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Evolution of spatial planning strategies at Australian university campuses 1945-2017

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The design of the university campus is often seen as a microcosm of broader city planning trends. The university is now a global institution but this paper specifically explores trends in Australian university campus planning across several decades of political, institutional, economic, social and environmental change since the late 1940s. At mid-twentieth century campuses were legacy sites embodying design fashions from the past and awaited the exponential growth in demand for tertiary education which came in the post-war period when completely new campuses were also developed. A benchmark paradigm in campus and city planning from the late 1940s was master planning, denoting comprehensive, all-of-a-piece integrated blueprints. While the idea of holistic spatial strategies has not completely lapsed, campus planning processes have become more fluid, targeted and opportunistic, just as city planning generally has become more creative and flexible in dealing with faster rates of economic, social, technological, environmental and educational change. Our brief survey covers the major phase of post-war university development, a parallel and intersecting set of design epochs, and identification of some of the leading designers of the boom period through and on either side of the 1960s.

Keywords: Australian university campus, campus design, master planning, strategic planning

Introduction

The design of the university campus is often seen as a microcosm of broader city planning trends, where comparable issues of accommodating growth, dealing with traffic, allocating land uses, and architectural, landscape and design quality are played out across the norms of the day. In the post-World War 2 environment, what has been dubbed 'search for perfection' intersected with both the unprecedented expansion of tertiary systems and the end of certainty in planning.¹ Campus design has threaded its way through planning history largely as a specialised realm of civic and urban design. Coulson et al. concentrate on key episodes and themes within university design from medieval models to the present; Turner assesses the American university plan against the 'utopian social visions' of the wider community; and more comparable to our time frame, Muthesius surveys the relationship between the underlying ideals of the institution and the design of the campus during the post-war expansionist period.²

Our focus is on the Australian experience and the making of the campus against the backdrop of a succession of shifting socio-economic environments, tertiary education policies, and evolving cultural, educational and design practices. The analysis draws on both primary and secondary sources such as archival records, annual reports, monographs, plans and accessible publications, supplement by oral recollections that have expanded and clarified the written record. The approach is synoptic and the paper is structured in three parts. The first discusses the institutional context in which the changing design of the campus played out, and we identify at least five eras from the late 1940s. The second considers the evolution of the planning process and the progression of campus plans which eventuated. The third section develops our focus on key design principles through a discussion of four planners who influenced the shape of the university campus during the years of greatest growth.

Institutional Epochs

The overall environment for evolving campus design can be best understood in the context of broader changes in Australian higher education, government policy, and cultural change.

Driving national technological development 1945 -1963

After an initial phase of austerity after World War 2, an economic 'long boom' unfurled as Australia experienced unprecedented commercial and industrial expansion. The post-war university was seen as a vocationally-oriented nation-building institution needed 'to provide the engineers, scientists, technologists, lawyers... and others without whom our civilization could not develop or even be maintained'.³ It was also

recognised that ‘countries which were most successful... and with the highest living standards were those where a large proportion of the population could easily access a good university education’.⁴ This period saw the commencement of the Australian National University, two additional capital city universities and the expansion of pre-war legacy campuses. However, all universities found themselves facing severe problems financing the capital works programs needed, as revealed by the 1957 Murray Report, until additional funds were provided by the federal government from 1959 under the auspices of the new Australian Universities Commission (AUC).⁵ The centrally-managed growth phase accelerated but by the early 1960s universities were feeling the strain.⁶

Universities as a public good 1964 -1979

In 1965, a major public enquiry was held into the future development of tertiary education.⁷ The Martin Report identified a need to promote through education those values inherent to ‘a free, democratic and cultured society’, proposed that the scale of social change required could only be provided by continued economic growth, and emphasised that the quality of the educational output was dependent on the quality of the institution.⁸ Under this philosophy, six new universities were funded, but with growing awareness that financing sufficient full research universities to cater for student demand was not economically or educationally sustainable.⁹ The solution was to establish a binary system, comprising universities and colleges of advanced education (CAEs), enabling Australia to continue to satisfy a greater spectrum of individual educational aspirations.¹⁰ From January 1974, the Commonwealth assumed full responsibility for funding higher education (HE).¹¹ However, by 1976 the effects of the global economic crisis soon forced the government to apply strict funding constraints. Recurrent funding was reduced, research funding curtailed, and full-fee paying places for international students more than doubled. Universities re-entered ‘austerity’ mode.

