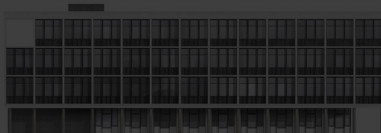
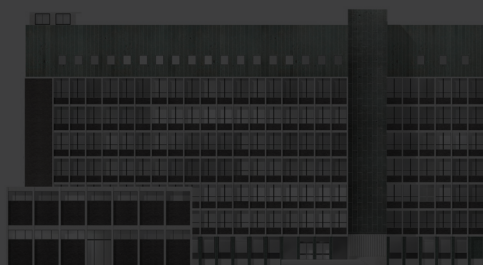


# UMIST in Postwar Society — Nation- Building and Urban Planning

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ABBREVIATIONS →

UMIST	[ <i>Institute</i> , 1966-]	University of Manchester Institute of Science and Technology
MCST	[ <i>College</i> , -1966]	Manchester College of Science and Technology
SISTER		Special Institutions of Scientific and Technological Education and Research
CAT		College of Advanced Technology
UGC		University Grants Committee
MIT		Massachusetts Institute of Technology
MEP	[ <i>Precinct</i> , -1966]	Manchester Educational Precinct
NCC		National Computing Centre
CDA		Comprehensive Development Area

COVER ←

the architecture of the UMIST  
Campus as a recognisable  
ensemble of tower and podium  
type buildings



Neither the historical evolution of the University of Manchester Institute of Science and Technology, nor its relation to the expansion of higher education the 1960s can be characterised as typical. The development of the Institute into a university in the 1950s does not follow a linear history. UMIST is a unique institution in many regards, not least in its composition as a university, but also in its temporal situation preceding much of the debate on postwar higher education. Whilst the acronym UMIST came into use in 1966, the Manchester College of Science and Technology, its predecessor, gained its royal charter in 1956, according it the status of a university college. Further back still, UMIST can trace its existence to the Mechanics' Institute, formed in the 1820s by affluent industrialists with the aim of providing technical education to a field of untrained laymen.

The evolution of UMIST in the 1960s occurs within the purview of two scales of political influence affecting postwar society. The first concerns the geopolitical scene of the Cold War, and government agenda of rearmament and big science in Britain. The second concerns municipal planning objectives for comprehensive urban restructuring programmes on an urban scale. Both spheres of influence shaped postwar society, conceived in mantras from 'White Heat' to the 'Welfare State', which aligned the state to the society it represented. UMIST is a product of both scales, on the one hand oriented to government objectives for enhanced scientific formation, and on the other, to municipal objectives of radical urban renewal in the wake of the war.

## UMIST A Prototype Institution for a New Age

The postwar evolution of the College into the Institute in the corporate sense, in its upgrading to university status; and in a physical sense, in the project for a new campus, occurred against a national and global political scene of big science and the Cold War. The relevance of higher education as an instrument in state-sponsored scientific advancement began to permeate into British government agenda in what had already been comprehended and enacted in the United States. US university campuses, most notably at Massachusetts Institute of Technology (MIT), were investment sites for military research and development into weapons technology. Despite the existence of similar contracts within British university departments, investment was at a much lower level. These 'Cold War Campuses' never truly materialised on the British Isles as widely as in the US. Nevertheless, technocratic government policy into the 1960s continued to be informed by defence spending, coupled with a growing understanding of how national reconstruction through a service and knowledge economy could be complementary to this objective.

In the 1960s the expansion of higher education occurred in the context of debate on universities and postwar society. Harold Wilson captured the image of modern Britain as a scientific nation in his famous 'White Heat' speech of 1963. In Wilson's vision for national economic revolution catalysed by science and technology, education and its incipient links to industry would play a central role.

As a rhetorical mantra rather than a political strategy, the soft power of White Heat nevertheless fulfilled an important role in the national consciousness in emphasising the importance of Britain in the context of the Cold War. Simultaneously, the national picture reflected a concern stemming from a general deficit of scientifically trained individuals, compounded by a lack of specialised higher education providers of any kind capable of fulfilling the White Heat narrative, let alone competing with institutions of the calibre of MIT.

