements insinuated the moral values of reason, truthfulness and transparency. The combination of single storey construction, a flat roof and a flexible planning grid enabled something close to Le Corbusier's 'free plan'. Today modernism is seen as a plurality of movements, rather than a monolithic entity. Differing and opposing architectural viewpoints could exist between colleagues and departments; the glue that held them together was the social consensus of the post-war settlement. When that broke down, the strands diverged and the whole unravelled.

The self-conscious expression of architectural style was anathema to the architects at Hertfordshire and the Ministry of Education. David Medd was fond of quoting Philip Webb: 'I never begin to be satisfied until my work looks commonplace'.⁵⁸ Their 'studied anonymity', wrote Reyner Banham, 'suddenly seemed pusillanimous to a decade that demanded more powerful imagery'.⁵⁹ In the 1969 design of Great Waldingfield Primary School in West Suffolk, Jack Digby and James Blackie accepted the educational principles of the DES but strove for a stronger architectural expression. The *Architectural Review* reported:

They also believed that the impact of the Ministry's schools had been lessened by their absolute Quakerism, their deliberate unconcern with questions of architectural style. While fully accepting the Ministry's educational achievement they wished to "give it architectural form".⁶⁰

The 'Light and Dry' Aesthetic

The typical light and dry prefabricated school embodied a number of functionalist principles. They were designed 'from the bottom up': architecture was regarded as the sum total of a series of individual design problems such as the educational brief, services, fittings, drainage and so on. They were equally designed 'from the inside out', with more attention and resources devoted to users and their interior environments.⁶¹ Cost limits and prefabrication imposed their own constraints on the architectural vocabulary. Yet the results elicited a range of aesthetic responses. In the late 1940s, Henry Swain, then a student at the Architectural Association, attended a trip to Hertfordshire schools:

I can't impress on you too much how different these buildings looked. Seen in the context of the Modern Movement, everything monstrous and big and reinforced, here was something light and delicate and hammered out of the process of studying the problem. It was totally

new, it didn't seem to have roots in anything. Not a single concession to Banister Fletcher in proportion or materials even!⁶²

Prefabrication could itself form the basis of an aesthetic, and the clip-on, Meccano-like aesthetic influenced Archigram and the High Tech movement.⁶³ But panel-based cladding could result in a stiff, papery appearance and more vernacular cladding options, including ceramic tiles, were developed by the school consortia for their familiar appearance and good weathering properties. The Derwent system devised by the ex-Herts architect Sam Morrison sported vertical strips of stained timber. Later, brick cladding became popular, although somewhat defeating the object of prefabrication.

The New Empiricism and the 'Contemporary Style'

Milder, moderate forms of modernism were chosen for most public buildings. A mild and homely idiom based on blond brickwork, squarish picture windows and broad-eaved, shallow-pitched roofs became popular in the 1950s. Groups of buildings were carefully massed and grouped according to the site and surrounding landscape. This recalled the architecture of the Swedish welfare state and was perhaps the schools equivalent of the *Architectural Review's* label 'the New Empiricism'.⁶⁴



Figure 3.9: Woodside Junior School, Amersham, Buckinghamshire; DEs Development Group (job architects David and Mary Medd), 1956-57 (P5925002).

Perhaps the best example, Woodside Junior School in Buckinghamshire, betrays the architectural inclinations of its designers, David and Mary Medd (fig. 3.9). Elsewhere in Buckinghamshire, and in other rural areas, the influence of local vernacular buildings and an interest in Scandinavian architecture mingled to produce an idiom characterised by clipped eaves, stained shiplap weatherboarding, and tiled roofs (pages 248-50). The so-called 'contemporary' style, associated with the 1951 Festival of Britain, combined a variety of decorative details including patternmaking in brick or tile, patterned curtains, wallpaper or lino, curved, cyma or tapered profiles, slender metalwork and 'flash gaps'. The style emerges convincingly at the Elliot School, Putney of 1953-56 by an LCC team including George Trevett, and additions to Sydenham School, also in south London of 1952-56 by Basil Spence and Partners.

The 'Wet and Heavy' Aesthetic

The limitations of initial attempts at prefabrication persuaded some architects to return to prefabrication, encouraged by the wider availability of traditional materials and the lifting of building controls in 1954.⁶⁵ Arthur Donnan, who worked at the Hertfordshire



Figure 3.10: The poised volumes of the David Lister School in Hull, of 1964-66 by Lyons, Israel and Ellis. Photograph © Elain Harwood.

Architect's Department before moving on to the LCC, compared the 'light and dry' building of the former to the 'wet and heavy' of the latter.⁶⁶ The aesthetic appeal of in-situ construction was no less important. The more stylish of the private practices drafted in to help with the secondary-building programme exploited the aesthetic qualities of raw materials: fair-faced brick, white, hard concrete blocks such as 'Forticrete', and in-situ concrete (shuttered, bush-hammered or otherwise textured). From the late 1950s, patent glazing had the attractions of being cheap, widely available and flaunting the tough, off-the-peg aesthetic popularised by James Stirling's educational buildings.⁶⁷ The late works of Le Corbusier were important reference points, particularly the Maisons Jaoul at Neuilly-sur-Seine, France, completed in 1954. Peter Smithson observed of them that

Le Corbusier's pair of houses caused people to fall in love with bricks, site-poured concrete, wooden windows, larger tolerances, and there was—unbelievable—a certain British public patronage for the manner; in county schools commissioned by county architects and paid for by the state as there had been for the dry-construction schools of the previous decade.⁶⁸



Figure 3.11: Stillman & Eastwick-Field received more commissions for London schools than any other firm. The finest of these was Stoke Newington Secondary School, Clissold Road, LB Hackney, built in 1967-70 to the designs of job architects Ralf Smorzewski, Denis McCoy and Michael Plunkett. It was remodelled with a cor-ten steel facade by Jestico + Whiles in 2009-10.⁷¹ © Elain Harwood.



Figure 3.12: The main entrance to Lilian Baylis Secondary School, LB Lambeth; Architects' Co-Partnership, 1960-64. Photograph by James O. Davies – English Heritage; DP031012.

The early 1960s saw a widespread toughening-up of architectural appearances which served as a riposte to the insubstantial appearance of the earlier prefabricated schools and the daintiness of the 'Contemporary Style'. An early example is Ken Jones' 1955 design for the Garratt Green School in South London.⁶⁹ In 1967 the GLC's Schools Architect Michael Powell justified the aesthetic in practical terms:

'Hundreds of children, all pouring into a school at about the same time, present one hell of a problem of maintenance and therefore choice of materials'. [...] The early days of over-refined detailing, elegant curtain walling, sensitively chosen wallpapers are generally being superseded by buildings of a much more chunky character. Greater use is being made of fair-faced brickwork as an interior finish to classrooms and circulation areas. Fair-faced concrete, decorated, stands up very well to hard usage.⁷⁰

This monumental, forceful style paralleled similar trends in university building but was often applied to formal or educationally-conservative school plans. Many of the key examples of the New Brutalism are now demolished or altered: Salt Grammar School in Shipley, West Riding, built in 1960-63 to the designs of Chamberlin, Powell and Bon, and recalling Le Corbusier's monastery of La Tourette in France (fig. 4.40); John Bancroft's Pimlico School in the City of Westminster (fig. 5.58) and Stillman & Eastwick-Field's Stoke Newington Secondary School in Hackney of 1967-70 (fig. 3.11).

Adhocism, Critical Regionalism, Romantic Pragmatism and Neo-Vernacular

The 1970s divergence of architectural styles was, in part, a reaction against modernism, which was blamed for the blandness of prefabrication and the heroic one-offs alike. Yet the various fall-back positions were devised to widen the scope of modernism rather than rejecting it outright. One was 'Adhocism', the creative appropriation of readily-available resources. The term was first used by Charles Jencks in 1968 to describe a recurring architectural trend.⁷² Maguire & Murray's influential design for St Paul with St Luke Primary School in east London was the first of several schools to adapt an agricultural shed.⁷³ It is one of the ironies of the period that bespoke systems were cast aside in favour of 'off the shelf' sheds and shelters, used in an unexpected, almost subversive way.

Hampshire under County Architect Colin Stansfield Smith developed a position akin to what Kenneth Frampton defined as 'Critical Regionalism', combining relative cultural and economic independence with a willingness to assimilate external influence; a resistance to functionalism and historicism alike, an emphasis on individual responses to local conditions; and a contextualism in which vernacular forms and materials are accepted.⁷⁴ 'Romantic Pragmatism' was a similarly reformist position coined by the *Architectural Review* to describe the reconciliation of traditional materials and skilled craftwork with modernism, as seen in the architecture of Ralph Erskine, Edward Cullinan and Richard MacCormac and in the schools designed by the Architect's Departments of Buckinghamshire and Hampshire County Councils (fig. 3.13).⁷⁵

Related, albeit often less considered, was the neo-vernacular style developed in medium-density low-rise housing schemes. This often took the form of a big roof applied to a deep plan; a key example, Fort Hill in Hampshire, was a barn-like form rising out of nondescript housing estates (page 278). Preoccupations with presenting a legible image to the outside world sometimes created problems inside, and some architects regretted the planning constraints imposed by the widespread adoption of pitched roofs and load-bearing walls from the 1970s.⁷⁶



Figure 3.13: Woodlea Primary School, Whitehill; Hampshire County Council Architect's Department, 1990-91. The Rousseauian image of a 'school in the woods' is a recurrent one: the German Waldschulen (forest schools) appealed to the Edwardian builders of open-air schools, and Mary Medd (née Crowley) was inspired by similar schools in pre-war Sweden. Photograph kindly supplied by Nev Churcher.

Postmodernism, by contrast, was taken up for only a handful of mostly private schools (fig. 3.14). The most successful example is the tiny Bishop Wilson Memorial Library designed for the Bishops' Primary School in Chelmsford in Essex by Colin St John Wilson & Partners, the architect of the British Library. The memorable interior combines a Soanian handing of light with primary colours; a dark blue painted steel aedicule was pierced with constellations of the Zodiac (frontispiece).



Figure 3.14: *czwg's* Craft Design & Technology Block at Bryanston School, Dorset, a postmodernist jeu d'esprit. © Jo Reid & John Peck; photograph kindly supplied by *czwg* Architects.

Lighting, Ventilation and Environmental Design

The reform of school buildings in the early twentieth century was prompted by a desire to improve the health, hygiene and social welfare of the child population. A key reform was the establishment of a national medical schools service by the Education (Administrative Provisions) Act of 1907, administered by local authority medical inspectors of schools and overseen by the newly-established Medical Branch of the Board of Education. Under the influence of their medical inspectors and architects, authorities began to build schools incorporating cross ventilation, outdoor circulation and abundant daylight, none more so than the open-air schools provided for 'defective and epileptic' children. *Light, Air and Openness*, to borrow the title of Paul Overy's study, became desirable attributes in themselves, and the validity of their architectural expression was long unquestioned.⁷⁷

Subsequent developments in school building demonstrate the consequences of standardising and prescribing reforming impulses. Attitudes to natural light are a case in point. It was commonly measured by a 'daylight factor, this being the proportion of daylight received at a given point indoors from a 'standard overcast' sky. The regulations made under the 1944 Education Act prescribed a minimum daylight factor of two per cent and recommended that 'a higher figure of up to 5 per cent should, if possible, be secured'.⁷⁸ The consequences for school design were immediate, far-reaching and often unforeseen, and included dual-aspect lighting, looser plans, roof lights and clerestorey lights, often in elaborate sections. The orthodoxy of lighting from the left, which assumed rows of desks facing a blackboard, could not hold where seating patterns were informal and multi-directional. But considerable technical ingenuity and no little expense was required to avoid glare, solar heat gain and poor insulation values.

By the late 1960s considerable opposition had built up to the contrivances and excesses required to observe the '2% rule', and many argued for a balance of natural and artificial light, now an economic possibility due to technical developments.⁷⁹ Derek Poole, the energy specialist at the Architects and Building Branch of the DES, armed with technical studies by the Building Research Station (BRS), persuaded the Chief Architect Dan Lacey to reappraise the subject of lighting. Guy Hawkins' account gives an insight into the sort of empirical fiddling that often lay behind 'buildings science' and official prescriptions on lighting:

Derek's main contribution while I was at Architects and Building was to convince Dan Lacey that the 2% daylight factor was not sacrosanct, and to devise standards for an acceptable mixed lighting design allowing deeper plans, specifically at Maiden Erlegh [the DES-designed secondary school in Berkshire, pages 116-17]. At the time there was a lot of loose talk about windowless schools, and Dan didn't want to let that get out of hand. Derek did this by devising a series of tests with models in the sky lab at the BRS, with a large scale model of a deep part of the Maiden Erlegh humanities block. This was placed in the 'greenhouse' on the top of one of the BRS buildings, and we all stuck

our heads up inside (in turn) and twiddled a rheostat until we thought it looked right, being part natural, part daylight. Derek altered the size and shape of the windows to judge the effect.⁸⁰

A 1967 Building Bulletin on the subject of lighting conceded that the DES would ‘consider on their merits and approve individually proposals to combined daylighting at less than a 2 per cent daylight factor with permanent supplementary artificial lighting’.⁸¹ Architects anticipated with relief ‘the whole approach to the interior design of schools could change’.⁸² By 1980, the *Architects’ Journal* reflected that ‘the 2% daylight factor is outrageous and from another age’.⁸³

As Hawkins implies, the DES’s compromise on lighting was driven by a concern that the pendulum would swing to the other extreme. Some technologically-orientated architects, inspired by American examples, experimented with replacing climatic contributions with a ‘controlled environment’, characterised by deeper plans, reduced levels of glazing and artificial illumination and ventilation. This approach was promoted by the Electricity Council under the label of Integrated Environmental Design (IED), and the Eastergate Church of England Primary School in West Sussex of 1969-70 was the result of a collaboration between the Electricity Council, the Building Science Department of Newcastle University and the West Sussex Architect’s Department (page 379; fig. 3.15).⁸⁴ The energy crisis of the early 1970s encouraged heavy and highly insulated cladding and smaller windows, as seen in the ‘Method of Component Building’ (MCB) developed in the 1970s by Essex County Council under Ralph Crowe.⁸⁵



Figure 3.15: The 1970s saw a reduction in the glazed area of many schools. Eastergate School, seen here shortly after completion, was criticised by DES architects for its separation of ‘inside’ and ‘outside’: there were no verandas or opening windows. Institute of Education Archives: ME/2/5/2/179

But the home-grown principles of cross ventilation and natural lighting, so valiantly fought for in the early years of the century, were not so quickly dropped in favour of air-conditioning and florescent strip lights. So much had the *quantity* of light been measured and argued over that its various *qualities* and their effect on children had been overlooked. The position of the DES architects was innate yet formed by careful observation: addressing the technicians of the *Conseil International du Bâtiment* in 1974, David Medd passionately defended the intangible and capricious nature of daylight:

There are children who have first noticed against the frames of their generous windows clouds moving, or through which have seen the moon by day. What starting points for education such observations can make. [...] Shadows are cast obliquely, thus revealing texture and articulating form more clearly. [...] The quality, colour and direction of natural light is always changing. As the sun and the clouds move; and as time moves on, so does everything inside change and move a little. Education is concerned with making people sensitive and not indifferent to those manifestations of life of which we are all a part.⁸⁶

The oil crisis and a growing environmental movement inevitably focused attention on energy conservation—schools were commonly heated by oil-powered boilers—and greater interest in the relationship between a building’s inside and outside, the latter anticipated by Reyner Banham’s 1969 *The Architecture of the Well-tempered Environment*.⁸⁷ Applied to school buildings, the Long Life / Loose Fit / Low Energy (LL/LF/LE) approach advocated by RIBA president Alex Gordon seemed to point to the merits of refurbishing and retrofitting older schools of load-bearing construction.⁸⁸

The 1970s saw a shift in the environmental design of new schools from an ‘exclusive’ to a ‘selective’ response to fresh air and sunlight.⁸⁹ At Architects and Building Branch, Derek Poole coordinated a series of guidelines on aspects of environmental design.⁹⁰ The Architect’s Departments of Essex, Hampshire and Cornwall County Councils designed schools which combined ambient and generated heating, lighting and ventilation. Pitsea Briscoe Infant School, Basildon of 1976-78 incorporated a solar hot water system, with panels attached to the pitched roofs.⁹¹ Poole, appointed Deputy Architect at Hampshire County Council in 1979, initiated a collaboration with Dean Hawkes and Nick Baker of the Martin Centre in Cambridge on low-energy school design. The team came up with a sophisticated ‘passive solar’ cross section where solar gains collected in a ‘conservatory’ on

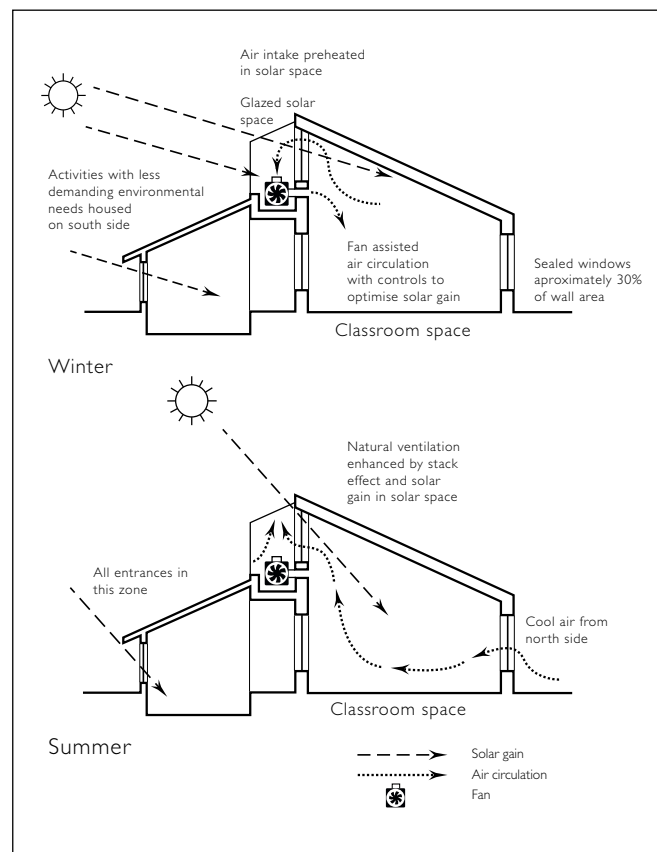


Figure 3.16: A passive solar energy system developed by Hampshire architects with the Martin Centre at Cambridge University and the Science and Engineering Research Council. It was implemented at Netley Abbey Infant School in Hampshire (pages 289-90).

the south side were circulated to north-facing classrooms (fig. 3.16). The concept, realised at Netley Abbey Infant School (pages 289-90), was in some ways a development of the pioneering 'solar wall' of St George's School in Wallasey, designed in 1957-59 by Assistant Borough Engineer Emslie Morgan.⁹² Selective approaches to environmental design generally demonstrated a greater awareness of building maintenance and running costs and the responses and needs of occupants.

The Outdoor Classroom: Landscaping, Sites and their Surroundings

Despite contemporary concerns over the amount of space and time available to children for outdoor play, the exterior environment of schools remains a neglected subject.⁹³ An emphasis on outdoor recreation and experiential learning was shared by the 'health and welfare' and the 'child-centred' strands of early-twentieth-century educational reform. Designed responses to these influences were rare and unusual, especially as landscapes are particularly vulnerable to change. The dissolution of boundaries between indoor and outdoor was a central strand of architecture generally and of school design in particular, echoing Froebel's aim of 'making the inner outer and the outer inner'.⁹⁴ The idea emerged at its strongest in the teaching pavilions of the early-twentieth-century open-air school but became prevalent in the classroom doors, folding or sliding windows, garden courts, verandas, shelters, canopies, conservatories and atria introduced to mainstream schools in the following decades.⁹⁵

Architectural responses to child-centred pedagogy influenced the layout of school sites. David and Mary Medd enumerated a range of outdoor 'planning ingredients', including gardens, grass and hard play areas, wild areas for adventure and discovery, 'rural science' areas, and the wider neighbourhood.⁹⁶ Contrasts in scale, spatial enclosure, texture,

colour and character were achieved through a mixture of 'soft' elements such as banks, trees, shrubs, lawns, ponds and planting and 'hard' landscaping. A background of mature trees and other natural features made an effective counterpoint to prefabricated school buildings at Hertfordshire primary schools, while Maurice Lee designed landscaping for a number of the Ministry of Education's development projects in the 1950s.⁹⁷ The wilder corners of school sites, such as rough ground, long grass, a copse or stream were sometimes retained as an educational resource or 'adventure' area, reflecting the influence of the adventure playground. Mounds of excavated or unwanted material could be shaped into landforms, the improvisation of the designer in using found elements encouraging the improvisation of the child with the same objects. Thus at Delf Hill Middle School in Bradford (fig. 3.18), the Medds preserved a group of large stone blocks and 'a stone bridge [over] a ravine which imparted a character of bygone days, while the 'ravine' was a source of discovery'.⁹⁸ School sites had the potential to be a valuable and secure

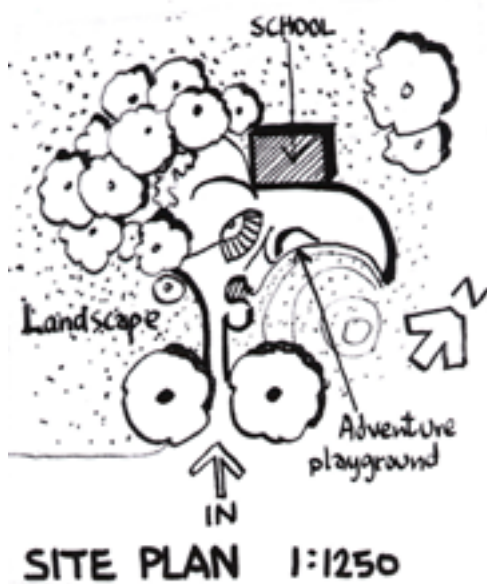


Figure 3.17: Louis Hellman's playful take on school landscaping. A detail from a cartoon published in the *Architects' Journal* in 1970, shortly after Margaret Thatcher became Secretary of State for Education. The cartoonist was then a schools architect in the Greater London Council (Hellman 2012). Reproduced from the *Architects' Journal*, vol.152, no.44, 4 November 1970, p.1064 by kind permission of Louis Hellman and the AJ.



Figure 3.18: Outdoor play at Delf Hill Middle School, Bradford; DES Development Group, 1967-68. The reused stone blocks probably had an origin in an earlier building on the site. See also page 39. Institute of Education Archives: ABB/B/1/52/4.

source of direct experience and contact with the outdoors, at a time when the freedom and mobility of a child in the external environment was being constrained by concerns about the dangers of road traffic and strangers.⁹⁹

Standardisation and local authority divisions of labour and responsibility were the biggest barriers to the enrichment of sites. ‘One-off’ responses were rare and isolated exceptions to—and reactions against—the standard municipal treatment: acres of grey tarmac playgrounds, chain-link fencing and flat expanses of playing fields. In some authorities the county landscape architect, ‘horticultural organiser’ or estates department was responsible for the design and provision of school grounds, in others it was down to the job architect. Elsewhere, motivated teachers and pupils shaped their own school grounds. The perennial problem of landscape development is that it was one of the last elements of a construction project and thus a potential victim of depleted budgets unless ingenuity and improvisation could be brought to bear.¹⁰⁰ If landscape features were to survive the process they had to be costed into a project at the briefing stage and carefully ‘sold’ to the educational client: David Rock, working in the office of Basil Spence and Partners in the mid-1950s on the plans of Sydenham School in south London, recalls that Spence suggested relabeling a wildlife pool as ‘biology tank’ to get it past the LCC educational committee.¹⁰¹

Only exceptionally was a consultant landscape architect brought in, as when Brenda Colvin and Sylvia Crowe participated in the post-war Hertfordshire ‘schools planting programme’. Maria Parpagliolo Shephard and Frank Clark’s landscaping of the Festival of Britain site inspired many British landscape architects and may help explain the decision of the London County Council to commission the pair to design the grounds of a number of new primary schools in south London.¹⁰² Merrick Denton-Thompson, the County Landscape Architect for Hampshire felt that architects’ designs for school grounds were overly visual and missed the opportunity to create a rich and multi-functional learning environment, offering seating, shelter and places to play, talk and learn through direct contact.¹⁰³ These ideas came to fruition in the form of the Learning Through Landscapes initiative, which is considered below.

Jack Digby was one of a small number of school designers for whom landscaping was important as architecture.¹⁰⁴ He worked as a qualified landscape architect for the Development Group of the MoE’s Architects and Building Branch in the late 1950s (page

313), and his landscape scheme for Arnold Grammar School, Nottinghamshire was exhibited at the 1958 Chelsea Flower Show.¹⁰⁵ When Digby became County Architect at West Suffolk in 1964, he saw the landscaping of schools as an educational resource and the key to integrating new buildings into urban and rural environments alike. Each building contract contained a small sum to cover the cost of plants. A good example of Digby's approach to landscaping is the Hartest Primary School of 1966, where he planted larch and tulip trees and seeded the steeper slopes with St John's Wort as there were then no flymowers for trimming the banks. The site at Great Waldingfield School was distinguished only by a muddy pond, which Digby relined and filled with oxygen-giving plants.¹⁰⁶ Digby worked closely with Frank Clarke, the County's Horticultural Organiser and a former gardener at Kew. One colleague recalls the two sitting on the office floor into the evening, planning landscaping schemes.¹⁰⁷ A landscape architect was maintained on the staff after Clarke retired in 1970 and the practice continued at Suffolk County Council after local government reorganisation in 1974.¹⁰⁸

Landscaping was also a priority at Buckinghamshire, where Peter Aldington's garden at Turn End inspired the Bucks Architect's Department. Job architects were responsible for hard landscaping, and ambitious designs such as Tse Chiu Ng's brick-paved courtyard at Bradwell Middle School, designed 1976) had to be carefully cost-planned from the beginning, so the additional expenditure could be found.¹⁰⁹ Pat Green was the landscape architect for Milton Keynes, and much of the landscaping in the south of the county was designed by Godfrey Belger, a German-born horticulturalist who built up an extensive



Figure 3.19: Additions of 1983-85 to the Hurst School in Tadley, Hampshire, by Aldington, Craig and Collinge. When the Hampshire county architect Colin Stansfield Smith commissioned the scheme, he cautioned Peter Aldington 'it's not a building scheme, it's a landscape scheme – don't you dare spend it on building!' (Powers 2009, 96). Photograph reproduced by kind permission of Peter Aldington.

knowledge of child-friendly shrubs and hedges.¹¹⁰ Both urban and rural conceptions of school sites were possible at the 'non-place urban realm' of Milton Keynes. The Watling Way Middle School of 1970-73 hugs its site boundary, addressing the adjacent streets and suggesting a return towards 'back of pavement' school buildings. John Stewart's Summerfield School of 1984-85 is aligned not to MK's orthogonal grid but to a retained hedgerow, in a reference to the relict landscape under the new town (pages 258-59).

The idea of landscape for play came into its own from the 1970s with the movement for adventure playgrounds and play centres, which developed independently of schools but came to influence their design.¹¹¹ In the 1970s and '80s the treatment of school grounds was also influenced by ideas of environmental and community education. In *Streetwork: The Exploding School* (1973, with Anthony Fyson) and *The Child in the City* (1978), the architect and political activist Colin Ward stressed the educational and social significance of the spaces around and outside of school grounds, encouraging children to explore the amenities of their neighbourhoods and talk to local people. 'Planning the School Site', a project run by Manchester Polytechnic with the support of the ONWARD consortium, canvassed the opinion of schoolchildren on outdoor facilities. Their 1975 report *Ask the Kids* is early example of the consultation of children in school design, a key topic today.¹¹²

Hampshire became a significant player in the landscaping of schools from the late 1970s. A multi-departmental landscape working party was established around 1977 under deputy architect John Robinson to explore alternative landscape approaches. Ken Johnson's imaginative landscaping for St Francis Special School, Fareham (1976-78), which includes a round playground fringed by a tree circle, was perhaps the first departure from a standardised routine.¹¹³ The contemporary Fort Hill Secondary School near Basingstoke introduced a new palette which combined brick paving, curved pathways, gravel dressing, stockading and brick walls.¹¹⁴ On later Hampshire schemes, architect and landscape architect Stephen Harte recalls 'a more environmentally appropriate approach was evolved including areas of grass which were less regularly mown, use of indigenous species, hedge layering, actively encouraging wildlife and use of more interesting and more responsive plant mixes'.¹¹⁵

The most significant and concerted post-war effort to improve school grounds was Learning Through Landscapes (LTL), an initiative which emerged from Hampshire. This was a research project which ran from 1986-90, taking as its starting point the educational and social potential of school grounds, which account for 54,000 acres spread over about 31,900 schools in England. In 1984 Hampshire landscape architect Merrick Denton-Thompson wrote to the Department of Education and Science, observing that the consequence of the lack of any advice, brief or performance specification for school grounds was 'the most bleak and sterile landscapes in the public realm'.¹¹⁶ The introduction of Local Financial Management had given some schools greater control of their budgets and the potential to pursue local initiatives in improving school grounds, and the move towards a National Curriculum led to schools developing and sustaining gardens. But the subject was lacking the sort of advice and leadership which had been provided so successfully in the sphere of school buildings. When the schools inspector Brian Billimore and John Brookes of Architects and Building Branch were consulted, they said that the policy could not be changed without research into the design, use and

management of school grounds. So Denton-Thompson set about raising funds to pay for a research post, pooling resources with neighbouring authorities Surrey and Berkshire and receiving matching funding from the Countryside Commission.

The resulting research by Eileen Adams proved the scale of the problem and suggested a framework to transform the external environment into an educational resource (fig. 3.20). School grounds, with imaginative local authority management, could be components of a 'nature corridor' of wildlife habitats. The project informed *The Outdoor Classroom*, a DES Building Bulletin of 1990 which explained the process of specifying the external layout of new schools. Learning Through Landscapes was established in 1990 as a charitable trust with the aim of encouraging existing schools to transform their grounds. The research programme was continued and training provided to authorities, teachers, architects, landscape architects and others.¹⁷ In 1997, LTL contributed to a second Building Bulletin, entitled *School Grounds: a Guide to Good Practice*.¹⁸

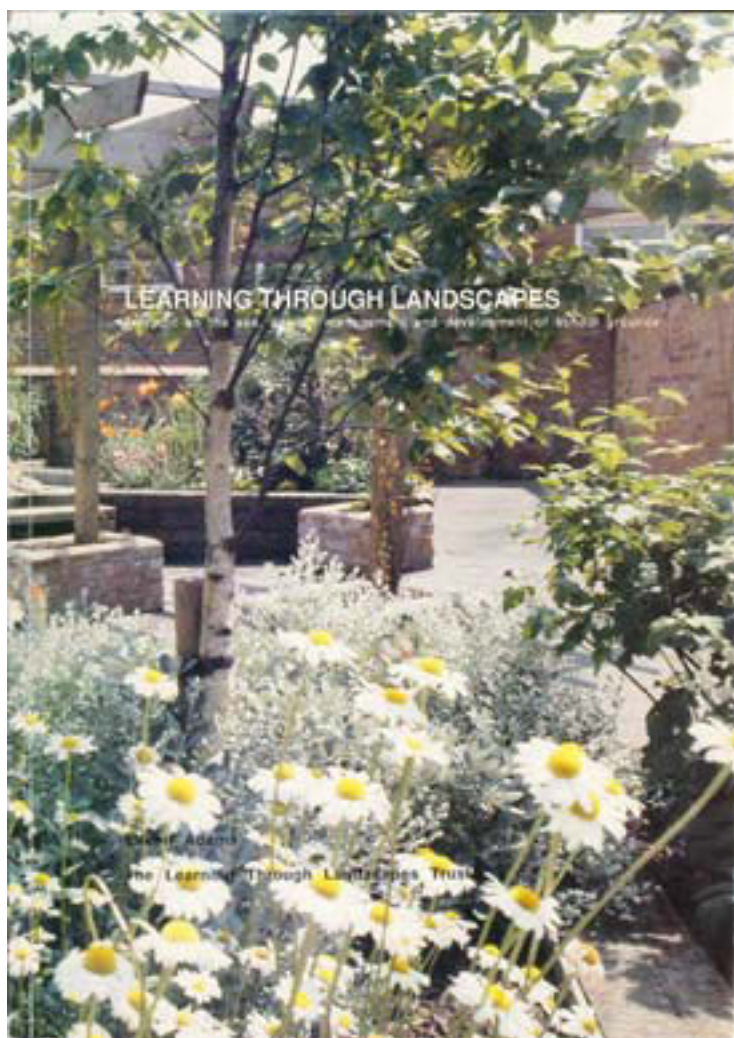


Figure 3.20: Eileen Adams' 1990 report for the Learning Through Landscapes Trust. The cover image features the Weaverham Forest County Primary School in Cheshire. Photograph reproduced by kind permission of Learning through Landscapes.



