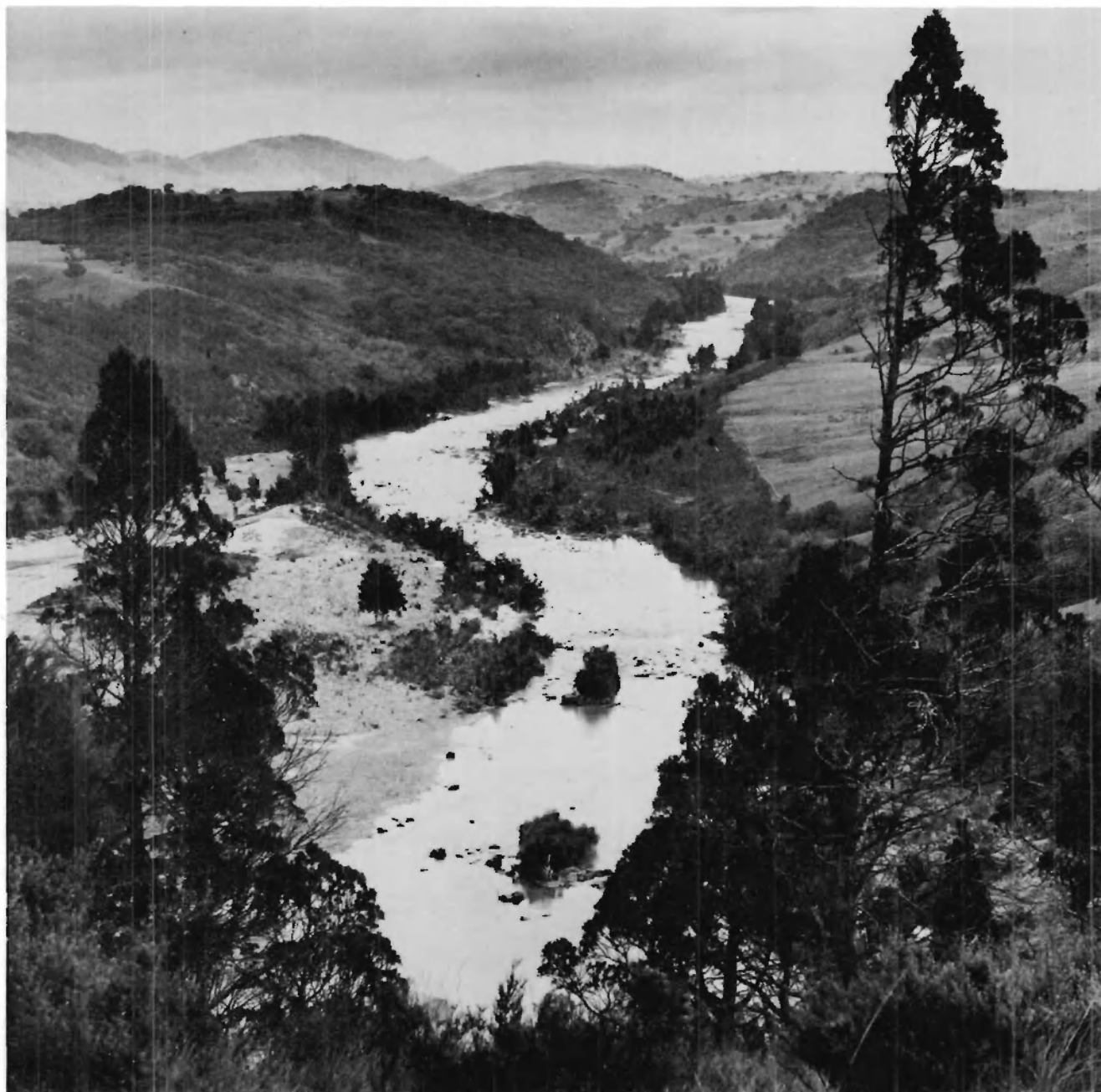


# An open space system for Canberra

a policy review prepared for the  
National Capital Development Commission



Technical Paper 23  
October 1977

by **George Seddon**  
**Centre for Environmental Studies**  
**University of Melbourne**

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Cover: The Murrumbidgee at Tuggeranong.

Photograph — Colin Totterdell.

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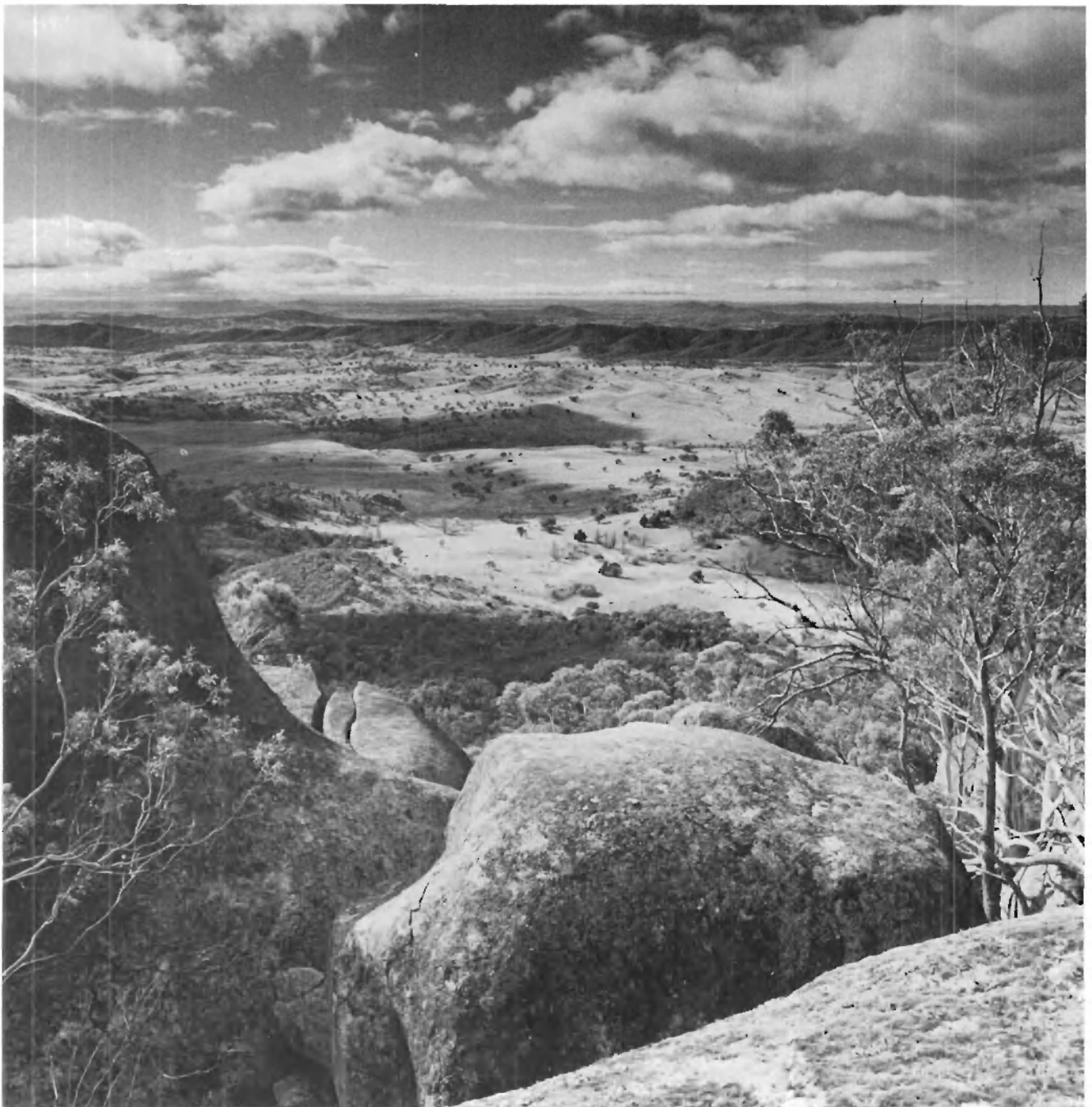
The site of the future Canberra: a panoramic view across the Molonglo floodplain from the south, with Mt Ainslie on the right, and Black Mountain on the left.

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*The Canberra setting is a noble and simple landscape with strong and well defined elements, of which the mountain block along the skyline to the west and south is dominant. For the most part, it is a singularly uncluttered landscape, never petty, deeply satisfying in its sweep and range. Plains, residual hills, gaunt and strong river valleys and gorges, long views to the high country: these are the major elements, of which one is always conscious. (pp. 62-63.) Paddys River and the Bullen Range from Tidbinbilla.*

COLIN TOTTERDELL





## FOREWORD

The Commonwealth Government through its agencies, such as the National Capital Development Commission and the Department of the Capital Territory, has always placed high value on the preservation of the landscape setting of the National Capital and the surrounding countryside. To this end it has set aside the high land and the river corridors to form part of the National Capital Open Space System. This open space system provides not only a pleasing and unifying visual background to the Capital but also a diverse recreational, cultural and ecological resource for residents and visitors to Canberra.

This report, which was prepared in response to a brief issued by the National Capital Development Commission to Professor George Seddon, provides an independent review of the role of the open space system. It is one of a number of studies being undertaken to assist the Commission and the Department of the Capital Territory to arrive at planning and management proposals for the National Capital Open Space System.

The report examines the justification, importance and special role that open space plays in the ACT, relating planning for the open space in the Territory to changing recreational patterns and attitudes towards landscape conservation. The report outlines areas where recreation pressures are being felt and changes are occurring and suggests certain planning and management aspects which should be examined further. It also points out the need for environmental protection with its potential for conflicts with certain recreation development. Finally the report highlights the need for an integrated open space system which is the key reason for the National Capital Open Space Study.

Professor Seddon's report makes a valuable contribution to understanding the perceptual and social aspects of the open space system and will provide guidance to the continuing work on the National Capital Open Space System. It is published in the Commission's Technical Paper Series so that it will be readily available for public information and comment.

COLIN TOTTERDELL

The upper Naas Valley, with Tussock Grass (*Poa labillardieri*) and Black Sally (*Eucalyptus stellulata*), typical of cold-air drainage valleys; fire damage on the hillside, right. Note the incised stream which suggests poor management, although the erosional cycle may well have been initiated by burning and over-grazing 100 years ago.



Other publications by George Seddon:

*Swan River Landscapes*

University of WA Press, Perth, 1970.

*Sense of Place*

University of WA Press, Perth, 1972.

*A Landscape Assessment of the Southern Mornington Peninsula, Victoria*

Report to Western Port Regional Planning Authority.  
Centre for Environmental Studies, University of Melbourne, publication No. 2, 1974.

*Ruffey Creek Reviewed*

Centre for Environmental Studies, University of Melbourne, publication No. 3, 1974.

(With John Turner) *Loy Yang Project: a Landscape Assessment of a Proposed Coal Field Development in the Latrobe Valley, Victoria*

Report to State Electricity Commission, Victoria. Centre for Environmental Studies, University of Melbourne, 1975.

*Phillip Island — Capability, Conflict and Compromise*

Centre for Environmental Studies, University of Melbourne, publication No. 4, 1975.

(With K. J. Polakowski) *A Landscape Assessment of Proposed Transmission Line Routes — Three SECV Alternatives from Hazelwood to Cranbourne, Victoria.*

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(With J. Pike) *An Evaluation of SEC Transmission Lines from Dederang to Wodonga and Jindera, NSW*

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(with Mari Davis, eds.) *Man and Landscape in Australia: Towards an Ecological Vision.*

Aust. UNESCO Committee for Man and the Biosphere, publication No. 2, AGPS, Canberra, 1976.

(With K. J. Polakowski) *Power Transmission, South-Western Australia: A Review of Route Selection Procedures*

Report to State Energy Commission of WA. Centre for Environmental Studies, University of Melbourne, 1977.

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Many people have helped with illustrations. Colin Totterdell (CSIRO) and Frank Ingwersen (DCT) provided many of the photographs. Shibu Dutta (NCDC) and Jeremy Pike (Centre for Environmental Studies) did the drawings. The maps are based on the work of the NCDC. Graphic design was by John Christoe and Tony Conquest (CES). Ann McGregor (CES) assisted with research and report production, and wrote much of the historical survey.