Speaking earlier than Wilson at MIT in 1949, Winston Churchill regretted that 'we have suffered in Great Britain by the lack of colleges of University rank in which engineering and the allied subjects are taught'. [1] From political leaders at the very top of the British establishment, the shortfall of scientific training was placing Britain on the back foot. This sentiment prevailed throughout the postwar period where university education was caught in a breach between what C.P Snow labels the 'two cultures' of arts and humanities on the one hand, and science and technology on the other. [2] The state-sponsored New Universities in the 1960s were resistant to over-specialisation in any one discipline, instead favouring a broad education and a belief in interdisciplinary study. This novel university type experimented with democratic academic organisations and pedagogical methods in new-build campuses outside historic towns. They were designed to accommodate a critical mass of students in the postwar boom but not to specifically address a shortfall of scientifically trained individuals nor to become technological research installations. In the absence of dedicated scientific universities there was a consensus which overrode the two cultures debate that Britain would fall behind on the global stage if it could not capitalise on the relationship between higher education and science and technology.

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The University of Essex Campus, whose ambitions to realise a British MIT were never fulfilled



Throughout the postwar years, university and political leaders sought to attain a 'British MIT': a large university-status institution with direct ties to industry and Big Science. Ranging from the experimental university type proposed by Lord Robbins for five Special Institutions of Scientific and Technological Education and Research, (SISTER); to the New Universities, most notably Essex which attempted to prioritise science on its new campus upholding MIT as an exemplar; to Churchill College, Cambridge, originally intended as a fully autonomous institution for scientific training. [3] Attempts to create a British MIT went unimplemented.

Due to the specialisation inherent in Big Science, and the requirement for centralised facilities; the location of institutions such as the New Universities in their rural setting, and Churchill College, which lacked any specialised facilities whatsoever, precluded the realisation of a British MIT, contingent as it is upon the support of industry concentrated in urban centres. The reality of postwar expansion in science and technology as a whole did not match the vision nor the rhetoric of White Heat. Ultimately, urban institutions such as the Colleges of Advanced Technology (CAT) were established from Technical Colleges and later upgraded to universities pursuant to the recommendations of the Robbins Report of 1963. The report advocated for the democratisation and expansion of higher education provision to increase opportunity for study, whilst also to satisfy the deficit of scientifically trained personnel in the country. The report validated incipient ideas emerging in universities, opening the floodgates for a wave of university expansion accompanied by a reconceptualisation of the use of higher education.

However, between the expansion of science at existing universities, the upgrading of CATs, and the implementation of the New Universities building programme, comprehensive visions for scientific education were never realised in the UK to the extent imagined by political leaders such as Churchill and Wilson. Further compounding the situation was a prevailing ideological notion that technological education, as an antithesis to the idea of the university as a place of pure (rather than applied) research, undermined attempts to integrate technology at older universities.

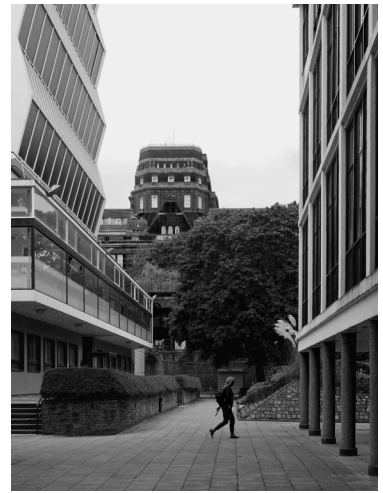
However, predating much of the 1960s debate on scientific training is the University of Manchester Institute of Science and Technology and its preceding institutions, whose eventual realisation offers a complete example of an urban

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The UMIST Campus with the original Sackville Street Building of MCST beyond

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Technopole: the UMIST Campus is a small city dedicated to Science and Technology



scientific university with clear connections to industry - positing an anomaly amongst the scientific expansion programmes of the postwar period. Whilst the physical evolution of the Institute reached its apex in the 1960s, UMIST was a product of immediate postwar imperatives of the 1950s at a national level as much as the municipal.