Figure 3.21: c.1964 mural by Bill Mitchell, one of two for Islington Green School in north London. It is a bold composition which alludes to the New River, the seventeenth-century canal which passed close to the site. It was listed at Grade II in 2008, when the school, designed by Scherrer and Hicks, was demolished. Mitchell was one of two artist 'consultants' in the employ of the London County Council from 1958-65. Photograph © Elain Harwood.

Art in Schools

The enrichment of school buildings with works commissioned by professional artists reveals much about state patronage of the arts in post-war Britain and the triangular relationship between artists, architects and their educational 'clients'.¹¹⁹ Yet notwithstanding the exceptional projects, patrons and collaborations discussed here, a concerted, widespread movement for art in schools never developed thanks to a lack of funds, central direction and perhaps also appreciation. For artists, the 1960s expansion of universities and colleges presented a more lucrative and prestigious source of client. With the exception of a few big public patrons, school commissions began to thin out in the late 1960s as school building came under inflationary pressure. Moreover, as Andrew Saint suggests, the one-off nature of most commissions and the solitary working process of the artist ran counter to the developmental, collaborative ethos of post-war school building.¹²⁰

This was not immediately apparent however, and the 1950s were a heady and optimistic period for school art. The educational potential of the decorative arts was indicated by pre-war pioneers such as Evelyn Dunbar's murals of 1933-36 for Brockley School in Lewisham, whilst the movement for 'visual education' was evangelised by Roger Fry, Marion Richardson and Herbert Read, author of *Education Through Art* (1943).¹²¹ The Council for the Encouragement of Music and the Arts (CEMA) was established in 1940 and was reconstituted in 1945 as the Arts Council of Great Britain. It was joined in 1940 by the Society for Education in Art (SEA) in 1940. Henry Morris, the Cambridgeshire Director of Education and John Newsom, his Hertfordshire counterpart, believed that art and architecture were, as 'silent teachers' instrumental in a rounded and liberal education.¹²² The value of art in schools, as Saint as written, was 'not so much as absolute cultural statements, more as attempts, like the colour schemes and the visible landscape, to develop children's visual experience'.¹²³

The Festival of Britain of 1951 galvanised and connected those who would go on to create and facilitate art works in public building, through its sheer scale and diversity (over 100 art works by almost as many artists were included), and the effortless manner in which murals and sculpture were integrated with an architecture which itself embraced light-hearted, decorative elements.¹²⁴ The South Bank site 'blazed with bright nursery colours', enthused the Festival's Director of Architecture Hugh Casson. One 'exhibit' at the Festival's 'Live Architecture Exhibition' in the Lansbury Estate in east London was the Susan Lawrence Primary School, which opened in April 1951; the following year it was joined by the Elizabeth Lansbury Nursery School. Both schools were designed by Yorke, Rosenberg & Mardall, and the double-height hall of the primary school included a full height pattern-making mural of screen-printed tiles by Peggy Angus, one of about ten educational commissions from F.R.S. Yorke.¹²⁵ Some of art exhibited at the Festival found its way into schools; Henry Henghes' *Orpheus* was later installed at the Camden School for Girls.¹²⁶

Sources of patronage and funding varied widely. School art could be funded through the capital grant or come out of the rates: the 1948 Local Government Act permitted



Figure 3.22: Sculpture by Hubert Dalwood in the entrance hall of the Rutherford School in west London, built in 1959-60 to the designs of Leonard Manasseh for the London County Council. Photograph by James O. Davies – English Heritage; DPI38285.

authorities to spend up to a 6d. rate on arts subsidies). Other sources of funding were the Arts Council, the Contemporary Arts Society or a generous artist or benefactor.¹²⁷ 'One-off' commissions arose opportunistically and informally from personal contacts between clients, architects, artists, firms or schools of art. The contribution of Leonard Manasseh's geometrical sculptural group to his Rutherford School of 1959-60 (now King Solomon Academy) is reflected by its separate listing at grade II. At independent schools the tradition of commemorating founders and benefactors with representational works was supplemented with an interest in abstraction, as at Fred Millett's striking mural of 1964 at Kings of Wessex School, Cheddar. Voluntary schools brought in artists who had made their reputation at places of worship, notably the mural depicting the martyrdom of Saint Thomas of Canterbury at the Manchester school of that name (page 358). The architect was Desmond Williams and the artist Robert Brumby, creator of the ceramic Madonna and Child statue at the Cathedral of Christ the King, Liverpool.

Two contrasting but not mutually-exclusive schools of thought existed on public art. A 'collection'-minded authority might purchase or commission pieces from more or less well-known artists or galleries, perhaps with investment in mind or to enhance council buildings. Portable works were preferred so items from a centralised collection could be 'loaned' to schools. Saint describes a more collaborative and site-specific project, where

the aim was, in the words of Anthony Hollaway ‘getting a bit of art into public buildings’, often within a stringent budget and an aim of nurturing local artists or colleges of art.¹²⁸ This second type of commission encouraged artists to respond to the specificities of the brief, such as the possibilities of physical integration with the school building and reference to characteristics and traditions of place and the local community. The more collective and socially-motivated strand of public art continues today in the form of community art projects in which the participation of pupils and others is sought. Kevin Atherton’s *Body of work* (1983) comprises ten bronze casts of the hands, feet and other parts of pupils and staff were integrated into the boundary walls of Langdon Park School, east London.

The relationship of art to architecture could be complex and at times controversial. Henry Moore resented ‘the humiliating subservience of the sculptor to the architect’ and his public work stands aloof from the buildings whose capital budgets often funded it.¹²⁹ But other artists chose to engage with architecture and the construction process, producing panels for cladding, screen walls and even formwork for in-situ reinforced concrete. William Mitchell worked ‘closely with architects, contractors and the man on the job, and he knows his building materials. He rightly thinks that the artist must work in this way and be in close touch with building design from the start’.¹³⁰ There was inevitably conflict between this sort of enrichment of public spaces and the anti-ornamental premise of the architectural Modern Movement: Denys Lasdun attacked ‘costume jewellery’ on buildings.¹³¹ Anthony Hollaway spoke for many collaboration-minded artists when he said ‘I feel someone really ought to unsort the tangle of what is “decorative” and what is “art”’.¹³²

Both the effectiveness and vulnerability of applied art is demonstrated by the Hammersmith School of 1954-58 by Edward Hollamby of the LCC Architect’s Department. Hollamby commemorated the local connection with William Morris by designing patterned ceramic tiles and including Morris wallpapers. The decorative scheme was completed with tapestry curtains by Gerald Holtom depicting Burne-Jones, Rossetti, Morris and Wren’s spires. The celebration is apt—Hollamby was a native of Hammersmith and was then restoring Red House, the home designed by Philip Webb for the Morris— and an early example of the post-war revival of interest in the Arts and Crafts movement. The tiles alone survive.¹³³ Holtom’s curtains also appeared at many other schools, including Hertfordshire schools, a number of the MoE development projects and the Pilgrim School, Bedford (the appliqué tapestry curtain *Pilgrim’s Progress* of 1964).¹³⁴

‘My life-long dream’, wrote the artist Mitzi Cunliffe in 1967 ‘is a world where sculpture is produced by the yard in factories and used in buildings as casually as bricks’.¹³⁵ But the dream was not prophetic, and few attempts were made to engage with techniques of industrial design and mass-production to enliven prefabricated buildings. Perhaps artists and architects alike feared a blurring of the line between art and decoration. Birkin Haward produced precast concrete tiles with repeating patterns from plaster casts for a number of Ipswich schools,¹³⁶ The German-born potter Hans Coper, resident from 1958-65 at the Digswell Arts Trust in Hertfordshire, worked with a development group of architects and manufacturers to produce a range of ceramic building components,

including cladding tiles, acoustic bricks and sanitary ware for manufacture, intended primarily for school buildings.¹³⁷ Hampshire County Council designed 'shadow blocks', modular concrete blocks with low-relief surface modelling, for the SCOLA consortium.¹³⁸ Factory-made patterned or profiled blocks and wall tiles of ceramic or concrete became easily available from the mid-1960s; GLC architect Brian Goldsmith included them in a tactile mural which enlivened a corridor at the Richard Cloudesley School for physically disabled children in central London.¹³⁹

The sustained patronage of an education authority was usually the result of one or more determined individuals with the power and ability to transform a personal interest in art into a policy. Hertfordshire was the first authority to systematically fund and commission works of art in schools, a policy that can be ascribed to John Newsom, the chief education officer from 1940-57. Before the war, Henry Morris had commissioned Walter Gropius to design Impington Village College and Gropius discussed the possibility of a bronze family group with the sculpture Henry Moore, but the commission stalled for lack of funds.¹⁴⁰ The opportunity transpired at a Hertfordshire school, the Barclay Secondary School in Stevenage, built in 1948-49 to the designs of Yorke Rosenberg and Mardall, and also boasting murals by Kenneth Rowntree and Peggy Angus.¹⁴¹ During 1949-53 Newsom was permitted to disburse a third of one percent of the capital budget on art.¹⁴² In selecting artists he was assisted by Nan Youngman, an artist and Morris's art advisor in Cambridgeshire, and later by Audrey Martin, Hertfordshire's first Arts Organiser.¹⁴³



Figure 3.23: Pupils of the North London Collegiate School in Edgware assembling the panels of Psalm of Praise, a large mural completed under the direction of Philippa Threlfall. This 1965 photograph is reproduced by kind permission of Philippa Threlfall.

Newsom's thinking was in some measure transplanted to Architects and Building Branch who commissioned a variety of artworks for their development projects in the 1950s, notably the series of murals by Oliver Cox and Fred Millett at St Crispin's Secondary Modern School in Wokingham (1951-53) and Peter Peri's *Welcome* (1961) at the science building at Greenhead High School in Huddersfield. On a more modest scale, the ceramicist Dorothy Annan supplied painted and glazed tiles for the sinks at Woodside Junior School. The applied arts and crafts were preferred by architects such as David and Mary Medd, who introduced handmade furniture and handwoven rugs and curtains into their schools.

The largest and longest-running programme of art in schools, Leicestershire's, was down to Stewart Mason, Director of Education 1947-71. Prior to 1947 he had worked in Cambridgeshire as a schools inspector, and it was through contact with Henry Morris that Mason developed ideas of art education and community colleges that he would later implement in Leicestershire (page 219).¹⁴⁴ Despite the value of the Leicestershire Collection, Mason was not precious about the art being used and enjoyed by pupils:

'Sculpture must be touched to be enjoyed. And anyway, I prefer to think of some works of art as expendable. There ought to be a certain amount of wear and tear on objects like this which cannot be understood or enjoyed to the full unless they are played with'.¹⁴⁵

The London County Council was also a significant patron of the arts. A 1948 open-air sculpture exhibition in Battersea Park, the brainchild of Patricia Strauss, art collector and chair of the LCC Parks Committee, was followed by the LCC's involvement in the Festival of Britain.¹⁴⁶ With the political support of Isaac Hayward, Labour leader of the LCC from 1947-65, an arts patronage scheme was instituted in 1956. This set aside an annual sum of £20,000, a tenth of a percent of its building programme. Its emphasis on contemporary art was clear: the General Purposes Committee reported 'although some existing works of art might be acquired from exhibition galleries and similar sources, the main emphasis would be on the commissioning of new work and the encouragement of living artists'.¹⁴⁷

ENDNOTES

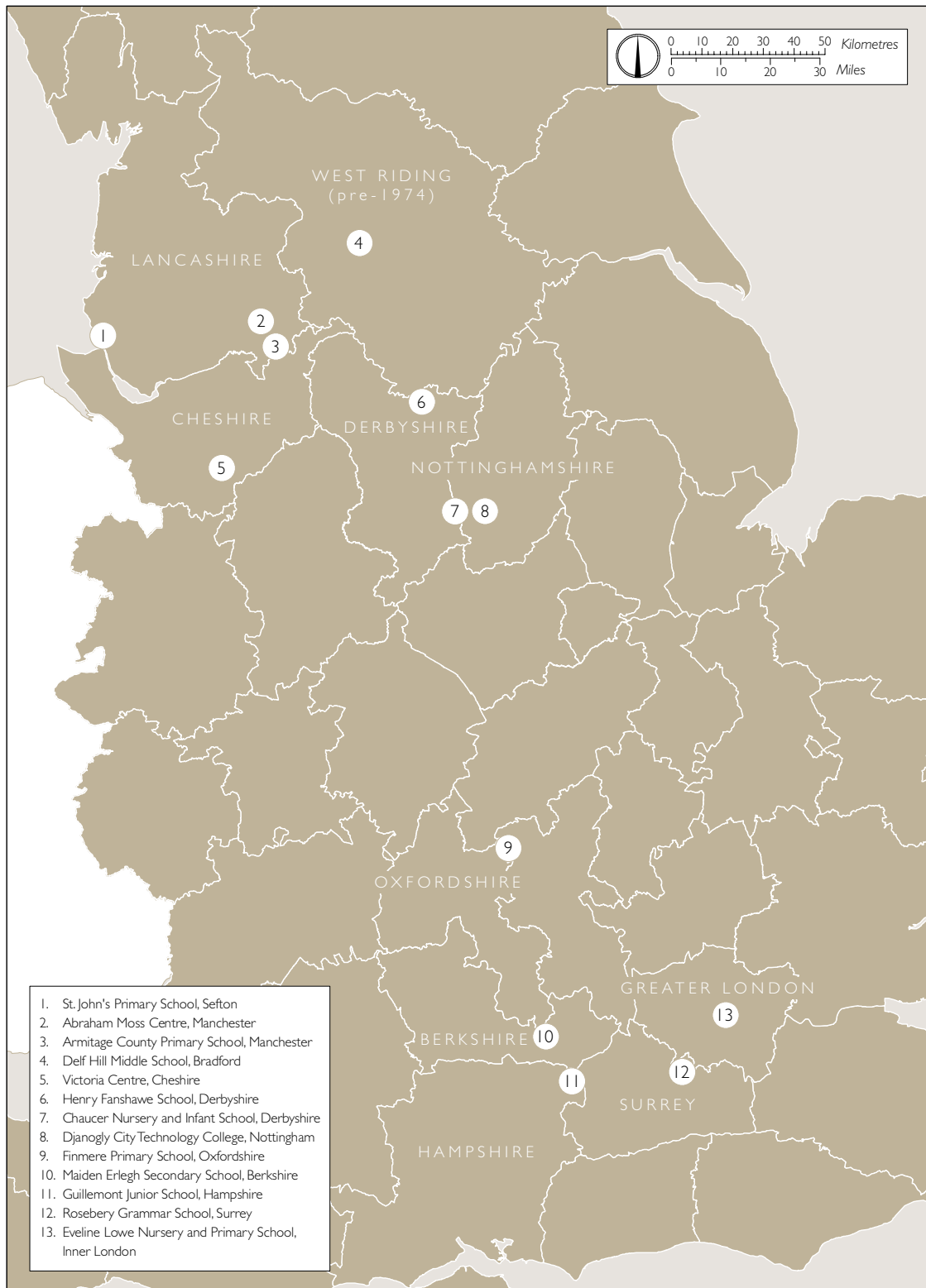
1. Seaborne and Lowe 1977, chapter seven; Saint 1987, 50-54.
2. Prefabrication is the most precise term but during the study period it developed connotations of temporary and substandard building (eg. 'prefab' housing). The more imprecise terms 'system building' or 'industrialised building' became preferred in the 1960s (Institute of Education Archives: ME/M/4/4: 'Will it Fit?', talk of 4 January 1966 by David Medd at Institute of Education Archives; unpublished 1998 paper by David Medd entitled *Outline of School Design*. Copy at Institute of Education Archives: ME/E/5/5).
3. Maclure 1984, 26-28; Cowan *et al* 2012.
4. Hampshire Record Office: H/ED2/8, chapter 2, p. 2.
5. Ministry of Works 1944, 2: 'there is no reason in principle why the same plan should not serve for two or more school of the same type and size'. It was relatively common for the same plan to be used at two or three sites.
6. Institute of Education Archives: ME/M/1/3: 'Recent Developments in School Building', a talk of 7 January 1953 by David Medd for a conference on 'Health Education in the Secondary School'.
7. Quoted in Quantrill 1989, 6. David Medd, a devotee of Aalto and probably in the audience in 1938, repeated this quote (Institute of Education Archives: ME/A/6/3).
8. Droste 2006, 112.
9. David Meylan, pers.comm., 13 June 2012.
10. Michael Hacker, pers.comm., 2 November 2010.
11. Saint 1987, chapter 3.
12. Saint 1987, 135-38.
13. Saint 1987, 226-29.
14. Saint 1987, Russell 1981.
15. Ministry of Works 1944. The committee was appointed by the President of the Board of Education in March 1943 and included four architects: Denis Clarke Hall, W.G. Newton, J.E. Richardson and C.G. Stillman.
16. As County Architect for West Sussex, C.G. Stillman pioneered 8'3" bays before the War; he continued to build 'bay' schools after 1945 at Middlesex.
17. Saint 1987, 56-57, 68.
18. Guy Oddie, pers.comm., 4 October 2010.
19. *System Building and Design*, January 1968, pp.63-67. These figures include 'hatted' classrooms.
20. Critical Path Analysis is a method of ordering the various stages of a job so that construction can flow steadily from start to finish (Hacker 1971, 34).
21. Banham 1981, 192. DES 1976 (Building Bulletin 54).
22. MoE 1961 (Building Bulletin 19).
23. Banham 1961; MoE 1961 (Building Bulletin 19); EFL 1962; EFL 1967a.
24. The War Office was also a full member of CLASP, and developed the NENK method of building from 1961 (Russell 1981, 418).
25. MoE Circular 1/64.
26. Chalk 2006, 23. Dick Thompson, pers.comm, 24 May 2012.
27. Russell 1981, 523.
28. DES 1976 (Building Bulletin 54), 6.
29. The proportion of the national school building programme allocated to the consortia peaked at 47% in the 1973/74 financial year, although this figure does not include proprietary construction (Maclure 1984, 100).
30. Cross walls were employed at Eric Lyon's SPAN housing (Parkleys, Ham Common was completed 1953) and in the maisonettes at Chamberlain Powell and Bon's Golden Lane housing, under construction 1954-56 (Russell 1981, 364-75).
31. *Architects' Journal*, vol.119, no.3087, 29 April 1954, pp.516-19. A three part series of articles subsequently examined aspects of the school's construction: *Architects' Journal*, vol. 120, no.3096, 1 July 1954, pp.23-27 [classroom blocks]; *Architects' Journal*, vol. 120, no.3102, 12 August 1954, pp.203-06 [timber roof construction]; *Architects' Journal*, vol. 122, no.3155, 18 August 1955, pp.229-37 [space-frame roof].
32. *Architects' Journal*, vol.124, no.3205, 2 August 1956, pp.163-78; Institute of Education Archives: ME/V/1: letter of 17 May 1987 from Jack Speight to Andrew Saint. For the term 'rationalised traditional' see Russell 1981, 381.
33. Ringshall 1983, 51.
34. *Architects' Journal*, vol.126, no.3257, 1 August 1957. p.191,
35. Dick Thompson, pers.comm., 24 May 2012; Institute of Education Archives:ME/T/7, David Medd's lecture notes for talk given at an Architects and Buildings Branch meeting on 13 May 1987, p.29.
36. *Official Architecture & Planning*, vol.29, no.9, September 1966, p.1343.
37. DES 1976 (Building Bulletin 54), 6; Chalk 2006, 23.
38. Ringshall *et al* 1983; Chalk 2006.
39. *Modular Quarterly*, no.1, 1967, p.6.

40. *RIBA Journal*, vol.88, no.9, September 1981, p. 24.
41. *Industrialised Building Systems and Components*, vol.3, no.10, October 1966, pp.40-45.
42. *Modular Quarterly*, no.1, 1967, p.6.
43. MPBW 1963.
44. DES 1964 (Building Bulletin 24).
45. Quoted in Finnimore 1989, 148.
46. Michael Hacker, pers.comm., 2 November 2010.
47. Oddie 1963, 182.
48. DES 1968 (Building Bulletin 42).
49. The process of designing and manufacturing it was protracted and many LEAs refused to commit themselves to the partition, especially when it was being claimed that open-planning would reduce partitioning by up to 80%.
50. Institute of Education Archives: ME/M/4/4: 'Will it Fit?', talk by David Medd at a meeting of the RIBA Standardisation Working Party on 4 January 1966, published in the *RIBA Journal*, March 1966, pp.128-31.
51. I am grateful to Andrew Saint for this point.
52. Eg, the collapse of roofs at schools in Ilford (*Architects' Journal*, vol. 161, no. 22, 28 May 1975, p. 1118-1119) and Camden (*Architects' Journal*, vol. 157, no. 25, 20 June 1973, p. 1518).
53. Sheppard 1977, 184.
54. Russell 1984,59; www.scapebuild.co.uk.
55. Institute of Education Archives: ME/E/5/5.
56. Construction Task Force 1998, 28.
57. 'Flat-pack schools': *Building Design*, 28 January 2011; French 2006.
58. Institute of Education Archives: ME/C/1/8: Notebook of David Medd, numbered 96 and dated 16 January 1970.
59. Banham 1981, 191.
60. *Architectural Review*, vol.151, no. 900, February 1972, p. 74.
61. Burke 2009.
62. Saint 1987, 75. Banister Fletcher was the author of a well-known primer, *A History of Architecture on the Comparative Method*.
63. Saint 1987, 232; Sadler 2005, 18.
64. 'The New Empiricism: Sweden's Latest Style', *Architectural Review*, vol.101, June 1947, pp. 199-204.
65. Clark Hall 2007.
66. Michael Morris pers.comm., 23 August 2011.
67. Leicester University Engineering Building of 1960-63, grade II*; Cambridge University History Faculty of 1964-68, grade II; Oxford University Queen's College Florey Building 1968-71, grade II.
68. Forsyth and Grey 1988, 92.
69. Ringshall 1983, 53-55.
70. Powell 1967, 34.
71. source: <http://www.hackney.gov.uk/bsf-stoke-newington-school.htm>, accessed 15 August 2012.
72. Jencks 1968.
73. Maguire and Murray were invited by Essex County Council to design a second 'educational barn', North Crescent Primary School, Wickford, which opened in September 1975.
74. Frampton 1992, 314-27.
75. Darley and Davey 1983.
76. Hawkins 1984, 83.
77. Saint 2003, Overy 2007.
78. Ministry of Education 1945, 14.
79. DES 1967c; Seaborne 1971, 71.
80. Guy Hawkins, pers.comm., 2 November 2010.
81. DES 1967 (Building Bulletin 33), 33: 'A revision of the regulations will enable the Department to consider on their merits and approve individually proposals to combined daylighting at less than a 2 per cent daylight factor with permanent supplementary artificial lighting'. Seaborne (1971, 71) cites a 1969 amendment to the Building Regulations to this effect.
82. 'Getting Rid of the Daylight Factor' in *Design*, no. 222, 1 June 1967, p.23; Eric Classey, pers.comm. 23 July 2010.
83. *Architects' Journal*, vol. 171, no. 12, 19 March 1980, p.578.
84. Electricity Council 1969; Hawkins 1996, 20.
85. Page 1982, 195.
86. Institute of Education Archives:ME/K/6: paper entitled 'The Importance of Windows' read at a colloquium of the Conseil International du Bâtiment working party at the Building Research Establishment on 21-22 October 1974. Medd had delivered a similar talk at a symposium organised by Robert Matthew Johnson-Marshall & Partners in 1964 (Institute of Education Archives: ME/K/5).
87. Banham 1969.
88. *RIBA Journal*, vol. 79, no. 9, September 1972, pp. 374-76.
89. Hawkes 1996, 15.
90. DES 1975 (Building Bulletin 51); DES 1977 (Building Bulletin 55); DES 1978 (Design Note 16); DES 1979R1981 (Design Note 17);
91. Guy Hawkins, pers.comm., 8 September 2010.
92. Poole 1982; Hawkes 1996 19, 118-40.
93. <http://www.playday.org.uk/pdf/Childrens-time-to-play-a-literature-review.pdf>, accessed 15 August 2012. Merrick Denton-Thompson and Jenifer White are thanked for their comments on a draft of this section.
94. Miller and Pound 2010, 65.
95. Saint 2003; Franklin 2009, 56-57, 70-76.

96. Franklin 2012b; Institute of Education Archives: ME/M/4/4: 'The Design of Primary Schools', in *Built Environment*, vol. I, May 1972. Anonymous article, written by David Medd.
97. Saint 1987, 73, 88,153.
98. Medd 2009, 35.
99. Merrick Denton-Thompson pers.comm., 4 June 2012.
100. Nev Churcher, pers.comm., 10 February 2011.
101. David Rock, pers.comm., 4 November 2009.
102. These include Horn Park Primary School, Greenacres Primary School and Kidbrook Park Primary School, all in Eltham; Glenbrook Primary School in Lambeth; Sullivan Primary School in Fulham, and Langbourne Primary School in Dulwich (Dümpelmann 2004, 224; Gibson 2011, 241).
103. Merrick Denton-Thompson pers.comm., 4 June 2012.
104. Jack Digby, pers.comm. to Elain Harwood, 10 May 2005.
105. *Journal of the Institute of Landscape Architects*, no.43, August 1958, p.6.
106. Jack Digby, pers.comm. to Elain Harwood, 10 May 2005.
107. Obituary: 'Frank Clarke, RCH', in *The Journal of the Kew Guild*, 1992, vol.II, no. 96, p.61. <http://www.kewguild.org.uk/media/pdfs/vlls96pl-6l.pdf>, accessed 15 August 2012; Ray Swann, pers.comm., 27 March 2012.
108. Jack Digby, pers.comm. to Elain Harwood, 10 May 2005; Suffolk Record Office: HG3/3/2/68/4/24, letter of 9 July 1968 from Jack Digby to Herbert Taylor.
109. John Stewart, pers.comm., 3 December 2010.
110. Ali Abidi, pers.comm., 22 November 2010. See also <http://www.fmh.org.uk/FMHAnnReport2005-6.pdf>.
111. Allen 1968; Kozlovsky 2007. See also <http://www.adventureplay.org.uk/history.htm>, accessed 15 August 2012.
112. Manchester Polytechnic, Institute of Advanced Studies 1975; Ward 1976, xiv; Clark 2010.
113. *RIBA Journal*, vol. 88, no. 8, August 1981, p. 43; Michael Morris, pers.comm., 1 September 2012.
114. *Landscape Design*, no.133, February 1981, p.11-12.
115. Stephen Harte, pers.comm., 24 September 2011.
116. Merrick Denton-Thompson pers.comm., 4 June 2012.
117. DES 1990 (Building Bulletin 71); 'Learning Through Landscapes', unpublished report of 1990 by Eileen Adams; Adams 1995.
118. DES 1997 (Building Bulletin 85); Merrick Denton-Thompson pers.comm., 4 June 2012.
119. The 'decorated school' is the subject of a current research project led by Dr Catherine Burke and Dr Jeremy Howard. <http://thedecoratedschool.blogspot.co.uk/>, accessed 15 August 2012.
120. Saint 1987, 92.
121. Powers 1987.
122. Maclure 1984, 45.
123. Saint 1992, 27.
124. Pearson 2007, 119.
125. Pearson 2007, 118.
126. It may have been given to the school in the 1960s by the American art collector Eric Estorick (Ian Henges, pers.com., 29 July 2012).
127. Cavanagh and Yarrington 2000, xvii.
128. Keith New, obituary of Tony Hollaway, *The Guardian*, 13 September 2000.
129. Rosenberg 1992, 52.
130. Perkin 1963, 17.
131. Orna 1964,58; *Concrete Quarterly*, no.112, January/March 1977,p. 40.
132. Mitchell 1977, 211.
133. Cherry and Pevsner 1999, 210.
134. Gerald Holtom is today better known as the inventor of the peace symbol for the Campaign for Nuclear Disarmament.
135. Pearson 2007, 131.
136. At Castle Hill School, diamond patterns recall the East Anglian vernacular. *Concrete Quarterly* thought Chantry Junior School possessed 'an irregularity reminiscent of some primitive African work' *Concrete Quarterly*, July/September 1958, no.38, p 27-37 (p.31). Sir Anthony Dean Secondary Modern School in Dovercourt was described by *Concrete Quarterly* as 'the most ambitious use of profiled and pierced slabs in this country.' (ibid).
137. Birks 2005, 44-49.
138. Martin 1970.
139. Pearson 2007, 127.
140. Morris also advised the New Towns Commission in the 1940s, and the development corporations of the new towns would be major patrons in the following decades, although their remit did not include schools.
141. Moore and Wilkinson 2002, 273-75. Rowntree (1915-97), a cousin of Mary Medd (Medd 2009, 4), taught mural painting at the RCA from 1948-58.
142. Maclure 1984, 45.
143. Parker 2005, 108.
144. Cavanagh and Yarrington 2000, xvii.
145. Levy 1963, 93.
146. I am grateful to Andrew Saint and Harriet Richardson for sight of draft text from the forthcoming Volume 49 of the Survey of London.
147. Mitchell 1977, 208; Garlake 1993.

PART IV: REGIONAL RESPONSES

ARCHITECTS AND BUILDING BRANCH



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Figure 4.1: Schools designed by the Architects & Building Branch: location of gazetteer entries.

Architects and Building Branch

The Architects and Building Branch of the Ministry of Education, created in August 1948, was a product of the merger of the Architects Branch with the Building and Priorities Branch. The union between administrators and architects was symbolised by a joint headship between a Chief Architect, Stirrat Johnson-Marshall, and an Assistant Secretary, Anthony Part.¹ Johnson-Marshall was drafted to the Ministry on the basis of his achievements in a mere three years as Deputy Architect at Hertfordshire. 'A&B Branch' became the decisive force in post-war school building in England, in no small measure due to Johnson-Marshall's strategy of tackling construction and educational questions through building prototypes. These development projects, as they were known, form the principal focus of this section. No less important was the Ministry's later support for the school building consortia (page 69).²

Strategies and a Structure

To school builders A&B Branch offered the carrot of advice and example; and the stick of building regulations and cost limits. The team of 'territorial' architects at A&B Branch continued to vet annual programmes and school plans, a role long exercised by central government. For the first three post-war decades control was exercised by means of regulations, orders and circulars; thereafter occurs a tendency to self regulation by LEAs; the Education Act 1980, for example, transferred to the LEAs responsibility for ensuring that school premises conformed to the prescribed standards, although the Department and its successors have continued to vet local authority spending programmes.