# I PUBLIC OPEN SPACE

## Introduction

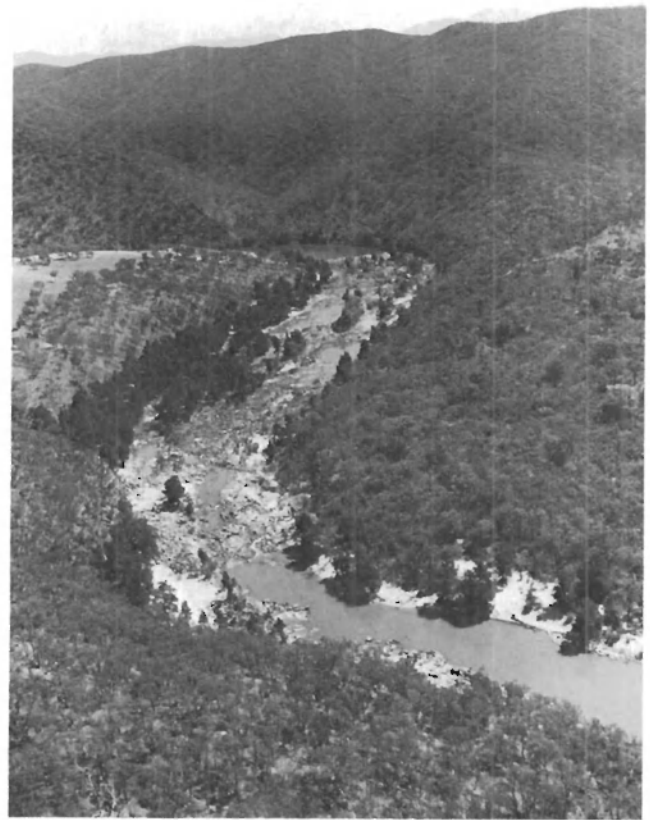
This is a good moment for Canberra to review its open space provisions and to frame a policy for the future. Canberra has always had a generous provision of parkland, and it has been in the forefront in some areas of urban design, especially in the provision of schools and playgrounds that can be reached by footpaths, and cycle ways insulated from motorised traffic. Until recently, however, there has not been much formal provision for recreation outside the city area, except for a few picnic spots. This is changing rapidly, at a time of rapid growth, with new centres at Tuggeranong, Belconnen and Gungahlin, and also of rapid changes in recreational behaviour. Nude beaches were scarcely thought of five years ago, but Canberra now has one. Hang gliding had not been heard of. Trail bikes have become common. New forms appear, such as orienteering, and old ones like horse-riding expand dramatically. Despite the speed of change, most of these new recreation patterns have one thing in common — they take up a good deal of space. Many of them require substantial capital investment in equipment — water-skiing is a good example — and make quite heavy demands on fossil fuels. This makes planning especially difficult, because the high growth rates are probably not sustainable in their present form. Nevertheless, people who have had these new experiences of outdoor recreation are not ever likely to go back to watching football on Saturday afternoons; especially when they can watch the television replay at home on Saturday night. New demands are also being made on urban open space. Finally, broad-acres alone do not provide recreation. Recreation is an experience, not an activity — a recurring theme of this report.

The object of the report is to see what Canberra has by way of open space and opportunities for recreation, what it lacks, what it could have, what it should have. The structure of the report is to consider the functions of an open space system in Canberra; the accessibility, distribution and capacity of elements in the system; the quantity of open space — how much, and what it would cost — and the quality of open space, including a discussion of diversity and of design and maintenance standards; recommendations and conclusions.

## Historical development of open space systems

*Three great waves have broken across the face of Britain since 1800. First, the sudden growth of dark industrial towns. Second, the thrusting movement along far-flung railways. Third, the sprawl of car-based suburbs. Now we see, under the guise of a modest word, the surge of a fourth wave which could be more powerful than all the others. The modest word is leisure.*

*Leisure is a compound of six decisive factors — population, income, mobility, education, retirement and the free time of adults. Each of these has grown dramatically in the last decade and will continue to grow apace in years ahead.*



FRANK INGWERSEN

**Plate 1.** Kambah Pool on the Murrumbidgee River; with the Bullen Range on the right, or west, bank. The Murrumbidgee is entrenched, well below the broad erosion surface on the left. The deep pool is to the south (top), followed by a series of rapids. *Casuarina cunninghamiana* lines the river. In the foreground is the newly established nude bathing beach, more than a kilometre from the car-park, which ensures reasonable privacy, but makes the collection of litter a complicated exercise, and the choice of a uniform for the attendant, difficult. Just a ranger's badge?

*We cannot tell exactly how these changes will affect our leisure. The Americans have taken the trouble to find out. The conclusions in the report Outdoor Recreation for America, published in early 1962, could well be true for us — that active use of leisure goes up with income; that growing mobility is putting heavy pressure on recreation resources never used before; that widespread education not only releases more youngsters on holiday but changes their attitudes towards leisure, the better educated being more active; that older people are remarkably keen on the less vigorous leisure activities, such as walking, driving, sight-seeing, fishing.*

*The broad conclusion of the American report was that their population would double, but the demand for outdoor recreation would treble, by the year 2000 (Dower, 1965, p. 123).*

Thus begins an influential article with the title: *Fourth wave — the challenge of leisure.* Data from the U.S.A. show steep growth rates in use of some outdoor recreation areas in the 1960s; nearly 9% increase in the annual use of the National Park System, nearly 12% increase in use of National Forests, and a massive 23% increase in use of Water Supply Reservoirs (Clawson & Knetsch, 1966, p. 122); although these





COLIN TOTTERDELL

**Plate 2.** The summit of Mt Franklin, a sub-alpine woodland/alpine heath and herbfield complex.

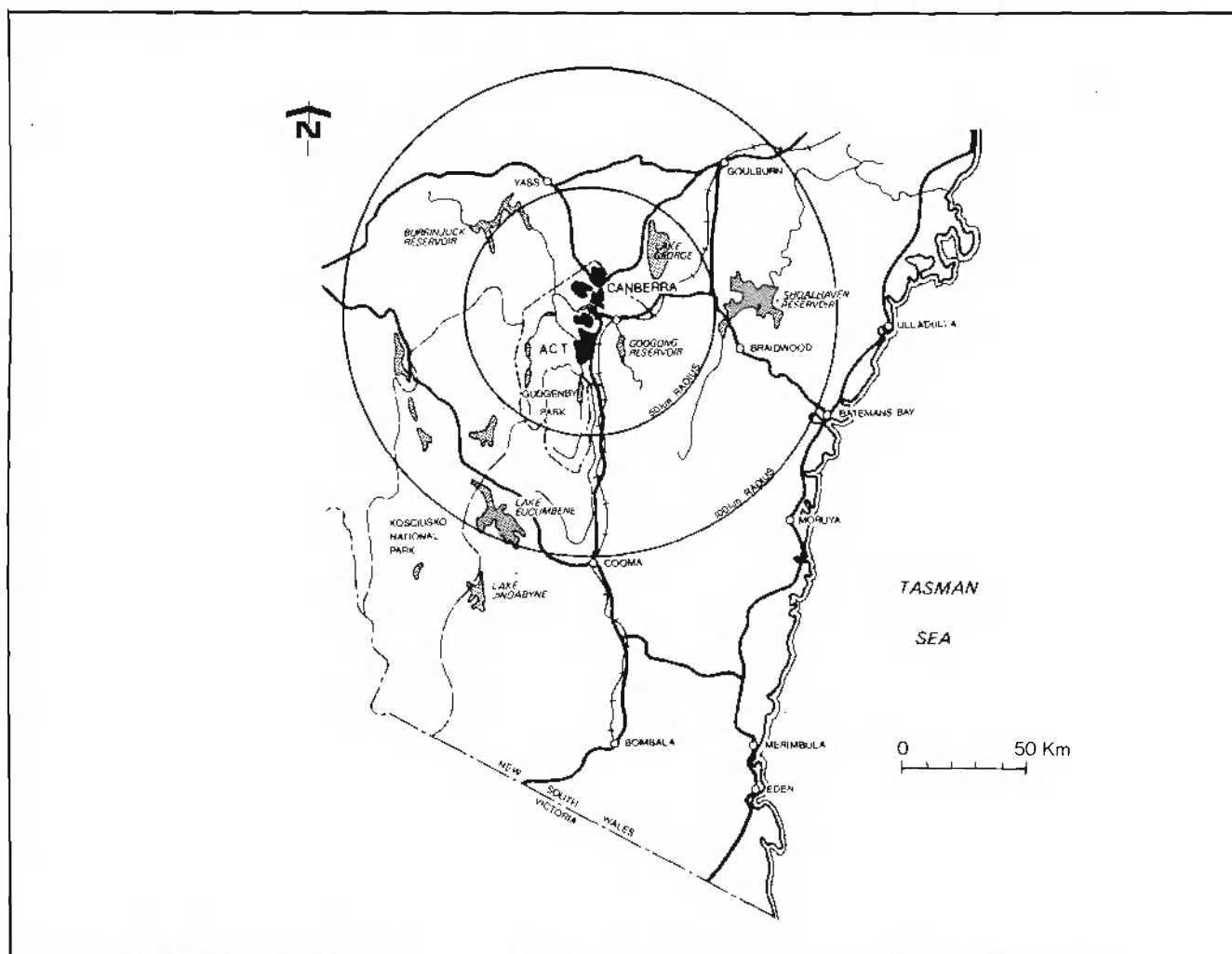
rates of growth have eased recently, they are still high. Good data are lacking for Australia as a whole, but it is easy to see similar broad patterns (see Mercer, 1977). These changes have been quite rapid, and they make very heavy demands on the outdoors environment, requiring new policies.

Public open space as we know it is a phenomenon of the modern industrial city. Most of the compact pre-industrial cities had little need for urban open space because the countryside was readily accessible. The medieval paved market square provided a central area for community activities. Gardens were the private domain of royalty and the well-to-do.

The French monarchy first began to open their pleasure gardens to the public in the eighteenth century, and originated the idea of the 'cours', a form of planted promenade. Baron Georges Haussmann, Prefect of the Seine under Napoleon III, introduced circulatory and ventilation systems into the congested urban agglomeration of Paris in the mid-nineteenth century. Within the network of streets created by large-scale demolition, he introduced a hierarchy of planted areas: promenades such as the Champs Elysées, squares similar to London's private residential squares, public gardens in romantic style and suburban parks at the eastern and western edges of Paris (Bois de

Boulogne, Bois de Vincennes). The primary function of Haussmann's open space system was to ventilate the city, although its recreational uses became very important.

In England the rapid, uncontrolled growth of the nineteenth century industrial cities brought overcrowding, squalor and disease. As the houses and factories spread outwards, there was almost no provision for community uses. Social reformers such as Edwin Chadwick and Charles Dickens awakened public opinion to the need for green recreational areas for urban dwellers. A number of private and Royal gardens, especially in London, were opened to the public. The Public Health Act in 1848 empowered Local Boards of Health to provide and maintain public walks and pleasure grounds, and over the next fifty years, many parks were established in British cities. The physical form and function of the Victorian public park derived from both the botanical garden and the popular pleasure ground, with the design basis provided by the great eighteenth century landscape designers such as Repton and 'Capability' Brown. Areas for organised games and children's play were not generally provided until late in the century; on the other hand, village greens and commons had been traditionally used for games for centuries.



**Map 1** Canberra and the region

pleasure motorist. Because the rural landscape now plays such a significant part in recreation, much thought has been given in some countries to its protection, and to the resolution of conflicts in land use. Many European countries have a long experience in this field: Denmark and Holland are in the forefront. *The Countryside Commission* in England was established to plan for the diverse demands now being made on rural landscapes.