Temporally, the postwar expansion of the Institute occurred at a time when a nationwide rollout of technological education was struggling to achieve traction, notwithstanding very real concerns about the necessity of training-up a new scientific elite in the climate of the Cold War. The expansion of the College was perceived as an act of 'patriotism' as high up as Whitehall, where government subvention was facilitating the College's ongoing development through the University Grants Committee (UGC) [4]. Government policy had advocated since the early 1950s for the expansion of technology within existing institutions, but had largely dismissed calls from industry for the establishment of new universities and colleges specifically for specialist technological training. [5]



What would be required would be another type of institution, specialised in technological studies. At that juncture in its development, Manchester College of Science and Technology was being administered by the Victoria University of Manchester as a faculty in conjunction with a local education authority. [6] Whilst displaying potential for expansion, the College in the early 1950s was limited by its divided governance and regional catchment, government officials lamented MCST's 'lack of ambition'. In addition to the Manchester College of Science and Technology, central government and the UGC were assessing the viability of converting two other existing colleges into enhanced institutions for technological learning. Chief amongst these was Imperial College, London, followed by the Royal Technical College in Glasgow. These three institutions, in addition to the recommended creation of two new institutions were identified explicitly by Robbins as his proposed SISTER universities, showing potential for expansion and profiting from ties with industry in large urban centres. Nevertheless, each college faced particular difficulties with regard to either physical expansion or upscaling operations. In the case of Imperial, physical expansion was inhibited by the lack of available land in the established urban condition of South Kensington and a lack of proximate industry. Whilst for both colleges in Glasgow and Manchester, they faced particular issues with their constitutional autonomy from the major universities in their respective cities.



A change of fortunes in Manchester began with the appointment of Bertram V. Bowden as the Principal of the MCST in 1953, coupled to a growing emphasis on the postwar instrumentality of higher education in science and technology, particularly in the field of postgraduate research. Bowden had been posted at MIT during the war and advised the British government on radar technology, he was conscious of the unutilised potential of specialised scientific higher education in concert with industry and big science. Bowden's understanding and connections in industry, his oversight of the evolution of the College on a national stage, and the simultaneous development of its campus reinforced his political standing with municipal leaders. His political acumen led him to serve as Education and Science minister in Harold Wilson's government at the height of the UMIST Campus planning. One might speculate that the educational-industrial relationship exemplified by Cold War Campuses such as MIT, may have been a model which the new Principal sought to export to UMIST and enact through political means in designing UMIST as a pilot institution with national implications.

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The planning of the UMIST Campus occurred in tandem with other major projects, such as the planning of the Mancunian Way - an elevated motorway to the south of the campus

As a higher education institution specialised in science and technology combined with its close ties to industry in an urban centre, UMIST came close to the physical materialisation of Robbins' SISTER university model. Unlike any other type of university in Britain, the unique composition of the university in relation to nearby clusters of institutions and industries with whom the university is affiliated, in addition to its relation to national directives to ramp up training of scientists, created in UMIST a prototype for a scientific university. The Institute is further distinguished from contemporaneous universities in its significance to the urban and economic restructuring of a city centre in a higher education precinct. This double scale, of a scientific university at once oriented to both national policy and urban renewal fulfils the aspirations of Wilson's White Heat speech, of higher education as a means to mobilise a nation of scientists and rebuild in the wake of postwar and postindustrial decline.