But the chief ambition of A&B Branch was to raise standards in school building, not merely to enforce them. To this end Johnson-Marshall negotiated the formation of a Development Group, which was to lead by example, tackling aspects of educational policy or school building through empirical investigation. With the appointment of Johnson-Marshall, soon followed by former Herts colleagues David and Mary Medd and quantity surveyor James Nisbet, the Hertfordshire experience was effectively transplanted to central government. Working outwards from the centre, A&B Branch brought to bear an analytical approach to large building programmes based on a cycle of research, design, making and feedback. It was founded on interdisciplinary teams collaborating across the professional and administrative boundaries that separate regional and central government, designers and makers, private and public sector and



Figure 4.2: Display of children's work at Delf Hill Middle School, Bradford; DES Development Group, 1967-68. Institute of Education Archives: ME/E/19/12.

architects and educationists. By 1966 A&B Branch comprised 26 architects, two furniture designers, four services engineers, eight quantity surveyors, five full-time administrators and four of Her Majesty's Inspectors of schools (HMIs).³

Johnson-Marshall accepted the post of Chief Architect on condition that he would be able to build schools, a somewhat controversial measure given the decentralised setup of school building.⁴ About thirty schools and numerous smaller projects were completed over the next half century (table 4.1). These were regarded as prototypes and were much visited.⁵ For their work to be exemplary and credible it was essential that development projects observed the same cost limits, space constraints and building methods as everyone else. Full specifications, including cost analyses, were usually published, so that they too, could be assessed. The cost analyses, however, were based on capital expenditure only and the significant amounts of time spent by the Development Group on initial research and investigation remained concealed.⁶ Development projects were usually profiled in the architectural and educational press and disseminated in a series of Building Bulletins, Design Notes and other publications of the Department for Education and Science (a list can be found in the Bibliography). Notwithstanding the significance of the built projects, it was primarily though published advice and guidance that A&B Branch expounded the wider policy objectives of the Department of Education & Science.⁷

The development projects initiated under Johnson-Marshall aimed to reform and augment school construction, in response to the urgent need for secondary schools and shortages of materials and labour. From Hertfordshire came the opportunistic tactic of modifying proprietary systems in partnership with manufacturers. No fewer than five complete systems were developed in this way between 1949 and 1957, with the development projects serving as prototypes: a steel and aluminium system developed with the Bristol Aeroplane Company; a hot-rolled steel system on a 3'4" grid with Hills; the Intergrid pre-stressed concrete system manufactured by Gilbert-Ash Limited; another using cold-rolled steel, developed with John Brockhouse and Company at The Parks Secondary Modern School, Belper and lastly Laingspan, a second concrete system produced by Laings.

From one development project evolved an entirely new approach to school building. The Brockhouse system was developed in 1955-56 under Donald Gibson of Nottinghamshire County Council, and when larger orders became necessary to get the new system into production, Gibson brought neighbouring Derbyshire and Coventry on board. The formation of the Consortium of Local Authorities Special Programme in 1957 represented the withdrawal of Architects and Building Branch from the forefront of schools prefabrication, although they encouraged the consortia and collaborated on their technical development. Subsequent development projects could afford to turn to educational considerations.

*Table 4.1: Major development projects by the Architects and Building Branch, c.1950-2000.⁸ Notes. **Bold type** indicates an entry in the gazetteer below. Demolished schools, where known, are indicated with a dagger symbol (†). The 'ref' column gives the number of the relevant Building Bulletin (BB), Design Note (D) or Laboratories Investigation Unit paper (L). Key: N: Nursery, P: primary; I: infant, J: junior, Mid: middle; S: secondary; C: comprehensive, G: grammar; S.M.: secondary modern, H: high, Tech: technical, Coll.: college, CTC: city technology college, FE: further education, Co: county, Dist. Ctr: district centre., Cx: complex, (a): additions, (r): refurbishment, (u): unbuilt. The word 'school' is omitted from names for brevity.*

Name	LEA	Built	System	Ref	A&B job architects
Limbrick Wood P	Coventry	1951-52	BAC Mkla	B1	Jack Lloyd, Michael Smith
St Crispins SM	Berks	1951-53	Hills	B8	David & Mary Medd, Michael Ventris
Worthing STH †	W. Sx.	1952-55	Intergrid	B2a	Maurice Lee, Mary Medd, John Kitchin
Woodlands C	Coventry	1953-55	Hills	B2a	Michael Smith, John Toomer, Guy Oddie, Pat Tindale
The Parks SM, Belper †	Derbys	1953-55	Brockhouse	B2a	Barbara Price, Don Barron, Pat Tindale
Lyng Hall C †	Coventry	1953-55	BAC MkII	B2a	Peter Newnham, Dargan Bullivant, Michael Greenwood
Woodside J, Amers'm	Bucks	1956-57	—	B16	David & Mary Medd, Clive Wooster
Arnold G	Notts	1957-59	Laingspan	B17	John Kitchin, John Kay, David Parkes
Finmere CE	Oxon	1958-59	—	B3	David & Mary Medd, Pat Tindale
Great Ponton CE	Lincs	1958-59	—	B3	David & Mary Medd, Pat Tindale
Harris FE Coll, Preston	Lancs	1960-63	—	B29	Guy Oddie, Tony Devonald with ACP
Greenhead H (a) †	Hudd	1960-62	Laingspan	B21	John Kay
Withywood Youth Ctr.	Bristol	1962-63	—	B22	John Kitchin, Len Holland, Frank Jackson
Science Laboratories, Oxford Co. S	Oxon	1963-65	Laing'n MkII	B39	Dick Thompson, Olgierd Stepan
Eveline Lowe N&P	ILEA	1965-66	—	B36	David & Mary Medd, John Kay, Norman Reuter, Guy Hawkins
Hailey Hall Residential	Herts	1965-66	SEAC	B27	
Rosebery VI Form Ctr.	Surrey	1966-67	SEAC	B41	Frank Jackson, Andrew Beard, Frank Drake, Brian Staples, Ian Fraser
Armitage Co. P	Mancs	1966-67	CLASP MkIV		David & Mary Medd
Delf Hill Mid. †	Bradford	1967-68	SCOLA	B35	David & Mary Medd, Guy Hawkins
Labs, Harpurhey Upper (r)	Mancs	1970-71	—	L6	Ian Fraser, Tony Branton, Frank Drake, Peter Bottle
Henry Fanshawe S (a) †	Derbys	1970-71	CLASP	D2	Len Holland, Jane Lamb, Keith Routledge
Sedgefield S (a)	Durham	1971-72	CLASP	D6	Len Holland, Jane Lamb, Michael Hacker
Abraham Moss Ctr.	Mancs	1971-74	CLASP	B49	Michael Hacker, David & Mary Medd, Ian Fraser
Maiden Erlegh S (a)	Berks	1971-73	Method	B48	Frank Jackson, Trevor Prosser, Catherine Edwards, Bryan Staples, Guy Hawkins, John Brooke, Graham Parker and Derek Poole
Chaucer N&I, Ilkeston	Derbys	1973-74	CLASP MkV	D11	Graham Parker, Dick Thompson, Liz Fraser, John Brooke, Derek Poole
The Darwin Building, Bristol Polytechnic	Avon	1973-76		L9	John Kay, Edward Williamson, Tony Branton, Frank Drake, John Grieves, Peter Bottle. Olgierd Stepan.
Guillemont J	Hants	1975-76	SCOLA	B53	Catherine Edwards, Dick Thompson, Jeremy Wilson, John Brooke, Jane Sachs
Clayton Green Dist. Ctr. Whittle (u)	Lancs	1976-77	ONWARD	D14	Michael Hacker, Trevor Prosser, John Brooke, Ian Fraser, Keith Routledge, Elizabeth Lloyd-Jones
Victoria Centre , Crewe	Cheshire	1976-81	SCOLA	B59	Michael Hacker, Graham Parker, Keith Routledge, John Marshall, Ann Hodges, Helen Sachs.
Penistone G (r).	Barnsley	c.1980	—	D26	Sam Cassels, Michael Hacker
Trubshaw Cross Mid.	Staffs	1980-82	—	D32	Andy Thompson
Weald FE Coll.,	Harrow	1985-87	—	B68	Roger Clynes, Paul Lenssen, Andy Thompson, Beech Williamson.
The Dukeries Cx (r)	Notts	c.1985	—	D42	Graham Parker, Michael Hacker
Djanogly CTC	Notts	1988-89	—	B72	Graham Parker, Andy Thompson, Beech Williamson, Lucy Watson, Diane Holt
St. John's P, Waterloo	Sefton	1989-91	—	D47	Jeremy Wilson, Bridget Sanders, Robin Bishop
Lord Byron, Gyumri	Armenia	1989-90	—	B74	Jeremy Wilson, Elizabeth Lloyd-Jones, Robin Bishop, Philip Orde
Victoria I, Tipton	Sandwell	1993-94	—	B90	Diane Holt, Robin Bishop, Jonathan Ibikunle, Alison Wadsworth
Millennium P	Gnwich	2000-02	—		Robin Bishop, Alison Wadsworth

The Development Projects

With the technical development of prefabrication largely entrusted to the consortia, A&B Branch could devote its energies to the design implications of education policy and practice. Their responses to the Newsom and Plowden reports, comprehensive reorganisation and the raising of the leaving age to 16, middle schools and sixth-form colleges, and 'community schools' are detailed elsewhere in this report. Christian Schiller, Leonard Gibbon, Eric Pearson, Peter Rattenbury and other members of the Inspectorate acted as conduits between the DES architects and education professionals in the regions.

Changing patterns of teaching and learning, along with the technical factors of lighting, ventilation and cost limits, spurred Development Group to reconsider every aspect of school design. Finmere Primary School was the first of a sequence of projects where the Medds explored what they termed a 'built-in variety' of teaching spaces. This village school in rural Oxfordshire was described by *Official Architecture and Planning* as 'a radical departure from orthodox design, and has had an enormous influence on subsequent building'.⁹ These ideas were developed at **Eveline Lowe Primary School** in South London, **Armitage County Primary School**, Manchester and **Delf Hill Middle School** in Bradford (page 39).¹⁰ For middle and secondary schools, with their greater intake and more differentiated and specialised curricula, 'centres of interest' were suggested as a means of implementing flexible, multi-disciplinary curricula whilst providing the basis for teacher cooperation, mixed age and ability learning and a system of pastoral care at larger schools (pages 46-48). Centres were implemented at the **Abraham Moss Centre**, North Manchester and **Maiden Erlegh Secondary School** in Berkshire.

All of the Development Group's work, whether or not it ended with a building, started with an investigation of the organisational, educational and technical aspects of their remit. School visits provided opportunities to observe teaching practice, patterns of circulation, the use of furniture and fittings. DES architects teamed up with key teachers, educational advisers and HMIs to discuss preliminary ideas.¹¹ Local authority architects, on the other hand, were not routinely consulted until the late 1960s, although they were often nominally credited when a project was published. The next step was a cost plan, prepared in consultation with the A&B Branch quantity surveyors and administrators. A series of givens and prescriptions, principally the number on roll, the site area, space minima and cost maxima were juggled to give an accommodation schedule and a breakdown of the total floor area. This formed the basis of block plans or more detailed interior layouts including possible configurations of furniture. A model, complete with miniature furniture, was usually prepared for discussion with the local authority (fig. 4.3).¹²

Only then was a design 'detailed up'. The larger development projects, such as secondary and community schools, were divided into components which were assigned to individual job architects. At this stage, the technical implications of the layouts would be considered, especially where a light and dry constructional system was to be employed. Guy Hawkins, a member of the Delf Hill team, recalls 'pushing David [Medd]'s plan "onto grid", setting out the columns and roof trusses, organising the wind bracing panels where they would least interfere with the plan, and checking the daylight factors'.¹³ In other projects even the earliest conceptual designs were sketched onto a gridded layout.



Figure 4.3: Model of Guillemont Junior School, Hampshire; DES Development Group, 1975-76. Some furniture manufacturers sold scale models of their educational ranges for use in architectural models. Institute of Education Archives: ABB/B/1/221/1.

Later Developments at A&B Branch

Periods of adjustment and uncertainty followed the departure of Johnson-Marshall in 1956 and the premature death of his successor Anthony Pott in February 1963.¹⁴ 1964 brought a Labour government, the reorganisation of the Ministry of Education into the Department of Education and Science, the appointment of John Hudson as chief administrator, and a new chief architect in the person of Dan Lacey, previously County Architect at Nottinghamshire. His two deputies were John Hudson and John Kay. These changes heralded a renewal of purpose for A&B Branch; its purview was widened to embrace new educational, administrative and technical challenges, although some became disillusioned with the increasingly hierarchical structure introduced by Lacey.¹⁵

The following years saw the familiar pattern of development projects and territorial work augmented by several new initiatives, some of which served the rapidly expansion of further and higher education. The Joint Development Project, led by John Kay, modified CLASP to bear the heavy floor loads required by university engineering and science faculties.¹⁶ The Laboratories Investigation Unit (LIU), set up in 1967 under Guy Oddie and continued by Tony Branton, Frank Drake and Roger Clynes, developed an adaptable system of laboratory fittings for higher education and research institutions. A range of components were made commercial available through a partnership with manufacturer Sintacel Ltd. The LIU approach was trickled down to science provision in secondary schools through work at Harpurhey High School in Manchester; the Pembroke Comprehensive School in West Wales; **Henry Fanshawe Secondary School**, Derbyshire and the **Abraham Moss Centre**.¹⁷ Other DES architects contributed to influential extra-mural initiatives such as Michael Hacker's secondment to the Nuffield Resources for Learning Project (page 48). The Branch was an active participant in the Programme for Educational Development of the Organisation for Economic Co-operation and Development and additionally visited schools in several countries such as the United States, France and the Netherlands.¹⁸ A&B Branch also continued to design school furniture for mass production. David Medd and John Marshall cooperated with the Furniture Industry Research Association on a range of school furniture was later manufactured by Pel Ltd under the *Forme* brand (fig. 4.4).¹⁹



Figure 4.4: Armitage County Primary School, Ardwick, Manchester; DEs Development Group, 1967. Special attention was paid to the colour coordination of fixtures, furniture and paint, used in combination with textiles and natural wood. The school was the first to be equipped with a new range of school furniture in wood, tubular steel and plastic designed by the Development Group for the CLASP consortium and marketed by Pel Ltd from 1969 as the 'Forme' range. This 1967 photograph by David Medd was published in *Design*, no. 227, p.42, and kindly supplied by the University of Brighton Design Archives. Crown Copyright; reproduced under the terms of the Open Government Licence.

Lacey also turned his attention to development projects, which had fallen into a lull after a burst of activity in the late 1950s. He can be credited with a renewal of A&B Branch's commitment to school building systems.²⁰ The departure of Johnson-Marshall, the most zealous advocate of industrialised building in the public sector, and the transfer of much technical development work to the consortia coincided with a series of A&B Branch projects c.1956-66 which explored rationalised traditional construction (page 71). These exasperated former Hertfordshire colleagues such as Henry Swain:

One cannot help regretting that the group of architects who have done most to establish prefabrication as the vehicle of good architecture have stepped aside from its development even for a time. There are few enough architects with this kind of experience.²¹

Development Group had, after all, been established with the principal aim of establishing and refining new constructional systems. Lacey, a staunch exponent of industrialised school building at Hertfordshire and later Nottinghamshire, ensured that new development projects were completed in the consortium system to which the host authorities had signed up. The Branch were instrumental in the establishment of further consortia in 1963-66 (pages 69-71) and formed a Technical Co-ordination Working Party in 1964, chaired by Dick Thompson.²² A Building Productivity Group, headed by

John Kitchin, worked towards the quixotic goal of the convergence of 'closed' building systems and greater interchangeability of components through dimensional coordination (pages 73-74).²³

The decisions of the incoming Labour government to support non-selective education and to raise the school leaving age spurred A&B Branch to consider the practical implications. Little architectural guidance on comprehensive schools had been issued during the Conservative administrations of 1951-64.²⁴ A slew of investigations, published as Building Bulletins and sometimes accompanied by built development projects, addressed the design implications of educational reorganisation, such as the adaptation and expansion of existing schools (**Maiden Erlegh** and **Henry Fanshaw**); middle schools (**Delf Hill**) and sixth-form centres (**Rosebery Grammar School** in Surrey) and community provision at large urban comprehensives (the **Abraham Moss Centre** and the **Victoria Centre** in Cheshire).

By this time wider shifts in the central-local governmental balance of power were apparent. The greater independence of local authorities was recognised by delegating portions of certain development projects to authority architects from c.1966. **Armitage County Primary School** was the first of several development projects in which development group were responsible for the outline design, with detailed design entrusted to the local authority architects.²⁵ Proclaimed as 'a new form of collaboration between central and local government', the reform was nevertheless disadvantageous from the A&B Branch perspective, as it undermined the reciprocal relationship between thinking and doing that underpinned all its activities.²⁶ With it came a loss of overall control over such manifest aspects of school design as furniture and fittings, lighting, colour and landscaping.²⁷

In the climate of public-sector retrenchment which obtained from the mid-1970s, A&B Branch was placed on the defensive. It underwent administrative reforms, including the loss of the joint headship in 1982, and its advisory and regulatory roles were scrutinised in a series of civil service reviews.²⁸ In response to the declining school population, the emphasis shifted from design to looking at the educational estate as a whole. Several development projects comprised the preparation of strategic planning frameworks with authorities for the rationalisation of their existing 'stock' of school buildings. Much of this work involved the organisation of local seminars or 'charrettes' where teachers, administrators and architects could work together to consider options and opportunities.²⁹ Maintenance also became a priority, and in 1986 the Secretary of State Keith Joseph commissioned a survey into the repairs backlog to the national schools estate.³⁰ Recent Building Bulletins have combined a focus on design regulations (such as access and fire safety) with guidelines on the more complex procurement procedures that exist today. Architects and Building Branch was renamed the Schools Building and Design Unit around 2001 and the post of Chief Architect was abolished in 2005.³¹

Gazetteer

Primary Schools

¶ Eveline Lowe Nursery and Primary School, Marlborough Grove, London Borough of Southwark; DES Development Group (job architects David and Mary Medd with John Kay and Norman Reuter) with LCC (ILEA after 1965), designed 1963-64, built 1965-66. Listed at Grade II in 2006.

In its inception and intention, Eveline Lowe is inseparable from the Plowden committee's review of the practice and policy of primary education in England.³² It was also A&B Branch's sole collaboration with the progressive Education Department of the London County Council (reconstituted in 1965 as the Inner London Education Authority). Much of the educational thinking behind Eveline Lowe can be attributed to Nora Goddard, LCC Inspector of Infant Education and a member of the Plowden secretariat. The junior department of the school (for ages 9-11) was housed in a reconditioned inter-war elementary school adjoining the site, so the new building accommodated the 3-9 age range. This sleight of hand allowed the project to investigate Plowden's recommendations of nursery units within primary schools and transfer at the age of 8 or 9 to a middle school. The handpicking of staff and in particular the early appointment of headteacher Betty Aggett, who spent a sabbatical year visiting schools in

Oxfordshire, Nottinghamshire and the West Riding, indicated that nothing was left to chance, although these circumstances were hardly replicable by local authorities.³³

A large, inner-city primary school, Eveline Lowe's 320 pupils came from diverse social and cultural backgrounds, with a significant proportion of immigrant children. The Medds' approach, based on their earlier village school at Finmere in Oxfordshire, combined 'variety and fluidity in teaching and learning, especially across the established nursery/infant/junior divide; [...] teacher cooperation; and [...] the detailed design and layout to facilitate this', as their former colleague Guy Hawkins explains.³⁴ Eight home bases were loosely paired to encourage different learning groups and the cooperation of teachers and teaching assistants. Courts and verandas were incorporated into a rambling footprint and intricately-detailed interiors featured spaces of different characters: from cosy rooms for story-telling and rest, bays for practical work and raised, carpeted areas for play. A 'Pullman' dining area overlooking a court could also be used by parents, assistants or welfare-workers for one-to-one sessions and for the display of pupils' work.³⁵ David Medd designed a range of fittings and furniture with much emphasis on mobile units.

Eveline Lowe Primary School was ceremonially opened in February 1967 by Anthony Crosland MP, Secretary of State for Education and Science.³⁶ The project is perhaps most notable



Figure 4.5: The 'pullman' dining area of Eveline Lowe in July 1966. Note the 'warm' interior (handwoven wicker lamps, softwood boarding) and bays which alternate window seats with spotlit display areas. Institute of Education Archives: ME/Z/5/2/86.



Figure 4.6: A 1971 view of Eveline Lowe Nursery and Primary School, Southwark; DES Development Group, 1965-66. Institute of Education Archives: ME/Z/5/2/86.

for its close affinity with the 'child-centred' educational aspirations of the Plowden committee, the school was widely published and visited.³⁷ Its elongated, irregular layout contrasts with a late 1960s move towards deeper and more compact plans, and the unassuming, brick-clad exteriors were perhaps more welcoming to children than they were appealing to architects.

But the underlying principle of 'built-in variety' was influential in Nottinghamshire, West Riding and other authorities. Eveline Lowe was listed at grade II in 2006 and 2009-10 saw refurbishment and extensions for a new upper school, designed by John Pardey Architects in association with HKR Architects, with Sir Colin Stansfield Smith as consultant.³⁸

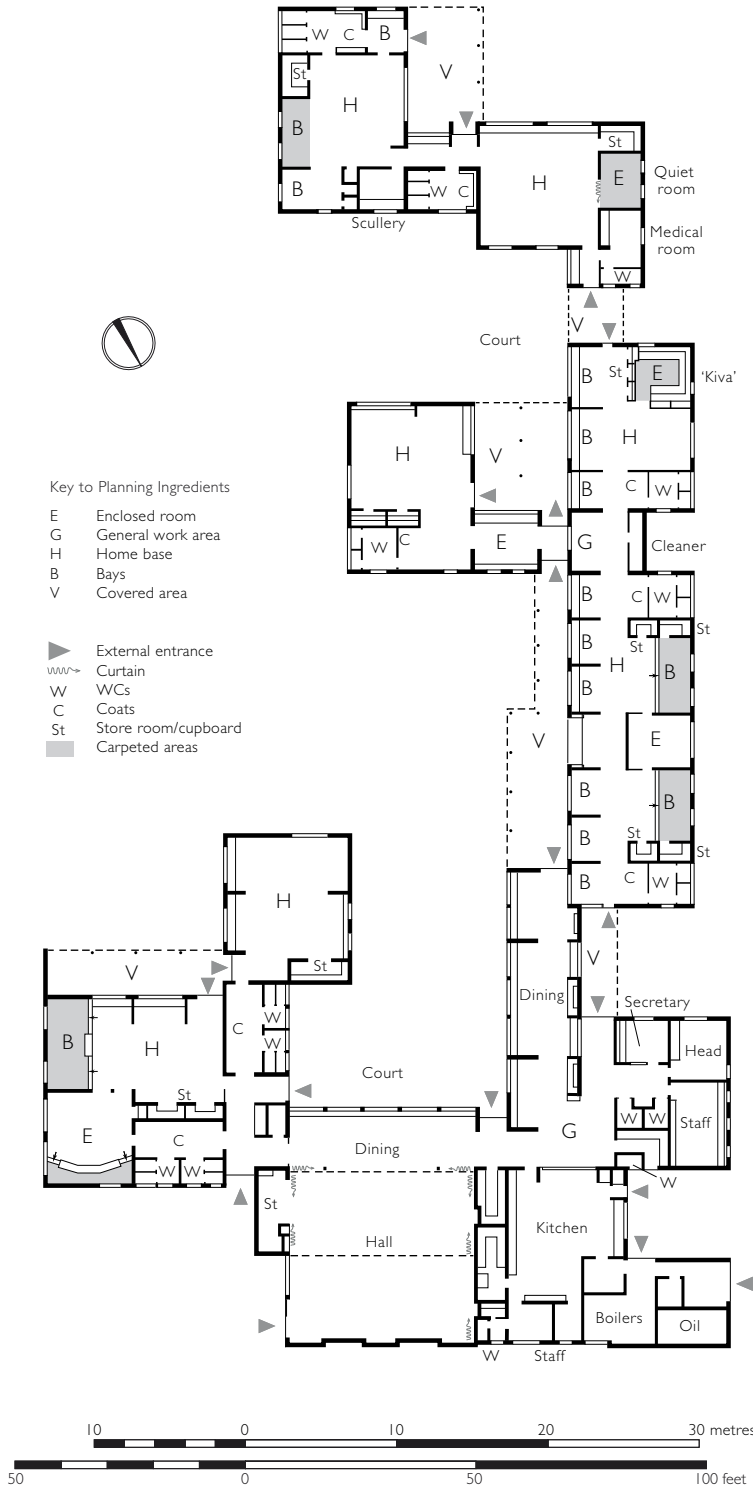


Figure 4.7: Eveline Lowe Nursery and Primary School, London Borough of Southwick; DES Development Group, 1965-66.

¶ **Armitage County Primary School** (now Armitage Church Of England Primary School), Rostron Avenue, Ardwick, Manchester; DES Development Group (main job architects David and Mary Medd) and Manchester City Council Architect's Department, built 1967.

This single-form entry school, for 310 pupils aged between 3½ and 11 years old, was an element of the Thomas Street comprehensive redevelopment in Ardwick, Manchester, which provided a mixture of new housing based on Radburn-type layouts.³⁹ The detailing of the school in CLASP Mark IV construction was overseen by Manchester City Council Architect's Department from sketch plans provided by David and Mary Medd (fig. 1.5). Four double classroom bases, each for about 80 pupils and two teachers, pinwheel off the corners of a central hall. Each base was provided with its own entrances, outdoor paved area, wc and other

facilities and a high proportion of teaching space was shared between the two classes. The layout of the junior bases anticipated more varied and flexible groupings and included a workshop, kiln and carpeted 'sitting room'. The project was also the test-bed for a new range of CLASP furniture designed by A&B Branch and manufactured for the Supplied Division of the Ministry of Public Building and Works.⁴⁰

¶ **Chaucer Nursery and Infant School**, Cantelupe Road, Ilkeston, Derbyshire; DES Development Group (job architects Graham Parker, Dick Thompson, Liz Fraser, John Brooke, Derek Poole) with Derbyshire County Council, designed 1971-72, built 1973-74.

Chaucer came only five years after the completion of **Eveline Lowe** and demonstrates how rapidly primary school design had developed in the intervening period. The initial project investigation had highlighted the

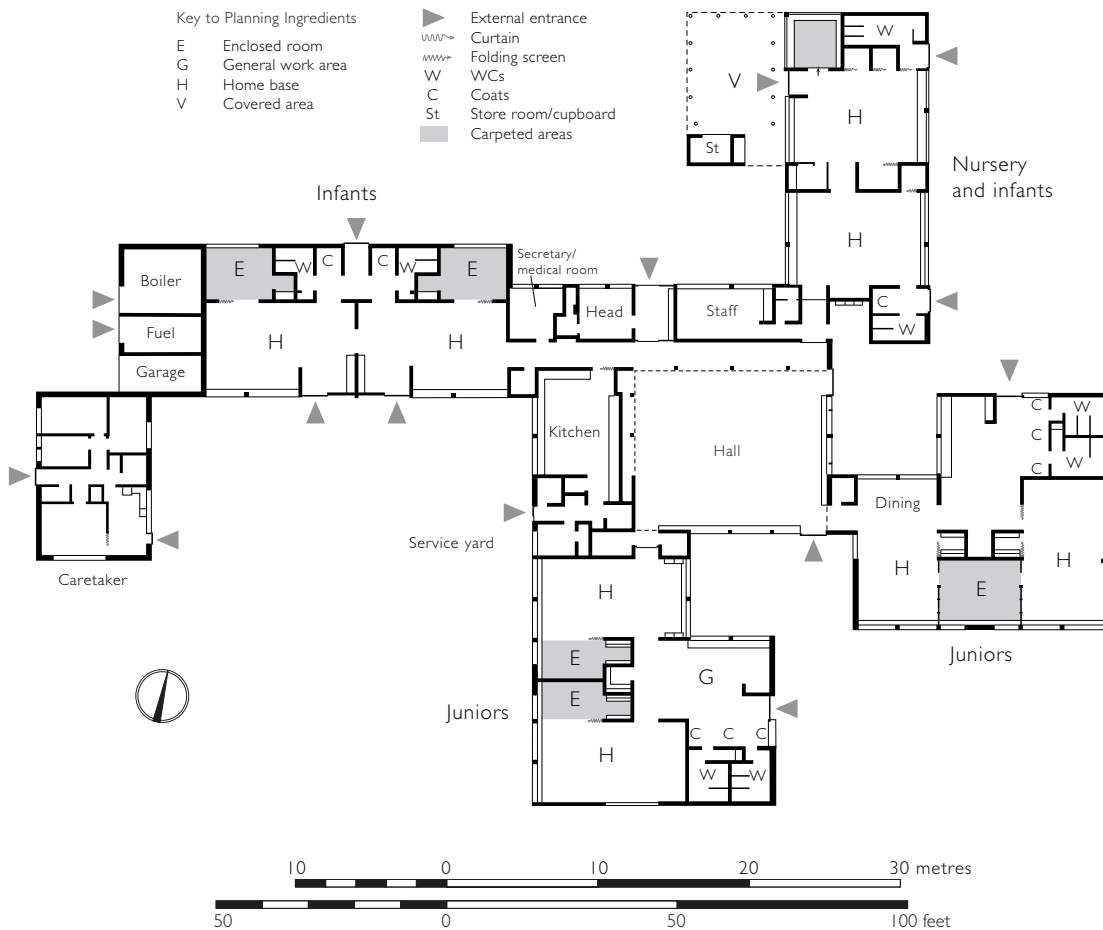


Figure 4.8: Armitage County Primary School, Manchester; DES Development Group, 1967.

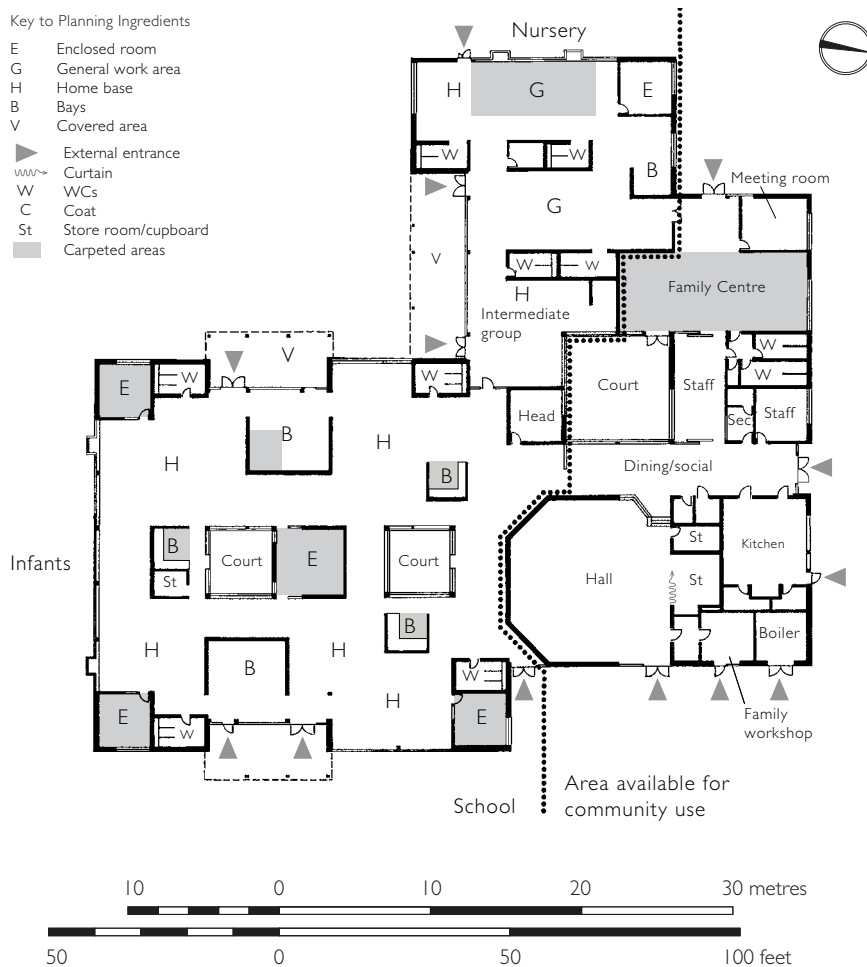


Figure 4.9: Chaucer Nursery and Infant School, Derbyshire; DEs Development Group, 1973-74.

transition between nursery and infant stages, increased staff-pupil ratios, the growing presence of parents and welfare helpers, community use and new techniques of environmental servicing. The Medds were involved in the briefing stage and the influence of their child-centred methodology is apparent, but they withdrew from the project after disagreements over planning approaches, effectively marking the end of their direct influence on primary school planning in England.⁴¹ In their absence the project was completed by a young design team led by Graham Parker, which started by visiting the type of open-plan primary schools rejected by the Medds.⁴²

The nursery and infant centres were connected by a transitional group with a hall at the exterior angle, forming an L plan. The design is more reliant on artificial lighting and mechanical

ventilation than **Eveline Lowe**, although rooflights bring natural light into the deep plan and bay windows frame views out. The heating and ventilation systems were ceiling mounted to free the floor and walls from obstruction. Inflationary pressure and the CLASP planning grid discouraged the rambling perimeter that characterised the earlier development projects. In recognition of the mix of teaching styles at any one school, the layout was 'deliberately not structured for any one form of organisation'.⁴³ External courts, group bays, play activity studios and outdoor workshops were distributed across a relatively open interior.⁴⁴ Apart from enclosed group rooms at the corners, the perimeter was kept relatively clear of partitions, a departure from the Medd's use of perimeter bays for practical work. The site was in the middle of a public park near to the town centre, giving the potential for community use. Supplementary

funding from Ilkeston District Council allowed a family centre for mothers and young children, supervised by a community teacher who divided her time equally between community activities and teaching. This was linked to the staff social area, hall and dining areas to open up the maximum extent of the school for a variety of community uses.⁴⁵ The building survives with new windows and internal replanning.