Contributor to national wealth 1979-1988

From 1979, the focus of HE in Australia changed, responding both to the concept that ‘economic recovery depends on adding more value to the things we do produce, and learning to export knowledge-based goods and services’, and to criticism that the nation was historically deficient in intellectual skills and disengaged from new ‘knowledge-based’ industries.¹² In line with recommendations articulated in another key government report in 1979, the Australian HE system was effectively reconceived as a producer of national wealth and extended to educate an even larger proportion of school-leavers and increased numbers of international students to global standards at a lower cost.¹³ However, federal funding still failed to cover operating costs and remained a critical issue.¹⁴

Universities as drivers of international competitiveness 1988-2002

From 1988, a succession of reviews commencing with the catalytic Dawkins Report shaped the university environment into a less systemic, more demand-driven, user-pays institutional framework in line with an emerging neo-liberal political-economic consensus.¹⁵ The reforms focused on ‘growth and quality enhancement’ were couched in terms of increasing access, enhancing international competitiveness, and retaining the best and brightest, while proposing economic liberalisation of university education and the introduction of free market forces. The national future of the university now became increasingly dependent on its position in the global marketplace.¹⁶ Compulsory contributions were introduced for domestic students while full-fee paying places for international students more than doubled. Additionally, allocation of a single federal block grant was instituted giving universities greater discretion over strategic capital works.¹⁷ Most dramatically, the binary HE system was unified, halving the number of institutions, some through amalgamations, but overall significantly increasing the number of universities by the 1990s.

Education as a marketable commodity 2002 – present

In 2002, a further review recommended per-student funding with each university setting their own level of student contributions. Commonwealth funds were increased and linked to ‘workplace productivity’, national governance protocols and equity programs. In 2008, transition to demand-driven funding and the introduction of ‘mission-based’ compacts with universities was recommended. The student visa program was re-assessed, as were conditions for undergraduate and post-graduate places. In 2012, the Behrendt Review recommended strategies to increase Indigenous & Torres Strait Islander (TSI) participation.¹⁸ Two further government reviews decisively shaped new institutional strategies.¹⁹ The first of these determined that since higher education directly benefited the individual through improved employment prospects and incomes, a lower proportion of the costs of HE should be borne by the government, with public investment in research directed to national priority areas.²⁰ The second review recommended ensuring the survival of the demand-driven system through fiscal sustainability, improved operation, and greater competition.²¹ These new funding arrangements represented a significant shift from the earlier post-war commitment to centralised control and funding, making for a far more entrepreneurial and competitive environment.

Planning process and plans

Entwined narratives in national government policies and educational ethos have decisively influenced the form of the campus master plan, planning strategies and, ultimately, the design of the post-war university campus.

First post-war campus models 1945 -1958

The first post-war campus plans typically took the form of large-format, single sheet architectural site plans depicting the layout of the campus as a 'finished composition', adopted an identifiable style of nationalistic landscape design, relied primarily on aesthetic judgements, and were usually attributed to a single architect consultant. Architect-planners continued to favour the popular pre-war City Beautiful/Beaux Arts style, featuring symmetrical architectural compositions on formal lines, with strong vistas and diagonals, usually oriented towards a large central green. The campus was conceived as a site of 'quiet, seclusion, separation and retreat'.²² New campuses commenced according to these principles were the Australian National University (ANU; Brian Lewis, designer), the University of New South Wales (UNSW; NSW Government Architect), University of New England (UNE; NSW Government Architect), and Monash University (Bates Smart and McCutcheon).