The following statement on policy sets out Guidelines for Priorities:

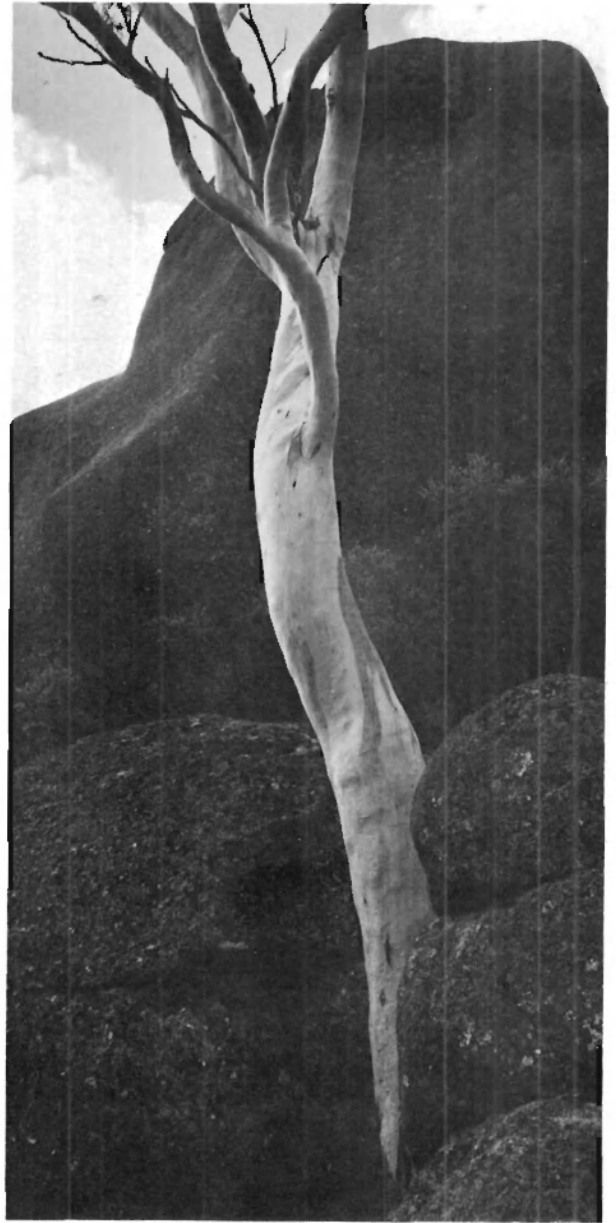
1. Under the *Countryside Act 1968* and the *National Parks and Access to the Countryside Act 1949*, the functions of the *Countryside Commission* are to be exercised for the conservation and enhancement of the natural beauty and amenity of the countryside and encouraging the provision and improvement, for persons resorting to the countryside, of facilities for the enjoyment of the country and of open-air recreation in the countryside. Within this general context the Commission have particular responsibilities for national parks and areas of outstanding natural beauty.
2. The responsibilities for conservation and recreation are complementary, inter-dependent and of equal importance.
3. Given the broad purposes for which the Commission were established, the exercise of their functions and responsibilities inevitably impinges upon a number of central and local government responsibilities in certain fields, including planning, agriculture, forestry, tourism, sport, water-based recreation and nature conservation. In so far as the Commission consider it necessary to undertake work related to such fields, they should seek to:
  - (a) develop liaison arrangements with the organisations concerned, to promote understanding and to co-ordinate action;
  - (b) concentrate on work which directly relates to their particular responsibilities for the protection and management of the countryside and its use for recreation.
4. Having regard to the preceding considerations and to restrictions on Government financial and manpower resources the Commission's work should give priority to the following matters, in which the Commission must be the main repository of expertise among central government agencies in England and Wales:
  - (a) the national parks, with particular reference to the relevant provisions of the *Local Government Act 1972*;
  - (b) other key areas of the countryside, including

The English concept of the public park tended to remain that of an isolated garden oasis in the urban fabric, but the Americans, notably Frederick Law Olmsted, extended the park to become a linked open space system and structural element in the shaping of a city. Olmsted designed Central Park, New York, as a refreshing, natural contrast to its rectilinear urban surroundings, yet the park was closely linked to the city by its four separate circulatory systems — for carriages, horses, pedestrians and through traffic. The parkway, or tree-lined boulevard linking parks and city focal points, was first suggested by Olmsted in 1869 to join his planned suburb of Riverside with Chicago. At the same time, he was developing the idea of a series of parks linked into a working complex; this was first applied in Boston in 1891, and subsequently in many other world cities.

The comprehensive plan published in 1909 by Burnham and Bennett for the future development of Chicago was a pioneering work in city planning in America. Burnham's earlier design for an eight-mile lake-front park was one part of the structural frame formed by the major parks, which were connected via continuous strips of greenery to secondary parks. In contrast to Britain, where the impetus for town planning arose from the sanitary and housing reform movements, the idea of comprehensive planning of cities and their environs in America came about largely through the earlier experience in planning complete open space systems.

In the early twentieth century, large municipal park systems were established in many American cities. In New York, for example, the city and state park systems were co-ordinated on a regional basis, and considerable areas of land were acquired in outlying parts. Eighty thousand men and a professional planning staff of 1,800 were employed on the development and expansion of New York's recreational areas through work relief programs during the 1930s Depression.

The National Park movement has been influential, both in providing open space, and in creating a demand for it. Yellowstone National Park was established in 1872. Australia was in the vanguard of this movement for a time, with Royal National Park in New South Wales, dedicated in 1886, Ku-ring-gai Chase in 1891 and Tower Hill National Park in Victoria in 1892; but this early start was not maintained. The National Parks in the USA helped to foster the taste for recreation in the natural environment, and their interpretative centres have played a significant role in environmental education. Powerful conservation bodies like the Sierra Club have been a part of this movement, which has found more recent expression in the setting aside of wilderness areas, and the dedication of wild rivers. The American concept of the National Park as a tract of little disturbed land in public ownership has generally been followed in the New World, but in countries with a long history of settlement, little such land is available. National Parks in countries such as Japan and England, for example, include cultural landscapes within their boundaries, and the land generally remains in private ownership. The National Park is therefore



COLIN TOTTERDELL

Plate 3. *Eucalyptus rossii* and granite tor, Tidbinbilla.

a *management* concept, to maintain compatibility between recreation and a range of pre-existing land uses, such as agriculture, forestry and quarrying (which is a major land use in the Peak National Park in Derbyshire).

Another significant trend in open space planning in the twentieth century has been the breaking down of the previous distinction between public park and urban, or living area. Stein and Wright's plan for the community of Radburn, New Jersey in the late 1920s became a model for suburban layout. Its two principal elements are the 'superblock' with entrant cul-de-sac for automobiles, and continuous parkland as the backbone of the layout and setting for pedestrian routes. The houses face onto the open space instead of the streets; and Stein and Wright insisted on including open space and generous plantings as part of the first costs of housing.



**Plate 4.** Sailing on Lake Burley Griffin.

NCDC

**Plate 5.** Black Mountain Peninsula swimming area, Lake Burley Griffin.

NCDC



The English Garden City movement, begun by Ebenezer Howard towards the end of the nineteenth century, strongly influenced the Radburn plan. The Garden City, to have the advantages of both town and country, was to be encircled and limited in size by a permanent agricultural green belt. Such a green belt was established around London by legislation in 1938, and green belts have since been established around most larger English cities. Functions of green belts now include the separation of different urban areas or incompatible land uses, the provision of a wide range of recreational facilities and attractive nearby countryside for a city. Recent sub-regional study proposals for Nottinghamshire and Derbyshire provide for recreation facilities in 'greenways', or extended green belts which link regional parks to one another and to the towns.

This represents one of many modifications that the earlier green belt concept has undergone. The difficulties with a rural belt around the perimeter of an expanding city have been that development leap-frogs the green belt, and rural uses become increasingly difficult in what has become an urban zone. In an attempt to minimise these difficulties, plans for urban expansion generally now propose a finger or urban corridor pattern, with green wedges of rural land between the fingers. Copenhagen has followed such a plan with fair success, and it is at least a paper plan for Perth and Melbourne — but when the rural land of the green wedges remains in private ownership and land values increase, it is unusual for farming to remain an economically viable land use. The linear city offers, *inter alia*, a third attempt at managing the urban/rural boundary; this concept was proposed in the 1890s for Madrid by Soria Y Mata, but the theory has rarely

been put into practice, because few cities have been able to control their form so precisely. (Tuggeranong will give Canberra a linear extension to the south, but the Y-plan north of the Molonglo ignores the reality of Queanbeyan, which is an eastern component of the ACT conurbation. Maintaining effective open space between Canberra and Queanbeyan will require very determined planning.)

Because of its simplicity, the 'standards approach' to determining public open space requirements in an urban area has been a durable prescription in this century. The Playground Association of America proposed in 1910 a standard of 1 acre (0.4 ha) of open space for every 100 people. In 1925 the English National Playing Fields Association formulated a standard of 6 acres (2.4 ha) of playing space per 1000 of the population. With some modifications these gross standards have since been recommended by numerous agencies, including Australian authorities, with little or no attempt to test their validity for different areas and conditions.

A more refined approach to the planning of recreational open space utilises the concept of a functional hierarchy of parks, ranging from small local parks to large regional or national ones, thus bringing together the two streams discussed above. In part, this approach may have grown out of the standards for different categories of open space such as playgrounds and community playing fields suggested by the National Recreation and Park Association of America in the 1920s-1940s. Playgrounds and neighbourhood parks must be readily accessible to mothers and children on foot, whereas the more specialised parks are visited less often and do not have to be close to every home. As suggested by the Californian Committee on Planning for Recreation, Park Areas and Facilities in 1956, the hierarchy can be closely related to the neighbourhood concept centred on the primary school, with a larger district served by a secondary school.

In 1969 the Greater London Development Plan rejected the previously crude standards (expressed in acres/1000 population) introduced in 1943, and pro-

posed a hierarchy to 'satisfy the main open space needs of all the population'. This attempted to relate park function, size and distance from home. The origins of this functional hierarchy with the larger, more specialised parks having catchment areas superimposed on a number of areas served by equidistant smaller parks can be readily traced to classical Central Place theory.

The Panel of Inquiry into the Development Plan rejected the hierarchy proposal because it did not take account of varying densities of population or accessibility by public or private transport. Nevertheless it was admitted that a better means of assessing or prescribing open space requirements was yet to be developed, and the concept of an open-space hierarchy has now been generally accepted around the world by planners and park administrators — although it has rarely been put into practice.

Closely linked to the concept of an open-space hierarchy is the concept of a park *system*, which is also generally accepted as a goal, but is one that few regions have put into practice. To operate the open spaces as a system requires either a single management team or a strong co-ordinating body. The potential advantages are very great. In a co-ordinated system, use can be regulated by design. Some areas can be rested, some protected, some specially designed for very heavy use. Actual use can be monitored, which allows feedback to management. Costs can be monitored, and economic balancing becomes feasible. Most Australian cities and their recreation hinterland are administered by so many local government units and statutory authorities that unified management of the open spaces will be hard to bring about, but Canberra already has the necessary administrative structures.

The major trend in recreation over the last two decades has been the increase in mobility, noted in the opening paragraph of this report. The one-day trip and the week-end trip (by car) now play a basic part in our recreation (map 1). The effects of the new mobility, and the responses to it, have been diverse. The designating of 'scenic rivers', scenic roads and parkways in the USA is largely a response to the needs of the

HIERARCHY OF PARKS SUGGESTED BY GREATER LONDON DEVELOPMENT PLAN

Type	Main Function	Approximate Size	Distance from Home	Characteristics
(a) Metropolitan Park	Weekend and occasional visits by car or public transport	150 acres (60 hectares)	2 miles (3.2 kilometres), or more where the park is appreciably larger	Either (i) natural heathland, downland, commons, woodlands, etc., or (ii) formal parks providing for both active and passive recreation, e.g. boating, entertainments, etc. May contain playing fields, but at least 100 acres (40 hectares) for other pursuits. Adequate car parking essential.
(b) District Park	Weekend and occasional visits on foot	50 acres (20 hectares)	$\frac{1}{2}$ mile (1.2 kilometres)	Containing playing fields, but at least 30 acres (12 hectares) for other pursuits (as in local parks) and some car parking.
(c) Local Park	For pedestrian visitors including nearby workers	5 acres (2 hectares)	$\frac{1}{4}$ mile (0.4 kilometres)	Providing for court games, children's play, sitting-out areas, landscaped environment; and playing fields if the parks are large enough.
(d) Small Local Park	Pedestrian visits especially by old people, children, and workers at mid-day.	Under 5 acres (2 hectares)	$\frac{1}{4}$ mile (0.4 kilometres) or less	Gardens, sitting-out areas and/or children's playgrounds.



particularly areas of outstanding natural beauty, heritage coasts, green belts and other areas of special significance in relation to the conservation of landscape or informal countryside recreation;

- (c) the rapid provision of more facilities for informal countryside recreation, such as country parks and picnic sites, where they are most needed;
- (d) the enhancement of the quality of existing and new recreational facilities by encouraging higher standards of management and design;
- (e) the development of countryside interpretive and information facilities and services, to improve visitors' appreciation of the countryside and the understanding between them and those who live and work there.

(Sixth Report of the Countryside Commission, 1974 HMSO London.)

The Countryside Commission has, as it should, the dual responsibility of catering for the need for recreation in the countryside, and safeguarding the interests of agriculture and conservation:

*The number of people with opportunities to visit and enjoy the countryside showed no sign of diminishing. The effects are experienced most directly by owners and occupiers of land. During the year an important part of our research has been directed, in co-operation with country landowners, farmers and others, to problems created by the need to reconcile landscape conservation with more intensive farming and to minimise the damage and interference caused, often unwittingly, by visitors. We have also initiated research into ways of lessening the physical damage caused by large numbers of visitors to places of special attraction.*

*We are enjoined by Section 37 of the Countryside Act to have due regard in all we do, to the needs*

*of agriculture and forestry and to the economic and social interests of rural areas. They are always present in our minds; but much more is required if those interests are to be properly safeguarded. (ibid. p. 3)*

In Australia, the problem of reconciliation of rural land use with recreation, which includes the hobby farm and week-end cottage, is acute around all the major cities, and a current source of conflict. The Western Port Regional Planning Authority in Victoria has attempted to resolve such problems in its Conservation Plan for the Southern Mornington Peninsula (Seddon 1974, 1975), but the competing demands of landowners, developers, farmers, conservationists and the recreating general public have not yet been fully reconciled.