¶ **Guillemont Junior School, Sandy Lane, Farnborough, Hampshire;** DES Development Group (job architects Catherine Edwards, Dick Thompson, Jeremy Wilson, John Brooke and Jane Sachs) with Hampshire County Council,

designed c.1973-74, built 1975-76, refurbished 2003.

At Guillemont, the challenge of designing a junior school was revisited by a younger generation of designers. A high turnover of bright pupils was expected in the 480-place school, which accommodated the children of the servicemen posted at Guillemont barracks. Hampshire County Council was then contemplating an educational reorganisation to include middle schools, so Guillemont was designed for easy conversion to a middle school of 420 or 560 places, including a phased extension.

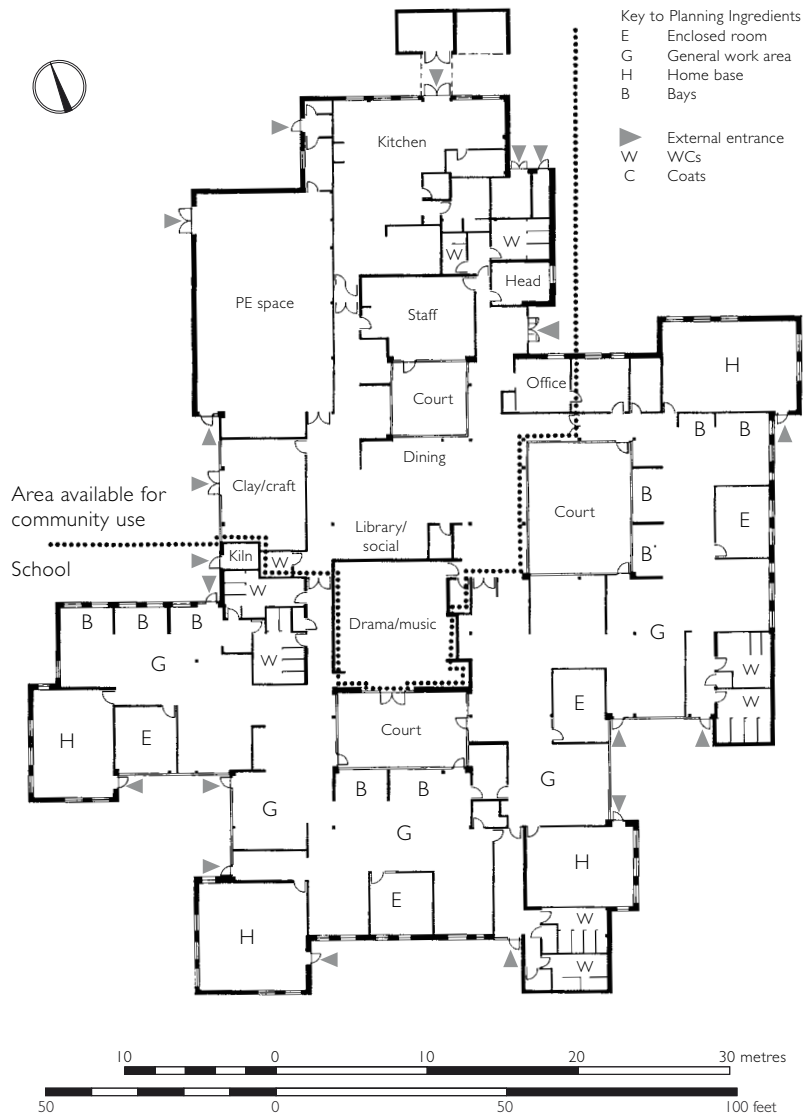


Figure 4.10: Guillemont Junior School, Hampshire; DES Development Group, 1975-76.



Figure 4.11: 'Pullman' dining area at Guillemont Junior School. Institute of Education Archives: ABB/B/1/221/1

The aggregative plan resulted from a desire for maximum flexibility of organisation and represents an early use—for A&B Branch and within Hampshire—of deeper plans. The indented outline and the three small courts allowed natural lighting, supplemented with a greater use of top lighting and artificial lighting than had previous A&B projects. The school was composed of four teaching clusters in which three or four teachers shared a variety of spaces, including carpeted home bases, investigation areas, and enclosed rooms for drama/music, clay/craft, reading and PE. The latter was designed for out-of-hours use by adult groups, although the school received no additional funding. The influence of the Medds shows in the bays, verandas and 'Pullman' dining seats looking out into the courts. Guillemont was built in SCOLA Mark III construction, yet its brick cladding and 'hole in wall' windows of vertical proportion mark a return to a traditional appearance that anticipates later developments at Hampshire.⁴⁶

¶ St. John's Primary School, Denmark Street, Waterloo, Sefton; DES Development Group (job architects Jeremy Wilson, Bridget Sanders, Robin Bishop) with Ellis Williams Partnership (job architects Desmond Williams, Jim Buxton and Chris Martin), designed 1988-89, built 1989-91.

Although it lies just outside the chronological range of this study, St John's demonstrates the consideration of the National Curriculum, Information Technology, energy conservation, vandalism and crime in the planning of a single-form entry primary school. The

school governors of this Church of England school asked A&B Branch to collaborate with their appointed architects the Ellis Williams Partnership (EWP) on the briefing and initial stages of the design; the detailed design and the elaboration of construction and services were completed by EWP.

A brief and accommodation schedule were drawn up after discussion with the head teacher, staff, governors and EWP. The cramped and noisy urban site dictated a fairly compact and 'defensible' plan, and the client chose from a series of sketch plans prepared by the A&B team. The selected design was a series of seven classrooms radiating from a shared resource area which doubled as circulation. Such layouts had long been in circulation in Buckinghamshire and Hampshire (qv), although normally with paired classrooms.. At Sefton the more costly arrangement of single classrooms with intervening quiet bays, wcs and cloakrooms was adopted. Extra space was provided for computer desks and the storage of IT equipment and each classroom has access to a covered area. A central atrium had to be substituted by an open courtyard on cost grounds. A glazed conservatory of cheap greenhouse construction was added between the courtyard and the hall with craft design and technology (CDT) in mind.⁴⁷

Secondary Schools

¶ Sixth Form Centre at Rosebery Grammar School, White Horse Drive, Epsom, Surrey; DES Development Group (job architects Frank Jackson, Andrew Beard, Frank Drake, Brian Staples, Ian Fraser) with Surrey County Council, designed 1964-65, built 1966-67.

This sixth form extension to an existing neo-Georgian grammar school was designed using the SEAC system of which Surrey was a member. About half of the 300 girls were drawn from the school's own three-form entry, the remainder drawn from a wide and relatively affluent catchment of secondary schools. The planning of the two-storey block aspired to the diversity and informality of further education models, combining a lecture theatre and large group room for formal teaching, seminars and tutorial rooms with a study area with carrels designed by Frank Drake. On the ground floor were an

interlinked series of social spaces, including a carpeted lounge, common room and snack bar, with adjoining powder room.⁴⁸

¶ **Henry Fanshawe Secondary School**, Green Lane, Dronfield, Derbyshire; DES Development Group (job architects Len Holland, Jane Lamb, Keith Routledge) with Derbyshire County Council (job architects John L. Carter and John A. Humpston), 1968-71, demolished.

The reality of comprehensivisation was not new build but additions to hundreds of existing secondaries.⁴⁹ At Henry Fanshawe, a grammar school of 350 pupils had to be enlarged into a senior comprehensive school for 990 pupils aged 14-18. A series of extensions to the school's nineteenth-century buildings was sketched out by Len Holland of A&B Branch and detailed up in CLASP Mark IV by the Architect's Department of Derbyshire County Council. Pastoral care was organised on a year basis. The old school was reordered for humanities and maths, to which a new single single-storey crafts and science block was added, with a two-storey social block as a linking device. Beyond was a separate sports hall. The crafts and science block consisted of a partially-full height dining room with a common room-cum-study block arranged around a light 'well'—a noisy arrangement. The science, and arts & crafts accommodation was given a deep and semi-open plan to loosen inter-departmental barriers, with bays for engineering, woodwork, craft and painting.⁵⁰ The CLASP additions were destroyed by two fires in 1986 and 1993.⁵¹

¶ **Maiden Erlegh Secondary School**, Silverdale Road, Earley, Berkshire; DES Development Group (job architects Frank Jackson, Trevor Prosser, Catherine Edwards, Bryan Staples, Guy Hawkins, John Brooke, Graham Parker and Derek Poole) with Berkshire County Council, designed 1969-70, built 1971-73.

Maiden Erlegh was the second of a pair of development projects to tackle the twin problems of comprehensive reorganisation of an existing stock of school buildings and the raising of the school leaving age. The principal challenge at Maiden Erlegh was how to organise the expansion of a school: the roll was to be tripled from a 450-place mixed secondary modern school of 1961 to 1,200 places with a

sixth form of 240. The DES educational advisor Eric Pearson suggested a lower school for years 11-13 and six relatively self-contained 'interest centres' for related subject areas. The horizontal organisation of the school allowed team teaching and flexible timetabling.⁵² The team conceived the lower school as a transition from primary to secondary school teaching methods and organisational patterns.⁵³ It was a largely self-contained 'school within a school', offering 11 and 12 year olds a protective and identifiable base for up to half of their time.⁵⁴ Guy Hawkins' design for the lower school is detached and relatively open, with enclosed group rooms at the corners and entrances flanking a central studio and social area.

Each centre was provided with the variety of linked spaces, planned with flexibility in mind. They comprised an open-plan core of shared facilities, seminar or lecture rooms, a 'team workroom' for staff lesson planning; a small library, and study and social areas.⁵⁵ Shared areas are generally deep and open-planned, carpeted, divided by moveable storage units, largely artificially lit and serviced by drop-down electrical sockets. A few closed rooms for class teaching and tutorials were grouped around the perimeter. The planning of the interiors was influenced by the German *Bürolandschaft* technique of office layout, which the architects had seen applied by the Ministry of Public Building and Works for an experimental Home Office building at Kew.⁵⁶ A '15+ club' combined a youth club with private study in common rooms and adjoining seminar rooms. Community



Figure 4.12: The north courtyard of Maiden Erlegh Secondary School, Berkshire; DES Development Group, 1971-73. Institute of Education Archives: ABB/B/1/72/1.

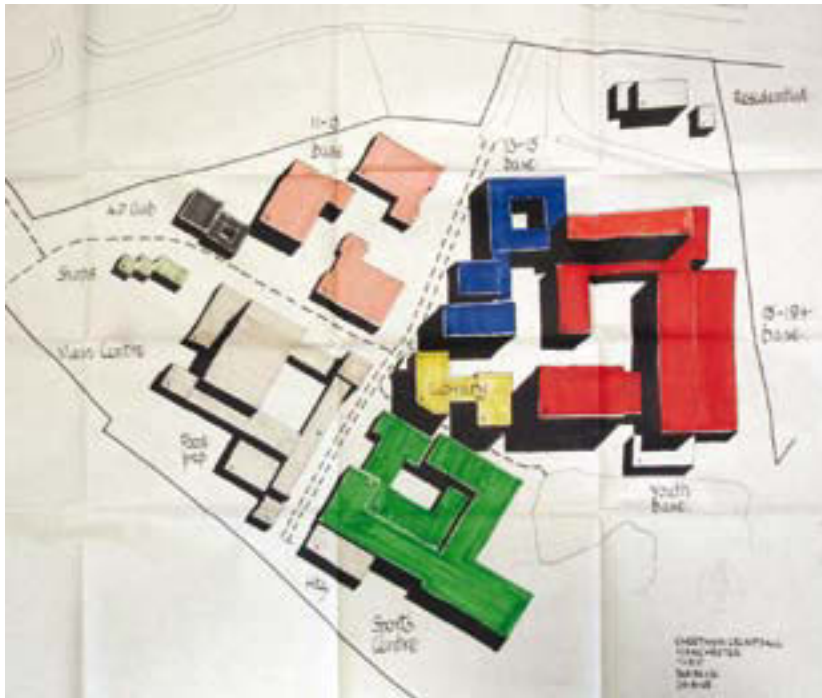


Figure 4.13: An early layout for the Abraham Moss Centre. This presentation drawing by David Medd is dated August 1968. Institute of Education Archives: ME/E/10/5.

provision took the form of a youth wing, adult education facilities and a small branch library. The additional buildings, realised in the Method consortium to which Berkshire belonged, were loosely grouped around the existing complex with much external circulation.

¶ **Abraham Moss Centre**, Crescent Road, Cheetham Crumpsall, North Manchester; DES Development Group (main job architects Michael Hacker, David and Mary Medd, Ian Fraser) with Manchester City Council, designed 1968-70, built 1971-74, since altered.

The Abraham Moss Centre arose out of a larger urban renewal strategy for a run-down area on the northern outskirts of Manchester. When the project investigation began in late 1967, Abraham Moss was conceived as a reorganisation of an existing secondary school as a 1,200-place comprehensive school with social and recreational facilities for the wider community. The following year, the City Council, with the encouragement of Chief Education Officer Kenneth Laybourne, approved a more ambitious scheme with a college of further education and a greater scope of community provision including a district sports centre, crèche, youth club, theatre, library, shops and old persons' day care centre, together with public open space and

playing fields (fig. 2.12). The curriculum was to be aligned with the organisation of the complex by means of multi-disciplinary 'centres' of different sizes and compositions, as at the contemporary Maiden Erlegh, an idea originally developed in response to the Newsom report (pages 46-48).⁵⁷ The 24,000m² complex was a low and compact network of CLASP blocks of up to three storeys, lit by small courtyards, entered by dispersed entrances linked by high level footbridges and 'internal streets'.⁵⁸ Phased construction meant that the school was a 'building site' in the early years.⁵⁹

The Medds' design for the lower school and arts centre reflects their concern to provide a sheltered and identifiable environment for younger pupils amid a large and diverse school community. Like their earlier design for Delf Hill, it was subdivided into four centres, each for 120 pupils and five teachers. The lower school was intended to be virtually self-sufficient in terms of resources, and the centres catered for about 90% of the curriculum, obviating the need for specialist accommodation and providing a transition to the upper school. It was provided with its own 'Pullman' dining area which doubled as a study area. The Abraham Moss school was severely damaged by fire in 1997 and the science and maths block has since been replaced.

¶ **Victoria Centre, West St, Crewe, Cheshire;** DES Development Group (job architects Michael Hacker, Graham Parker, Keith Routledge, John Marshall, Ann Hodges, Helen Sachs) with Cheshire County Council, designed 1975-76, lower school built in 1976-77, upper school and community provision (1978-79), PE, science and language centre (1980-81).

The Victoria Centre grew out of an abortive project for Clayton Green District Centre in Central Lancashire New Town. Both schemes incorporated community provision and were part of a larger urban plan. The Victoria Centre was seeded into a redevelopment area to

explore the joint contribution of inner-city schools and community provision to urban renewal, objectives set out in the Plowden report. The lessons of planning **Abraham Moss** as a single complex was that different sets of users were better accommodated in separate buildings. The Clayton Green and Crewe projects were therefore planned as a village of separate buildings, which could grow and adapt with the town of which they were part. At Crewe, an open-ended, 'gradualist' approach was adopted in the face of uncertain financial commitment and population forecasts. A variety of building types and life spans were combined, including phased new build, the conversion of a

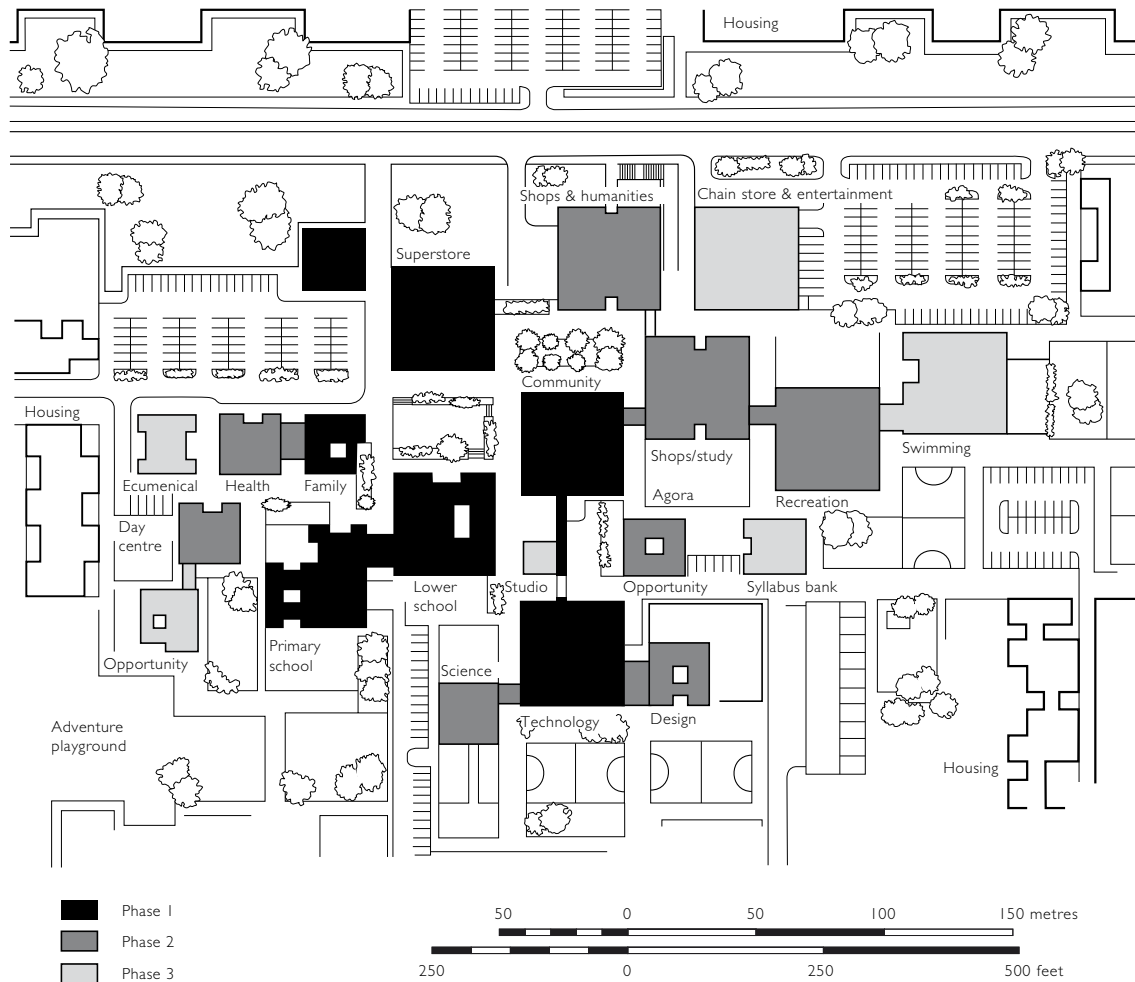


Figure 4.14: A DES design study for educational and community provision at a district centre, based on a 'classical planning solution of streets and building plots'. The study informed a development project, subsequently abandoned, for Central Lancaster New Town. Redrawn with permission from Architects' Journal, vol.163, no.2, 26 May 1976, p.1051.

1931 elementary school into a lower school and temporary accommodation including a giant inflatable PE dome. The three new centres were woven into the existing pattern of terraced streets between a shopping centre and the remodelled school. The detailed design was completed by the Architect's Department of Cheshire County Council in a modified version of SCOLA with brick cladding and monopitched roofs that was intended to be 'unobtrusive but inviting to passers by'.⁶⁰

¶ **Djanogly City Technology College**, Sherwood Rise, Nottingham; DES Development Group (job architects Andy Thompson, Graham Parker and Beech Williamson), designed 1987-88, built 1988-89.

In 1986, the government announced a plan to establish a network of city technology colleges (CTCs) as part of their 'Action for Cities' initiative. These were effectively a species of urban comprehensive but differed in their vocational bias, partnerships with local enterprises, a curricular emphasis on science and technology and extensive use of IT. The first CTC, Kingshurst in Solihull was designed by the Ellis Williams Partnership and opened in September 1988. Sixteen more followed over the next four years; the need to build quickly led to the use of 'fast-track' construction techniques and design-and-build contracts usual in commercial development. The colleges were an early instance of public/private partnership in educational building, deriving a proportion of their capital funding from the private sector, usually local businesses or industries, who in return were given representation on the governing body. The balance and the maintenance costs were met by central government and the school was operationally independent from the local education authority. In many respects then, the CTCs anticipated aspects of the present educational landscape.

Djanogly CTC accommodates 1,000 pupils between the ages of 11 and 18. It was the first newly-built CTC and acted as a pilot project for the whole programme, providing the basis of a Building Bulletin.⁶¹ The college occupies a small 4.5 acre site surrounded by Victorian housing. Three similar deep-plan blocks plus a linear block containing a sports hall, music/drama



Figure 4.15: Model of Djanogly City Technology College in Nottingham; DES Development Group, 1988-89. Institute of Education Archives: ABB/A/35/16.

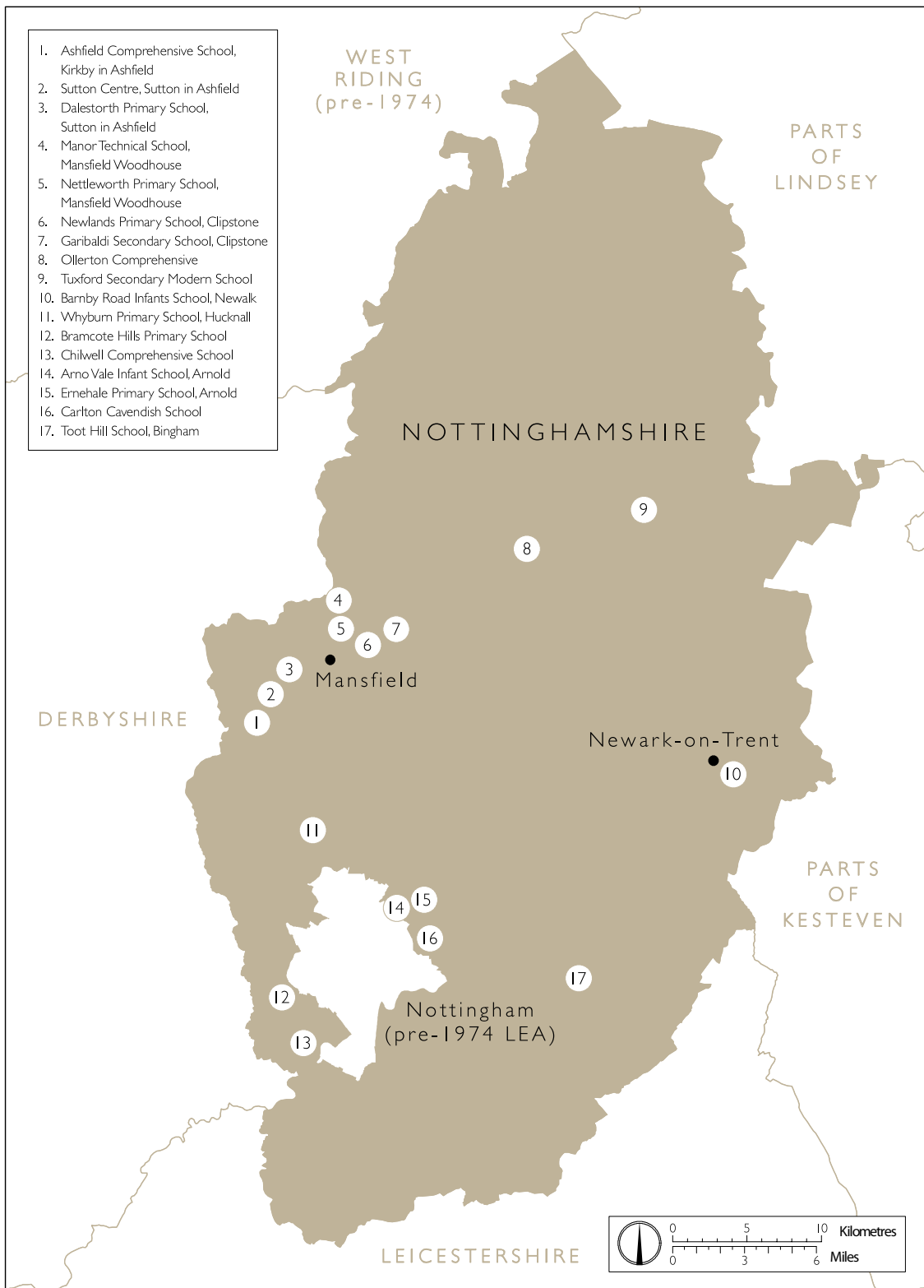
studio and administration are grouped around a quiet courtyard. These house four faculties, each with its own director: 'enterprise and business links', 'expressive arts', 'heritage and communications' and 'science, mathematics and technology'. Each block contains rows of cellular classrooms ranged around a central, full height and top-lit atrium. Djanogly was designed, built and fitted out within two years. Perhaps because of this, or because of the leanings of the CTC programme towards the private sector, Djanogly less resembles a school than spec offices or a business park, and was planned to be adaptable. The three teaching blocks are steel framed with brick cladding and low-pitched metal roofs.⁶² The building is now the 14-19 Centre of the Djanogly City Academy, which has two other sites nearby.

ENDNOTES

1. Maclure 1984, 66.
2. Maclure 1984, 104-05; MoE 1957.
3. Mills 1968, 1280.
4. Maclure 1984, 62-63.
5. Pile 1979, 79.
6. Guy Hawkins pers.comm., 28 September 2011.
7. Michael Hacker, pers.comm., 13 March 2011.
8. Sources: Maclure 1984, Saint 1987, DES Building Bulletins and Design Notes; Guy Hawkins, pers. comm. 8 September 2010.
9. Mills 1968, 1283.
10. Franklin 2012b.
11. Liz Fraser pers comm., 18 October 2010.
12. Twelve models have been accessioned to the British Architectural Library, and held at the RIBA Study Room at the Victoria and Albert Museum: reference MOD/EDUC/I-II [outstore].
13. Guy Hawkins pers.comm., 16 September 2010.
14. Saint 1987, 187-90. At a Development Group meeting in September 1963 David Medd noted '1. Lack of Chief Arch. 2. Disintegration [sic] 3. Interest but not lead' (Institute of Education Archives: ME/C/1/6, Notebook 72, p.61).
15. British Library: C467/30, 1998 interview with David Medd; Dick Thompson, pers.comm., 18 June 2012.
16. DES 1970 (Building Bulletin 45).
17. Tony Branton, pers.comm., 17 February 2011.
18. Michael Hacker pers.comm., 2 November 2010.
19. Saint 1987, 192-94; Medd 2009, 38-40. Medd chaired the British Standards Institute committee on School Furniture Standards.
20. Dick Thompson, pers.comm, 24 May 2012.
21. *Architects' Journal*, vol.128, no.3321, 23 October 1958, p.610.
22. Dick Thompson, pers.comm, 24 May 2012.
23. Michael Hacker pers.comm., 2 November 2010; Dick Thompson, pers.comm., 18 June 2012.
24. The two Coventry comprehensives designed by A&B Branch in the early 1950s were not written up as Building Bulletins, no doubt to avoid political controversy.
25. Such a way of working had a precedent of sorts in the Hertfordshire projects where sketch plans were entrusted to selected private architects (Saint 1987,77). The practice continued at A&B as late as 1988-89 at Sefton Primary School.
26. *Architects' Journal*, vol.146, no.6, 9 August 1967, p.345.
27. Michael Hacker, pers.comm., 13 March 2011.
28. Maclure 1984, 265; *Architect's Journal*, vol.183, no.6, 5 February 1986, p.20; Thompson nd; Institute of Education Archives: ME/T/5: 'Efficiency Scrutiny of the Department's Architects and Building Group', unpublished report of 1985 by Sir George Mosely.
29. Michael Hacker, pers.comm., 13 March 2011.
30. DES 1987; Dick Thompson, pers.comm., 18 June 2012.
31. Andy Thompson, pers.comm., 22 February 2011. For an account of A&B Branch in the 1990s, see Thompson nd.
32. Franklin 2012b.
33. DES 1967 (Building Bulletin 36), 18; David Medd, pers. comm. 3 July 2008.
34. Guy Hawkins pers.comm., 10 March 2011.
35. Guy Hawkins pers.comm., 16 September 2010.
36. The ILEA resolved to name the school after Eveline Lowe, member of the LCC for West Bermondsey and chairman of the Education Committee 1934-37, in July 1965 (Minutes of the ILEA Schools Subcommittee, 7 July 1965, p.127).
37. Bennett et al 1980.
38. <http://www.johnpardeyarchitects.com/assets/Uploads/Eveline-Lowe.pdf>, accessed 15 August 2012.
39. Alexander 2009, 77.
40. *Architects' Journal*, vol.144, no.18, 26 October 1966, pp.1035-40; *Architects' Journal*, vol.146, no.6, 9 August 1967, pp.345-350.
41. Guy Hawkins pers.comm., 8 September 2010; Liz and Ian Fraser pers comm., 18 October 2010. Mary Medd gave an account in a 1998 British Library interview (transcript at Institute of Education Archives: ME/B/3).
42. DES 1972 (Education Survey 16).
43. Maclure 1984, 186.
44. DES 1973 (Design note 11); Franklin 2012b.
45. *Architects' Journal*, vol.163, no.2, 26 May 1976, pp.1047-48. An A&B Branch report of 1984 describes an appraisal of the school made in 1978-81 (Institute of Education Archives: ME/E/12/2).
46. DES 1976a; *Architects' Journal*, vol. 163, no. 21, 26 May 1976, p.1049; *Building Design* no. 327, 10 December 1976, pp.16-17.
47. DES 1989.
48. DES 1967 (Building Bulletin 41).
49. DES 1968 (Building Bulletin 40) considered five LEA case studies.
50. *Architectural Review* vol. 110, no.893, July 1971, pp.35-42; DES 1969 (Design Note 2).
51. Source: <http://www.dronfield.derbyshire.sch.uk/index.php/home/school-history>
52. Guy Hawkins pers.comm., 10 March 2011.
53. Michael Hacker, pers.comm., 13 March 2011.

54. *Architects' Journal* vol. 163, no. 21, 26 May 1976, pp.1045-47.
55. *Architects' Journal*, 11 November 1970, pp. 1147-53.
56. Guy Hawkins pers.comm., 10 March 2011. The office was never occupied but was published *inter alia* in the *Architects' Journal*, vol.149, no.10, 5 March 1969, pp.606-09.
57. Institute of Education Archives: ME/E/10/3: memorandum of 6 March 1968 by Eric Pearson.
58. Banham 1976.
59. Michael Hacker, pers.comm., 2 November 2010,
60. *Architects' Journal*, vol. 166, no. 41, 12 October 1977, p.706.
61. DES 1991 (Building Bulletin 72).
62. DES 1991 (Building Bulletin 72), 14-21.

NOTTINGHAMSHIRE



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Figure 4.16: Nottinghamshire: location of gazetteer entries.

Nottinghamshire

The building of schools and other public buildings in Nottinghamshire after 1955 is umbilically tied up with CLASP – the Consortium of Local Authorities Special Programme which it launched in 1957 having developed a lightweight prefabricated system that was economical and withstood mining subsidence.

This section concerns the county rather than the city of Nottingham. Nottingham was a separate authority until 1974 outside the consortium; a number of new primary schools were built in the city using CLASP but since its return to unitary authority status in 1998 it has had an aggressive rebuilding programme. The county has rebuilt most of its schools in the north of the county (Bassetlaw DC) but its Building Schools for the Future programme has now stopped. In 2008 it reported that 67% of its building stock was system-built, mostly in CLASP, a percentage three times higher than any other authority. Its total of 730 CLASP projects (November 2008 figure) includes a great many buildings other than schools, including libraries, fire, police and ambulance stations, health centres and offices.¹ Later buildings from the 1980s onwards survive better than those from the 1950s and 1960s.