## Campus Planning in the Context of Comprehensive Urban Restructuring



By the late 1950s, the College was being considered at a national level as a viable site for expansion, unhampered as Imperial College was, by the release of land by the city for comprehensive development. Land assembly around the existing College building on Sackville Street was facilitated by the terminal decline of industries to the south of the College, and the powers of Manchester Corporation to designate economically redundant zones as Comprehensive Development Areas (CDA). The College was well situated in relation to other academic centres, such as the co-location of city colleges for further education around nearby Grosvenor Park, and the contiguous Victoria University estate including United Manchester Hospitals to the south. The advantageous location of the College at a fulcrum in the plan, situated it between major infrastructure nodes, the universities, and the city itself. A unique political situation of the universities and Corporation working collectively enabled the consolidation of disparate estates into a comprehensive plan, facilitated by extensive land ownership of the universities, and authority of the city to acquisition large parcels of land.

These zones would ultimately be integrated into an overarching masterplan for the part of the city centre to be known as the Manchester Educational Precinct (MEP), designated as a CDA for dramatic physical reconstruction. The Educational Precinct plan would take decades to materialise given the

scale of the undertaking, each update to the plan reflected changing urban design principles and the physical construction of a coherent estate could never keep pace. The rate and scale of development across the precinct gave Manchester University the status of the 'empire on which the concrete never set', evidenced in the fact the MEP plan was never realised in full and is an ongoing project to this day. [7] A plan of this scale was entirely contingent upon the total redevelopment of multiple university sites, requiring all architects to adhere to radical planning ideas. Masterplanning the Precinct spanned the scales of architecture, urbanism, and city planning exemplified in the proposal for a continuous elevated pedestrian network over vehicular traffic connecting scores of buildings at upper level.

This grand vision of a self-contained yet conversely integrated precinct comparable in size to the city centre required concerted planning efforts from a number of large institutions in addition to city planners. The question of planning the MEP was a microcosm of urban planning as a whole, with the university regarded as one of the first to adopt comprehensive planning and zoning measures, involving the differentiation of functions. [8] This represents a divisive shift from the ad hocism associated with the Redbrick university. Where planning was previously a fundamentally reactive process, planning in the postwar period became an all-encompassing act and assumed disciplinary autonomy over architectural practice, predicting future requirements and establishing frameworks for later development. In the MEP Final Report, this conception of planning as an integrative enterprise was captured in the view that 'planning is a comprehensive activity and never more so than in the case of this vital and important example of urban renewal'. '[T]he Manchester Education Precinct' the report continues with no melodramatic intent, 'represents one of the greatest challenges of urban development at this time'. [9]



Plans for comprehensive redevelopment around the universities were not entirely new, and had been circulating since the war, propounded in the speculative City of Manchester 1945 Plan. It envisioned, inter alia, a rationalised Educational Centre concentrated on the main university site as one element of a sweeping urban redevelopment, and formed a precursor to the MEP plan. The scale of the proposal encompassed a vast tract of land to the south of the city centre largely closed off to traffic as part of a coherent campus estate. Under the plan drawn up by Hubert Worthington, extensive lawns and axial boulevards would override the Victorian street grid in a plan inspired by the City Beautiful movement.

The first 'tentative' masterplan for the College specifically emerged in 1955 report proposed by the same architect, where a symmetrical Beaux-Arts layout of mid-rise college buildings enclosing the perimeter of a great lawn would supplant the existing industrial condition. This represented a massive expansion of the College onto formerly industrial land. The project would involve land acquisition and remediation, demolition of all existing buildings, and the culverting and redirecting of the serpentine river Medlock, a task which would require significant political willpower and expense.

Despite preceding the Robbins' Report recommendation to expand student numbers, by 1957 the pressure for immediate accommodation to host increasing numbers of students was already being felt by the College. A temporary solution presented itself in the retention of the Jackson Street Mill at the nucleus of the proposed campus to house the Chemical Engineering Department. Although the disruption to the plan caused by the interference of existing buildings posed nothing like the problem faced by other urban institutions such as Imperial College, the retention of the mill forced a fundamental rethink to the overall organisation of the masterplan to tolerate the industrial remnant. The plan was amended, distancing itself from Beaux-Arts axial planning in favour of an informal chequerboard of courts framed by large modernist buildings. The very essence of comprehensive redevelopment in opposition to the ad hocism associated with Redbrick universities was undermined by the retention of the mill, which remains to this day.