A recent trend in recreation runs counter to the heavy dependence on the motor-car. Bush walking, horse-riding, bicycling, canoeing, orienteering, are all increasing in popularity. They may still begin with a car trip to get out of the city, but congested roads at the week-end are making even the purely functional car journey less attractive, and there is a new demand for open-air recreation within the city that is quite different from the organised sports of earlier years. Some examples in Melbourne are the opening of large metropolitan parks within the city limits (*Brimbank Park* on the Maribyrnong is an example), the provision of bicycle trails, and phenomena such as 'creek walks': up to 500 people now will turn up for a planned walk and barbecue beside Gardiners Creek, a very minor and wholly urban tributary of the Yarra River.

All of these trends can be exemplified in Canberra and the Australian Capital Territory (ACT), often in an exaggerated form because of the high growth rate of the city and of the comparatively high level of education and affluence of her citizens.

**Plate 6.** Lake Burley Griffin and Black Mountain.

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Canberra is a made landscape, to a degree that is easily forgotten. Much of the tree planting that now adorns inner Canberra was the work of Thomas Weston (1866-1935), the first Director of Parks and Gardens. Weston planned the first planting program on the bare limestone plains in 1912, and advance planting on a generous scale has created the anomaly that Canberra is a city of mature trees, although a fledgling city. The following series of photographs illustrates its history. For an account of Weston's achievement, see Murphy, G. P. (1963) Parks and gardens in Canberra; origins and foundations. *Canberra Collection*, Paper three, Canberra and District Historical Society.



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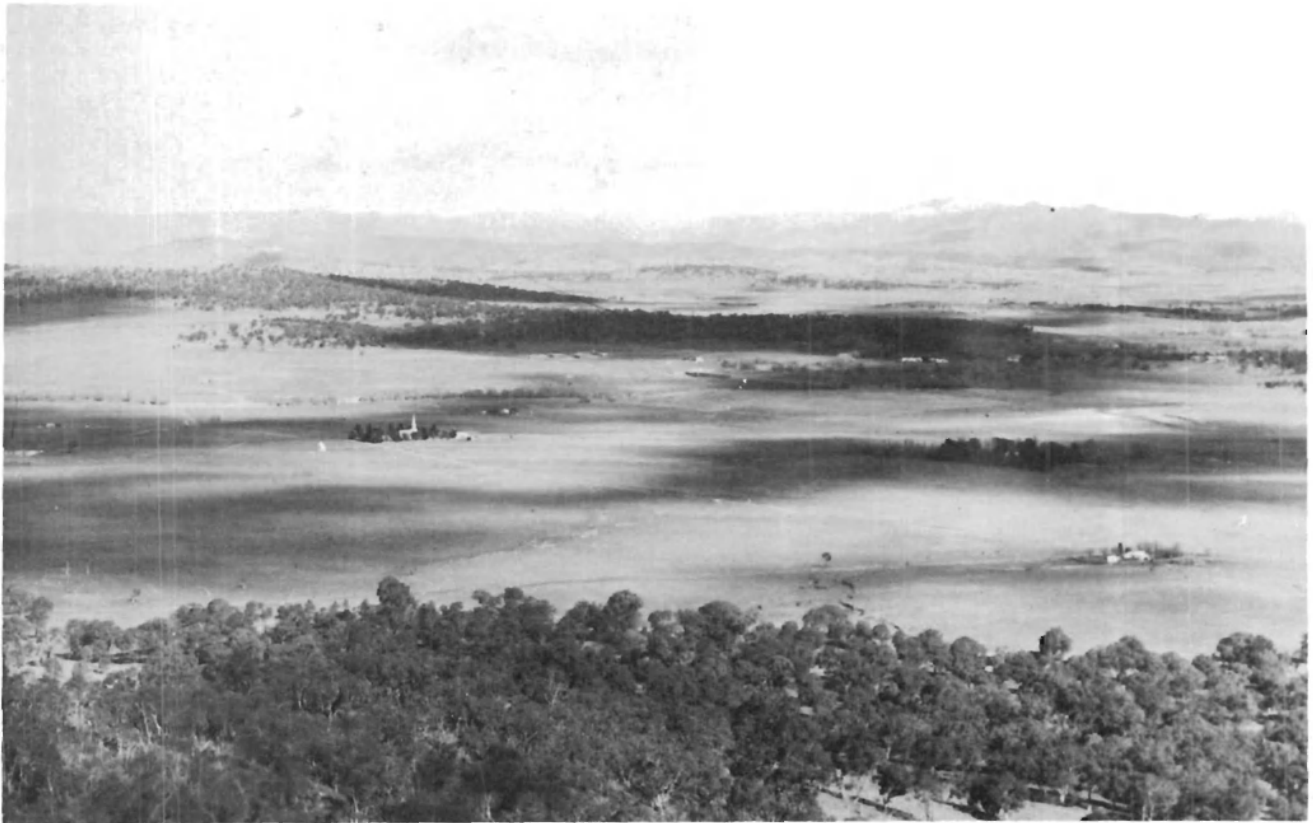
**Plate 7.** An early view of Mt Ainslie from the south, with Blundell's cottage (centre).

**Plate 8.** Panoramic view across the Molonglo floodplain from Black Mountain. The topsoil has been eroded, leaving a rock strewn wasteland.

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**Plate 9.** Looking south from Mt Ainslie across the site of the future Canberra, with the Church of St John the Baptist set among trees; left centre, the Molonglo River runs from left to right across the middle of the view. Red Hill, left middle-background.

**Plate 10.** A similar viewpoint, a little further east along Mt Ainslie, some years later. St John's is now right centre. Anzac Parade has been laid out, leading towards the newly built Parliament House.

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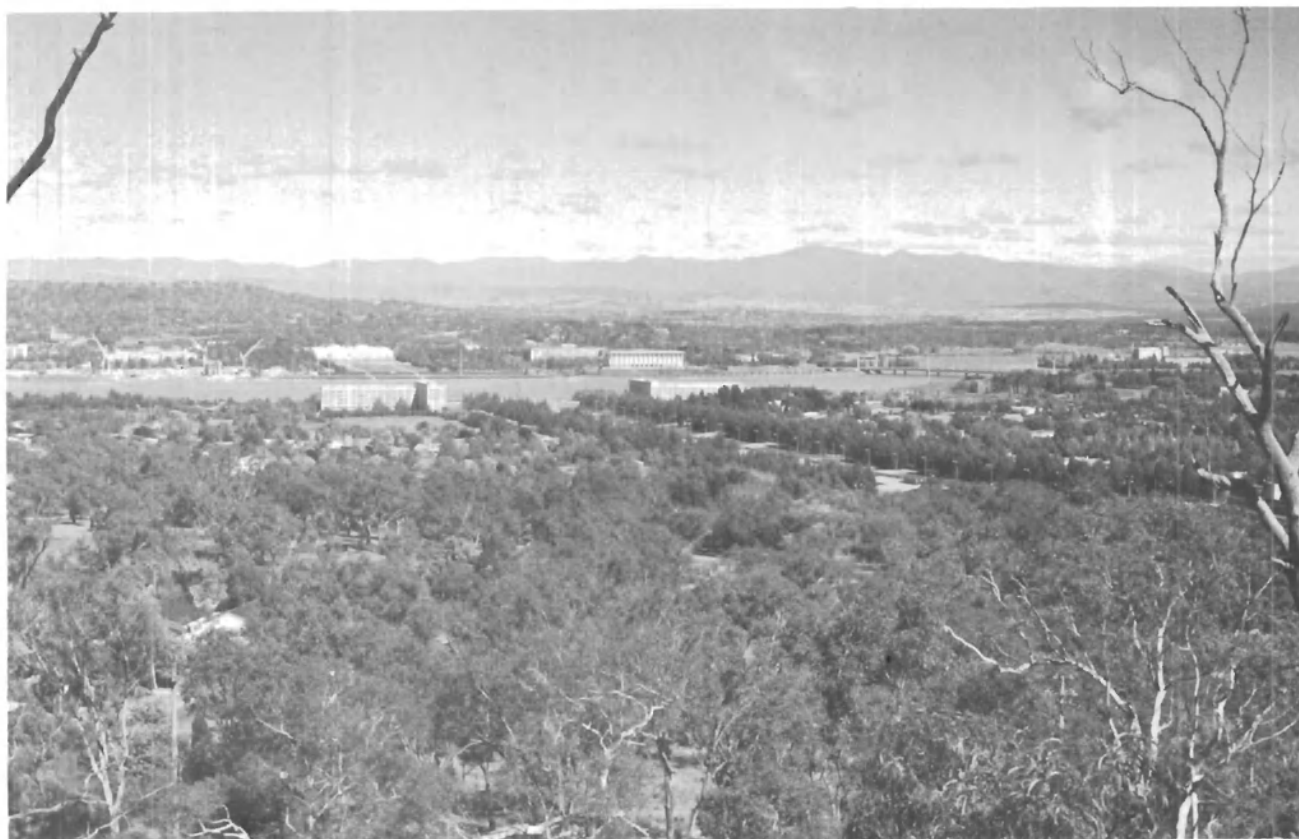


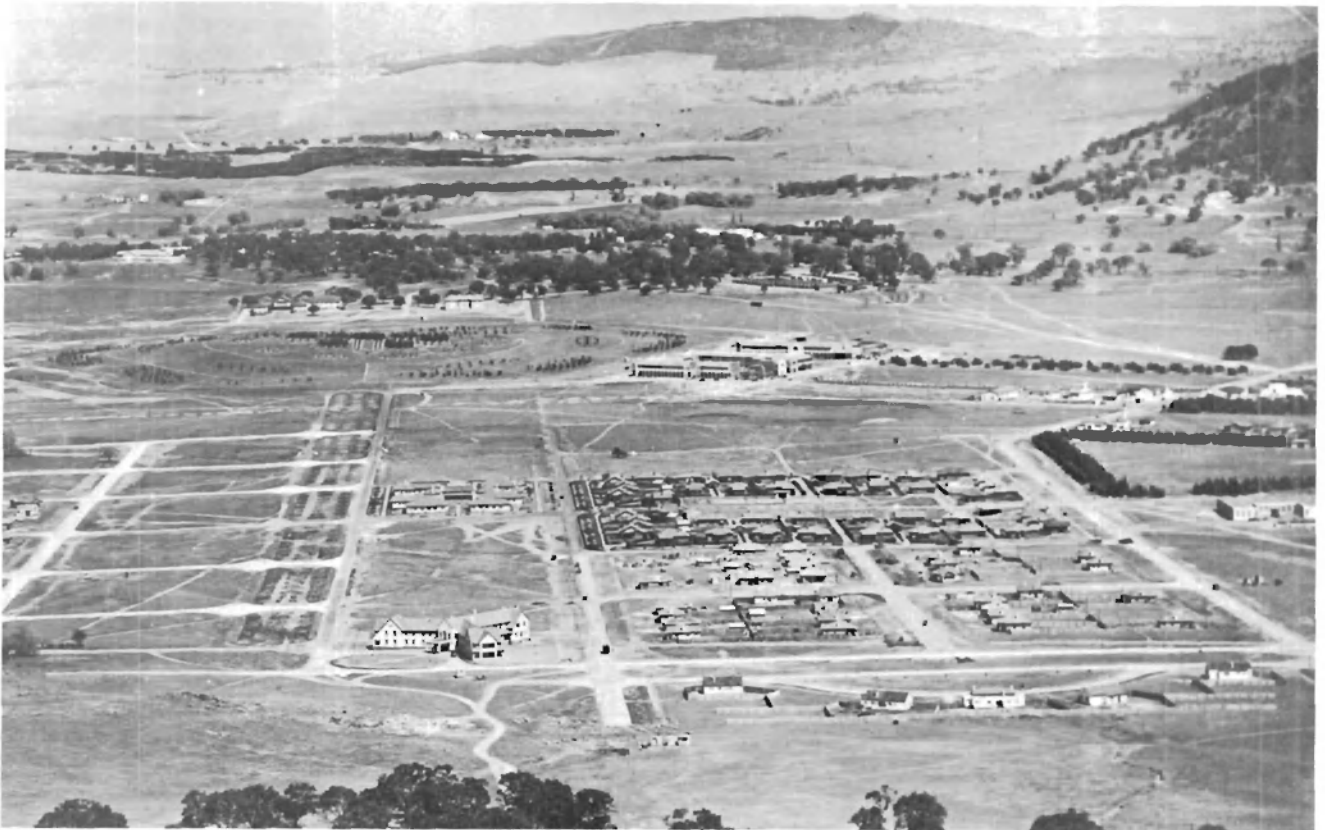
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**Plate 11.** Looking south towards Federal Parliament House, Canberra, from Mt Ainslie, January 1928. The prominent building set among trees on the right is the Church of St John the Baptist. The striped rectangular paddock to the east of it is Anzac Parade. (Anzac Parade has since been replanted.) The Hotel Canberra has joined Parliament House (to the right).