The Background: the Brockhouse System

Good quality, quickly constructed yet economical building systems were encouraged by the young architects based at the Ministry of Education who advised those working in local authorities. The Ministry's challenge was to take the success of the Hertfordshire programme and develop a cost-effective system suitable for the multi-storey buildings and greater facilities needed by secondary schools. One testing ground was Coventry, where Johnson-Marshall's friend and former colleague Donald Gibson was chief architect and whose problems of a rapidly rising population and labour shortages were among the most acute in the country. Three schools were built by the Ministry of Education in conjunction with Coventry City Architect's Department, who also built schools with Brockhouse Steel Structures.

Brockhouse was a West Midlands engineering firm who had expanded into military vehicles in the war after taking over the Southport motor manufacturers Vulcan. Under F. W. Lister Heathcote, a mechanical engineer, it developed its own building system based on a cold-rolled pin-jointed steel frame, which was used for three primary schools and a secondary school in Coventry, the first planned as early as 1948, with hollow clay blocks as cladding and Crittall windows.² Cold rolling saved steel and could more easily secure a licence.³ The system was refined from an 8'3" bay approach on to a 3'4" grid when the Ministry took up with Brockhouse for an experimental secondary school at Belper working with Derbyshire County Council. As the Ministry's architects Barbara Price, Patricia Tyndale and Donald Barron later explained, 'the frame is braced within itself by steel bracing – a very slight restriction in planning flexibility. Foundations are very simple as the stanchions are pin jointed at the base. The stanchions are small in plan and a constant size, with more used when the loads are greater.'⁴ In other words, there

were no posts in the ground, let alone deep piles, and so the basics of what became CLASP were already there.

Brockhouse supplied the frame and cladding – with concrete slabs made for them by Stent Concrete – and secured windows and sub-frames from Hope's, with Crittalls substituted for two secondary and nearly twenty primary schools when Brockhouse subsequently secured an independent contract with Essex County Council. The system, used by Kent County Council at Deal and in Birmingham for a school at Marsh Hill but not widely adopted as Brockhouse were interested in programmes rather than one-off commissions, was reported by the Ministry architects as more flexible and slightly cheaper than Hills. They noted however that the firm was 'very bad on delivery'.⁵

The Problems in Nottinghamshire

In late 1954 Donald Gibson resigned from Coventry following a dispute with councillors over his department's organisation and salary structure. He moved to Nottinghamshire, a county similar in population to Hertfordshire but whose rapid expansion since the late nineteenth century had enjoyed little formal planning and a paucity of public building. In 1944 there was not a single state grammar school in the populous western part of the county, save in Nottingham and Mansfield (the latter until that year a separate education authority). Notts urgently required more schools as light engineering industries encouraged suburban growth and its coalfield became the most productive in the country.⁶ The annual school building programme was about £1 million, but by 1955 was alarmingly behind schedule. 'An amazing number of schools were needed' reported Alan Meikle. Secondary schools were a major part of the post-1955 programme.

Between 1944 and 1955 Notts under its county architect E. W. Roberts built 54 new schools, a teacher training college and two technical colleges – no mean feat.⁷ Most of these buildings were traditional brick structures, with an implied order in the stout piers of their dominating assembly hall and long lines of heavily glazed classrooms, while there was a preference for shared sites for the secondaries, as at Worksop and Bramcote. However, these buildings were taking up to three years to complete, in part due to the shortage of materials, plasterers and bricklayers, the latter blamed on the demand for power stations in the Trent Valley. The Ministry of Education reported a static pool of building labour across Britain of about 1,400,000 men but, while their output had greatly increased since the war aided by mechanisation, demand had increased still more rapidly - especially after licensing had ended the previous November. This meant that contractors were turning to more lucrative work and there were some schools for which no contractor lodged a tender.

There was an additional problem in Notts - that of mining subsidence as coal was extracted. Roberts's team had used very heavy concrete foundations on a grid system so they could cantilever over the subsidence like a bridge, and their thinking was shared by the Building Research Station. Yet although the county was pumping ten per cent of its budget into foundations, the schools still cracked. Eight of the eleven sites identified for the 1957-58 building programme (for five primaries and six secondary schools) were in areas liable to subsidence. At his interview Gibson, with a tremendous authority born

of his achievements at Coventry, promised to find a solution in two years, and got a free hand on the basis of this commitment.

The Development of a System

To buy time, Gibson built the next annual programme (1956-57) of fourteen schools using an existing proprietary system, Derwent, a timber system suitable for one or two storeys developed just across the Derbyshire border with subsidence in mind, while he devised a more efficient solution. Gibson was one of the best of the team leaders of the post-war years, 'fixing his staff with his piercing blue eyes', as David Meylan recalled, and securing strong loyalties.⁸ He recruited two of the architects who had done most to continue Hertfordshire's programme after Johnson-Marshall's departure, appointing W. D. (Dan) Lacey as Assistant County Architect and Henry Swain to lead a new development group. The two complemented each other, Lacey the level-headed one, and Swain radical and charismatic. Henry Swain (1924-2002) was, as his *Guardian* obituary noted, 'a rare combination of romantic rebel and a good technician', who had interrupted his studies at the Architectural Association to serve on the Murmansk convoys in the Second World War and who led on the development of CLASP.⁹ By September they had been joined by Alan Goodman (acknowledged as the best designer by both Meikle and Meylan), A. E. Metcalf, David Moizer and Alan Meikle, the latter having worked at Herts after training at Birmingham School of Architecture, another valuable source of assistants. Derek Lakin, David Meylan, Bevis Fuller and Wally Wilson were there by December.

Gibson, Lacey and Swain carefully studied thirteen existing constructional systems and discussed them with the Ministry of Education at a series of meetings on 19-20 September 1955. They claimed not to look at educational needs, but (in order) at cost, speed of erection, site labour, maintenance, flexibility, stability faced with mining subsidence, mechanical properties and appearance. They also looked at furniture.¹⁰

The Ministry had come to favour pre-stressed concrete systems following the relative success of the Intergrid system it had adopted at Worthing Technical School, Durrington-on-Sea, Sussex, and which was taken up at some twenty other schools. By September 1955 Notts had already agreed to test a new system led by the Ministry architect Maurice Lee and the independent engineer Alan Harris at a new secondary school in Arnold. This was Laingspan, a system of concrete beams encouraged as a cheaper and better version of Intergrid. The Ministry hoped that this would not prove a one-off, but had to agree with Notts that pre-stressed and pre-cast concrete was too rigid for areas of mining subsidence. Arnold Grammar School, designed by John Kitchin and now part of Arnold Hill School, proved most interesting for its house rooms, set in pairs with shared kitchens around a partly-enclosed courtyard, and a Dutch barn that offered a semi-enclosed space for games. Timber had flexibility, but could not be built above two storeys and fire was a problem. The timber Derwent system was used with some imagination at the county's special school for the physically handicapped, Thieves Wood, in Sherwood Forest, but elsewhere it looked ungainly and the county wanted its own solution.¹¹

Gibson looked at Roberts's deep concrete foundations and thought them illogical. He was very interested in trains, and later his lectures on CLASP included a slide showing the Flying Scotsman, which was 200 tons yet ran on rails – proving that very heavy moving loads could be held on almost nothing. He, Lacey and Swain determined that the answer lay in a steel frame that was pin-jointed so that it could ride on a raft foundation. Hills were no longer reliable, for as Guy Oddie of the Ministry reported:

In the old days Hills was a medium sized firm. Now it has grown up and yet it still tries to run itself on the basis of one man alone steering it. It is completely dominated by its largest customers, who now appear to be in Canada. We have had dreadful service from them at Coventry – the delivery has been so erratic that any advantage gained from the rapid erection of the steel frame is lost in mismanagement. In my opinion it would be unwise to touch this firm. The system is not even complete in itself because you have to interest yourself in it to a certain extent. They have an overfull order book and this is their main trouble.¹²

Hertfordshire had developed a 3'4" system using Hills' hot-rolled system but it proved difficult to push it to two storeys and the majority of their schools were still built using 8'3", which despite being cumbersome for openings continued in production until 1964, long after Hills had gone bust in 1962. Jack Platt standardised the 8'3" system in 1956, producing a definitive set of components called the 'Blue Standard'. Subsequently all the 8'3" schools were built using identical components while Platt began to experiment with a new 2'8" system using Hills, first used at St Albans's College of Further Education.¹³ The Notts architects all knew the Hertfordshire achievement, for even if they had not worked there it had been a preoccupation of their student days and they were similarly enthused by technical design, whether of a structural system or its fittings, so were anxious to produce their own system.

Aluminium was not an option as BAC was then giving up on schools. Notts turned therefore to Brockhouse, whose system was not only pin-jointed and light-weight, but which had been shown at Belper to be suitable for three storeys and had a high degree of off-site prefabrication. Heathcote was from the motor industry so Gibson's analogies with vehicles were appropriate. 'When the builders did their test frame, Lister [Heathcote] was there with a big smile – he saw it as the biggest chassis he ever designed', recalled Alan Meikle, who likened a CLASP school to a ship riding a giant wave as coal was extracted from below. Henry Swain was very good at maths and secured the confidence of W. H. Ward of the Building Research Station and Kenneth Wardell, a surveyor at the National Coal Board who revealed where the coal board were going to be digging next.¹⁴ Wardell's paper on mining subsidence enabled the architects to calculate the magnitude of the ground curvature and hence the degree of movement transferred to a building.¹⁵

A report to councillors in November 1955 recommended that Brockhouse be commissioned to develop their frame for the 1957-58 programme. 'Belper shows it can be used for good quality schools within the cost allowance. It will be modified by a method of fixing the stanchions and the incorporation of a spring type bracing calculated



Figure 4.17 (left): Toot Hill School, Bingham, under construction c.1965. The spring-loaded bracing was unique to CLASP. Reproduced by kind permission of Nottinghamshire Archives.

Figure 4.18 (top): Bancroft Lane School (later Intake Farm School), Mansfield; Nottinghamshire County Council Architect's Department, 1956-57. The schools was listed at grade II in 1993. © Elain Harwood.

to withstand the normal loads caused by wind but [which] will expand or contract under the heavier loads created by mining subsidence movement.¹⁶ The frame with its distinctive cross bracing on springs was thus already being refined, by Notts architects working with Heathcote, the Ministry and R. C. Coates of Nottingham University (fig. 4.17). A further development programme began in January 1956, looking at flexible claddings such as weatherboarding, asbestos cement sheets, slate and tile hanging, with windows in timber surrounds. Services were a greater problem, and drains were put in oversized holes so they could move slightly; Swain favoured pitch fibre pipes for their flexibility.

A set of standard drawings were prepared for the components to be used. It was thought important that the building contractor should be keen to be involved and to collaborate – another lesson learned from the Ministry. The first school was **Bancroft Lane Infant School** at Mansfield, quickly renamed Intake Farm (fig. 4.18). Simms, Sons and Cooke, already erecting the Derwent school programme, built it after erecting a mock up in their yard close to the university at Lenton.

The designs and costings for Bancroft Lane formed the basis for negotiated contracts for the ten other schools in the 1957-58 programme and two other buildings, the county supplies depot and fire headquarters in Kiddier Avenue, Arnold. Contractors were invited to tender to supply the standard components in all these jobs. This meant that the cost of moulds, jigs, tools and other overheads would be spread over a number of jobs, and suggested that the system could be still more economical if there were more orders. Swain was later to recognise the importance of Heathcote's understanding of mass production.¹⁷ After the first schools were erected by Simms, Sons and Cooke, Notts turned increasingly to Searsons, contractors based in Kirkby-in-Ashfield.

Notts's Education Department helped with the design brief and interviews were conducted with the Ministry's Inspectors, and with teachers, both individually and through conferences. The Director of Education for Notts, J. Edward Mason, recalled that before CLASP he and his chief officers had prepared briefs for new schools almost in isolation, and thus tended to ask for more than was realistic. By 1957 they were working 'at making the planning a joint exercise. They meet more informally, and are less reliant on the Building Bulletins. Now architects interview the teachers about their work and class sizes.'¹⁸ In practice, however, Mason contributed little and the main collaborator on the education side was his assistant, Noel Jones.¹⁹

Henry Swain in 1974 described the tremendous sense of excitement in realising an engineering breakthrough: the design of the first building system consciously designed for building on ground liable to movement:

In those days of the late '50s only a few of us really believed it would work – Dr W. H. Ward of the Building Research Station, Mr R. J. Orchard, subsidence engineers of the National Coal Board, Mr F. W. L. Heathcote and Professor Rex Coates of Nottingham University, to whom we used to go and talk when things seemed difficult. ... Donald Gibson had strong nerves.²⁰

To counter engineering conventions that favoured massive, expensive foundations with a light raft that could slide on a fine granular bed was daring. Such was their belief that 213 CLASP buildings were constructed before the system was tested in 1962, when five schools, of which Intake Farm and the Matthew Holland Secondary Modern School at Selston were in Notts, successfully 'rode' the excavation of coal from underneath. All survived with only modest repairs required. The most convincing test was at Heanor Gate School, just over the Derbyshire border, where a three-storey block rode the extraction of a four foot seam from relatively near the surface with only minor damage to the expansion joints. In all, repairs to the five schools cost £80.²¹ Intake Farm had been subject to subsidence four times when in 1972-74 a survey was made of all Notts's 269 CLASP buildings, which found that nineteen had been damaged, costing £3,288 in total to repair, out of seventy exposed to mining operations.²²

The Formation of CLASP

Bancroft Lane cost 74s 3d per square foot, 5% over the estimate, but subsequent savings brought the programme as a whole below the target sum of 71s 3d. A minimum order of 400 tons of steel had to be made to reach this figure, and even with the two Arnold buildings the Notts programme was too small. A telephone call from Gibson brought in a primary school from Coventry, Willenhall Wood, and the order went ahead. Meanwhile, officials at the Ministry of Education were discussing economies of scale with their Minister, Lord Hailsham, who proposed offering bonuses to authorities who chose to collaborate on industrial building. Bill Pile at the Ministry contacted Gibson, in whose hands the idea of a consortium of local authorities that jointly developed and managed a common system took shape. Stuart Maclure suggests that it was one of the few direct interventions on school building policy made by a Minister, and Hailsham chaired a meeting of local authorities on 24 July 1957. Gibson's network, and that between

councillors with a common mining background, brought in Coventry, Derbyshire, County Durham, Glamorgan, Leicester and the West Riding of Yorkshire to join Notts as founders of the Consortium of Local Authorities Special Programme. 'Special' was substituted for 'schools' at Swain's insistence to show that the system could be used for all kinds of projects.²³

Gibson became chairman of CLASP, and continued in this role after he left Notts in 1958 for the War Office, which he brought into the consortium late that year. Gateshead and Lanarkshire also joined then, and a number of authorities (mainly small and including Roman Catholic dioceses) became associate members, of which Warwickshire advanced to full membership.²⁴ The Ministry of Education and Scottish Education Department also joined, followed by York, Bath and Cambridge Universities, the University Grants Committee and Scottish Health Service. The 1958-59 building programme was for 31 schools, at a total cost of £2,500,000, and 46 were included in that for 1959-60, costing £3m. The real growth came in 1961-62 with a programme of 57 buildings costing £6,700,000, and in 1963-64 with 103 jobs costing £10,600,000.²⁵ This growth was remarkable compared with the take-up of the Ministry's prototypes (only a fifth of that hoped for). In 1963, schools represented 60% of the programme, and university and further education buildings nearly half of the rest. By that time Notts was using CLASP for all its building work.

CLASP proved popular for other reasons than its ability to withstand subsidence, its economy and flexibility as well as suitability for building on any poor ground conditions being among those cited.²⁶ The mass production and bulk ordering of components, and serial contracting for a whole building programme, kept tenders down and less site labour was needed, ensuring that the price of materials and components remained stable during a time of inflation. Building Bulletin no. 19 reported that the cost of Notts primary schools fell by six shillings per square foot in 1957-61 while those in other counties rose. Two years later, Gibson boasted that components had reduced in price by 9% thanks to increased orders, leading to a 3% decrease in the overall building contract. Moreover, Notts continued to receive the Ministry's subsidies for building in mining areas, pocketing another £300,000 for use on additional schools.²⁷

The seal was set on CLASP's success with the acclaim awarded the primary school sent as Britain's entry to the Milan Triennale exhibition in 1960 (fig. 4.19). Devised by Trevor Prosser at Notts, with Dan Lacey, it bore strong similarities to his school of 1958 at Barnby Road, Newark (now demolished).²⁸ The three classrooms and assembly hall, built in nine weeks within the normal Ministry cost limits, with furniture by the Ministry and CLASP, was embellished by the exhibition designer James Gardner to



Figure 4.19: The prize-winning CLASP primary school at the 1960 Milan Triennale. Reproduced by kind permission of Nottinghamshire Archives.

demonstrate creative learning techniques and visual stimulation for an imaginary group of children. ‘The word “prefabrication” under the leadership of the Architects had won respectability’, Henry Swain told the Northern Architectural Association.²⁹ The triumph in Milan led to orders for Brockhouse for modified versions of CLASP initially in Germany, e.g. at Bochum University, and Italy (in Rome and Naples) followed by larger programmes in France, an early use of computers.³⁰

In its early days the CLASP consortium was purely voluntary and without legal status, with no constitution or standing orders, relying on the goodwill between a close-knit group of architects and education officers led by Notts. The chief architects met a few times each year under Gibson’s chairmanship, and authorities hosted an annual conference by turn, showing off their buildings, and a working party was assembled from the authorities to discuss developments. It is notable that all the prototype schools built to demonstrate a new form of CLASP, including the extensively-used Marks IV and V, were in Notts.

Although the membership of CLASP became more diverse in the 1960s, and incorporated its supporters in central government and the universities, there was reluctance to add more large county councils. Shropshire and Cheshire applied to join CLASP in 1961 but were rejected as Lacey and Swain worried that their group’s informality and flexibility would be lost, and that they might lose control of to such strong personalities as Ralph Crowe, the county architect for Shropshire, and his deputy Geoffrey Hamlyn, later county architect for Cheshire.³¹ Instead these architects developed their own system and their own consortium, SCOLA – the Second Consortium of Local Authorities (page 268).

The Evolution of CLASP – Marks I to VI

Lacey and Swain were adamant that ‘we don’t want aesthetics – you look after the children and the components, and the aesthetics will look after themselves’.³² In this they shared the view of Mary Crowley and David Medd, who said ‘my starting point is the children’, a catchphrase attributed by David to Mary, and by everyone else to David.³³ The *Architects’ Journal* quoted the claim of a private architect on CLASP that ‘it is not Architecture’ and its architects were proud of that fact.³⁴

CLASP Mark I is generally taken as the Brockhouse system, developed most thoroughly with the Ministry and with Essex CC, but whose glazing did not fit the 3’4” grid. Notts developed sliding glass panels in an aluminium frame to solve these problems, while retaining the rather complex clerestory glazing that became a distinctive feature of early CLASP, using high-quality frames of Columbian pine or Iroko hardwood. This first CLASP system became known as Mark II. Bancroft Road’s windows comprised panels spanning between the stanchions and roof, with 10’ as well as 6’8” and required some expensive fixings; subsequent designs were firmly within a 3’4” module.³⁵ A lighter frame with a modified roof deck and eaves detail, and cheaper redwood windows (a false economy, as they rotted), was introduced as a more economical Mark III in 1961. Cladding was of concrete panels, aluminium sheets or tiles, and occasionally horizontal boarding where the risk of fire was low; there were fifty types of window. The most attractive schools were the early primaries in Mark II or Mark III with their double line of top lights, some of them opening louvers (always draughty), the classrooms set in the corners and/or



Figure 4.20: Tupton Hall School in Chesterfield, Derbyshire; George Grey and Partners, 1965-69, now demolished. CLASP-built additions to an inter-war school by Derbyshire county architect George Widdows. Photograph by Mike Williams – English Heritage; FF003534.



Figure 4.21: Hans Coper tiles at Nettleworth Primary School, Mansfield Woodhouse; Nottinghamshire County Council Architect's Department, 1964-65. © Elain Harwood.

along one side of the main hall, particularly if the latter was given a gently pitched roof rather than a flat one. A good example is Arnold Arno Vale, by Grey Goodman and Associates of 1961-62, which survives with renewed (green) external weatherboarding.³⁶ Notts farmed a few of its projects to private architects, including Alan Goodman's practice Grey Goodman and Associates and Robert Matthew, Johnson-Marshall and Partners. Because the County Architect's Department was tied up with schools, much of the county's extensive public library building programme was designed in Derwent and CLASP by private firms.

The range of cladding materials, and perhaps the system's very flexibility, encouraged a bittiness in the elevational treatments, noted by the *Architects' Journal*. 'At Notts a great many more external cladding components have been introduced. This means of course a great

deal more flexibility, but it also means that unless care is taken over their use and form, mediocrity will result from a confusion of planes, textures and materials ... the assumption has clearly been made that since the system is designed to take a variety of cladding, therefore variety must be used.'³⁷ Meikle blamed this tendency on Lacey and Swain's background in primary schools, whereas the multi-storey elevations of secondary schools called for a clean overall design rather than patterns of different materials and window sizes. Tupton Hall in Derbyshire, by George Grey and Partners of 1965-69, was a widely-admired example of this smart simplicity, an extension to a 1930s school but which itself has been demolished (fig. 4.20).³⁸ A sliding joint was incorporated at all the internal intersections of partitions, while deep reveals and gaskets allowed movement for the windows. Tiles would slide over each other; they were supplied by Keymer of Sussex after Swain had become fascinated by traditional mathematical tiles in that area. Flat interlocking tiles were developed in the 1960s and Hans Coper – a friend of David Moizer – introduced a heavily profiled pattern, used at East Leake Health Centre and at Nettleworth Primary School at Mansfield Woodhouse but not widely adopted (fig. 4.21).



Figure 4.22: The CLASP Mark V elevations of the Chilwell lower school. © Elaine Harwood.

The gentle tile-hung forms gave way to more concrete panels in the 1970s, some with a facing of brown brick chippings (fig. 4.22). A sharply pointed pyramidal top light was repeated from York University, and the Sutton Centre, Sutton-in-Ashfield, introduced a projecting bay window unit that gave the elevations more formality; nevertheless, criticism of CLASP's folksy qualities gave way to attacks on its concrete austerity. Most often, however, it was associated with the mundanely decent. As N. R. Goodwin wrote in 1964, 'CLASP is a heap of parts intended to be put together in many diverse ways, good or bad, but mainly indifferent. This is where the architect makes his greatest contribution, always remembering that while architecture is not an end in itself, it is not to be subordinated to the expression of the building technique alone.'³⁹ In 1972-73 GRP began to be used as a backing and new concrete panels were introduced, for example at Jacksdale Primary School.

Swain retained a firm control of the design, but other authorities obtained their own tenders and organised deliveries. In 1961 CLASP set up its own Development Section of architects at Nottingham under Sydney Bell, another ex-Birmingham student appointed by Gibson in 1956. He originally headed a team of four, of whom David Lakin was also an experienced Notts architect, which was joined by the quantity surveyor Henry Morris in 1964 and a separate Contracts Section responsible for organising the manufacture of components from 1967. Brockhouse supplied the early frames, but after Gibson brought in the Ministry of Works the Treasury insisted that a competitive tender was obtained for their part of the programme, which was won by Saunders and Forster. Later the Consortium also went out to tender, and Saunders and Forster also won that.⁴⁰ Claddings, windows and other fixtures were sourced from various manufacturers across the country to provide economies of scale. Bell was appointed to refine Mark III, introducing a cambered roof truss so that roofs were not entirely flat.⁴¹ His refinements became Mark IIIb, and included a new range of windows after they had been rationalised as Mark III into smaller units that had to be joined on site, making for weak joints and requiring unachievable levels of site supervision, and his first task was to readdress these problems.

Syd Bell's prime responsibility was the development of CLASP Mark IV, beginning in 1963. Visually, it was simpler, without complex window opening patterns or top lights. Bell sought to reduce the weight of steel in the beams, to increase the number of components produced in the factory and to reduce the amount of skilled site work, most importantly by devising floor and roof decks in 3ft prefabricated sections.

To find out ways of reducing site labour Bell's team carried out an analysis of activities on site, conducted with the help of the Building Research Station. Clerks of Work throughout the consortium were asked to keep hourly records of what site workers were doing so that we could find how long operations took, and where delays occurred. It was found that the floor slab was causing tremendous delays because of the influence of weather, so Bell introduced pre-cast concrete foundations for the columns and a perimeter beam that enabled steel frame erection and roof sheeting to start earlier so that the in-situ slab could be cast under cover.

The frame was designed to a new 3' grid for greater flexibility, as requested by the Ministry of Education in accordance with guidelines of 1963 from the Ministry of Public Buildings and Works.⁴² It offered 1' increments to increase the flexibility of design, simplified stanchion headers and a slight camber to roof beams. External windows, of timber with metal opening inserts, arrived from the factory glazed and painted, and doors were pre-hung in their frames. Plastic-coated windows were also introduced by Bell as part of Mark IV.⁴³ Mark IV was also devised to be more flexible for non-school buildings, particularly residential buildings, where smaller rooms were required, and architects from RMJM, working on York University and other CLASP projects, were involved in the development. It was also related to the 5M housing system being developed by the Ministry of Housing and Local Government at Gloucester Street, Sheffield, and was extensively used for hostels serving schools and colleges in rural Scotland.⁴⁴ Mark IV was first used for the **Newlands Junior School** at Clipstone, built in 1965-66. Sheet steel cladding was developed by Brockhouse for CLASP in 1967-68 and featured on some later schools.

CLASP was used in university building at York, Cambridge, and Bath, the latter used as a Joint Development Project on Higher Education between the architects RMJM, the university, Department of Education and Science and the University Grants Committee. Phase IIIa of York University, including Vanbrugh College, was built in Mark IV after earlier stages had used a modified Mark III. CLASP Mark IVb, first used in 1969, introduced refinements to the windows, partitions and stairs, and was designed for higher education (the JDP programme) as well as schools.

CLASP also developed its own ranges of furniture, initially employing two furniture designers and (through Gibson) securing aid in its manufacture from the Ministry of Public Building and Works. In 1964 the Ministry of Education agreed to collaborate on the design of a common design for local authorities inside and outside CLASP, with the former getting priority. Bob Sutton from CLASP joined the Ministry's furniture designer, John Marshall, and with David Medd produced the *Forme* range in 1969, which was manufactured by Pel Limited, virtually eliminating fixed furniture.⁴⁵

Bell succeeded Alan Meikle as Notts's Deputy Architect in 1971, and was replaced by David Lakin. There was thus a great continuity between Notts and CLASP. CLASP Mark V, introduced in 1971-72, was metric, and marked also the introduction of computers into the design of the system and its components. First used at Dalestorth Primary School, Mark V was cheaper, with fewer components and simpler site operations, yet more sophisticated in appearance. Steel and concrete replaced the last elements of timber in the roof and upper floors, partly to increase fire resistance; the steel roof decks were designed in conjunction with the South Eastern Architects Collaboration (SEAC). 80% of the early Mark V buildings were clad in concrete panels, given a white, red, grey, brown or green aggregate finish in the casting, although sheet metal and tile claddings were also developed and the first experiments were made in using brick as a cladding in 1972 (made up of brick bats backed with a formaldehyde resin in timber framed moulds, so no bricklayers were required) to meet resistance to the use of CLASP in historic areas. Mark V used plastic coated windows from the first, designed for ease of maintenance, with projecting 'oriel' windows in addition to the pyramidal roof lights.⁴⁶

The largest CLASP's annual programme was in 1972-73 before a moratorium on public capital expenditure and local government reorganisation made their impact. The impact of reorganisation was greater on CLASP than on other systems, as its members included many cities and county boroughs which lost their educational function. CLASP responded by expanding into railway buildings, mostly for British Railway's Southern Region but later also for London Midland, and into the design of factory units, while Brockhouse also secured more commercial clients. While tile, made vogueish in the late 1950s by Span, bridged the divide between modern and traditional claddings, CLASP turned to more conventional claddings from 1973, when a health centre at Mansfield Woodhouse used stone slates from a demolished building there. The first six-storey CLASP building was completed in 1974, for a hospital at Paisley.⁴⁷ Pitched roofs began to be developed in 1975, and hipped roofs became a regular feature of later CLASP buildings, beginning with an addition to a Derbyshire school and the new Warren Primary School, Top Valley, Nottingham (1976-77). Experiments in energy conservation also began in 1975, beginning with studies of existing buildings, where it identified the poor maintenance and management of heating services as the chief problems – a reflection on how relatively cheap heat had previously been taken for granted. The first new school to consider energy saving in its design was Hucknall Wood Lane Primary, in 1977 (demolished). A late and modified use of Mark V was **Whyburn School**, Hucknall, a courtyard plan with profiled steel and concrete tile cladding and a pitched tiled roof designed with increased thermal insulation and fire protection. In 1982 it won an *Education* magazine award (shared with Newlands School, Yateley, Hampshire), but it was reclad and extended in 2006.⁴⁸ Some of these ideas were developed further in the county's next primary school, at Kimberley, also from 1982.

The use of brick and pitched roofs, in a move from a closed to open system, was the secret of CLASP's longevity as modernism went out of favour. No other system did this. For Swain (and for his colleagues) the underlying logic of the modular system, its structural components and services, were always more important; he was after all the enthusiast for tile hanging in general and the development of a form of mathematical tiling. His later interest was in fire prevention and energy saving, and in site management

(RSM, see below) or direct labour, the latter shared with Alan Meikle and because of its encouragement of the builder as part of the team something always pertinent to those with left-wing convictions.

Work on Mark VI began in 1979, which considered energy and maintenance costs as well as the initial cost of components and their procurement. Mark VI reflected the smaller programmes and scale of building in the 1980s, and a more varied use of CLASP, so was more open in its tolerance of outside components.⁴⁹ Mark VI increased the structural grid from 900mm to 1.8m, although the planning grid remained the same 300mm as in Mark V. It offered a simplified structural system, with a steel roof and upper floor decks as Mark V, to meet rising inflation, while allowing for a greater range of external finishes, not all within the system – a recognition that more proprietary finishes had become available since the 1960s and that clients now wanted more flexibility.

Dan Lacey became head of the Architects and Building Branch of the DES in 1964. He was succeeded at Notts by Henry Swain, who served as its chief architect until his retirement in 1988, and who came to personify CLASP in particular and the county's architecture in general. Relatively few schools were needed in the 1970s and 1980s as mining and other industries declined and the population remained fairly static. CLASP continued to be used, and Notts schools continued to win awards. The adaptability of CLASP to be used with more traditional finishes was the secret of its longevity, although the earlier tile finishes or 'folkweave' mixed with industrial components became a local vernacular in themselves.⁵⁰ In the 1970s and 1980s CLASP continued to be promoted extensively abroad. Lakin obtained a contract from Caracas University to develop a system for Venezuela, and a CLASP Primary School was built at Guarenas, east of Caracas. He also secured a contract for three hospitals in Algeria.

Art

Donald Gibson came to Notts with a tradition of incorporating art into his buildings at Coventry, and a few early schools incorporated artist-designed play sculptures. Nevertheless, while Bancroft Road had a mural by Fred Millett and **Tuxford Secondary Modern** a patterned brick wall by Dorothy Annan, art did not feature in the CLASP programme for long. Syd Bell recalled that 'most schools had something' by artists, but wallpaper, tiled floors and curtains to give a sense of richness were more common.⁵¹ Where there was a substantial art programme, as at Hertfordshire and Leicestershire, the impetus came from the Education Officer. Here the focus from the Education Department was not on art but on sport.⁵²

Research into Site Management

CLASP was well placed to cope with the doubling of school building in the years 1964-68, when up to 40% of new schools were built using a system. It was a way of keeping down costs at a time of rapidly rising wage bills.⁵³ An important part of this was the idea of serial contracting, first introduced at Notts and adopted by other authorities with large programmes in the early 1960s.