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At the centre of the campus, the Jackson Street Mill still stands as a remnant of the industrial condition the campus superseded

Contingencies such as these deterred the UGC and the New Universities from situating their institutions in urban areas, instead preferring greenfield sites around historic towns. [10] Whilst the UGC required approximately 150-220 acres



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The UGC required large (ca. 200 acres) 'comprehensive' sites for the New University campuses - pictured: UEA

for the New Universities, the main development site of the UMIST Campus only totals 14.5 acres. The resulting 'intensive' development of the site forced a higher density than recommended whilst managing the requirement for a substantial amount of open space within the campus. A second impediment to inner-city campus development was land acquisition, where the difficulty of assembling consolidated estate was only possible through concerted co-operation between university leaders and city corporations, who possessed the legal authority to compulsory purchase land. Not all municipal authorities had the power or volition to carve out great tracts of land for individual institutions, not least to reserve more land for their expansion in the indefinite future. Noel Annan, involved in the planning of the University of East

Anglia on greenfield land discards the possibility of urban university development because 'the cost of acquiring sites in the centre of cities would have been prodigious, the delays and frustrations unbearable'. [11] This was a widely held view in government despite an opposing realisation of the benefits of being situated in an urban and industrial setting; evidenced in the fact that, of the seven New Universities, Warwick was the only located remotely near a manufacturing centre.

Industry was already prevalent around the UMIST Campus, buildings for Kodak and Dunlop Ltd. remained around the site. Whilst the aim of the campus planners was to override the undesirable physical conditions of the industrial city, the same could not be said about the benefits of industry to education and research, especially in the context of White Heat and the educational-industrial complex. Bowden had worked for Ferranti Electrical Engineering previously, therefore it is not surprising given his connections to industry that the Electrical Engineering Department and



High Voltage lab are located in the Ferranti Building at UMIST. Part of Bowden's political aim was to synthesise higher education and research with industry and technology, a mode of education aligned more to the instrumentality of US Cold War Campuses than traditional UK institutions of pure learning. Within the wider MEP plan, both UMIST and the Precinct projects were concentrating technology sites alongside educational sites, a proximity which has since become common in modern higher education. Facilities such as the National Computing Centre (NCC) began to gravitate around the Institute and Precinct in the 1960s. UMIST ceded land reserved to it by the Corporation to the NCC on the city's main educational corridor, to enhance the visibility of the projects of White Heat to the public. [12]

Part of what makes the UMIST Campus unique is the concerted planning of the Corporation and the College in deploying CDA authority to assemble sufficient land for campus development and subsequent expansion in an urban setting. This reveals a belief of planners in Manchester that a fruitful relationship could be established between town and gown, and university and industry. Furthermore, the aligned views of university leaders, urban planners, and campus architects to mobilise urban renewal and the knowledge economy in service of national agendas such as those embodied in the mantra 'White Heat', reveals remarkable political consensus. Despite the largely symbolic status of White Heat, its nation-building aspirations for scientific revolution came close to physical realisation in projects such as the Educational Precinct, the NCC, and UMIST.

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The NCC forms a cluster with local industries and institutions forming a Educational-Industrial relationship

On a local level, the architecture and urban design of each part and the overall Precinct would perform a key role in its public reception. MEP site architects Wilson and Womersley wrote that the relationship of campus to city posed 'exciting rich potential, [yet] it is also the greatest danger of the project', they continue 'The Precinct could become either a meeting ground for town and gown or a private intellectual enclave'. [13] More fundamentally the question of campus planning was seen as an equivalent to the question of urban planning. Historian Stefan Muthesius remarks that for the architects involved in the contemporaneous Churchill College competition there was 'no difference between a university plan and a city plan',



certainly both the MEP and UMIST masterplans can be seen to prefigure a sense of urbanity through the related organisation of buildings and urban spaces. [14]

Although largely predating the MEP masterplan, the development of the UMIST Campus would constitute a key component of the overall plan, and proposals for later phases aimed to integrate the campus and precinct in a coherent megastructural form. At each scale, whether the scale of the UMIST Campus, or the Educational Precinct, the overall organisation of each plan could be said to resemble the conditions of a city; related at once to the city proper, but self-sustaining in its own right. In postwar society there was a belief that educational institutions could instil a sense of community in students and assimilate them to society at large. A possibility heightened in the encounter of students and citizens in urban environments.