**Plate 12.** Same view, 1977. Note the revegetation of the lower slopes of Mt Ainslie.

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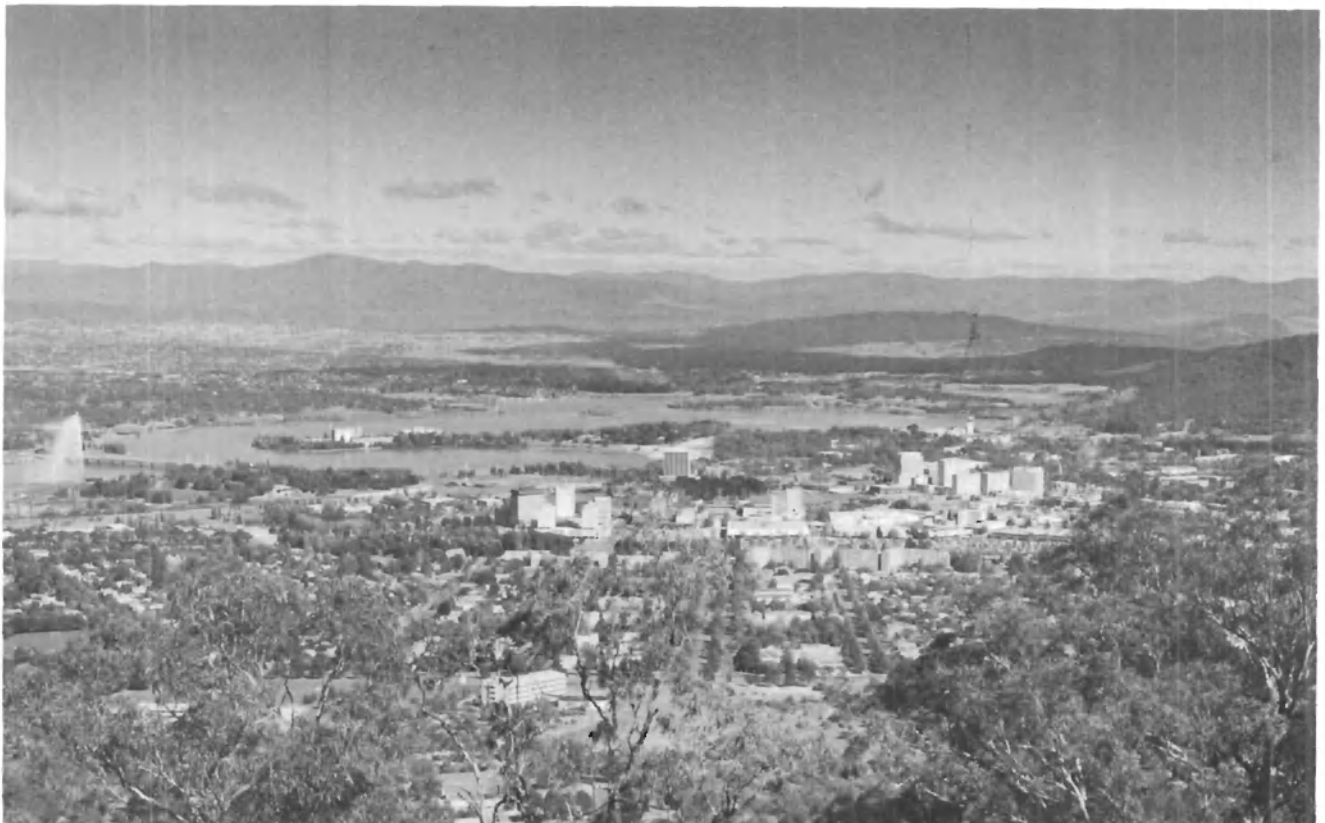


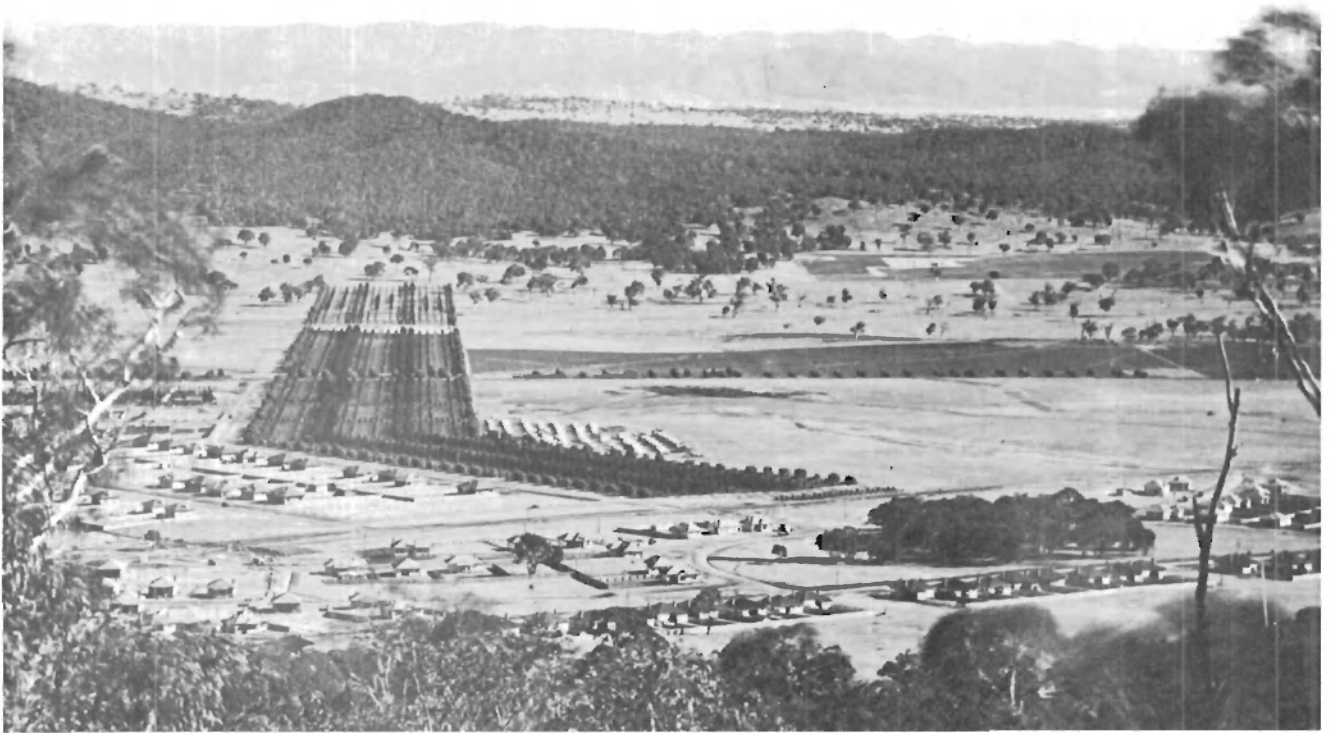
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**Plate 13.** View from Mt Ainslie towards Civic Centre, Canberra, in November 1927. Limestone Avenue runs across the foreground, with Ainslie Avenue, left centre, running to Civic. The advanced planting of City Hill, Northbourne Avenue, Northbourne Oval and the Stromlo Plantation (right centre background) all show the foresight of early planning. Another significant early planting is that of Westbourne Woods, later to become Weston Park, which lies in line with Ainslie Avenue in the middle distance. *Yarralumla* homestead lies just beyond it, and shows up clearly. So does the *Ainslie Rex* in the foreground, the second hotel in the new city.

**Plate 14.** Same view, 1977.

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**Plate 15.** Northern suburbs of Canberra from Mt Ainslie, looking west across the lower slopes of Black Mountain and the Belconnen Ridge to Baldy Range on the sky-line, July 1927.

This photograph shows very well the valley of Canberra Creek between the Ainslie-Majura Ridge and Black Mountain. This English place-name is the probable origin of Canberra's name, which has generally been thought to be aboriginal. The massive planting of Haig Park, originally intended as a shelter belt, is left centre, with Northbourne Avenue running from left to right, centre. The photograph also shows the retention of existing tree clumps in Corroboree Park, Ainslie.

**Plate 16.** Same view, 1977. Canberra Creek has become Sullivans Creek, and its valley an urban forest.

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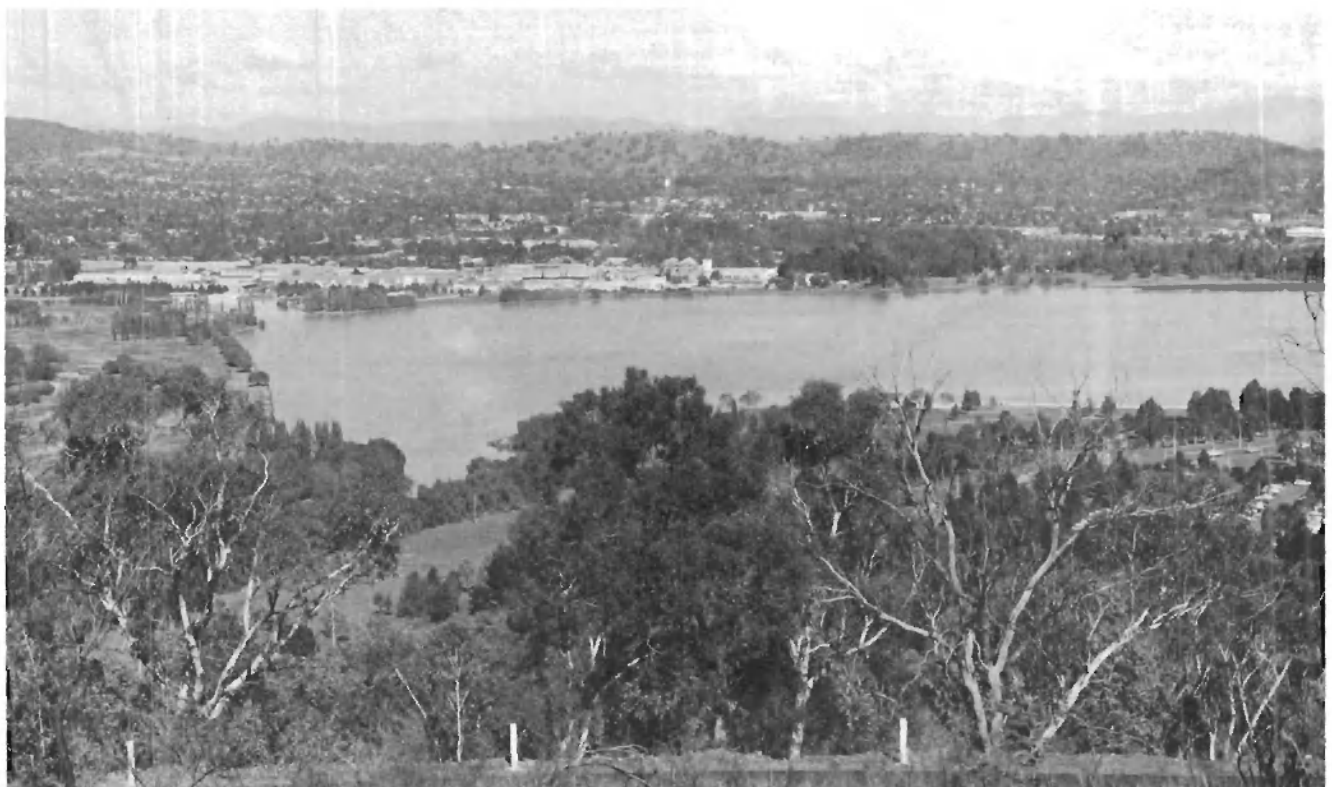


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**Plate 17.** East Lake (Kingston) area of Canberra from Mt Russell in April 1927, looking south. The ACT Electricity Authority buildings are prominent, centre. They are still standing; the main building is a fine piece of industrial architecture. The Molonglo River is left centre with the floodplain on the right; Jerrabomberra Creek enters the Molonglo on the left of the photograph. Early planting of Telopea Park can be seen, with Red Hill in the background.

**Plate 18.** Same view, 1977. The ill-sited Kingston industrial area shows some expansion, left centre. The mouth of Jerrabomberra Creek and the Molonglo in the East Lake area has been flooded, forming a wetland and bird sanctuary, to the left of the Boat Harbour (left centre).