Located in the federal capital of Canberra, ANU was a research-orientated institution whose novel remit was matched by a unique low density 'parkland campus' set within an external framework informed by Walter Burley Griffin's 1912 City Beautiful-inspired city plan. UNSW commenced construction in 1949 on a constricted site which then grew incrementally and was distinguished not by a lack of planning but a rapid succession of tactical moves in response to changing circumstances. UNE focused on an existing rural homestead and developed into a scattered parkland campus inspired by the design of Aarhus University in Denmark.²³ In 1958, Monash University was the first of the Australian post-war universities to be underpinned by a comprehensive long-term plan before construction, and was conceived along the lines of an 'academical village' with a central court open to the north and two ranges of buildings which terminated at students' residences.²⁴ At the time of their establishment, these new universities were not expected to experience any significant and unpredictable long-term changes in student numbers or needs, however, both the planning format and design styles were quickly found to be unsuited as planning was not sufficiently comprehensive and the predetermined composition could not be satisfactorily extended to accommodate the growth and change which eventuated.²⁵

More adaptable physical planning 1958-1974

By the mid-1960s the comprehensive master plan ruled.²⁶ However, the form and techniques changed markedly from the late 1950s, moving away from architectonic set-pieces to more adaptable strategies. William Wurster's 1956 Long Range Development Plan for the University of California (UC) Berkeley was an important and influential trailblazer, employing systematic assessment and full planning documentation, and emphasising flexibility and regular revision.²⁷ Additionally, the plan was reviewed to a ten-year time frame, ensuring it could be 'changed... as needs may appear different from those anticipated today'.²⁸ This model was essentially adopted for Australian university campuses for at least the next twenty years, with the parallel appointment of powerful architect-planners reporting directly to the Vice-Chancellor or Registrar.²⁹ The planning process became more complex throughout the 1960s as the AUC imposed progressively more detailed planning requirements onto universities and 'exercised a much closer and detailed control over the approval of building plans... staff teaching loads... and the manner in which the revenue votes generally are expended within the universities'.³⁰

The seminal planning report in this mode was architect-planner Gordon Stephenson's 1959 modification of his first 1955 University of Western Australia (UWA) master plan, to be followed by reports guiding the extension of five other established universities and seven of the eight new greenfield campuses.³¹ With inherited processes in place for campus planning, older established universities were generally slower to develop a systematic and documented master plan for their main campus. Although Stephenson documented the UWA planning process from 1959 and a similar methodology was used by the University of Sydney architects, Walter Abraham and Max Jackson for the 1964 report on the Redevelopment of the University Extension Area, it was not until 1976 that UNSW campus architect Noel Wright could present a fully-documented master plan, despite a campus planner being appointed from 1958.³²

This era of campus planning was strongly influenced by Clarence Stein's Radburn model for urban development with its spatial segregation of pedestrians from vehicles. Stephenson's UWA plan was the first to adopt the model with central academic and residential precincts reserved for pedestrians, elements placed according to topography and additional design philosophies, and the whole encircled by a ring-road relegating traffic and car-parking to the periphery.³³ Additional to Stein's Radburn principles, campus design was influenced by the 1960

University of Leeds Developmental Plan described as a ‘deliberate attempt to implement the insights of modern urban theorists’ and bring New Town principles, scientific rigour, and empirical justification to the university environment.³⁴ At a time of relatively high population growth, expansive metropolitan planning scenarios and acceptance of car-dependency, the accent was on flexible planning for continuous growth. As Roy Simpson said of his La Trobe University master plan: ‘the plan should be devised not as an inflexible mould but rather as a guide to the fulfilment of a concept within which adjustments could be made to accommodate evolving needs’.³⁵ Modernism reigned but the typologies were still diverse, ranging from a form of bushland campus (e.g. Newcastle) to more compact ‘constructivist’ campuses exploring different models of public space (e.g. Macquarie), but all responding in their way to Australian vernacular design traditions.

Both new and extended campuses were designed to encourage ‘urban’ types of interactions between students and staff, within a larger, more dispersed, increasingly complex, and somewhat impersonal setting.³⁶ Most plans included a central quadrangle, court or great hall as a central focus. With contemporary social-pedagogic theories seeing learning as being both formal and informal, occurring inside and outside the classroom, close physical relationships between related faculties were increasingly structured to facilitate interaction and cross-fertilization of ideas between staff and students, all within an overall open-ended design philosophy which stressed extension and adaptation to suit future unknown building needs and changes in building purpose.