To bring still more economies, Swain turned in 1967 to a programme of Research into Site Management (RSM), where the project architect worked directly with the foremen and builders in a sophisticated form of Director Labour Organisation. It began at Cotgrave Junior School, in 1967-68 as a means for Swain and his staff to find out more about the building process, and resulted in more straightforward and practical design work that saved in drawings, time and labour.⁵⁴ Contracting for CLASP had been reduced to a process of assembling components, and by cutting out the contractors' project management money was saved while the builders were given greater responsibilities, which boosted their morale and commitment to the work by being part of one team. The contractors got their 5% plus a share of any additional profit from the time and labour saved. The idea of bringing the contractors into the design process has some parallel with the multi-disciplinary practice of Arup Associates, who involved Bovis in the design of their John Player 'Horizon' Factory at Nottingham from 1968-72. In the early years RSM was largely concerned with the further rationalisation of CLASP and the development of Mark V, particularly in the reduction of labour content, early seen at the Sutton Centre in 1972. RSM continued to work with CLASP on the further development of the system, e.g. the rationalisation of slab design, on pitched roofs, health and safety issues, and at building as an educational tool; but above all its success was in bringing architects and construction together.⁵⁵ It continued until 1983.

School Plans

The first brief, for primary schools, allowed more space for children's activities by reducing circulation areas, creating a more informal and child-centred atmosphere than hitherto. A letter of 24 May 1956 to Swain from Mary Crowley, herself at Hertfordshire before joining the Ministry of Education (they may have just overlapped briefly in 1949) and with a keen interest in the needs of the child, recorded that 'it is most encouraging to see you and your advisers and teachers have confirmed many of the principles that seemed to emerge from our own investigations at Amersham'.⁵⁶ There were close similarities between the first primaries and those at Herts, with low windows and child-size furniture designed in-house, and a common plan that placed small lavatories between pairs of classrooms where they could be easily supervised, often set around a central hall. By the later 1960s class rooms were less self-contained, designed as a series of bases with group working becoming popular.

The first brief for secondary modern schools looked at the purpose of a secondary modern, and at house and form organisations, something only developed when the architects went on to consider the larger grammar and technical grammar schools such as the Manor, Mansfield Woodhouse. The earliest secondary moderns, at **Tuxford** and Retford Ordsall (both demolished) comprised informal ranges set loosely around a central entrance and library area; the frame system enabled ground-floor areas to be kept open to create vistas into partially enclosed courtyards, which became common elements. Courtyard plans and systems of house rooms with a concert space or theatre rather than a large hall were taken further once comprehensives began to be built, firstly at Ollerton, designed in 1961 for 1200 children, with a semi-roofed craft courtyard and six house rooms.⁵⁷ These plans owe something to Woodlands School at Tile Hill, Coventry, for as David Meylan said, 'we were great pinchers of other people's ideas'.⁵⁸

Later schools adopted deep plans with more open areas, most notably in the special lower schools that were built for 11-13 year olds as distinct blocks within a comprehensive school. The latter served two purposes. They were Notts's solution to the problem of extending secondary modern schools into comprehensives without introducing separate middle schools, and by separating off the first two years the organisation of very large schools was broken down and made more personal. They also permitted all-new comprehensives to be built in phases, as at **Chilwell**, where a lower school was added in 1975-76 to the first school opened in 1970.

Nottinghamshire's most innovative planning feature was the integration of sports facilities and other local authority amenities into the schools. The idea began with the village colleges evolved in the late 1920s and 1930s by Henry Morris at Cambridge and was developed by Stewart Mason at Leicestershire, but Notts' model was Wyndham School, Egremont, Cumberland, a remote town that had to provide for an incoming and highly literate workforce at Calder Hall (Sellafield), with a library and sports facilities that were shared between the public and an ambitious comprehensive school.

At Notts the accent on shared sites was strongly weighted towards sport, encouraged by David Barnes, the county's gifted chief adviser on physical education. He believed that PE had become dominated internally by fixed Scandinavian gym equipment, such as expensive climbing frames and beams, and externally by team games; he sought a wider concept of physical education that would be of greater value to students in later life. By accepting slightly smaller gyms and less playground space there was money for a Dutch barn at Tuxford and Retford Ordsall, sourced by Meikle from Dales in Leominster at a cost of £1,750 and which could be used for less formal team games or in wet weather. Larger barns came from William Kay of Bolton in 1959 for the **Manor School**, Mansfield Woodhouse, and for Arnold at a cost of £15,000 for two, but they remained of limited use because of their open sides.

Henry Swain at an RIBA conference in 1968 defined four areas of change that fostered an interest in community schools. They included the growth in adult education and leisure hours, and an encouragement to use expensive education buildings more widely which was led by a Department of



Figure 4.23: Sports hall at Carlton Cavendish School; Nottinghamshire County Council Architect's Department, 1968-70. Reproduced by kind permission of Nottinghamshire Archives.

Education circular in 1965. This, coupled with Circular 10/65 calling for comprehensive schools, encouraged a new programme of school extension under the Education Officer, by then W. G. Lawson, that included extensive sports facilities developed with the local authorities, particularly the small urban district councils sprinkled across the area before 1974. The first of these grouped school and sports complexes was at **Toot Hill**, Bingham, opened in 1969 by the Minister for Sport, Dennis Howell, and was followed by a similar development at **Carlton Cavendish** (fig. 4.23). They comprised a large swimming pool, with a learner pool and café area, a sports hall, gymnasium and smaller activities areas. Carlton Cavendish, opened in 1970, included outdoor all-weather pitches, squash courts and a ski slope, paid for by the local authority. Other facilities, such as scout halls, nursery schools, or for adult education or pensioners' groups, were funded by local groups and parish councils. The programme was further encouraged by James Stone, Deputy Education Officer at Leicester who came to Notts first as deputy and then as chief. The ultimate realisation came at **Sutton-in-Ashfield**, where a secondary school was built in the centre of town with additional facilities for adult education, a day centre for the elderly and disabled, a youth club, theatre and a large sports centre that even included an ice rink (fig. 4.24).⁵⁹

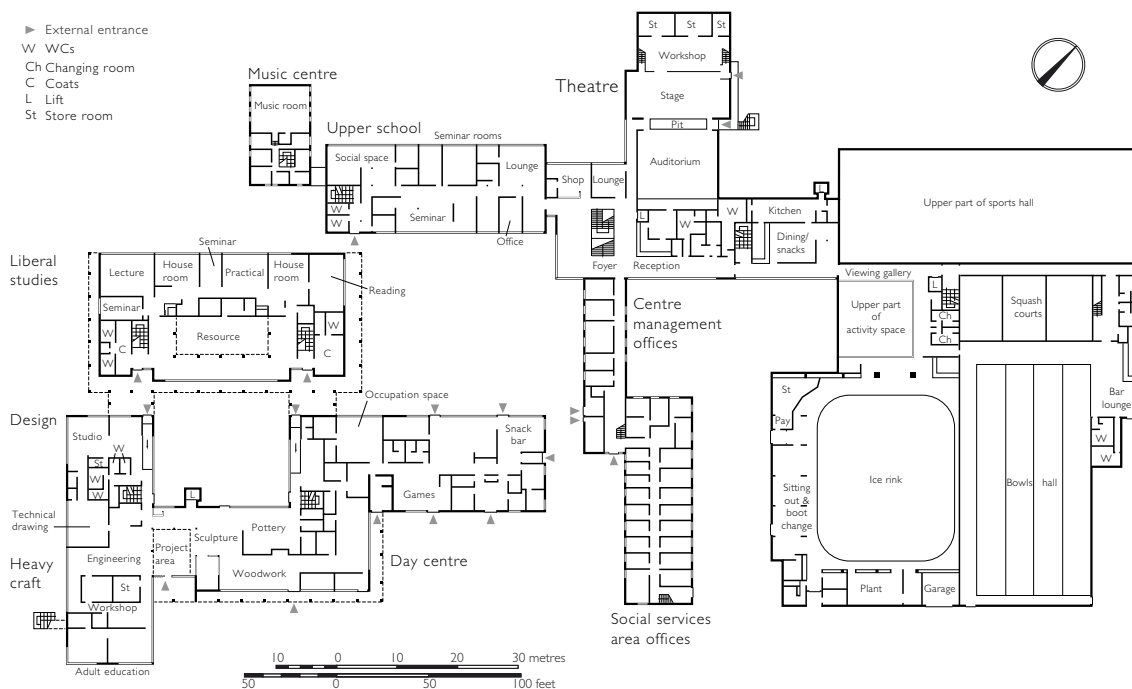


Figure 4.24: Sutton Centre, Sutton in Ashfield, built in 1972-78.

Problems with CLASP

CLASP's biggest problem was fire. The danger came when fire spread through voids, usually between the ceiling and roof, particularly in the earliest buildings; more fire stops were introduced after a fire in a school science block at Leicester in 1965, but thereafter arson emerged as a growing problem in schools. Notts was unusual in using CLASP in residential buildings and the most serious fires were in old people's homes in the early

1970s, usually started by a cigarette. The most devastating fire was that at the Fairfield Hospital for the more infirm at Edwalton, built in 1961 by RMJM, where a fire in 1972 caused thirty deaths.⁶⁰ Thereafter the problem was resolved by the introduction of still more and better fire stops.

A study by Norman Sidwell of Heriot Watt University in 1970-72 found that CLASP structures required no more or less maintenance than other buildings.⁶¹ The County Council reported in 2008, however, that CLASP had difficulty in meeting modern building regulations and acoustic or environmental standards, while replacing drainage pipes and asbestos removal were problems. Strangely the report also criticised the flexibility of the buildings because of the need to retain columns and bracing. It is perhaps more significant that it also found that CLASP was unattractive to bidders in the private sector interested in investing in school building.⁶²

CLASP Today

CLASP continued to be refined until 2005, by which time Mark VIb was in production, as seen at Oakwood School, Manchester, with exposed steel and aluminium finishes and a curved roof, and brick-clad extensions to the Cavendish laboratories in Cambridge. In April 2006 CLASP became part of Scape System Build Ltd, a local-authority controlled company wholly owned by Derby City, Derbyshire, Gateshead, Nottingham City, Nottinghamshire and Warwickshire in equal shares. Scape is a trading company for the CLASP consortium, to develop the successor Scape system and to service existing CLASP buildings. It has presented a considerable archive of CLASP-related material to Nottinghamshire County Archives. Most surviving CLASP school buildings are Marks IV, IVb or V, with examples at 46, 47 and 96 sites respectively. There are 31 Mark III and 14 Mark IIIb schools, but only sixteen sites still have examples of Mark II buildings. This is where the county conservation team has targeted its attention.⁶³

Gazetteer

Primary Schools

¶ Bancroft Lane School (later Intake Farm School), Ladybrook, Lane, Mansfield; Nottinghamshire County Council Architect's Department (job architect A. B. Fuller), 1956-57, listed at grade II in 1993.

The first CLASP school and the only one to be listed, at grade II. It is in excellent condition, with original fenestration and tiling, though a mural by Fred Millett has gone. There is a sympathetic new addition at the rear, realised since the listing.⁶⁴

¶ Barnby Road Infant School, Barnby Road, Newark; Nottinghamshire County Council Architect's Department (job architect Trevor Prosser), 1958.

This was perhaps the finest of the early Notts primary schools using CLASP Mark II, but it was reglazed in the 1990s and demolished in 2007 when replaced by a new school on a different site.⁶⁵

¶ Bramcote Hills Primary School, Moor Lane, Bramcote; Nottinghamshire County Council Architect's Department (job architect N. R. Goodwin), 1959-60.

Built in six months using CLASP Mark II, an elegantly composed school with seven classrooms around a central hall with a shallow pitched-roof; similar to Barnby Road, Newark. It survives, extended and much altered by changes to windows and cladding.⁶⁶

¶ Arno Vale (now Woodthorpe Infant School), Arno Vale Road, Arnold; Grey Goodman and Partners (job architects F S Bedford and A. J. Short), 1961-62

The school survives but with some new cladding. Civic Trust Award 1964.⁶⁷

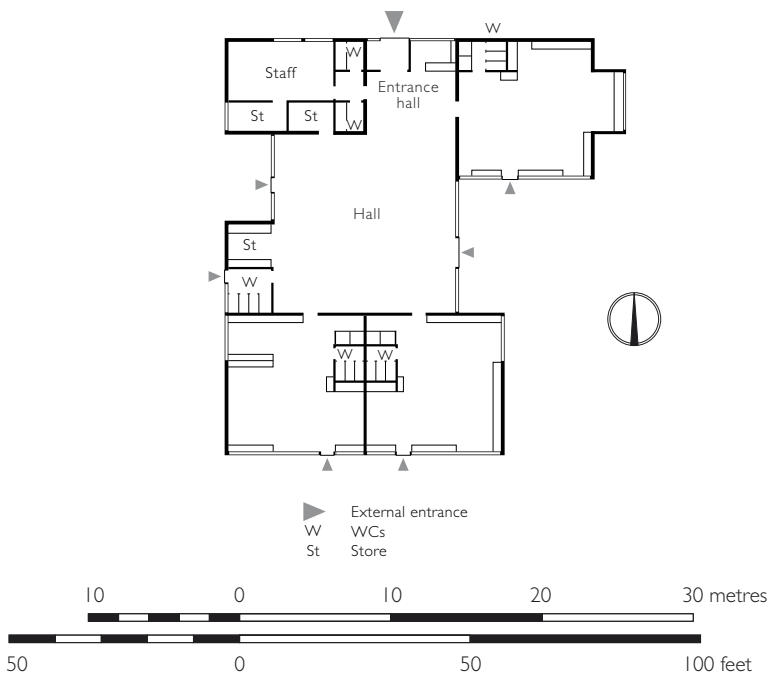


Figure 4.25: Barnby Road Infant School, Newark.



Figure 4.26: Interior at Bancroft Lane School. © Elain Harwood.



Figure 4.27: A c.1963 photograph of Bramcote Hills Primary School. Reproduced by kind permission of Nottinghamshire Archives.

¶ **Nettleworth Primary School**, Ley Lane, Mansfield Woodhouse; Nottinghamshire County Council Architect's Department (job architect David Meylan), 1964-65.

This CLASP Mark III school retains its Hans Coper tiles but has had crude new windows and some extension.⁶⁸

¶ **Newlands Primary School**, Braemar Road, Forest Town, Clipstone; Nottinghamshire County Council Architect's Department (job architect R. W. Cheney), 1965.

The first Mark IV school. It had a 3ft grid to meet government standards, including a 3ft square pre-cast concrete foundation units brought, like everything save the timber internal partitions, ready to the site – including the windows. Construction time was reduced – foundations by 23%, windows and doors 49-60%, but drainage took longer and services required further development.⁶⁹

¶ **Ernehale Primary School**, Arno Vale Road, Arnold; Nottinghamshire County Council Architect's Department (job architect R. W. Cheney), 1969.

The first CLASP Mark IVb school, built by the RSM team and faced in large concrete panels.



Figure 4.28: *Ernehale Primary School, Arnold, under construction in 1969. Reproduced by kind permission of Nottinghamshire Archives.*

¶ **Dalestorth Primary School**, Hill Crescent, Sutton-in-Ashfield; Nottinghamshire County Council Architect's Department (job architect Geraldine Blythe of the CLASP Development Group), 1971-72.

The first use of Mark V, now much extended and rebuilt.

¶ **Whyburn Primary School**, Roberts Lane, Hucknall; Nottinghamshire County Council Architect's Department/RSM, 1982.

This school, built using a variant of CLASP Mark V, was planned around two courtyards, inspired by Mary and David Medd's Ysgol y Dderi, in Llanybi, Wales (1975-76). Extensively remodelled and extended in 2006 when it merged with Spring Street School. It was originally clad in metal sheeting under tiled roofs, but now brick. Winner of *Education* school design award, 1982.⁷⁰

Secondary Schools

¶ **Tuxford Secondary Modern School** (now Tuxford Academy), Marnham Road, Tuxford; Nottinghamshire County Council Architect's Department (job architect Alan Goodman), 1957-58, demolished 2006-07.

This was the first and most imaginative of the secondary moderns built in CLASP Mark II (the second job in the programme after Bancroft Lane), a three-storey classroom block with lower blocks arranged around it, partly reached through open ground floor area adjoining entrance. The arrangement of the housecraft and farm areas had some similarity with the Ministry of Education's school at Wokingham (the Medds with Michael Ventris), but with an emphasis on the library in the entrance area. Open air theatre area behind. RIBA Bronze Medal for Nottingham Derby and Lincoln area, 1958.⁷¹

¶ **Garibaldi Secondary School**, now Garibaldi College, Garibaldi Road, Clipstone; Nottinghamshire County Council Architect's Department (job architect Syd Bell), 1957.

CLASP Mark II. The classroom tower was later destroyed in a fire started by children. A lower school was added in 1971-72. Many alterations and remodellings since the late 1980s, and the school was identified for rebuilding in 2010.⁷²

¶ **Manor Technical School** (now part of the Manor Academy), Park Hill Road, Mansfield Woodhouse; Nottinghamshire County Council

Architect's Department (job architect Alan Meikle), 1959.

Built in CLASP Mark II, Manor Technical School was largely rebuilt in 1997-2000 after a fire, though two-storey blocks retain some mathematical tilework.⁷³

¶ Ollerton Comprehensive, now the Dukeries College, Whinney Lane, New Ollerton; Nottinghamshire County Council Architect's Department (job architect A. J. Griffin), 1961-63.

This was the first comprehensive, built in CLASP Mark III as a series of courtyards and with six house rooms. A variety of community buildings were developed following a consultation programme led by Henry Swain and David Makin with other uses including a library, leisure centre and youth facilities in 1984 following falling rolls.⁷⁴

¶ Ashfield Comprehensive School (now Ashfield Academy), Sutton Road, Kirkby in Ashfield; Nottinghamshire County Council Architect's Department (job architect David Meylan for part), built in two phases from 1964.

A new addition at the front, but the main CLASP Mark IIIb buildings survive relatively little altered, weatherboarding to the front range and tile hanging to the courtyard of more conventional classrooms and laboratories behind. No related sports centre. Built with a sports hall and swimming facilities as well as a gymnasium, but for school use only.



Figure 4.30: Toot Hill School, Bingham. Additions of 1967-69 by Nottinghamshire County Council Architect's Department. © Elain Harwood.



Figure 4.31: The sports hall at Toot Hill School, Bingham. © Elain Harwood.

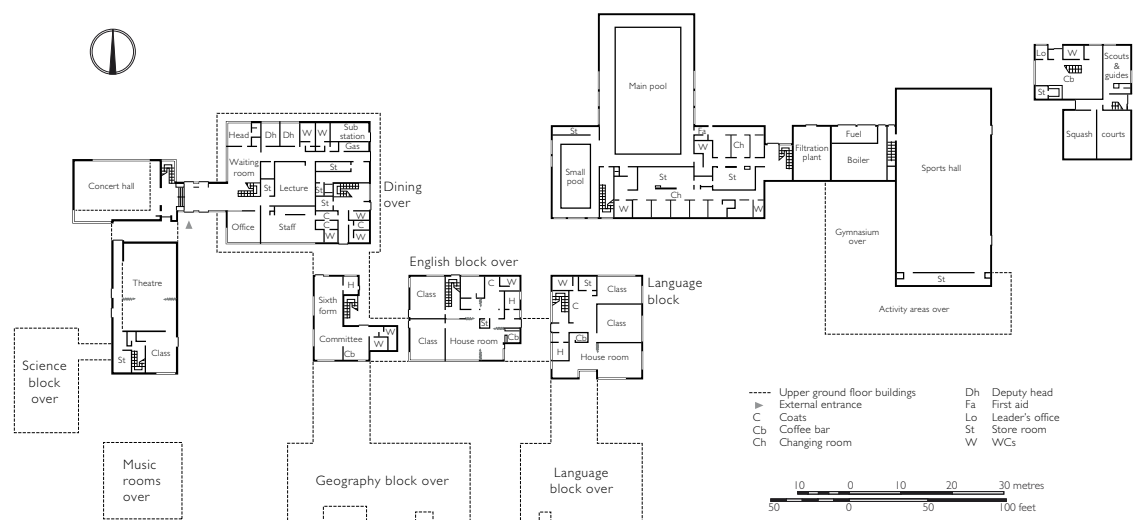


Figure 4.29: Lower ground floor plan of Toot Hill School, Bingham.



Figure 4.32: First-floor plan of the lower school of Chilwell Comprehensive School.

¶ **Toot Hill School**, The Banks, Bingham, Architects' Co-Partnership, 1956-57; Nottinghamshire County Council Architect's Department (job architect R. J. Patterson), 1967-69.

This comprises a secondary modern in Derwent built in two phases by ACP after the county architects had designed and costed a prototype. There was a glazed tile mural by the children. It was extended in 1967-69 in CLASP Mark III as a comprehensive school for 1530 pupils, with a sports centre developed with the district council. All phases are still recognisable and particularly the interiors of the sports centre are little altered, but there has been much recladding of the exterior and remodelling of the major school interiors. This was the defining Notts comprehensive school in being an extension of an older building, with sports facilities shared by the community.⁷⁵

¶ **Carlton Cavendish School and Carlton Forum Leisure Centre** (now Carlton Academy), Coningwath Road, Carlton; Nottinghamshire County Council Architect's Department

(directing architect R. J. Patterson, project architect Gilbert Mellers), 1968-70.

Built using CLASP Mark III, based on a school of 1939, which was adapted for art, science and technology. To this was added a three-storey courtyard building on a deep plan, a theatre and sports facilities. The site is divided between open playing fields on one side of the road and a tight area of buildings on the other, so the school is concealed behind the sports complex. It has had more rebuilding than Bingham.⁷⁶

¶ **Chilwell Comprehensive School**, By-Pass Road, Chilwell; Nottinghamshire County Council Architect's Department (directing architect Michael Tempest, project architect Roger Bearsmore), main school 1970-71, lower school 1975-76.

This was a new school on a low-lying site, drained by a new pond, set between two overgrown villages with no proper urban centre and cut off by roads and fields from other buildings. The main school, in CLASP Mark V, is a smaller version of Bingham. More interesting is the lower school added, with bay windows



Figure 4.33: Chilwell Comprehensive School. © Elain Harwood.



Figure 4.34: The lower school at Chilwell, added in 1975-76. The glass roof brings light into the very deep plan. © Elain Harwood.

and pointed rooflights, which has become the Sixth Form Centre, known as Lakeview. Its interest is the unusual formal quality to the elevations, which show Mark V at its best, and the survival of the open plan around a stairwell (fine handrails) and resource centre. The central part is now largely filled with computers, around which are spaces for lessons, each one visibly in sight of the next. It seems to work because sixth form groups are small, and the murmur of lessons distils a working ethos across the computer areas.⁷⁷

¶ Sutton Centre (now Sutton Centre Community College), High Pavement, Sutton in Ashfield; Nottinghamshire County Council Architect's Department (job architects Alan Meikle and Syd Bell with Andrew James), planned from 1970, built in 1972-73 for the school and 1974-78 for the sports centre and community facilities.

A site in the town centre was suggested by Alan Meikle as a way of bringing facilities to the area; a new shopping centre separates the school from the Market Square. For six weeks, Swain, Meikle and James Stone spent their evenings and weekends at Sutton, meeting up at the Wimpy

bar and 'following the threads of Sutton's social life'. Swain noted:

There was nothing to do in Sutton except rev up motorbikes in Portland Square [...] What they wanted was somewhere to meet casually; coffee, disco, games room, a hole for the skinheads to hide in, other facilities too but always on a casual basis.⁷⁸

Meikle developed the original concept and when he left Notts in 1971 to become county architect of Worcestershire, Bell replaced him as Deputy and took over responsibility for the design, with Andrew James as Group Leader. The sports centre, programmed as a second phase, was delayed by inflation and local government reorganisation. Sutton was the largest and most socially ambitious of Notts's sports and schools complexes, developed in CLASP Marks IVb and V, with a dark brick base and concrete panels incorporating brick chips set above. Rear rooms in the community facilities use the pyramidal rooflights first developed for use at York University.

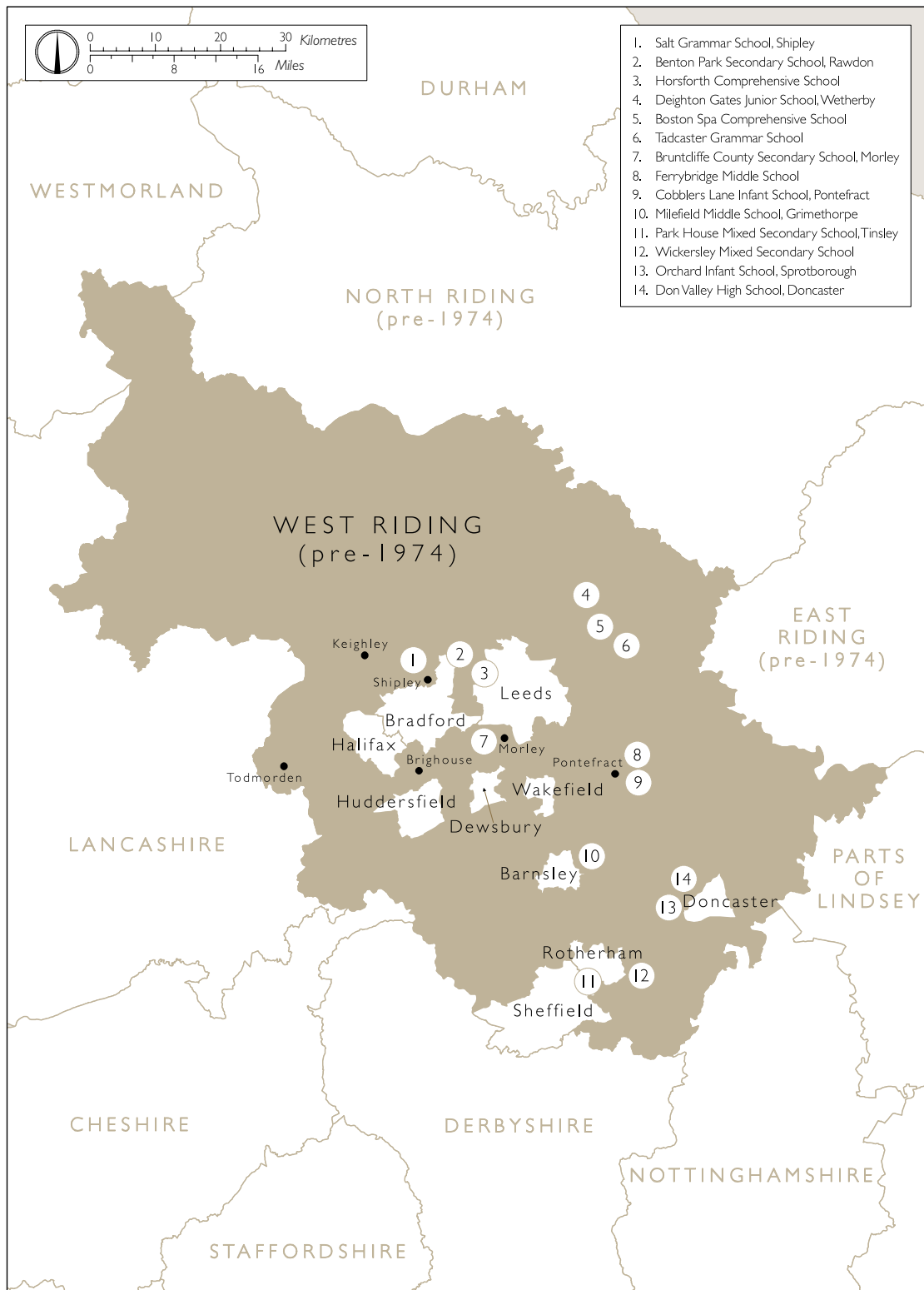
The site originally contained a school for 1200 pupils, youth centre, adult education centre, offices for youth employment and a day centre for the elderly and physically disabled. Sporting facilities proposed for the school and public were a large sports hall, smaller activity spaces, squash courts, bars and catering, a theatre boasting fly tower and orchestra pit, bowls hall and an ice rink. The school survives but some of the social facilities, including the ice rink, have been rebuilt on an enlarged scale on a new site, and the school and adult centre have been enlarged. The crafts areas were unusually large as they were shared by adult classes at all hours and a day centre for the old and handicapped. The front is quite handsome, but the scale is massive and amorphous while the interiors as remodelled are pedestrian. The running of the Centre, as Colin Fletcher's 1984 account revealed, was a fusion of conflict and cooperation, including inevitable frictions between the county and local authority in their dual management, but its social value to the town took on a new significance as traditional industries faltered and unemployment rose.⁷⁹

ENDNOTES

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THE WEST RIDING OF YORKSHIRE



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Figure 4.35: West Riding of Yorkshire: location of gazetteer entries.

The West Riding of Yorkshire

The boundaries of the West Riding of Yorkshire, established in 1889 and abolished in 1974, were based on the Anglo-Saxon division of Yorkshire into three ridings which met at the city of York. The West Riding was England's largest county, covering an area of 7,169km² (2,767 square miles), and also one of its most varied with landscapes ranging from high fells and moors, to low fens, to sprawling industrial towns and cities.¹ It boasted a diverse economy, with some areas characterised and supported by coal mining, others by the textile industries and related trades and commerce. As its industrialised urban centres expanded in size and ambition, more requested the autonomy of County Borough status: to the initial Bradford, Huddersfield, Halifax, Leeds and Sheffield were added Barnsley, Dewsbury, Doncaster, Rotherham and Wakefield, the last the administrative centre of the West Riding County Council. The fiscal profile of the West Riding County Council altered as urban population and rateable value was lost to the County Boroughs. Political control of the Council, too, became a fine balance between the Labour-controlled urban centres and coalfields and the rural heartlands of the Conservative party. Councillors were 'powerful, active and often abrasive' and on occasions the educational debate became politically charged.² Yet the destabilising effect of politics and personalities was tempered by a regional version of 'Butskellism', an unwritten cross-party consensus that extended to the broader objectives of educational policy.³

Cultural differentiation and socio-economic inequality presented a challenging set of circumstances for a local education authority, and no single policy or system could possibly be suitable for such a broad social spectrum.

1937-49	Walter Hyman (Lab)	1958-59	Walter Hyman (Lab)
1949-51	W.J. Johns (Lib)	1959-67	C.T. Broughton (Lab)
1951-52	J. Fuller Smith (Con)	1967-72	L. Fitzpatrick (Con)
1952-55	Walter Hyman (Lab)	1972-74	G.N. Bott (Con)
1955-58	J. Fuller Smith (Con)		

Table 4.2: *chairmen of West Riding Education Committee, 1937-74*

For the two post-war decades, the West Riding of Yorkshire faced the problem of a high and rapidly growing demand for school places. Superimposed onto the national trends of the birth rate 'bulge' and the raising of the school leaving age to 15 in 1947 and to 16 in 1972 were complex regional patterns: migration from the county boroughs, Scotland and the north east of England and high rates of immigration from the Indian sub-continent, the West Indies and eastern Europe. The drivers of population movement, mining and textile manufacture and their allied trades, transformed and contracted in the second half of the twentieth century. The need for extra school buildings was acute, especially in the suburbs and estates of newly built National Coal Board housing, but regionally variable and difficult to predict.⁴ Although most of the County Boroughs were comparatively well stocked with solid board schools, primitive accommodation was to be found in the rural village schools for which the County Council was responsible. They would have to wait: post-war priorities were firmly on providing new places, not upgrading existing ones.

Under the charismatic leadership of Alec Clegg, Chief Education Officer from 1945 to 1974, the education system in the West Riding was radically reorganised. Clegg not only drove education policy and practice in the West Riding; he was a key figure nationally, sitting on the Crowther (1956-60) and Newsom committees (1961-63) and submitting evidence to the Plowden committee (1963-67) of the Central Advisory Council for Education. Sir Edward Boyle, the Education Minister who received the Newsom report, recalled: 'we used to say, when something was proposed, "what would Alec Clegg think of this?"'⁵ Even today, some four decades after his retirement, his is still a name to conjure with.⁶ He is described by his former deputy Peter Newsam as a creative administrator and an inspirer of teachers. What set Clegg apart was the combination of attributes he brought to the role: a strong moral sense, a capacity for self criticism and an awareness of the educational heritage of the West Riding and his own family (he came from a family of school teachers).⁷ He is remembered as 'a man of pithy comments, who brought humour to management'.⁸ Clegg was a pragmatist, a pluralist, an enemy of dogma: he believed 'what worked was the test'.⁹ Behind many of Clegg's policies was a profound concern for the effects of social disadvantage and educational inequality. He championed the less fortunate and the less 'gifted' child in the West Riding, through his involvement in the Newsom Report and, after his retirement, his chairmanship of the Centre for Information and Advice on Educational Disadvantage. Boyle, referring to the MoE's London headquarters, described Clegg as 'the accepted conscience of Curzon Street'.¹⁰

School building is a central part of the story of education in the West Riding. Hubert Bennett, Architect to the West Riding from 1945-56, built up a strong Department but school building programmes were hampered by his reluctance to prefabricate, even after having bought time with temporary hutted classrooms. After his departure, the West Riding was pressed by central government into membership of the Consortium of Local Authorities Special Programme (CLASP, page 125). CLASP was a pragmatic and economical solution to building on mining subsidence sites; load-bearing construction was generally preferred elsewhere. Another long-standing policy was the allocation of design work to private practices, some of national renown.