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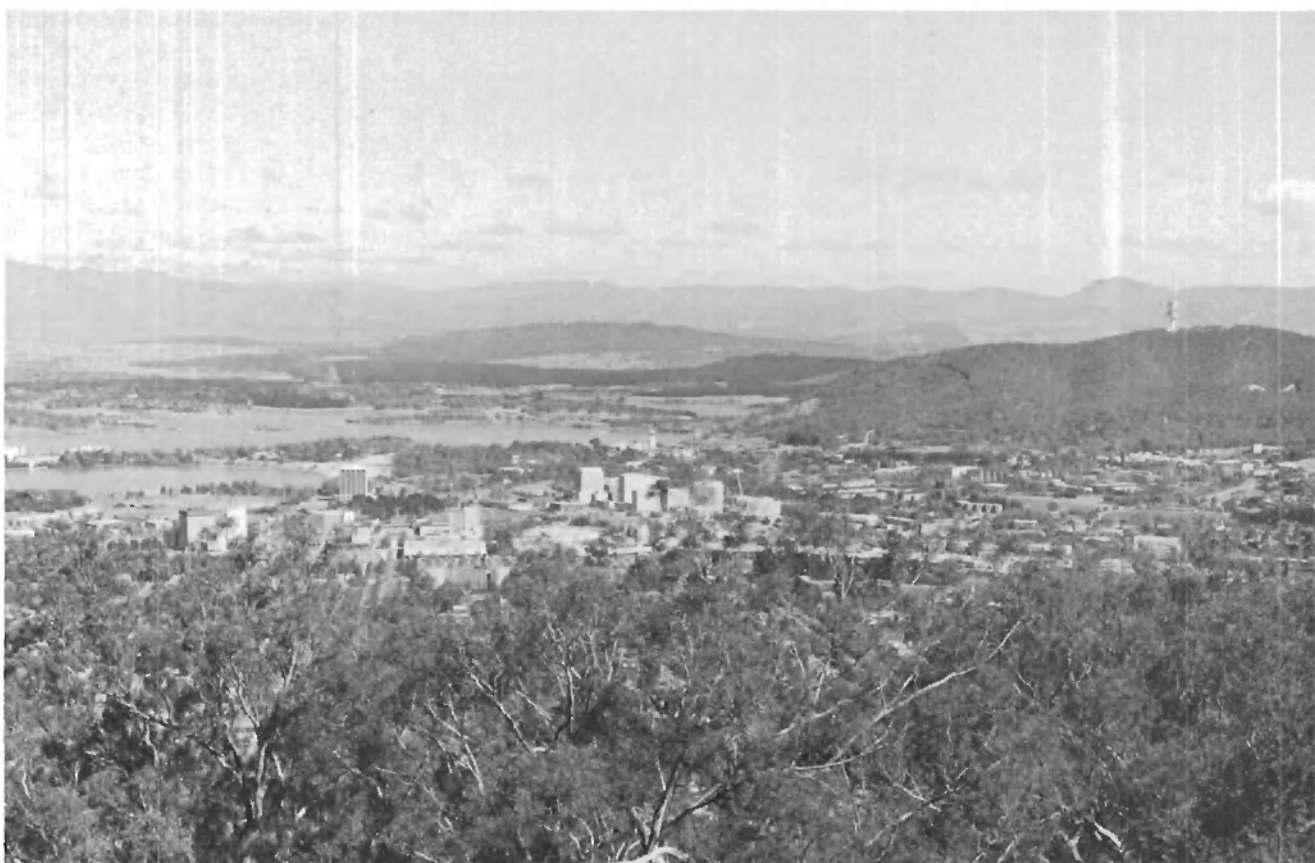


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**Plate 19.** Looking west from Ainslie to Black Mountain across the valley of Sullivans Creek. The lower slopes and much of the southern face of Black Mountain have been cleared.

**Plate 20.** Same view, 1977.

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## II OPEN SPACE AND CANBERRA

*As far as possible, the environment planned for working, trading, circulating, and dwelling should be recreational as well as utilitarian. To be effective, recreation has to be found casually in the factory at the hour of rest, on the way home, and at home.*

(Artur Glikson, 1971, pp. 28-29).

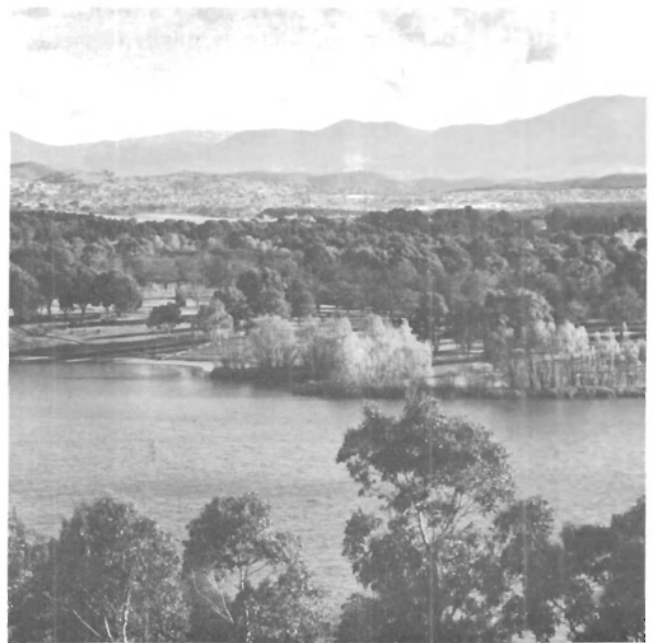
### 1. The setting

Canberra has much under-utilised land and much dead ground — despite which, it lacks an open space system adequate to present and future demands. It is therefore right that it should be planning for such a system now. The city of tomorrow can have only the open spaces that are reserved for it today.

This may seem paradoxical. To many people, the problem in Canberra is not so much to find the open space as to find the City. For this there are at least three reasons. The first is that from many of the viewpoints commonly encountered in daily travel, the garden city is hidden in the garden. One can look at the well settled suburb of Yarralumla from the lower slopes of Black Mountain, and see nothing but trees. The second is that the topography functions in isolating the urban system as a whole. Neither Belconnen nor the Woden Valley can be seen from Central Canberra, nor from each other. The third is that much land has been necessarily reserved for future use, especially in the National Area. It was not possible or desirable to build the city all at once — as Walter Burley Griffin recognised — but it was possible to create the garden setting, and then fill it up as needs and resources allowed. Hence the National Gallery and High Court building now under construction are on sites long reserved for such buildings. The apparent emptiness of Canberra is misleading. Moreover, it has special problems and special responsibilities: the problems arise from its being an artificial and an inland city sitting in a fragile landscape; and the responsibilities from its being a national capital, 'a show place to provide, as it were, the essence of Australia to both nationals and visitors' (Johnson, 1974, p. 29). The Burley Griffin plan, to which Canberra has long been inescapably committed, also presents some unique problems and responsibilities.

Certain key themes dominate this report, surfacing under many individual headings or sections, and it may be worth listing them at the beginning.

(a) Canberra is the largest inland city in Australia. Most Australians living in large urban centres relate to the sea and well-watered coastal landscapes for their recreation; in Canberra the problem is to find a satisfactory comparable relationship with a highly sensitive system of inland rivers and hills. A very real danger following Canberra's development would be a deterioration in water quality. Thus the open space system must be designed to protect the river system. It can do this in part by creating recreation facilities away from the rivers that are literally attractive, and by making much better recreational use of urban Canberra.



COLIN TOTTERDELL

**Plate 21.** Southwest from Black Mountain, across Lake Burley Griffin to Weston Park, with Weston Creek township in the middleground. Mt Stromlo is the low pine-clad hill (right centre) with the Bullen Range (centre). The Tidbinbilla Range forms the backdrop, with the Brindabellas barely rising above it on the left.

(b) The customers for the open space system are not only the local residents, but also the tourists, and the tourists are unusual, because they are not looking for a holiday in the ordinary sense. They come for many reasons, but the primary one is to experience the National Capital, as Americans go to Washington. It is, in a sense, a pilgrimage, intended as an act of piety — although in practice, the experience is meagre, and the intention realised perhaps only at the War Memorial. Nevertheless, a visit to Canberra should ideally confirm and renew for every Australian his sense of national identity, and give him a deeper understanding of what it is to be an Australian. In practice, many — perhaps most — Australians feel strongly alienated from Canberra, for a complex of reasons and prejudices, many of which have nothing to do with the physical planning of the actual city. Some relate to the initial choice of site, remote from the industrial cities in which most Australians live. This is indeed a consequence of physical planning, but one to which there was no practicable alternative at the time, and which is in any case irremediable. Some relate to the Australian dislike for the bureaucracy, for politicians, for the present archaic Constitution, and for Federal-State relations in their current form. Some spring from the healthy Australian talent for irreverence; others from the unhealthy Australian penchant for the cheap jibe. Canberra is often attacked for shortcomings that turn out to be the common and very nearly inevitable characteristics of new communities — the unbalanced age structure, the lack of accessible grandparents, a high incidence of mental ill-health and so on. Nevertheless, the image of Canberra is also partly a creation of physical planning, and it can be modified by physical planning



(examples are given in figs. 1-3). Thus although this report is about open space, there is much discussion of image, of perception.

(c) For the above reasons, there is also much discussion of urban Canberra. Many articles on open space systems are concerned exclusively with playing fields, parks, and access to the countryside. This report concerns the need for an integrated open space *system*. Such a system will have both rural and urban components. The way people use their city partly determines the way they use the countryside. Indeed, the distinction between the two is in part artificial. The country is sometimes seen through sentimental eyes by city people as if it belonged to a different century, but in fact all land in the ACT is dominated by urban needs, by urban economics and by urban technology. Canberra has an exceptionally sharp urban/rural boundary, but this admirable characteristic is the outcome of conscious planning and management policies, and not of untutored economic forces.

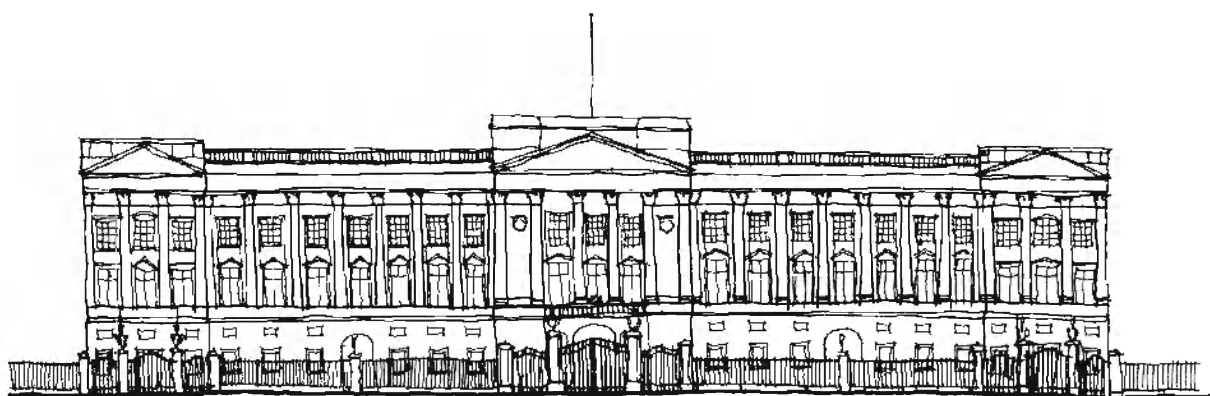
For all of the above reasons, therefore, there is much more discussion of the city, its image, its functions as a national capital and its distinctive legacy from Walter Burley Griffin than might be expected in a report on public open space. Moreover, because the concern is to plan an integrated system, with a functional inter-relationship between the parts, discussion of urban Canberra and of the rural ACT has not been neatly partitioned. That would have been easier to write and perhaps easier to read, but it would fail to show their complex inter-dependence.