The new CAEs were established at this time. Located on either greenfields or repurposed teacher’s college sites, they were specifically designed to suit a limited range of vocational courses offerings; catered for local student populations; and were intended for staged expansion of what was seen as a fairly static institution.³⁷ Planned during an era of intense academic interest in sociology, social interaction and urbanism, a typical exemplar but atypical built environment was Ku-ring-gai CAE in Sydney- a suburban brutalist conception designed to emulate a self-sufficient ‘hill-top town’ within which particular activities were allocated to separate ‘laneways’ and precincts within a monolithic megastructure, with students and staff brought together in a central ‘street’ for social and communal activities.³⁸

Improving the campus environment in a no-growth era 1974-1989

Between 1976 and 1989, HE capital works funding was limited and university development entered a ‘steady state situation’.³⁹ During this period, campus planners concentrated on maintaining and reviewing current master plans for future activation.⁴⁰ As with ANU, where the 1976 Site Plan was the last to be developed until the 1992 Development Policy was prepared, most campuses were simply modified as the budget allowed, with the very few new buildings usually funded from external sources.

Architect-planner Geoff Harrison advised that during this time of austerity existing facilities needed to be ‘husbanded, efficient, and recyclable to meet new needs’ and emphasised the need for any campus plans to consider continuous growth, walkability and disabled access.⁴¹ Development across all universities re-focused on the campus environment, usually to good effect, with a continued emphasis on pedestrian movement and open space, and increased investment in landscaping and garden sculpture to enhance the outdoor experience, itself increasingly opened up to the surrounding community. At the same time, the design of the campus was also responding to greater public awareness of environmental and social issues.

Consultation, urban design and sustainability 1988-2002

As noted earlier, Commonwealth funding of capital works recommenced in 1988 and universities began to develop new campus plans which, once again, differed markedly from previous models as the wider planning environment experienced ideological and methodological advances and became institutionally more complex. Primarily designated master plans, they were guided by university goals and drew on planning, design, legislative and marketing knowledge held by specialised planning/design firms, with the university architect/planner involved in co-ordinating the assessment process and diverse planning inputs. The planning process increasingly involved contributions solicited from the university community, development advisory groups, steering committees, property departments and architecture faculties.⁴²

As with previous ‘systematic’ plans from the expansionist period of the 1960s, a variety of issues were addressed through recurrent development principles. These prioritised campus layout and image, including location of activities; land use, siting and design; circulation of people and vehicles; landscape and siteworks; and implementation. Additional aspects of campus planning included interactions with the community and the need to plan for multiple campuses as the CAE system merged with universities.⁴³ Some universities established satellite campuses while others launched international campuses, primarily in Malaysia and Singapore.⁴⁴ Private universities also made their first appearance. The 1990 Talloires Declaration saw university Vice-Chancellors globally committing to environmentally sustainable institutional practices, and Australasian Campuses Towards

Sustainability (ACTS) was formalised. These ideas would filter through into campus design. From 1992, the University of Newcastle Callaghan campus Senior Architect/Planner, Philip Pollard was associated with key environmental design initiatives.⁴⁵ Comparable green innovations for architectural, site and landscape design were adopted at other universities.

Urban design and public domain planning also featured more prominently as a means of stitching campuses together holistically, with coherence sought through building placement and relationships, urban forms, landscape, colours and materials. Designing for personal safety following CPTED (crime prevention through environmental design) principles also became major themes. Most campuses edged towards becoming predominantly pedestrian precincts and there was renewed focus on the concept of a central core designed to increase the possibilities for human interaction, surrounded by and linked to defined precincts within 10 minutes walking distance of each other.⁴⁶ In the style of Jefferson's 'academical village' at the University of Virginia, there was enthusiasm for formal gateway statements and signature buildings as marketing showpieces.⁴⁷ In S-E Queensland, Bond University and the University of the Sunshine Coast as the only two new greenfield campuses from the late 1980s embodied these ideas, a fusion of flexible planning and post-modern architecture, and both conceived within even more comprehensive integrated property development ventures.