By April 1974, when the West Riding was dissolved on local government reorganisation, it had established a national reputation as a local education authority. What is its legacy? In outline, the educational accomplishments of the West Riding are easily stated: it was an early advocate of comprehensives; an instigator of middle schools (and of an Act of Parliament to make them possible) and the celebration of individual expression and exploration in the primary school. The detailed picture is not as clear: policies were implemented in a gradual and piecemeal manner due to changes in political control of the Council. Each educational division was given much latitude to determine its own pattern of education in its own time.¹¹ Plurality was also demanded by variations in demography and the suitability of buildings for conversion.¹²

'Something like a piece of Gruyère cheese with holes in it' was how the educational administrator Tony Lenney described the West Riding education authority.¹³ In addition to the ten county boroughs, which constituted separate education authorities, Keighley was designated an 'excepted district' under the terms of the 1944 Education Act. All authorities were further partitioned into educational divisions, and the West Riding

delegated certain educational decisions to the divisional executives of the eleven rural divisions and five urban divisions. The extent of local autonomy was partly due to Clegg's pragmatic stance: rejecting imposed uniformity, he encouraged the divisions to develop schools which best met the needs of their local communities.¹⁴

The Selection Debate

Clegg's predecessor Arthur Binns set up a Sub-committee for Post-war Education as early as 1942.¹⁵ Binns, with the support of Alderman W. H. Hyman, the Labour chairman of the West Riding Education Committee, showed an interest in building non-selective 'multilateral schools', planned as separate buildings on a single site so that they could revert to separate schools if required.¹⁶ It was suggested that new secondaries at Tadcaster and Ripon should experimentally be of this type. Alec Clegg, appointed Chief Education Officer in September 1945, strongly opposed the principal of selection and sought expert advice which challenged the reliability of the aptitude tests which formed the basis of allocation.¹⁷ In a memo of July 1946 he wrote 'we must not blindly divide our secondary schools into technical, grammar and modern schools, but must by experiment discover the needs of children of 11+ and differentiate our schools gradually according to our discoveries.'¹⁸ He gave his qualified support to comprehensive education, although he believed that no scheme was universally applicable nor a guarantee of educational reform.¹⁹

The West Riding Development Plan, first issued in 1948, proposed the construction of 866 new schools and the closure of 421, which would have brought the total to approximately 1,500 schools. Of the new secondary schools, 16 were to be grammar schools and 34 multilateral, thirteen of which would replace existing grammar schools. From 1949, when the Conservatives won overall control of the council (table 4.2), the multilaterals were viewed more sceptically. The Ministry's response to the multilaterals was equally cautious and the revised of 1951 plan dropped multilateral schemes formerly proposed for Keighley, Harrogate, Goole, Pontefract, and Spen Valley; five grammar schools in other areas were allowed to remain unchanged.²⁰ The first West Riding 'comprehensive', Calder High at Mytholmroyd, opened in January 1950 in a secondary modern building of pre-war design.²¹

In 1952 a newly-elected Labour council authorised new and purpose-built comprehensives at Tadcaster, Colne Valley and Penistone, built between 1955 and 1958. The first of them to open, in 1956, was Colne Valley High School near Huddersfield, a large, eight-form entry school with a four-storey classroom block, constructed in phases between 1951 and 1959. As if in recognition of the school's symbolic value, a bronze cockerel was commissioned from Elizabeth Frink.²² In addition to taking all children of secondary age from their immediate catchment areas, Penistone and Tadcaster also admitted the brighter children from a much wider area. This type of comprehensive school became common in the West Riding in the 1950s and 1960s.²³ The problem with multilaterals was commonly perceived to be their size—it was feared that large schools would be impersonal and lead to problems of discipline. In preparing the Education Plan the West Riding had aimed for schools of between 800 to 1000 pupils but comprehensivisation inevitably meant larger schools of between 1500 and 2000 pupils.

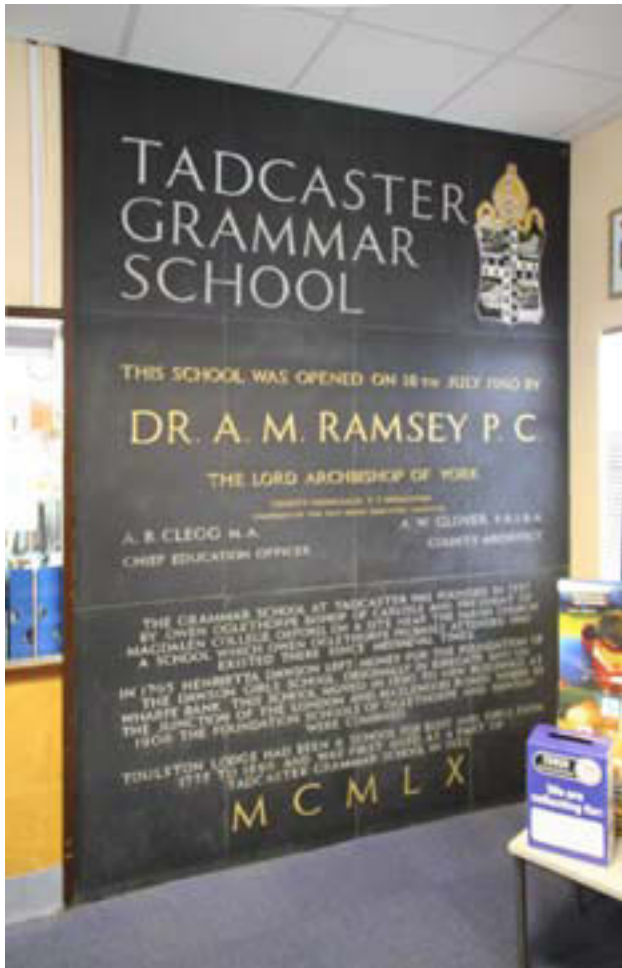


Figure 4.36: Slate plaque commemorating the opening of the Tadcaster Grammar School in July 1960 (P5925003).

A single site was always desirable, and the layout of school buildings was one way to mitigate size.²⁴

By 1956 the Council was again under Conservative control; the pace of change slowed and compromises reached. The new comprehensives were retained and given every chance to succeed, but it was agreed that no further proposals should threaten the status of existing grammar schools. Support for grammar schools was not divided across party lines: they were commonly viewed as a source of betterment for those with ability and a means of escape from the mining areas; industrial areas could be slow to embrace the comprehensive system.²⁵ The selection debate was fudged by introducing other, more flexible methods of selection. This included the 'Thorne scheme' of selection based on teacher appraisal, devised at Clegg's behest by his brother-in-law Gilbert Peaker, HM Staff Inspector for research. By the mid-1960s it was being used for about 70 per cent of children in the county, and was copied by a number of authorities.²⁶

In 1965, by the time of the DES circular 10/65 which requested local authorities to submit non-selective educational plans, 14 comprehensive schools had been opened in the West Riding and Colne Valley, Rother Valley and Hemsworth were committed to comprehensive schemes. The other divisions now had to follow suit.²⁷ Clegg guided the process, making it clear that he would not accept certain patterns of educational organisation such as 11-13 schools, transfer at 14, selection for senior highs based on parental choice and the creation of large schools in split premises.²⁸ In July 1966 the West Riding submitted a comprehensive reorganisation scheme to the DES based on the responses it had received from its divisions.

The 9-13 Middle School

The West Riding's most significant contribution to education in post-war England is probably the idea of a three-tier education system which comprised 5-9 primary school, 9-13 middle schools and 13-18 secondary schools.²⁹ Middle schools usually admitted children between the ages of 8-12 or 9-13, and the merits of both were much debated in the 1960s (page 37). Although there is evidence that on purely educational grounds

Clegg, like the Plowden committee, favoured the 8-12 school, his support for the 9-13 grouping was underpinned by pragmatic motives. For one thing, 9-13 middle schools were 'deemed secondary' by the Ministry, qualifying for more generous helpings of money and space. They were a better fit with existing secondary school buildings and plans for non-selective secondary education. But Clegg harboured a concern that the 9-13 schools would push a secondary school ethos down to the youngest children.³⁰ For the first two year groups he wanted a sheltered environment, where as much time as possible was spent in the care of a single class teacher who knew them intimately. This was essentially a continuation of primary methods. Greater academic specialisation would come in the third and fourth years, undisturbed by exam pressures. Clegg recognised that the planning of school buildings, old or new, was crucial to the success of this arrangement (page 164).³¹ His three-tier structure recognised that the layout and size of many secondary school buildings made them unsuitable for adaptation to comprehensive schools, and saved others from enlargement. And an older age of transfer would result in a more mature and liberal atmosphere at the secondaries.

Clegg only reached these conclusions after considering and rejecting another three-tier proposal. The 'Leicestershire Plan', devised by Stewart Mason and approved by the MoE in 1957, was an equally pragmatic and influential response to existing school buildings (pages 223-24). It was presented as the only viable solution for the reorganisation of the Ecclesfield Division of the West Riding in 1958.³² But Clegg 'did not like his [Mason's] break at 14 and [...] did not like the idea of a lower school whose oldest children would for the most part come from educationally unambitious families'.³³ There was also a concern that the senior highs needed more than two years to prepare pupils for exams and an opposition to the role of parental choice in Leicestershire.³⁴ When Clegg consulted 15 head teachers on the age of transfer, ten presented convincing arguments for the age of 13.³⁵ He subsequently steered the West Riding away from the Leicestershire plan, promoting his own scheme regionally and nationally. But granting the divisions greater autonomy had its price. In 1963 the 'excepted district' of Keighley chose to implement the Leicestershire Scheme against Clegg's advice.³⁶ The policy was not a success, and Keighley switched to 9-13 middle schools in September 1977.³⁷

Clegg floated his idea in an informal letter of May 1963 to L.R. Fletcher, Secretary to the Central Advisory Council for Education (England). He subsequently met with Fletcher and Derek Morrell, Assistant Secretary at the Ministry, pleading to allow the system to be introduced in the Castleford Division.³⁸ In October, he presented a report on the subject to his Policy and Finance Sub-committee, whilst seeking maximum publicity in the press.³⁹ The following year, after a visit by Boyle to the Don Valley school, the Education Act was passed. It legitimised schemes with ages of transfer other than 11 and thus cautiously ushered in the middle school (page 35).⁴⁰ The 1964 Act can be seen as a direct response to Clegg's scheme, and it is perhaps not wholly coincidental that a knighthood was forthcoming the following year. The first three-tier scheme was agreed the following year at Hemsworth; it came into effect from 1968 and an account of the Hemsworth reorganisation was included in the 1970 DES pamphlet *Launching Middle Schools*.⁴¹ The intention was that the three-tier scheme would be selectively implemented, especially in less populous areas where the existing buildings were unsuitable for adaptation into conventional 11-18 comprehensives.⁴²

The 'Plan Factory': School Design in the West Riding

Hubert Bennett, appointed Architect to the West Riding County Council in 1945, was the first County Architect to inherit responsibility for educational building; previously school buildings had been the responsibility of an Education Architect in the Education Department.⁴³ Unusually, the growing size and importance of Bennett's Department was marked by purpose-built premises of 1949-53 at Bishopgarth, Wakefield, which drew together a department formerly scattered across six different offices.⁴⁴ Bennett's design, perhaps influenced by a pre-war visit to the United States, had the senior designers on an open gallery (nicknamed the 'goon box' after prisoner of war slang for a sentry tower). Bennett had the biggest office of all, enclosed by glass walls. The gallery overlooked a 'plan factory' occupied by ranks of drawing boards. It was, in Andrew Derbyshire's words, a 'built hierarchy', very different to the quasi-autonomous groups that Bennett inherited at the LCC Architect's Department (pages 183-84).⁴⁵ It was at the plan factory that Bennett posed in a white smock, the garb of the hands-on designer, for the photographer of the *Architect's Journal* (fig.4.37).⁴⁶



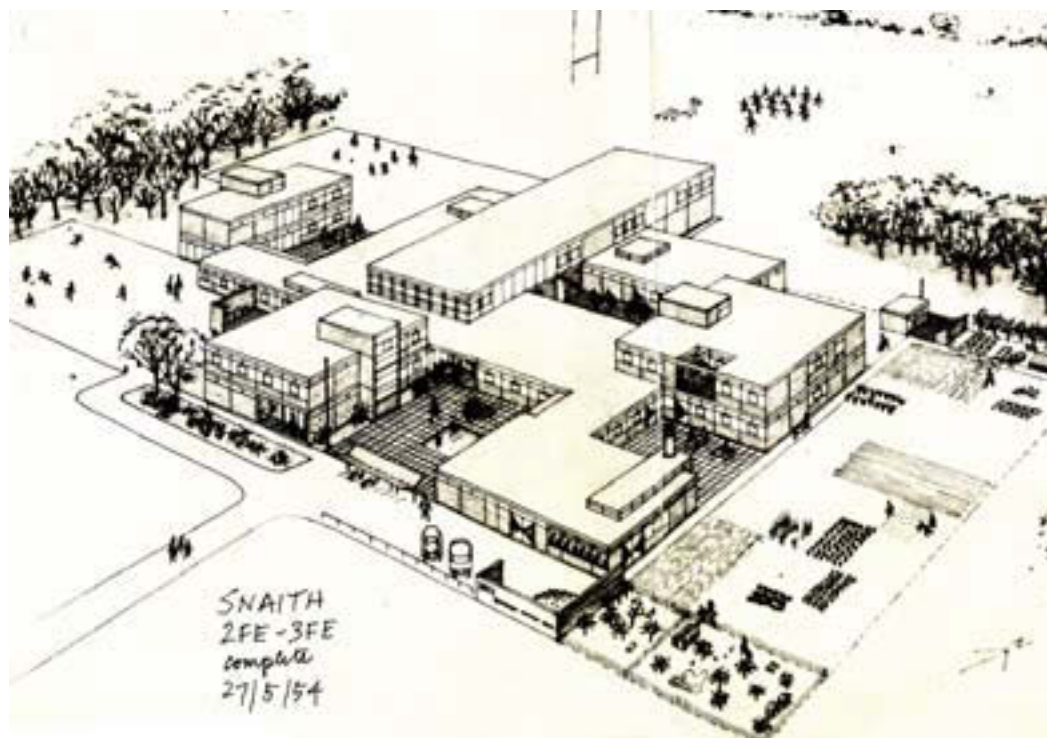
Figure 4.37: The West Riding 'plan factory'. Front row, from left: Hubert Bennett, W.T.C. Walker, A.W. Glover, Arthur Robinson, H. Judson, Andrew Derbyshire, J.R. Taylor, E.L. Cathery. Back row: D.G. Howard, C.R. Penny, W. Pepper, G. Pickup. Reproduced by kind permission of the Architects' Journal, vol.121, no.3144, 2 June 1955, p.732.

For the first few post-war years much of the Department's time was spent on an exhaustive survey of the county's stock of school buildings, which informed the Development Plan, and the job of adapting and extending a series of country houses which would become Clegg's teacher training colleges.⁴⁷ The school-building programme commenced in earnest in 1948-49, but was hamstrung by shortages of materials and labour.⁴⁸ So little guidance then existed on educational design that Bennett had to reply on his own pre-war experience.

Whilst teaching at Leeds in the mid-1930s he had designed the innovative Swinton and Pendlebury Open-air School in Greater Manchester, with a sophisticated plan and 'diagrid' roof.⁴⁹ And two pioneering Yorkshire schools, completed at the beginning of the war, were much consulted by West Riding architects. Denis Clark Hall's Richmond Girls' High School of 1938-39 was based on the architect's winning competition entry in the *News Chronicle* competition of 1937, but benefited from the advice of Frank Barraclough, North Riding's Chief Education Officer.⁵⁰ Its elongated plan and the use of random

rubble walling (introducing a vernacular element to Modern Movement architecture) would be echoed at the West Riding. Whitwood Mere Infant School in Castleford, completed in 1941 to designs by Oliver Hill, was also an inspiration. Hill's design boasted a subtle sense of colour and his curved plan incorporated sliding, folding glazed screens opening onto a covered terrace.⁵¹

Yet as Andrew Saint has observed, West Riding schools of the 1950s were modernising rather than modernist.⁵² Their combination of snecked stone facing, square windows, vertical weatherboarding and a mixture of flat and monopitched roofs recall Clarke Hall's Richmond school and the 'New Empiricism' of welfare state architecture in northern Europe.⁵³ The image was underpinned by a strong local preference for York stone facing, especially in the open rural sites and historic towns of the West Riding.⁵⁴ Bennett claimed responsibility for the design of the Ilkley Infant School of 1953, a passable imitation of Frank Lloyd Wright's prairie houses, and Bardsey Primary School of 1954 which steps up a gentle slope with a ramped corridor.⁵⁵ He showed little enthusiasm for system building, preferring to use materials and methods familiar to the local building trade.⁵⁶ Andrew Derbyshire, on the staff from 1953-55, designed a light steel-framed system with timber infill panels. A prototype was built as Snaith Secondary Modern School (Figs 4.38-39),



Figures 4.38 & 4.39: drawings of 1954 by Andrew Derbyshire for Snaith Secondary Modern School. Photographs kindly supplied by Sir Andrew Derbyshire.

but the idea was taken no further.⁵⁷ Economies had to be secured by other means if the Ministry's cost limits were to be met. Techniques of elemental cost analysis, developed at Hertfordshire and the Ministry of Education with prefabricated building in mind, were applied to load-bearing construction.⁵⁸ But traditional building could never rival 'light and dry' in speed and the West Riding was obliged to resort to hutted classrooms, an admission of failure in the view of many socially-minded architects.⁵⁹ A demountable timber-framed classroom on a 4' module was first produced in 1952 and proudly shown off in the architectural press.⁶⁰ By 1960, 25,000 school places had been provided by a design which ran to 15 variations.⁶¹ As it was a counterpart to the government's HORSAs (an acronym for Hutting Operation for the Raising of the School-Leaving Age), it was inevitably dubbed the Hengist hut, after the brothers of Anglo-Saxon legend.⁶²

The biggest drain on school building resources were the technical challenges presented by mining subsidence sites: about half of the county was affected by worked and unworked mine shafts, and cost planning was a crucial tool in the search for a solution. From 1951, schools in subsidence areas were planned as a series of detached buildings with minimal linking sections. The units were small enough to successfully 'ride the subsidence wave' without substantial damage and both frame and load-bearing structures were possible. The foundation was a simple reinforced-concrete raft 'floated' on a sand bed. The resulting campus plan best suited secondary schools such as the Darton Secondary Modern School, near Barnsley of 1954-56 and Don Valley High School near Doncaster, opened in 1957.

When in 1956 Bennett moved on to become Architect to the London County Council, his Deputy A.W. Glover was promoted to the top job. Glover in turn appointed the prefabrication-minded Harry Benson Ansell as his Deputy.⁶³ These changes resulted in a more favourable climate to the adoption of industrialised building. In 1957 West Riding was encouraged to become one of the founding authorities of CLASP, along with neighbouring Nottinghamshire, Derbyshire and others. The determining factor in this decision seems not to have been the technological advantages of the system but the economic benefits of membership, which included bulk and forward ordering and an additional capital allowance for subsidence sites which, if unclaimed on any particular project, could be transferred to other capital projects in the CLASP programme. Under Glover, CLASP was deployed selectively as part of a mixed construction strategy for school buildings, which also included West Riding's home-grown solution to subsidence, proprietary building systems and traditional construction.⁶⁴

By 1960 the West Riding Architect's Department was firmly established at its central office in Wakefield, with divisional offices in Harrogate, Wakefield, Doncaster and Huddersfield taking care of maintenance and minor works. With 115 architects out of a total staff of 384, the Department was one of the largest in England. It was divided into six design groups, each led by an Assistant County Architect. Under Bennett each group specialised in a particular building type; the structure was later loosened, with the workload shared more equally between groups and a 'friendly rivalry' encouraged.⁶⁵ The groups were assisted by other sections comprising quantity surveyors, heating engineers, structural engineers and so on.⁶⁶ School building in the West Riding progressed at a considerable rate, and a tally of 72 primary schools, 43 secondary schools, seven

technical colleges and high schools and ten special schools were the result of barely more than a decade's work.⁶⁷

The contracting out of school design to private architectural practices was essential to overcome peaks in the departmental workload, and was already an established part of the operation when Bennett arrived in Wakefield in 1945.⁶⁸ By 1963, almost two-thirds of the design work for the Education Committee was distributed amongst 65 different practices, although this included minor works, additions and alterations.⁶⁹ In the main regional firms were patronised, notably Abbey, Hanson and Rowe of Pontefract, but occasionally more famous and innovative firms enjoying a national reputation were chosen, such as Lyons, Israel and Ellis, Richard Sheppard, Robson and Partners and Chamberlin, Powell and Bon (fig. 4.40). A Liaison Branch within the Architect's Department offered technical assistance, although the firms were ultimately answerable to the Education Committee.⁷⁰ Bennett's personal connections may have come into play in the selection of architects, and he inherited the same policy at the LCC/GLC from 1956-70 (page 184).



Figure 4.40: A courtyard at Salt Grammar School, Shipley; Chamberlin, Powell and Bon, 1960-63, demolished in 2005. © Geoffry Powell.

The appointment of Kenneth Charles Evans as County Architect in 1964 came as 'a bit of a shock' to the Department.⁷¹ Evans had studied under Douglas Jones at the Birmingham School of Architecture after the war and was one of several graduates to go to the Hertfordshire Architect's Department on graduating.⁷² After seven years at Hertfordshire, Evans was appointed Architect at the Isle of Ely in 1956 before returning to Herts as Deputy Architect under Geoffrey Fardell from 1960-64.⁷³ He brought

something of the Hertfordshire ethos to the West Riding: a willingness to collaborate with educationists, an interest in prefabricated construction and a certain developmental rigour. Evans took an interest, for example, in the planning of primary schools and how they might serve the sort of child-centred teaching which Clegg advocated. 'He kept sending them back', former Assistant County Architect John Mawson recalled of the plans vetted by Evans; 'they weren't good enough for him'.⁷⁴

Full use was made of CLASP in mining areas. For unaffected sites, a 'rationalised traditional' building system was devised by a development group lead by Assistant County Architect Laurie Nutter. 3M/RT, as it was dubbed, was based on the 3M (12") module recommended by the Ministry of Public Building and Works. A plywood roof deck rested on load-bearing brick or block walls; junctions and details were standardised to speed up detailed design.⁷⁵ The West Riding was also a pioneer in the design of school furniture and from the 1950s became one of a small number of authorities to design its own range. For Clegg, the design quality of school furniture was a measure of an authority's attitude towards the children and teachers who would use it and how much they were valued. Furniture layouts revealed much about how space was used and were a prerequisite of school planning. In 1970, David Medd and John Marshall of the DES Architects and Building Branch collaborated with the West Riding in the furnishing of the Cobblers Lane Primary School in Pontefract.

Educational Liaison

Alec Clegg was not personally involved with the design process, except at the most strategic level, and the briefing and liaison was left to his deputies, assistants and the Chief Clerk's department. A working party of teachers also contributed to the shaping of educational briefs. Clegg would not visit any school less than two years old, presumably on the basis that sustained patterns of use were the only way to evaluate a school building.⁷⁶ That is not to suggest that he was unconvinced of the influence of school buildings on their occupants. When soon after taking up the post, he ordered that a particularly drab and dirty village school be redecorated, he was surprised by the effect on the morale of children and teachers: 'I then realised how powerful the connection between colourful, clean and well equipped schools and what goes on inside them'.⁷⁷ Neither was Clegg ignorant of the processes and frictions of school design. He could be withering about architects, poking fun at Hubert Bennett at the Architectural Association in 1952:

County Architects are lamentably conservative. They insist on using the most protracted methods of construction, to sacrifice educational efficiency to their own often deplorable aesthetic standards, they are administratively incompetent and show a disregard for estimates, starting dates, and the client's needs which passes belief. Furthermore, if they act on behalf of the Council vis-à-vis private Architects they have no control whatever over these eccentric and unaccountable creatures.⁷⁸

Clegg's strong ideas about the organisation and layout of schools could tip over into intransigence when it came to dealing with architects.⁷⁹ Liaison between the fiefdoms of the Education and Architect's Departments seems to have been too limited and punctilious to encourage the sort of informal dialogue between junior members of staff

so effective elsewhere. As a consequence school design in the West Riding was perhaps a less reflexive and exploratory process than it might have been—particularly, perhaps, for Ken Evans, who had learnt the value of first-hand observation and discussion at Hertfordshire—and was probably closer to the traditional architect’s role of giving built form to a pro-forma brief, albeit an educationally-progressive one. The briefing process at the West Riding was summarised by A.W. Glover in a 1963 article:

After the initial briefing by the education department at a round-table conference, all preliminary sketch plans are subject to close scrutiny by the education administrative staff, Her Majesty’s Inspectors and specialists of the various teaching sections and, frequently, by the head of the school, if appointed. [...] Having completed [revisions to the sketch plan, the architect] brings his scheme before the Education Committee together with a model and rough perspective drawings to convey to the layman an idea of what the school may look like’.⁸⁰

He went on to describe the Education Committee as a ‘small body of enthusiastic but trenchant members’.⁸¹ ‘I have on the whole found architects aloof and somewhat uncooperative, unwilling to accept [...] suggestions’, complained Walter Hyman, a longstanding Chairman of the Council and its Education Committee. ‘Again and again I ask “What is the hall going to be like?” “I think you will be pleased (satisfied)” is the answer I receive, but we ought to see what it is going to look like that the start [...] After all, it will cost £5,000-£10,000!’⁸² An outsider’s view of the West Riding Education Committee in session is conveyed in this account by Hugh Morris of Robert Matthew Johnson-Marshall and Partners. He was seeking the subsidy of a ceramic mural at Swinton Technical High School near Rotherham, commissioned c.1960 from the potter Hans Coper:

It was a long, serious, classic debate about the role and place of Art in public places, between Labour members (miners, school teachers) and Tory men of muck and brass. It was loud, long and fierce. It frightened and horrified poor Hans into silence. I can still remember bits of it very well. The best question came from a very cross Tory: “ee, well...’tis all very fine, no doubt; but can you tell us, WHAT’S IT FOR?” This was bellowed. [...] In the end the £450 was put to a free vote (we were hustled out the chamber before that and left biting our fingernails in the corridor while the debate roared on to the vote). Hans was very miserable. Eventually the County Architect came bursting out, all smiles. “You’ve won, you’ve won! 17 votes to 13 and both parties split right down t’middle!” [...] If he’d had a hat he’d have been throwing it in the air.⁸³

School Planning

Clegg, who submitted evidence to the Plowden committee, championed the informal, explorative and expressive elements of primary education.⁸⁴ Traditional whole-class teaching was combined with teacher cooperation and a mixture of ages, activities and working groups. Although seen as an innovation, it was common practice at many Yorkshire village schools. Mrs Scott, the headmistress of Brodsworth Primary School, told Clegg: ‘family grouping, mixed age groups, the integrated day, non streaming—these



Figure 4.41: Tiling hanging at the CLASP Orchard Infant School, Sprotbrough, Doncaster; Twist & Whitley, completed 1966. Ken Twist and Ken Evans worked together at the Hertfordshire Architect's Department in the early 1950s (P5925004).

are nothing new in the village school. We have been carrying on with it successfully for years'.⁸⁵ Primary schools had been conventional, corridor-planned affairs under Bennett but Evans encouraged more compact plans. These derived from the 'mother hen' principle of providing a secure pastoral base from which children could stray into adjoining communal spaces.⁸⁶ It was discovered early on that halls were in virtually continuous use, so they needed to be set apart from entrances and main circulation routes to avoid disruption. Infant and junior schools were grouped on same site if possible, to make schools more intimate and sheltered places.

The West Riding's 1965-67 Building Programme provided an opportunity to amend the standard primary school brief. The teaching area was increased and each classroom was provided with a quiet area and a tiled area for messy practical work, and its own entrance, toilets and coat area. A range of activities were thus integrated into the classroom. The Orchard Infant School in Sprotbrough, opened in 1966, was one of the first of 40 new primary schools designed to the new brief (fig. 4.41).⁸⁷ By the early 1970s, a heady mixture of education progressivism and inflation contributed to a shift from classrooms with integrated practical and quiet areas to more open and innerconnected with 'social areas' which encouraged great movement and fluidity of class groups.⁸⁸ Plans such as Cobblers Lane Infant School in Pontefract or Deighton Gates Junior School in Wetherby, John Mawson recalled, 'took a little bit of geometry to make them work'.⁸⁹

Educational input was especially crucial in planning new middle schools, and Clegg set out his thoughts on the subject in 1966:

As for buildings, we would want each class to have its own base where its own work could be displayed, but we would also hope that for each year group there would be a shared space which for each of the two years would be a practical workroom, while the third and fourth year would share one workroom and one quiet book study rooms. In addition, we would have a large room for wood and metalwork, animals and plants, and a large cleaner room for the cleaner crafts and the beginnings of housecraft.⁹⁰

The first purpose-built middle schools were designed within the West Riding Architect's Department. The test bed was the **Milefield Middle School** in Grimethorpe, the first of several new middle schools required when the Hemsworth division became the first to implement a three-tier reorganisation (fig. 4.42). But overall, many more secondary modern schools were converted than new middle schools were built.

In secondary schools the challenge was to break large school units down into smaller distinct groups. Early comprehensives were initially organised into upper, middle and lower schools. This pattern later gave way to division by house. Curricula varied but were generally broad, reflecting the academic subjects to be found in grammar schools but including practical subjects as well as physical education, drama and dance. Clegg was influenced by the thinking of the Newsom report on secondary teaching and organisation, being particularly enthusiastic about the multi-functional centres intended to facilitate informal group discussion and social gatherings amongst older pupils (pages 46–48).⁹¹ From 1967 West Riding secondary schools included the provision of integrated social areas for 5th form pupils and suitable accommodation for 6th forms. The gradual implementation of non-selective reorganisation plans resulted in a glut of large comprehensive schools in the late 1960s and early 1970s. These combined informal social areas for older pupils with facilities for the use of the wider community such as sports hall and swimming pools, in some instances part-funded by borough councils.

The Demise of the West Riding

The widespread reform of local government in England was considered in 1966–69 by a Royal Commission. But the Labour-commissioned Redcliffe–Maud Report was not adopted, and the incoming Heath Government imposed a universal two-tier structure, with West Yorkshire, South Yorkshire and the Tyneside area becoming metropolitan counties.⁹² The West Riding was the biggest English authority required to bring about its own disbandment in accordance with the Local Government Act of 1972. Parts would go to nine successor authorities including Leeds, Sheffield, Bradford, Huddersfield, Wakefield, Doncaster, Rotherham, Barnsley and Halifax (Calderdale). Other districts were transferred to North Yorkshire, Oldham, Lancashire and Humberside.⁹³

The Conservative-led West Riding County Council opposed the reforms but were reluctant to openly challenge a scheme proposed by a Conservative national government.⁹⁴ Clegg and the DES feared that the metropolitan district authorities with low rateable values would struggle to provide an adequate education service.⁹⁵ Clegg expressed his misgivings in a 1971 letter to the educationist Harry Rée:

‘We are going, with a vengeance, to create two leagues of authorities and the bottom league will be made up of the Metropolitan Districts. These are grey areas and no one cares a damn about them politically—the Socialists cannot lose them and the Tories cannot win them’.⁹⁶

Most vulnerable were the specialised or subsidised services that only a big, centralised LEA could efficiently provide, such as nursery and special education, adult education, teacher training, in-service training courses, a peripatetic music service, a curriculum advisory service and a central resource centre. When the West Riding County Council

ceased to exist in April 1974 some functions were transferred to the Metropolitan County of West Yorkshire, until it too was abolished in 1986.