UMIST is a unique type of campus, and despite its emergence in the era of technological White Heat, as a specialised university type it is also considered in a class of its own. The physical and academic evolution of UMIST predated many of the notable developments in postwar higher education, from the Robbins Report to the New Universities, establishing the Institute as a prototype never to be replicated. UMIST is a unique experimental university, atypical in its temporal development as much as its university classification: resisting its association to other apparently similar institutions. As a testament to the postwar period of White Heat and democratised state-subsidised higher education on a national level, as well as radical urban restructuring programmes on a municipal level, the UMIST Campus is a monument to a period where belief in the state and central planning was at its apotheosis. Whilst the UMIST Campus was too localised an institution to ever be considered a British MIT, it is perhaps the concentration of specialised research in science and technology and its instrumentality to industry and the state which results in its unique status amongst British universities.

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| [1] | <u>Jill Pellew and Miles Taylor</u> , eds., <i>Utopian Universities: A global History of the New Campuses of the 1960s</i> (London: Bloomsbury, 2021), p. 124                      | [8]  | <u>Stefan Muthesius</u> , <i>The Postwar University: Utopianist Campus and College</i> (New Haven: Yale University Press, 2000), p. 60   |
| [2] | cf. <u>Guy Ortolano</u> , <i>The Two Cultures Controversy: Science, Literature and Cultural Politics in Postwar Britain</i> (Cambridge: Cambridge University Press, 2009)          | [9]  | <u>Hugh Wilson and Lewis Womersley</u> , <i>Manchester Education Precinct: The Final Report of the Planning Consultants 1967</i> (Manchester: Corporation of Manchester, 1967), pp. 7-8  |
| [3] | <u>Mark Goldie</u> , <i>Corbusier Comes to Cambridge: Post-War Architecture and the Competition to Build Churchill College</i> (Cambridge: Churchill College, 2007)                | [10] | <u>Michael Hebbert</u> , 'The Campus and the City - a Design Revolution Explained', in the <i>Journal of Urban Design</i> , 23:6 (2018)  |
| [4] | <u>Richard Brook</u> , 'UMIST: The Evolution of an Institution: Personnel and Politics', in <i>The Modernist</i> , 5 (2012) pp. 13-14  | [11] | <u>Jill Pellew and Miles Taylor</u> , eds., <i>Utopian Universities: A global History of the New Campuses of the 1960s</i> (London: Bloomsbury, 2021), p. 226  |
| [5] | <u>James Jackson Walsh</u> , 'Higher Technological Education in Britain: The Case of the Manchester Municipal College of Technology', in <i>Minerva</i> , 34:3 (1996), pp. 219-257 | [12] | <u>Richard Brook</u> , 'The National Computing Centre, "White Heat", Modernization and Postwar Manchester', in <i>The Journal of the Society of Architectural Historians</i> , 70:4 (University of California Press, 2020) pp. 444-445 |
| [6] | Ibid.  | [13] | <u>Hugh Wilson and Lewis Womersley</u> , <i>Manchester Education Precinct: The Final Report of the Planning Consultants 1967</i> (Manchester: Corporation of Manchester, 1967), p. 7.  |
| [7] | <u>Jill Pellew and Miles Taylor</u> , eds., <i>Utopian Universities: A global History of the New Campuses of the 1960s</i> (London: Bloomsbury, 2021), p. 23                       | [14] | <u>Stefan Muthesius</u> , <i>The Postwar University: Utopianist Campus and College</i> (New Haven: Yale University Press, 2000), p. 67   |