Placemaking, design excellence and urban buzz 2002-today

Starting early this century, the campus has become central to university marketing strategies. Increasingly cut adrift from central government micro-management and targeted capital funding, Australian universities were now regarded as business enterprises which needed to be seen as leaders in the educational field, and whose 'capacity to draw notice [had] become a valuable marketing tool within an increasingly competitive and crowded higher education marketplace'.⁴⁸ As the 'shop window', the campus became linked to overall strategies. Campus master plans were now integrated into university strategy documents and given titles such as 'Infrastructure Development Plan' (Australian Catholic University in Melbourne). Plans were required to account for a raft of inclusions: landmark buildings, heritage, environment, sustainability, occupational health and safety, accessibility, student engagement, contribution to the community, technological change, new learning environments, reconciliation and indigenous support initiatives, visual impact requirements, research hubs and research parks, and alternative modes of transport, among other innovations. Invariably the campus master plan was outsourced to professional planning firms with the requisite skills and contacts to address the myriad issues involved, and the role of the university architect or architect/planner morphed into facilities managers and strategists.

Dramatically changed philosophies of learning and teaching emphasising collaborative, inter-disciplinary and digital interactions have also shaped universities' responses in the current era, and, in turn, the nature of master planning has evolved to being variously even more strategic, flexible, and design-driven. The integration of university and city has become a 'headline theme' for master planning which is also evident in many other countries, including the US where some regional institutions have struggled, and universities have established central city footholds to attract both quality staff and students.⁴⁹ One pervasive idea is that of the 'sticky' campus, aiming to keep students longer within the university environment by providing an enhanced student experience. Newly constructed student service 'hubs' have been inserted into central locations on campus; existing facilities have been modified to provide informal learning spaces necessary for connected and collegiate learning; and on-campus residential precincts are now being integrated into traditional academic zones.⁵⁰ Some suburban campuses have struggled through inaccessibility, others have received urbanistic makeovers, prominent new central city sites have been procured for research and teaching activities, adaptive re-use of historic buildings has been prominent (e.g. Notre Dame, Fremantle and Sydney; Deakin, Geelong waterfront), while longer-standing city institutions have been well placed to connect with the new 'univer-cities' rubric highlighting the nexus between universities and their host city's economic, social and cultural development.⁵¹ The new interplay between town and gown is physically manifested in the re-imagining of CBD campuses like Melbourne's RMIT University and Sydney's UTS as monolithic enclaves into more permeable central city precincts. The placement of QUT's Creative Industry faculty within the Kelvin Grove urban village redevelopment on the fringe of central Brisbane constituted a new typology of a mixed-use main-street precinct integrating retailing, office, high school, recreational, community, and residential uses within an armature of public space. This award-winning master-planned development is founded on a government/university partnership and has won numerous urban planning, landscape architecture, and sustainable environment awards.⁵²

In physical planning terms, in Australia as overseas, the idea of an identifiable symbolic focus to the campus became important and universities have started to rebuild distinctive identities to project an image of innovation to potential students, promote philanthropic donations, and transform 'drab, neglected' parts of their estates into

‘architectural showgrounds’.⁵³ While conceived earlier on the Stanford-Palo Alto model, research parks were more decisively linked to campuses in an effort to build stronger, potentially more lucrative partnerships, underpinned by aspirations for revenue-generating property development. Examples include Macquarie, Latrobe, Monash, Ballarat/Federation University and Wollongong. Industry-partnered premises and innovation precincts are now taking this into a new era. With a growing proportion of international students, universities have expanded the supply of well-designed modern on-campus accommodation often supplementing increased off-site student accommodation from private providers. Environmental concerns, sustainability and resilience have continued to influence design with larger student numbers forcing planners to address overall environmental footprint, investment in ‘greenstar’ buildings, improved public and active transport connectivity, and privileging of a quality public realm.

Planners and plans

Post-war campus planning has attracted an impressive cast of designers who have imparted their distinctive creative responses within the imperatives and accepted approaches of their times. Leaving aside the design of individual structures, from the 1950s to the 2010s, campus master plans have been shaped by leading practitioners including Brian Lewis (ANU, Melbourne), Denis Winston (ANU), Roger Johnson (Griffith), Michael Dysart (UTS), Daryl Jackson (Bond, Charles Darwin), Giurgola Mitchell Thorpe (Sunshine Coast) and Peter Elliot (RMIT). Below we briefly comment on four central figures most active and influential in the 1950s-1960s.