The break up of the West Riding effected the dispersal of one of the largest and most experienced pools of school designers in the country.⁹⁷ 'Astragal' of the *Architects' Journal* reported the dispersal of the records of the Architect's Department in April 1974: 'row after row of files and roll upon roll of drawings were arranged in neat rows waiting to be collected and a trickle of collectors filtered onto this dismal scene, packing material into vans, boots of cars and even briefcases'.⁹⁸ Of the new metropolitan district authorities

only Wakefield remained a member of CLASP, reducing the bulk buying capability of the consortium considerably. Few new schools were built by the successor authorities, which generally had little money and relied upon their stock of board schools. The group of Bradford primary schools designed by Ron Furniss of Bradford City Council Architect's Department in the 1980s is a notable exception (fig. 4.43).⁹⁹



Figure 4.43: Newby First School, Bowling, Bradford; City Architect's Department (job architect Ron Furniss), 1985. The 'Bradford Schools Programme' involved several new schools of similar design. Institute of Education Archives: ABB/B/1/52/6

Gazetteer

Primary Schools

¶ Orchard Infant School, Field House Road, Sprotbrough, Doncaster; Twist & Whitley, completed 1966.

Orchard Infant School at Sprotbrough was one of the first of forty primary schools on the 1965-67 capital programme to be compactly planned on the basis of a revised educational brief. Orchard Infant School is a two-form entry, six-class school which replaced an earlier school a short distance away. The school is constructed in CLASP Mark III with timber and asbestos cladding panels and tile hanging. Some windows have

been replaced in uPVC but the school retains its original weatherboarding, tiling and asbestos panels (fig. 4.41).

¶ Cobblers Lane Infant School, Cobblers Lane, Pontefract; West Riding County Council Architect's Department (job architect Peter Brown), designed 1970-71, built 1971-72, demolished 2007.

By the early 1970s, West Riding primary schools were being designed with a more compact plan, which met stringent budgets and encouraged teacher cooperation. Three pairs of home bases, each with its own quiet area and covered entrance and sharing a 'wet bay' were clustered around a 'market cross' or forum

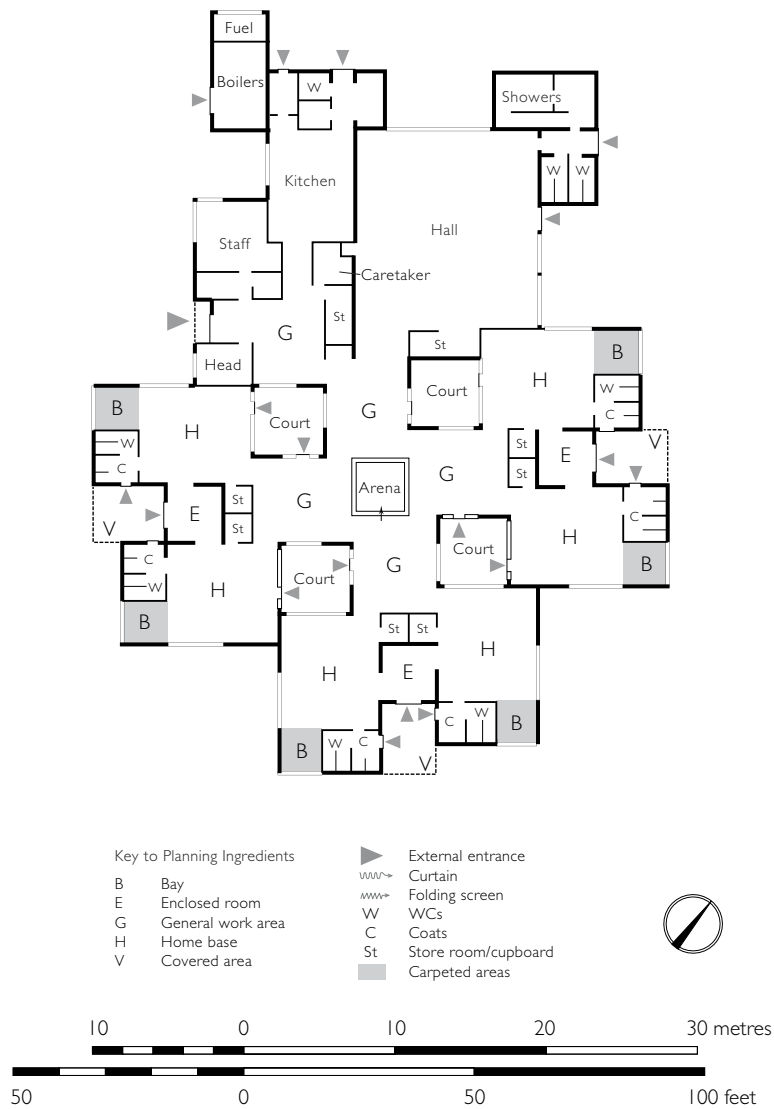


Figure 4.44: Cobblers Lane Infant School, Pontefract.

with a curtained and raised dais for drama. Four courtyards brought light into the centre of the deep plan. A fourth arm led to hall, kitchen and administrative rooms. The school was in a mining subsidence area and so built in CLASP. David Medd and John Marshall of DES Architects and Building Branch acted as 'design consultants' on the furnishing of the school which was the subject of a short film.¹⁰⁰ The school was closed on amalgamation.

¶ Deighton Gates Junior School, Deighton Road, Wetherby; West Riding County Council Architect's Department (job architect Alex Roberts), designed 1969, built 1970-71.

A two-form entry junior school arranged as a series of two-teacher 'centres' ranged around open space for communal activities and decentralised dining. Like Cobbers Lane, the plan incorporated rotational symmetry. Construction was in the West Riding's '3MRT' system of

rationalised traditional construction. Excess soil excavated from the site used formed into a long barrow and a brick fort.¹⁰¹

Middle Schools

¶ Milefield Middle School, Engine Lane, Grimethorpe; West Riding County Council Architect's Department, opened 1968, demolished.

Milefield Middle School opened in September 1968, purportedly the first purpose-built middle school in the country, and a model of Alec Clegg's thinking on the needs of the 9-13 age group. This 480-place school, like the contemporary Delf Hill Middle School in Bradford (page 39) was organised into upper and lower pairs of year groups, each ranged around an internal courtyard, with shared facilities at the centre. Each year group comprised four classrooms with a shared practical area

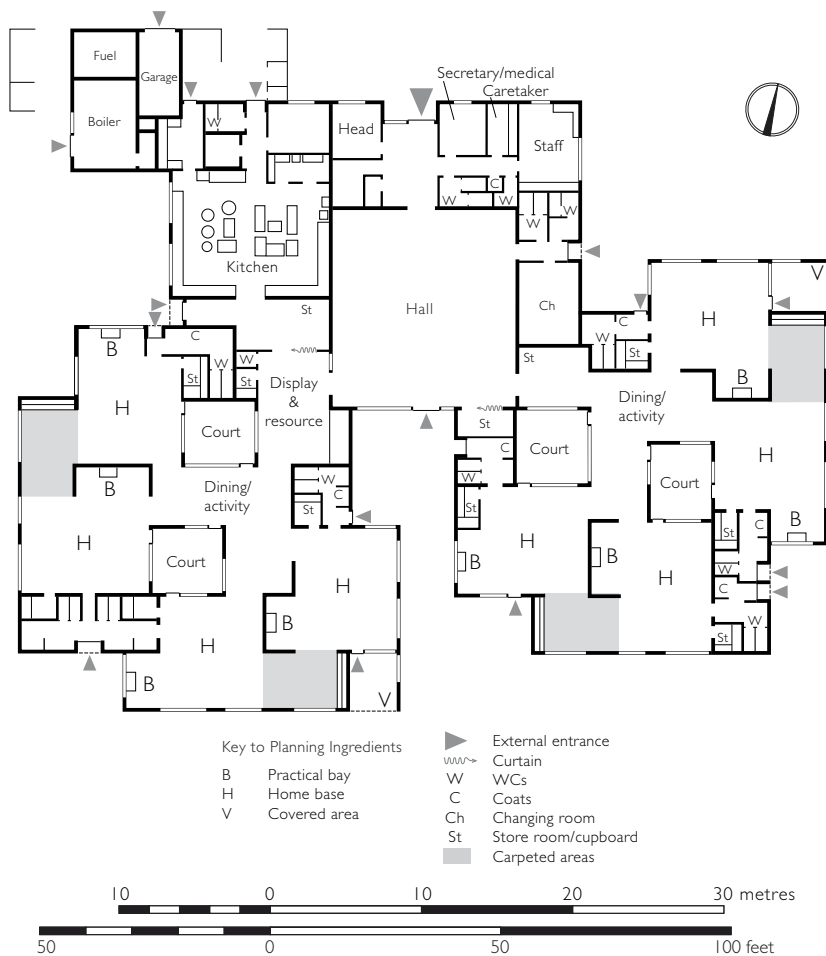


Figure 4.45: Deighton Gates Junior School, Wetherby.

equipped with sink and workshop facilities. The classrooms, each of 600 square feet and for thirty pupils, were intended to be large enough to enable a range of activities such as science, craft, reading, writing, mathematics to be pursued at any one time. The two older year groups had smaller classrooms and more shared areas, a library and a housecraft area. The school, of CLASP construction, closed in 1990.¹⁰²

¶ **Ferrybridge Middle School** (now Ferrybridge Roundhill Primary School), Hampden Close, Ferrybridge; West Riding County Council Architect's Department, opened 1971.

Ferrybridge Middle School was designed as a two form-entry junior school, being converted to a middle school in 1973. Two groups of four classrooms each with their own quiet and practical areas, are ranged around shared areas and courts. In the centre of the plan is a hall, shared study and library, a dining area and changing and shower facilities. The school, of CLASP construction, has now reverted to primary school age group. Replacement of the school is currently proposed.¹⁰³

Secondary Schools

¶ **Tadcaster Grammar School**, Toulston Lane; West Riding County Council Architect's Department, designed 1954-6, built 1957-60, sixth form accommodation added c.1972.

The decision to increase secondary education provision in the Tadcaster area with a comprehensive school was taken as early as 1944,¹⁰⁴ along with Ripon, because it was thought



Figure 4.47: Tadcaster Grammar School (P5925005).

that Tadcaster was too small to warrant the building of a new grammar school, secondary modern and secondary technical school. Tadcaster Grammar School was first designed in 1954 as one of the first comprehensives in the West Riding. The school had occupied the 80-acre grounds of the Victorian Toulston Lodge since 1952. The original school consisted of a linked upper and middle school block and junior school block, both of three storeys, connected by what was originally the library to the large school hall to the west. The practical block and boiler house and chimney were situated to the south west with a detached gymnasium to the south of the library. The buildings are of rationalised traditional construction with yellow brick walls and glazed curtains with lower light concrete panels, the colour of the local stone. The school was formally opened in 1960 and enlarged c.1972 with a ROSLA extension. Recent additions include a science block in 2002 and a detached library block (c.2007).¹⁰⁵



Figure 4.46: Ferrybridge Middle School; West Riding County Council Architect's Department, opened 1971. Ferrybridge C power station looms behind. Institute of Education Archives: ME/Z/5/3/23

¶ Benton Park Secondary School, Harrogate Road, Rawdon, Leeds; Sir John Burnet Tait Durrant & Partners, 1960.

A late work by this celebrated British architectural practice. Two and four storey blocks of reinforced concrete frame with brick and glass infill.

¶ Salt Grammar School, Higher Coach Road, Baildon, Shipley; Chamberlin, Powell and Bon (CPB; partner in charge Geoffrey Powell, job architects Keith Manners, Max Barham, Ralph Shergold), 1960-63, demolished 2005.

The co-educational Salt Grammar School was established in 1944 when the West Riding County Council amalgamated the Saltaire Boys' High School, founded by Sir Titus Salt in 1868, and a Girls' School of 1876. It was decided that the unique nature of the site, on the Aire Valley overlooking the historic model village and mill complex, demanded a special commission and CPB were appointed in 1959. The school, for 720 boys and girls, took the form of a courtyard plan with a barrel-vaulted hall and gym on one range. Powell created a sense of drama in the courtyard by perching a tile-clad circular hall over a large pond, fed by a diverted stream. The two floors of the building were planned almost as two separate structures, with a steel frame carried above a reinforced concrete ground floor. This allowed some planning flexibility, albeit at considerable extra expense and a protracted construction period. The school was faced with exposed concrete with a pick-hammered finish, and in some areas, internal walls and ceilings were left un-plastered to reveal structural elements. The school latterly suffered incremental alteration and was rebuilt in 2005.



Figure 4.49: Bruntcliffe County Secondary School (P5925006).

¶ Bruntcliffe County Secondary School (now Bruntcliffe High School), Bruntcliffe Lane, Morley; Richard Sheppard Robson and Partners, opened 1963, extended 1976.

Designed as a four-form entry mixed secondary school for a total of 600 boys and girls, the original school consisted of a compact rectangular block of two storeys around a central courtyard which originally incorporated a pond and sculptured fountain. Construction is of prestressed concrete beams bearing on load-bearing brick walls. The building was faced with local brick and cedar weatherboarding.

¶ Park House Secondary School, Bawtry Road, Tinsley; Lyons, Israel and Ellis (job architects A. Colquhoun, D. Langham and C. Dean), opened 1964.

Parkhouse Mixed Secondary School was a mixed four-form entry secondary school for 680 pupils, planned as four separate house blocks linked by glazed promenades. The main



Figure 4.48: Salt Grammar School, Shipley. © Geoffrey Powell.

entrance is sheltered by a detached concrete canopy supported by four concrete posts and opens consists of four separate blocks, a two-storeyed library and administration block, a three-storeyed classroom block, assembly hall and gymnasium and a two-storeyed craft block. The central administration and library block is

linked to the other blocks by glazed corridors. There is also a caretaker's house and a bicycle store. loosely ranged around quad.¹⁰⁶ An early use of white concrete, contrasted here with dark lbstock bricks. The school closed in the 1990s and is now an Islamic centre.

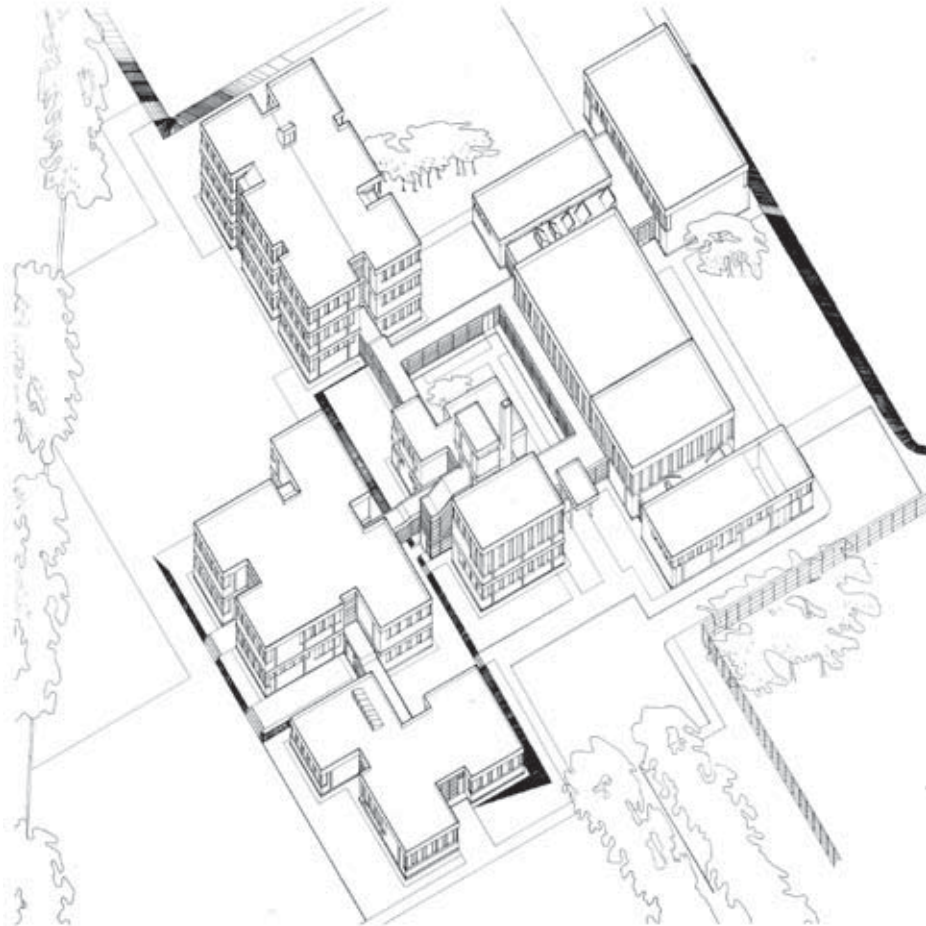


Figure 4.50: Park House Secondary School, Tinsley; Lyons, Israel and Ellis, opened 1964. Reproduced from Lyons Israel Ellis Gray: Buildings and Projects 1932-83 by kind permission of AA Publications.



Figure 4.51: Park House Secondary School in 2011 (P5925007).



Figure 4.52: Wickersley Mixed Secondary School, completed in 1966 to the designs of Lyons, Israel and Ellis. The elevations bear similarities with ACP's Lilian Baylis school in south London (fig. 3.12) (P5925008).

¶ Wickersley Mixed Secondary School (now Wickersley School and Sports College), Bawtry Road, Wickersley, Rotherham; Lyons, Israel and Ellis (job architects for first phase: F. Linden, J. Hodgkins and R. Freeman; job architects for second phase: D Triggs), first phase completed in 1966; second phase completed in 1975.

The first phase of the school, a four-form entry comprehensive school, was completed in 1966 and was designed to withstand mining subsidence. The second phase was completed in 1975 and increased the school to a eight-form entry, intended for 1,500 pupils.

¶ Horsforth Comprehensive School, Lee Lane East, Horsforth, Leeds; Abbey Hanson Rowe

and Partners (job architects Raymond Berry and Russell D. Earnshaw), designed from 1969 1970-73.

'This looks a gutsy, down-to-earth building with no pretensions', commented the *Yorkshire Architect* of Horsforth Comprehensive School. The brief stipulated an initial six-form entry phase, ultimately to be expanded to a ten-form entry school. The buildings are clad with red brick on a steel frame. At the time the school was designed, a major expansion was planned at Leeds/Bradford airport. An additional allowance from the DES funded in-situ reinforced concrete floors and roofs to better absorb aircraft noise, and determined the school's L-plan, with the sports hall, gym, hall, dining areas, kitchens and workshops arranged as largely-windowless 'sound buffers' to the main teaching areas. Crafts, art and science were co-located, with shared resources, in a block of industrial character whose cranked roof incorporates north light patent glazing. The hall was designed to allow both proscenium and in-the-round dramatic performances. The double-height brick piers and continuous upper storey of the inner elevations recalls Harvey Court, Cambridge of 1960-62 by Leslie Martin and Colin St John Wilson.¹⁰⁷

¶ Extensions to Don Valley High School (now Don Valley Academy and Performing Arts College), Jossey Lane, Scawthorpe, Doncaster; Lyons, Israel and Ellis (LIE; job architects: N. Cedar, B. Davies, A. Neaves and W. Marden), completed 1966.

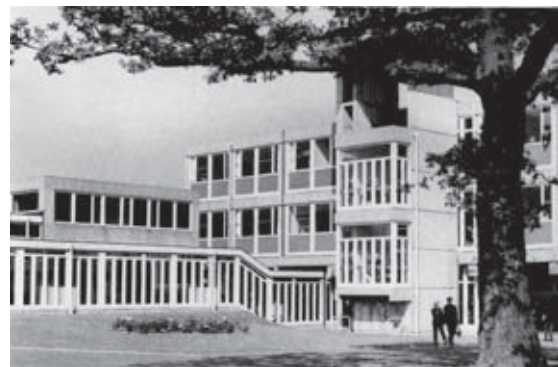


Figure 4.53: Extensions to Don Valley High School. Reproduced from Lyons Israel Ellis Gray: Buildings and Projects 1932-83 by kind permission of AA Publications.

The extensive additions to the Don Valley High School were required on comprehensive reorganisation. At first, the extensions functioned as a lower school for pupils aged 11-14, and the 1957 buildings accommodated pupils in the 14-18 age group. The 1966 school was a six-form entry comprehensive intended for 800 pupils. It is concrete-framed and was designed to withstand mining subsidence. It is one, two and three storeys high with a prominent central concrete water tower and heating chimney, something of a LIE trademark, acting as a local landmark.

¶ **Boston Spa Comprehensive School**, Clifford Moor Road, Boston Spa; West Riding County Council Architect's Department (job architects John Mawson, Melvyn Bokas, D. Hall), 1973-74.

A ten-form entry school for the 11-16 age range to serve an extensive rural catchment area. A sixth form building followed as a later phase, bringing the total roll to 1,700. Boston Spa Comprehensive School was planned as a single building of complex outline, mostly on a single storey. As the educational division which Boston Spa served had not introduced middle schools, a sheltered transitional environment was provided for the first two years in the form of a identifiable lower school with common social areas and separate dining facilities. The planning of the upper school reflects Clegg's attempt to dissolve subject boundaries between the sciences and crafts. Construction was of CLASP Mark IVb with precast concrete panels faced with white chippings and, unusually, incorporating some external walls and panels of brick. Boston Spa was opened by Alec Clegg on the final day of the Council's existence.¹⁰⁸

ENDNOTES

1. Leach and Pevsner 2009, 1.
2. Sir Peter Newsam cited in Crawford 2008, 101.
3. 'Butskellism' was a term used to caricature the economic consensus in post-war Britain: 'Mr Butskell's Dilemma', *The Economist*, 13 February 1954, pp. 439-41. 'Mr Butskell' was a fictitious amalgam of 'Rab' Butler, Conservative Chancellor of the Exchequer 1951-55, and Hugh Gaitskell, Labour Leader of the Opposition 1955-63.
4. Clegg 1952.
5. Kogan 1971, 177.
6. See, for example, the May 2008 edition of the journal *Education 3-13* contained several essays on the subject of Clegg's educational legacy.
7. Newsam 2008, 110.
8. Crawford 2008, 101.
9. Oxford Dictionary of National Biography, Peter Newsam, 'Clegg, Sir Alexander Bradshaw (1909-1986)', first published 2004.
10. Kogan 1971, 271.
11. Gosden and Sharp 1978, 170.
12. Crook 2002, 13.
13. Bush et al 1989, 123.
14. Oxford Dictionary of National Biography, Peter Newsam, 'Clegg, Sir Alexander Bradshaw (1909-1986)', first published 2004.
15. Darvill 2000, 19.
16. Gosden and Sharp 1978, 164-65.
17. Clegg canvassed the opinion of Sir Frederick Clarke of the National Federation for Educational Research, Dr Charlotte Fleming of the Institute of Education and Professor Godfrey Thomson of the Moray House School of Education at the University of Edinburgh. All opposed selection at eleven plus (Gosden and Sharp 1978, 166).
18. Darvill 2000, 53.
19. Darvill 2000, 115.
20. Gosden and Sharp 1978, 167-170.
21. It had been conceived as a secondary modern school, construction of which had begun before the Second World War, but instead the new building became an upper school while the former Hebden Bridge Grammar School buildings were used for the lower school for 11 to 13 year-olds.
22. *West Yorkshire Society of Architects Journal*, vol. 20, no.1, June 1960, pp. 6-38 (p.28). Darvill 2000, 79.
23. Gosden and Sharp 1978, 181.
24. Clegg 1980, 49.
25. Clegg 1980, 50.
26. Under the Thorne scheme, each primary school was allocated a provisional number of places at the local grammar school relative to its previous 11 plus results. Teachers submitted lists of children ranked in order of their considered ability; borderline children were referred for further assessment. The scheme was extended to the Batley area in 1955, and further extended in 1959-60 (Gosden and Sharp 1978, 179).
27. In May 1966, despite Conservative opposition, the Council moved a resolution for non-selective reorganisation.
28. Gosden and Sharp 1978, 191.
29. Gosden and Sharp 1978, 189. Their view is endorsed by Crook 2008.
30. Crawford 2008, 102.
31. Clegg 1966, 1290.
32. Gosden and Sharp 1978, 187.
33. Clegg 1966.
34. Gosden and Sharp 1978, 186.
35. Clegg 1966.
36. Gosden and Sharp 1978, 190.
37. Gosden and Sharp 1978, 190.
38. Gosden and Sharp 1978, 187.
39. Gosden and Sharp 1978, 187.
40. Gosden and Sharp 1978, 188-89.
41. Gosden and Sharp 1978, 189.
42. Clegg 1980, 41; Gosden and Sharp 1978, 187.
43. *West Yorkshire Society of Architects Journal*, vol. 20, no.1, June 1960, pp. 6-38 (p.9).
44. *Ibid.*
45. Andrew Derbyshire, pers.comm., 20 July 2012. See also Andrew Saint, obituary of Sir Hubert Bennett in *The Guardian*, 23 December 2000
46. *Architects' Journal*, vol.121, no.3144, 2 June 1955, p.731.
47. Bretton Hall (1949), Woolley Hall (1952), Wells House and Wentworth Woodhouse.
48. *West Yorkshire Society of Architects Journal*, vol. 20, no.1, June 1960, pp. 6-38 (p.9).
49. *RIBA Journal*, vol.45, no.15, 13 June 1938, pp.744-50. For a resume of Bennett's career see Minutes of the Greater London Council, 15 December 1970, pp.680-81.
50. Clark Hall 2007.
51. Holland 2011.
52. Andrew Saint, obituary of Sir Hubert Bennett in *The Guardian*, 23 December 2000
53. 'The New Empiricism: Sweden's Latest Style', *Architectural Review*, vol.101, no.606, June 1947, pp. 199-204.
54. Extensions to the Otley Secondary School became the subject of a written answer in the House of Common in 1959 when Sir M. Stoddart-Scott MP asked the Minister of Education 'why he permitted a building of brick, plaster, and glass in proximity to the ancient stone bridge of Otley,

- when all the adjoining buildings and churches are built of stone; and if he has considered the ill effects that a tasteless building will have upon the scholars who work therein' (Hansard, House of Commons debate, 5 March 1959, vol. 601, cc.58-9W).
55. John Mawson pers.comm., 16 May 2012; British Library, *Architects' Lives* interview of 1999 with Sir Hubert Bennett.
 56. 'Cost analysis of a secondary modern school', *RIBA Journal*, vol.61,no.11, September 1954, pp.431-46.
 57. Andrew Derbyshire, pers.comm., 18 June 2012. Derbyshire recalled 'struggling away at the West Riding, trying to devise a prefabricated system for schools, [which] nobody wanted' (cited in Gold 2007, 64). For the school at Snaith, see *West Yorkshire Society of Architects Journal*, vol. 20, no 1, June 1960, pp. 6-38 (p.6-7).
 58. 'Cost analysis of a secondary modern school', *RIBA Journal*, September 1954, pp.431-46. The cost analysis was by Andrew Derbyshire.
 59. Andrew Derbyshire, pers.comm., 18 June 2012.
 60. *Architects' Journal*, vol.121, no. 3144, 2 June 1955, p.733; *Architect and Building News*, vol. 207, no.22, 2 June 1955, p.666.
 61. Linstrum 1982, 266; *West Yorkshire Society of Architects Journal*, vol. 20, no 1, June 1960, pp. 6-38 (p.20).
 62. Gosden and Sharp 1978, 197.
 63. Benson Ansell would go on to systematise school building at Hampshire (pages 268-71).
 64. *West Yorkshire Society of Architects Journal*, vol. 20, no 1, June 1960, pp. 6-38 (p.20). Rossington Tornedale Infant School was completed in 1959 in a proprietary system (*ibid*, p.34).
 65. *West Yorkshire Society of Architects Journal*, vol. 20, no 1, June 1960, pp. 6-38 (p.12).
 66. *West Yorkshire Society of Architects Journal*, vol. 20, no 1, June 1960, pp. 6-38 (p.3, 12). See also West Riding Education Committee, 1974, pp.98-99.
 67. *West Yorkshire Society of Architects Journal*, vol. 20, no 1, June 1960, pp. 6-38 (p.9).
 68. *West Yorkshire Society of Architects Journal*, vol. 20, no 1, June 1960, pp. 6-38 (p.9).
 69. Glover 1963, 824.
 70. Glover 1963, 824.
 71. John Mawson pers.comm., 16 May 2012.
 72. Saint 1987, 75.
 73. Maclure 1984, 93.
 74. John Mawson pers.comm., 16 May 2012.
 75. John Mawson pers.comm., 16 May 2012; West Riding Education Committee *The Final Ten Years: 1964-74* (1974). 99.
 76. John Mawson pers.comm., 16 May 2012.
 77. Clegg, A. 'West Riding' in *Education*, vol.143, no.13, 29 March 1974, p.349.
 78. A. Clegg, 'The Education Act 1944 and the Post-war Building Programme'. Transcript of speech of 12 November 1952 at an Architectural Symposium on the secondary modern school, in *Journal of the Architectural Association*, vol.68, no.769, December 1952, pp.83-86.
 79. David Medd, pers. comm. 3 July 2008; Andrew Derbyshire, pers.comm., 18 June 2012.
 80. Glover 1963, 824.
 81. Glover 1963, 824; see also Darvill 2000, 23.
 82. *West Yorkshire Society of Architects Journal*, vol. 20, no 1, June 1960, pp. 6-38 (p.3).
 83. Institute of Education Archives: ME/M/1/20, Letter of 28.7.1983 from Hugh Morris to David Medd. A shorter version of the anecdote is given in Birks 2005, 43.
 84. Central Advisory Council for Education (England) 1967.
 85. Darvill 2000, 19.
 86. *Yorkshire Architect*, no. 34, January/February 1974, p. 18.
 87. West Riding of Yorkshire County Council, Educational Buildings Sub-Committee minutes, 17th January 1967.
 88. John Mawson pers.comm., 16 May 2012.
 89. John Mawson pers.comm., 16 May 2012.
 90. Clegg 1966, 1290.
 91. Gosden and Sharp 1978. 195.
 92. They were proposed in a White Paper of February 1971 (*Local Government in England: Government Proposals for Reorganisation*. Cmnd. 4584. London: HMSO).
 93. Gosden and Sharp 1978, 43.
 94. Barber and Beresford 1978. 255.
 95. The Department of Education and Science, giving evidence to the Redcliffe-Maud Commission, suggested that an education authority, to be viable, should have a population of at least 500,000 and that they would accept a figure of 300,000 in a sparsely populated area (Hansard, House of Lords debate, 19 September 1972, vol. 335, cc.944-1110).
 96. Institute of Education Archives:HR/1/28, letter of 9 August 1971 from Sir Alec Clegg to Harry Rée.
 97. The point was made by Ken Evans in a letter published in the *Architect's Journal*, vol.159,no.10, 6 March 1974, p.515.
 98. *Architects' Journal*, vol.159, no.14, 3 April 1974, p.707.
 99. Leach and Pevsner 2009, 78.
 100. 'Furnishing a school' by Pel Ltd; Institute of Education Archives: EM/4/1/9; *Architects' Journal*, vol. 156, no. 45, 8 November 1972, pp.1058-60;

Yorkshire Architect, no. 34, January/February 1974, p. 18; Maclure 1984, 182-83.

101. *Yorkshire Architect*, no. 34, January/February 1974, p. 19; DES Broadsheet 3 (copy at Institute of Education Archives:ABB/E/21).

102. Alec Clegg, 'The Conception of the "Middle School" in Secondary Reorganisation in the West Riding', transcript of paper given at the 'joint four' conference on middle schools, University of London, 15 February 1969, p.3 (www.middleschools.org.uk%2Fdocuments%2Fhistory%2FThe%2520Joint%2520Four%2520Conference%2520%25201969.doc, accessed 15 August 2012).

103. Maclure 1984, 194-5; <http://www.ferrybridgeroundhillprimary.uk.org/news/home>.
ikml

104. Gosden and Sharp 1978, 165.

105. Leach and Pevsner 2009 731.

106. Forsyth and Grey 1988, 102-5

107. *Architects' Journal*, vol.159,no.22, 29 May 1974, pp.1205-22; *Yorkshire Architect*, no. 34, January/February 1974, p.23.

108. John Mawson, pers.comm., 16 May 2012; *Architects' Journal*, vol. 160, no. 45, 6 November 1974, p. 1097-1112; *Yorkshire Architect*, no. 34, January/February 1974, p. 23; *Architect's Journal*,vol.159, no.23, 5 June 1974, pp.1234-38.