## 2. Functions of an open space system

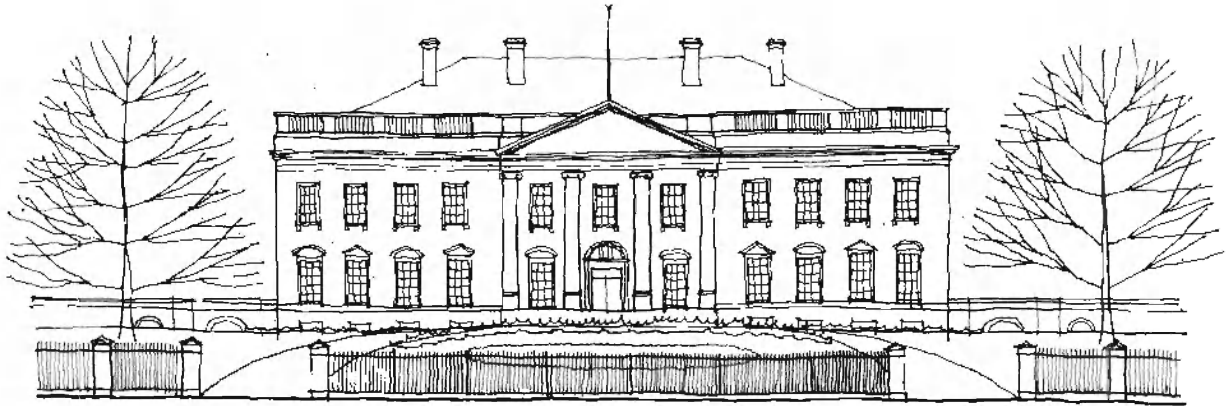
The best way to understand the need for an open space system is to understand the functions it must perform. These are diverse in the extreme, and strictly should include all the outdoor recreational demands made by people on the physical environment of the city and its surrounds. Open space also has uses other than recreation, as noted below. Moreover, recreation should be interpreted broadly — it must include stimulation as well as relaxation, and might cover the experience of moving around and participating in the life of a city, as well as those specified parcels of leisure time devoted to recreation in recognised recreation areas. Effective recreation is not measured in litres of sweat lost, but in its power to re-create the spirit of man. The open space system of Canberra must serve some functions that are recreational only in the very broadest sense: this is especially true of its symbolic function.

### (a) Symbolic function and the Griffin plan

National capitals tend to be monumental. Canberra is unique in that the natural setting has become the primary monument, especially the grey-green hills rising above the inland plains that were chosen for its site. The way in which inner Canberra is focused on its hills and water are a direct outcome of the Griffin plan. It was and is a striking plan, with many rewards. It also has certain penalties. In addition to the restraints inherent in the Griffin plan there are other problems in central Canberra that arise from failures to follow through Griffin's intentions — the bare



**Fig. 1.** *Buckingham Palace, City of Westminster:* *Buckingham Palace* has much in common with the *White House*. The *White House* is certainly the more elegant, and the more evidently domestic — a place where a family lives. John Nash was commissioned to remodel *Buckingham House* in 1825; that work was finished by Edward Blore, but a new front was added by Sir Aston Webb in 1913, so that the facade is the youngest of the three buildings illustrated. It is a ponderous face, the product of a waning imperialism, but the Palace is nevertheless a superb ceremonial setting. On major occasions, the Queen appears on the balcony, and the Guards are always on duty. The sheer functional accessibility of Big Ben at Westminster and of the Royal Family in residence at *Buckingham Palace* were of inestimable value to Londoners during the Blitz of World War II. The centrality of *Buckingham Palace* in Westminster is very striking: The Mall and Birdcage Walk are major traffic arteries; Trafalgar Square and Piccadilly Circus are within half a mile, and Green Park and St James Park are much loved and incredibly heavily used by Londoners.

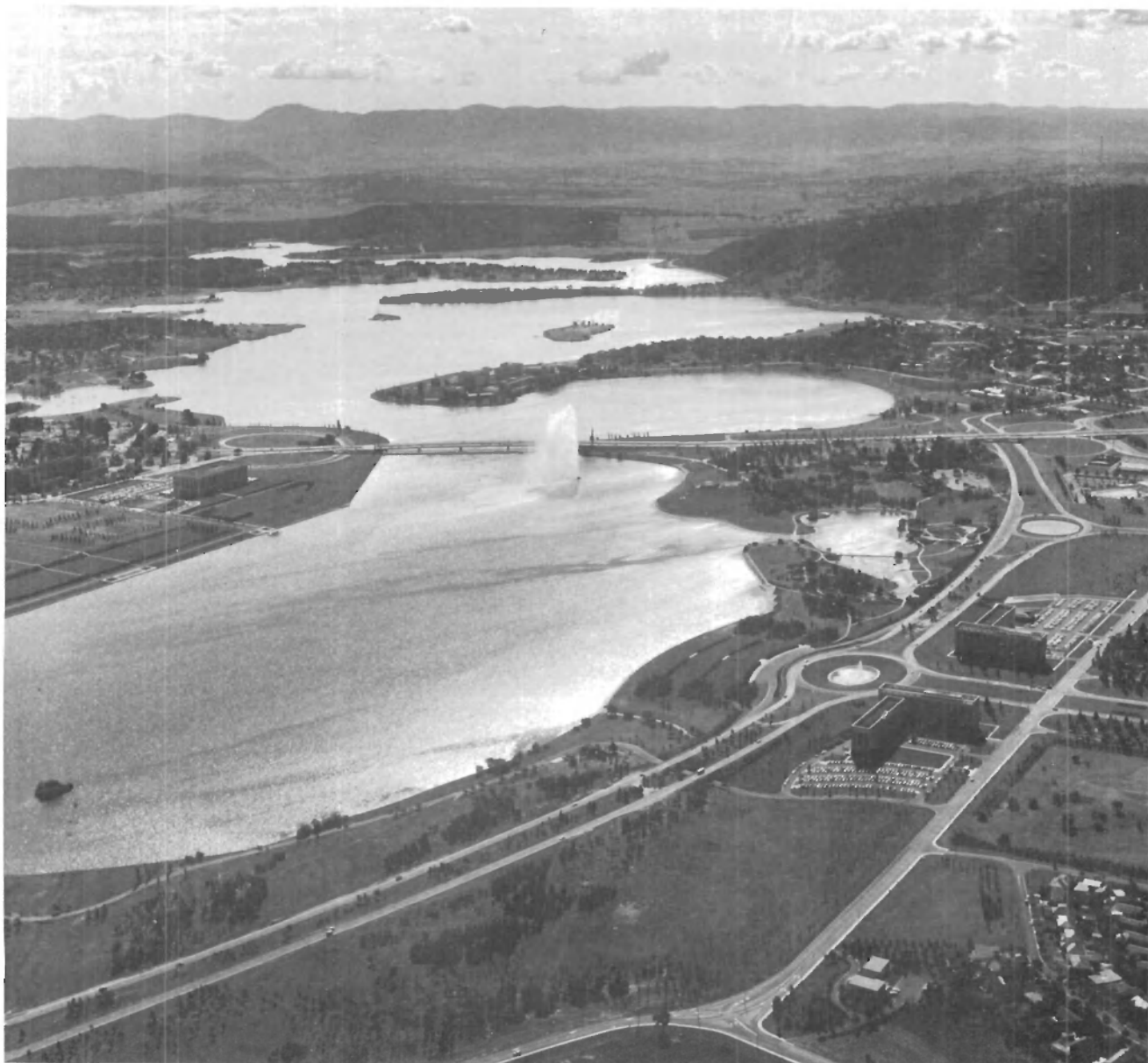


**Fig. 2.** *The White House*, 1600 Pennsylvania Avenue, NW. The address is significant: Pennsylvania Avenue is the nation's ceremonial thoroughfare, running from Capitol Hill to the *White House* and beyond (the axial alignment runs through the centre of the *White House*, but the avenue itself runs northwest to the boundary, north on 15th Street, west to the western boundary of the *White House*, and then resumes its northwest axial course). But Pennsylvania Avenue is also the major commercial thoroughfare of Washington, and the *White House* is therefore very much a part of the daily life of the city. The architect James Hoban, working largely under the direction of George Washington in the 1790's, designed a Georgian house in the style with which he was familiar in his native Ireland, a style that has dignity and grace without pomposity. Thus the *White House* is urbane, impressive but not overwhelming, and above all, *visible*.

Lafayette Park, across the street from the *White House*, provides strollers with an excellent vista of the First Family's home — to quote the official guide-book. The same guide-book, prepared by the U.S. Department of the Interior, begins thus: *Washington, unlike any other city in the Nation, belongs to all the people. Every monument, every public building, and all the treasure in the national museums is the property of every citizen* (Washington D.C. National Park Service, U.S. Department of the Interior, Washington, 1976). This is, of course, the rhetoric of democracy, and one may doubt that Puerto Ricans in the slums of New York feel that they own the *White House*, which may also be too much the slaver's mansion for some southern negroes. Nevertheless, this rhetoric works for millions of Americans. Few Australians are likely to feel a thrill of pride and possession at the gates of Yarralumla. Free public tours of the *White House* run from Tuesday to Saturday — but to quote from the ACT Government Tourist Bureau — *Yarralumla: Government House — official residence of Australia's Governor General. Can be viewed from lookout off Lady Denman Drive just after crossing Scrivener Dam and, further on, Dunrossil Drive leading to main gates. House, grounds, not open to public.*



**Fig. 3.** *Yarralumla* was built in 1891 by Frederick Young, a Queanbeyan builder, for Frederick Campbell, who owned 39,000 acres of sheep-station. The historical associations of the house such as they are, emanate a pretentious anglophilia. It was resumed by the Federal Government at a cost of £140,000 and the Campbells and the sheep left in 1913. The building now stands in 132 acres of grounds, and is virtually invisible from the land; it can just be seen from the hill near Lady Denman Drive. *Yarralumla* plays no part in the daily life of the capital, and a small part only in its public ceremonial life. It functions as a suburban house on a quarter acre block, but bigger.



COLIN TOTTERDELL

**Plate 22.** Lake Burley Griffin looking west to the Brindabella Range; Mt Coree is prominent on the skyline, left centre. The Green Hills-Stromlo pine plantations show up beyond the Scrivener Dam, and the Cork Oak forest can be seen to the left of, and behind, Black Mountain.

The foreground shows Griffin's Canberra, and some of its problems. The prominence of the Acton Peninsula and Hospital Point (behind the Commonwealth Avenue Bridge) is clear. Nerang Pool and the Commonwealth Gardens (right centre) are sealed off from residential and commercial Canberra — and therefore from casual use — by a massive road system (Parkes Way). Constitution Avenue, the base of the Griffin triangle, in the right foreground, is relatively undeveloped, and peters out in the foreground. The land between it and Parkes Way is dead ground, part of 'the landscape setting' of Canberra, but of no value for recreation. The lake foreshore in this area has a continuous footpath or bicycle track, but car access is poor except for the underpass near the Bureau of Mineral Resources, which flanks Anzac Parade. It is an under-utilised resource.

geometry is there, but not the full set of functional relations which would have made it work. For instance, it would hardly have been possible to create a more effective set of communication barriers in what began as a fairly open landscape. The lake is one major barrier, and the hills are the other, not just in themselves but because of their relation to the street plan. As a Canberra planner has said, *We can't do anything without their getting in the way.* Most journeys within Canberra seem to require the use of London Circuit around City Hill, the Commonwealth Bridge, and the State Circle around Capital Hill.

Parliament House, when it is built on Capital Hill, will be on an island in a double traffic roundabout, and if a City Hall is built on City Hill, it will crown the other major traffic roundabout — unless planning succeeds in deterring through traffic in the Central Area. The peripheral parkways and Molonglo Arterial reflect this hope. Lake Burley Griffin is a fine showpiece, but it presents many functional problems. Perhaps the main one is that the city centre is not on the lake. The lake can scarcely be seen from the city centre, and there is no temptation to walk to it; major traffic hazards intervene. The

Commonwealth Gardens are not accessible to office workers and shoppers. The visual centre of the city is a car-park on City Hill, the dead heart of Canberra. This is potentially the most important area of public open space in Canberra, because it is where the people are, but it is in fact isolated by the traffic system. There is now a proposal for a City Bus Terminal within the central hexagon, which will make better functional use of the space the car-parks now occupy, but rejects it as effective open space. Despite the nearby City Hill lawns, the Glebe parklands to the east, and the lake-shore to the south, it is ironic that Canberra's Civic Centre has no effective green-space at all, and is now rapidly evolving a system of internal courtyards and pedestrian malls, generally paved and very urban in character. Attractive though these are, they could have easily been complemented by urban green-spaces like Hyde Park in Sydney and the Treasury Gardens in Melbourne, both of which are heavily used by the urban work-force.

These functional defects arise from failures to realise Griffin's full intentions, as fig. 4 shows. (Much of the following is drawn from the *Walter Burley Griffin Memorial Lecture*, given by Peter Muller in Canberra, 27 November 1976). Note first the primary circulation pattern — Northbourne Avenue was planned to be what it has become, the main link to the north, to Sydney and the Hume Highway — but at City Hill, the main circulation ran east along Constitution Avenue — the Municipal Axis — to Russell, the eastern node at the base of the triangle, planned as an amphitheatre which would complement the pyramidal form of City Hill (fig. 5); the main traffic artery then ran south again over a causeway to join up with the exits to Cooma and Queanbeyan. Provision was thus made for through traffic to by-pass the Federal area.