Gordon Stephenson

Liverpool-trained architect-planner Gordon Stephenson was arguably the most influential designer of universities from the 1950s to the early 1970s.⁵⁴ Stephenson drew from Stein’s philosophy of privileging the needs of the pedestrian; and Wurster’s technique of building densely for current needs; and used these concepts, combined with courts and precincts, as the basis for four key design principles: design major buildings for future expansion; ensure convenient physical relationships between faculties and amenities; orient buildings towards tranquil enclosed spaces; and reserve the inner campus for pedestrians.⁵⁵ These four criteria were later expanded to include: encouraging flexibility in design; restricting the palette of colour and materials; and ensuring that the physical plan expressed academic policy.⁵⁶ These basic principles were applied at UWA and in the many consultative roles Stephenson was invited to fill, singly and in collaboration with colleagues such as Gus Ferguson, James Birrell and Geoffrey Harrison.

Geoffrey Harrison

Of Stephenson’s contemporaries in Australia, Harrison, an Australian-trained architect, was perhaps the most prolific campus planner.⁵⁷ Appointed staff-architect for the new Flinders University in Adelaide, he collaborated with Stephenson on the initial site planning report, and then co-ordinated development of the site.⁵⁸ Harrison and Stephenson consciously employed the Radburn concept of a ring-road and separation of vehicle routes from pedestrian precincts, and referenced Stephenson’s four design principles as much as was practicable on a topographically challenging site.⁵⁹ Harrison also incorporated elements which would feature strongly in his subsequent campus developments, including the introduction of an expansive open court as a campus core situated between the library and student union building, oriented and sheltered to suit climatic conditions, and designed to become a central meeting place facilitating communication between students and staff.⁶⁰ Additionally, Harrison aimed for flexible, extendable, and adaptable elements; planned for ‘low-profile, strongly-horizontal’ buildings that would not overwhelm the individual; incorporated elevated walkways stretching between otherwise distant precincts; and attempted, somewhat unsuccessfully, to avoid faculty-specific ‘silos’.⁶¹ He left a tangible imprint at several universities in the 1960s and 1970s including James Cook, Ballarat, Adelaide and Deakin at Waurin Ponds.

Walter Abraham

Abraham was a senior architect-planner for the University of Sydney when he was invited to fill a similar role at the newly-established Macquarie University.⁶² On his appointment, Abraham made two trips to the US to investigate campus planning and, on his return, engineered integration of his office within Macquarie’s administrative structure, a model taken from MIT and the University of Colorado.⁶³ A formal developmental planning report was regarded as superfluous to this innovative management structure, but Abraham consciously relied on Stein’s Radburn principles to give structure to the plans for the central building group. He also drew on a sophisticated phalanx of additional ideas and principles for design direction, including the concept of imperfect knowledge of the future which underpinned an influential 1957 report for the University of Birmingham, John Weekes’ ‘indeterminate architecture’, social science frameworks from UC Berkeley, David Bell’s aesthetics of incompleteness, the concept of ‘Templum’ or ‘space bounded by the ground, horizon and sky’, and the Roman surveyor’s model of ‘decumanus maximus’, as well as historic quadrangular forms.⁶⁴ The

campus which eventuated was conceived as an urban institution within a quasi-rural context. The overall layout includes a strongly-articulated interior grid creating a compact academic core, with a straight one-kilometre central spine serving as the primary pedestrian circulation.⁶⁵ The centre of the campus is concentrated on a large, formal, open-cornered quadrangle surrounded by communal buildings in the brutalist style.

Roy Simpson

In 1964, Roy Simpson of Yuncken Freeman Architects was appointed to undertake the master planning of La Trobe University, a new university on the northern outskirts of Melbourne.⁶⁶ Plans were commenced following a study tour to investigate ‘outstanding new universities’ in the UK, US and Canada.⁶⁷ As with the campus designers discussed previously, Simpson adopted and modified Stephenson’s four principles to suit the brief, the finance available, and the site. He also introduced his own design philosophies, particularly his view that the ‘precinct is more important than the buildings, the city is more important than the precinct, the total scene is more important than the individual project’.⁶⁸ Simpson held that ‘most buildings should be in the background to permit the occasional special one to exert its proper emphasis in the group composition’ and understood ‘the need to learn humility in order to design buildings subserviently’.⁶⁹ These precepts were challenged through early university decision-making but addressed through a series of planning and design moves stressing the horizontality of development; modular integrated buildings; an ‘affinity of design between all buildings, and between buildings and landscape’ with ‘individual virtuosity... subordinate to the interests of overall cohesion’.⁷⁰ The university which evolved as a solution to these precepts is perhaps one of the most innovative in Australia. Following his appointment at La Trobe, Simpson also collaborated on a revision of ANU’s ever-evolving site plan.⁷¹

Conclusion

In the post-World War 2 period in Australia, there has been a general evolution in the form of the physical campus master plan, the principles which governed the plan, and the planning process itself. As enrolments increased, governance systems evolved, and community values shifted, planning needed to take account of an ever-increasing number of administrative and legislative requirements as well as the expectations of a growing number of stakeholders. As a result, campus plans gradually became more comprehensive and increasingly complex. Among other things, planners were increasingly required to take account of, plan for, and then to document, the estimated and approved costs of proposed developments, contracted completion times, floor-space allocations and space utilisation, vehicle movements and provision for parking, heritage and environmental protection legislation, technological advances, and academic and non-academic facilities expected by users and funding bodies.

The planning process was progressively accepted as the purview of a specialised sub-profession, with the planners involved changing from government and public service architects through university-based staff architects, to university architect-planners who designed with input from planning consultants, to a reliance on consultant planning firms charged with delivering the final product but working in partnership with the university architect or facilities management staff.

Consequently, campuses have assumed diverse typologies in response to these different economic, cultural, institutional and design drivers, evolving from finite compositions demonstrating a recognised landscape style, through townscapes and academic villages grounded in theories of social interaction and urbanism, followed by open and accessible campuses displaying a commitment to landscape improvements and environmental responsibility and, most recently, student-centred and visitor-conscious venues frequently displaying flamboyant design features but underpinned by ecologically-sustainable practices.

In this setting, the heroic comprehensive, static master plan has become obsolete as has the heroic architect-planner. The modern campus as a vehicle for increasingly entrepreneurial, competitive institutions is now shaped by a multiplicity of plans, strategies, initiatives and works programs. Although the legacy of modernism and its advocates such as Gordon Stephenson and others remains evident, within the contemporary environment, integrative and responsive planning ‘frameworks’ and design moves are becoming established as the new norm.

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Notes

¹ Coulson, Roberts and Taylor, *University Trends*; Muthesius, *The Postwar University*, 268.

² Muthesius; Turner, *Campus*; Coulson, Roberts and Taylor.

³ Macintyre, *Australia's Boldest Experiment*, 218; Baxter, "Problems in the Administration of Modern Universities", 103.

⁴ Baxter, "Problems in the Administration of Modern Universities", 104.

⁵ Partridge, "Australian Universities," 8; CAU, *Report of the Committee on Australian Universities*, iv, 112.

⁶ AUC, *Third Report*; AUC, *Second Report*.

⁷ AUC, *Tertiary Education in Australia*, 1.

⁸ Ibid.

⁹ Ibid.

¹⁰ Ibid.

¹¹ Whitlam quoted in Forsyth, *A History of the Modern Australian University*, 88.

¹² Committee of Enquiry into Education and Training, *Education Training and Employment*.

¹³ Aitken, "Trends in Funding Arrangements", 145.

¹⁴ Karmel, "The Role of Central Government," 125; Jackson, "The Private Dollar", 196, 201.

¹⁵ DET, *Higher Education in Australia*, 34.

¹⁶ Horne and Garton, *Preserving the Past*.

¹⁷ DET, *Higher Education in Australia*, 12.

¹⁸ Panel of the Review of Higher Education Access and Outcomes for Aboriginal and Torres Strait Islander People, *Review of Higher Education Access*.

¹⁹ Hassell, *International University Review*.

²⁰ DET, *Higher Education in Australia*, 23.

²¹ Ibid., 25.

²² Davison and Murphy, *University Unlimited*, 28.

²³ Jordan, *A Spirit of True Learning*.

²⁴ Davison and Murphy, 27.

²⁵ Stephenson, "The Physical Planning of Universities", 149.

²⁶ Stephenson, "Campus Planning in Australia"

²⁷ Committee on Campus Planning, Berkeley, *Development Plan for the Berkeley Campus*, vii.

²⁸ Ibid.

²⁹ Stephenson, "Campus Planning in Australia", 19.

³⁰ Auchmuty, Editorial, 85.

³¹ Garnaut, "Gordon Stephenson and University Planning", 381; Stephenson, "Planning of the University of Western Australia", 20. The new universities completed during the 1960s were Macquarie (Abraham), La Trobe (Simpson and Harrison), Newcastle (Laurie and Heath), James Cook (Birrell and Stephenson), Flinders (Stephenson and Harrison), followed in the 1970s by Griffith (Johnson), Murdoch (Ferguson and Stephenson) and Deakin (Harrison and Marston). Macquarie did not have a pre-development planning report.

³² Stephenson, *Planning for the University of Western Australia: 1914-70*, 10; Abraham and Jackson, "Sydney University Development", 159; UNSW, "The Campus Is Changing", 1.

³³ Garnaut, "Gordon Stephenson and the Radburn Idea", 8.

³⁴ Whyte, "The Modernist Moment", 181.

³⁵ Simpson, "AS Hook Address".

³⁶ Whyte, "The Modernist Moment", 181.

³⁷ AUC, *Tertiary Education in Australia (Martin Report)*, 176.

³⁸ Mould, "New Brutalism", 14-15.

³⁹ Harrison, "Physical Facilities Planning", 137.

- ⁴⁰ Wellman, "A History of the Site Plan", 6.
- ⁴¹ Harrison, "Physical Facilities Planning", 133-138.
- ⁴² Jackson Teece Chesterman Willis, *The Campus... Development Strategy*, Preface.
- ⁴³ Ferguson, UWA, Campus Planning Review 1990.
- ⁴⁴ Altbach and Knight, "Internationalization of Higher Education."
- ⁴⁵ Pollard, "Campus as Place".
- ⁴⁶ Chesterman, "Interview", 2017.
- ⁴⁷ Webber, "Interview", 2017; Holliday, "Interview", 2017.
- ⁴⁸ Coulson, Roberts and Taylor, 45.
- ⁴⁹ Hassell, *International University Review*; Katz, "How Universities Can Renew America's Cities".
- ⁵⁰ Holliday, "Interview", 2017.
- ⁵¹ Teo, *Univer-Cities*.
- ⁵² Pancholi, Yigitcanlar and Guaralda, "Public Space Design".
- ⁵³ Coulson, Roberts and Taylor, 45.
- ⁵⁴ Garnaut, "Gordon Stephenson and University Planning", 379.
- ⁵⁵ Garnaut, "Gordon Stephenson and the Radburn Idea", 6; Stephenson, "Planning of the University of Western Australia", 20-21.
- ⁵⁶ Stephenson and Stephenson, "Planning for the University of Western Australia", 12; Garnaut, "Gordon Stephenson and University Planning", 392.
- ⁵⁷ Harrison, "Interview", 1.
- ⁵⁸ *Ibid.*, 6.
- ⁵⁹ *Ibid.*, 13-14.
- ⁶⁰ Harrison and Marston, *Deakin University, Geelong*, 6, 21.
- ⁶¹ Harrison, "The Planning of Bedford Park", 156-7; Harrison, 30; Garnaut, "Gordon Stephenson and the Radburn Idea", 12
- ⁶² Gazzard, "W. V. Abraham Obituary", 50.
- ⁶³ Mansfield and Hutchinson, *Liberality of Opportunity*, 91.
- ⁶⁴ Abraham, "Inheritance and Style", 4-7.
- ⁶⁵ Macquarie University Jubilee Hub, "Founding Fathers: 'Wally' Abraham"; Holden, "The institutionalisation of campus planning in Australia".
- ⁶⁶ Simpson, "A University in the Suburbs", 828.
- ⁶⁷ Simpson, "The Master Plan", 40.
- ⁶⁸ *Ibid.*
- ⁶⁹ Yuncken, "La Trobe University", 24.
- ⁷⁰ Simpson, "A University in the Suburbs", 831.
- ⁷¹ Wellman, 6.

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