In practice, we have the appearance of the Griffin plan, but not the substance. The Australian-American Memorial obelisk was put in the wrong place. It should have been sited at Griffin's Russell intersection, and Constitution Avenue and Kings Avenue extended to meet there, which they now fail to do. Perhaps the best way of celebrating the centenary (24 November 1976) of Griffin's birth would have been to shift the Memorial and complete the road system. Fig. 4 also shows that the main commercial life of Canberra was to run along the Municipal Axis — now Constitution Avenue — facing across the Lake to the Parliamentary Zone, rather than being tucked away behind City Hill, as it now is. Thus had Griffin's plan been realised in detail the functional imbalances noted above should not have arisen.

A further problem with Griffin's geometry, at least in the form we now have it, is that it is not often perceptually available — that is, it cannot often be seen. It is superb from Mt Ainslie, Red Hill and the other hill tops, and from the air. (Planners may think in plan view, but most of us live among elevations.) Except from the two bridges, the major axes are not often perceived on the ground, especially by the pedestrian. There is one, but only one, major axis

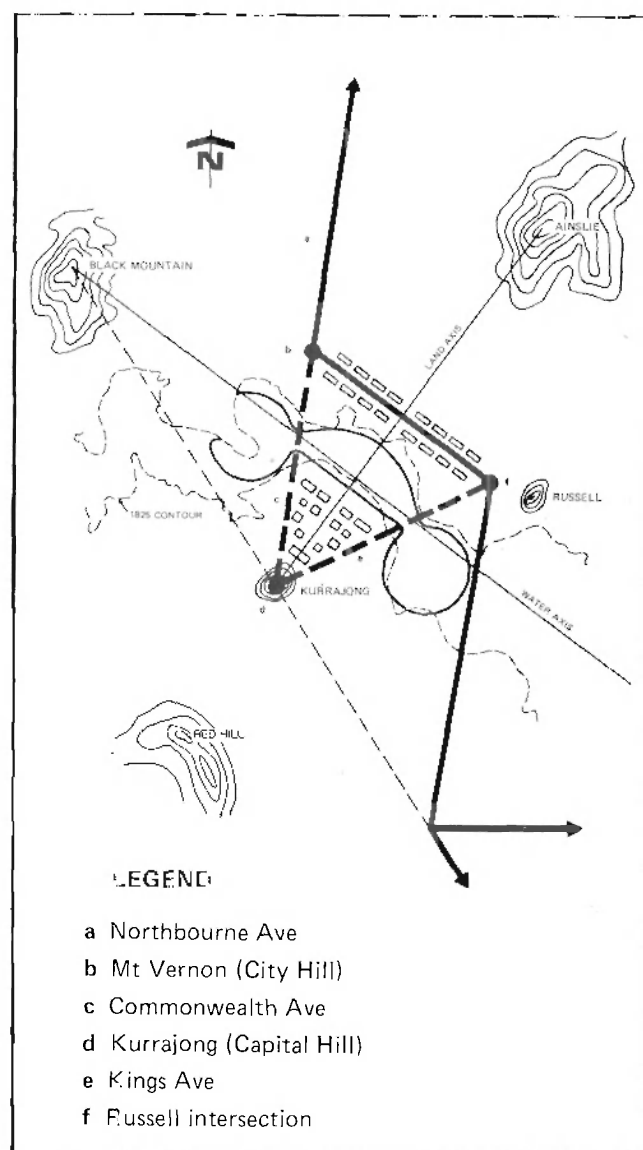


Fig. 4. The functional relations of the Griffin Plan, never fully realised.

to be seen from the city centre, and that is Ainslie Avenue, which has a splendid processional quality leading directly into the slopes of Mt Ainslie. The Griffin geometry will be easier to see when Parliament House sits on Capital Hill — a good argument for using the hill is that it will create a reason for climbing a hill that displays axial Canberra. The same argument applies to City Hill. A restaurant intersecting the major land axis beside Lake Burley Griffin in the Parliamentary Triangle would also display the form of the National Area.

Once again it can be shown (Muller 1975 p. 25) that these deficiencies are not so much a failure of Griffin's concepts, as a failure to understand and implement them fully. Griffin's design was in fact not merely a plan (that is, a two-dimensional construct) although a plan is all that has emerged from it: it was a three dimensional design (fig. 7). The water axis was set at 1825 feet above sea level; the land axis at 1985 feet, taken from the top of Kurrajong Hill, (now Capital Hill); the Municipal Axis was exactly half-way



COLIN TOTTERDELL

**Plate 23.** Central Canberra looking south. The problems of Civic Centre are well illustrated — it is cut off from the lake to the south, and isolated by a huge ring of car-parks from the residential areas to the northeast. The high density accommodation (left foreground, along Ballumbir Street) is related neither to the parkland in Glebe Park or nearer the lake, nor to the business centre where most of its residents presumably work. The function of City Hill and Capital Hill as traffic roundabouts is also very clear in this photograph. Much of Canberra's built form follows logically from the primacy given by our society to the motor car. The planners cannot be blamed, but this choice creates a mass of residual problems.

between the two at 1905 feet. These levels were intended to set building heights, which he expected to be realised as an essentially uniform set of continuous facades and elevations along the Municipal Axis — not unlike, for example, the commercial streets of Adelaide today — but always below Parliament on Camp Hill, rising to the level of the Land Axis. If this three-dimensional model had controlled the building of Canberra, both its form and the intended significance of that form would be much easier to apprehend on the ground than they are today.

It would also greatly change our perception of the central open spaces and their function — for example, Griffin also intended that the western side of Commonwealth Avenue be 'built-up', with continuous two-storey facades, like most city streets of his day. Thus the great parkland setting of the public buildings in the Federal Triangle would have been in contrast with a firmly defined urban edge. In practice, however,

commercial development has been at densities not unlike that of public development, to create an impression of illimitable and monotonous parkland, with isolated buildings like the Russell Offices, the Hotel Canberra, Parliament House and the Canberra Hospital all at much the same scale making much the same impression, and all lost in the trees and lawn. It is this that gives the plastic toy-town effect.

That this point is not trivial can be seen from the 30 December 1976 editorial from *The Australian* (fig. 5). The writer is so pleased with the phrase 'the barbered green lawns' of Canberra that he uses it in effect three times, if we count the title, 'Where the grass is always greener'. 'The sweaty and fly-ridden countryside' and 'our lively but imperfectly planned metropolitan areas' represent reality, while the green lawns of Canberra are a sterile dream world. The facts are different. Private lawns in Melbourne or Sydney are at least as well-mown and as green as those of Canberra, and the

## Where the grass is always greener

GEOGRAPHICAL fragmentation has been one of the major structural problems confronting Australia since the foundation of the first colonies. It was compounded rather than eased by the political decision at the time of federation to place the national capital in Canberra, to avoid facing the parish pump objections of Melbourne and Sydney to the prospect of the other being chosen.

We are stuck with that decision now. However clearly the rest of us come to see the alienation of working Australia from the artificial construction of cloistered Canberra — a point put vividly by Hugh Lunn during his series on capital cities in *The Australian* this week — we cannot, now, propose the evacuation of the national capital in favor of any other site.

Australia has spent billions of dollars bringing the concept of Canberra to reality. In doing so we have perhaps paid the penalty of single-minded searches for perfection: we have produced something which has little connection with the human scale and is therefore less than the ideal place in which to conduct the nation's business.

Canberra is a beautiful city and an architectural success: at the same time it manages to be eminently aseptic. It gives the impression above all of being like one of those sterile miniature towns they sell in plastic kits to stand alongside some millionaire's model railway: the roads run straight, there is not a stray leaf left lying on the barbed green lawns, and the paint is perfect, yet there is no visible connection with real life.

This could be seen as no more than an idealistic planner's mistake — like some of those model towns in industrial England built by devout religious reformers with an interest in factory enterprises and abandoned by that portion of their workforces which preferred to live in real, rather than doll's-house, environments — were it not for the fact that this test-tube experiment also houses the seat of our Federal Government.

The effect on Australian reality of unreality in Canberra is factual and measurable. Decisions affecting millions of people in our lively, imperfectly-planned metropolitan areas are made by people whose entire lives are spent in the artificially perfected urban environment of the unreal capital. Policy concerning the men and women who produce half this

nation's export income in our sweaty and fly-ridden countryside is made by men and women whose maximum contact with the harsh Australian environment is through Canberra's barbered and well-watered lawns and the A.C.T.'s seaside suburbs around Batemans Bay.

We have managed, by the invention of a national capital and the creation of complete tiers of service industries and their employees to keep it running, to cut off the governing class of this country from the people and the country whose interests are supposed to provide their reason for existing. It is a mistake which has hardly been imitated by any other modern nation with the exception of Brazil — whose artificial capital Brasilia has run into the same problems — and the United States, whose Federal capital, Washington, often manages to achieve the same effect of making Shangri-la decisions for distant subjects. The investment is made and the decision is not now retractable. We cannot undo Canberra. It is even true that despite the theoretically admirable attempts the Labor Government talked of making to decentralise the Commonwealth Public Service into country towns, greater economic and administrative efficiencies will be served by the present Government's proposals to concentrate departments now deployed in Sydney and Melbourne into the central organisations in Canberra.

These are organisational necessities which now cannot be avoided. It is nevertheless — indeed correspondingly the more — necessary for government and Public Service to acknowledge the degree of alienation which is taking place between the Federal capital and its occupants on the one hand, and the genuine Australia which makes the money and pays the bills.

Having made the initial mistake of separating the government and its administration from the people that is the most which we can now hope for. There are no structural adjustments which are now practicable. We can only ask that the Government make a continual effort to remember where it is in Australia that the realities lie — which is certainly not in Australia's test-tube city — and that the mandarins of its Public Service be encouraged to make as many forays outside their Canberra cloisters as are necessary to provide them with a passing contact with real life.

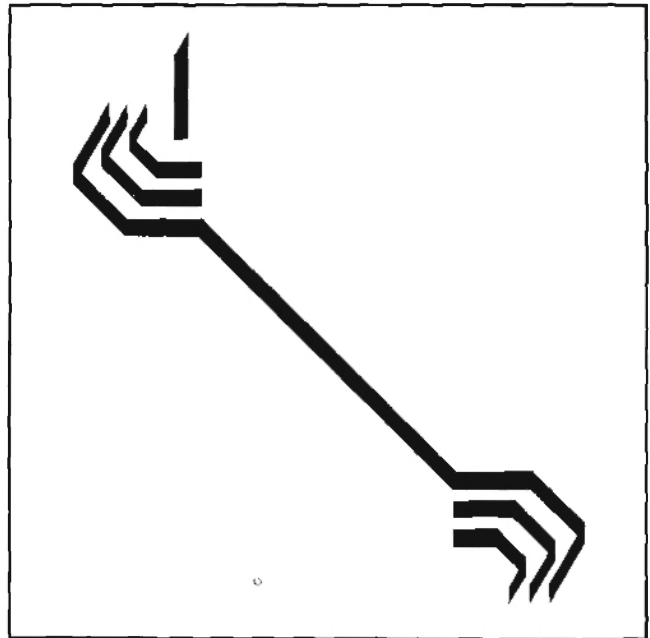


Fig. 6. Constitution Avenue, the base of Griffin's triangle, ran from City Hill to Russell, one convex, to be built up as a pyramid; the other concave, to be formed as an amphitheatre of buildings.

Fig. 7. Griffin's design was three-dimensional.

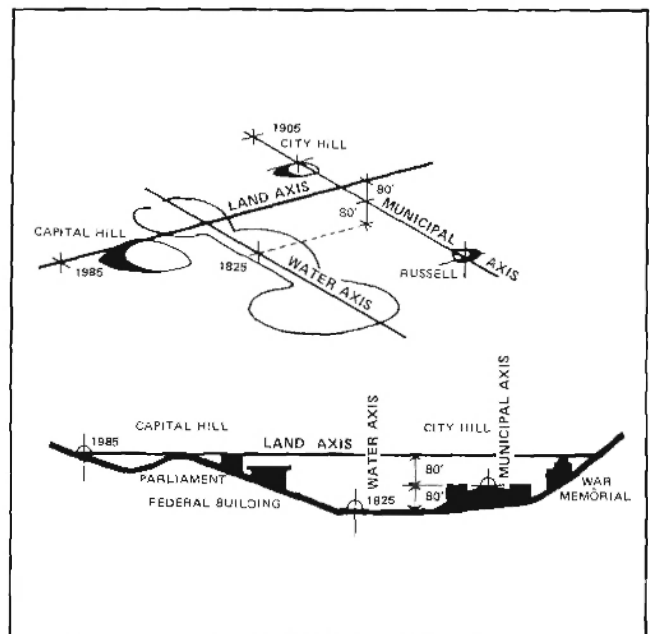
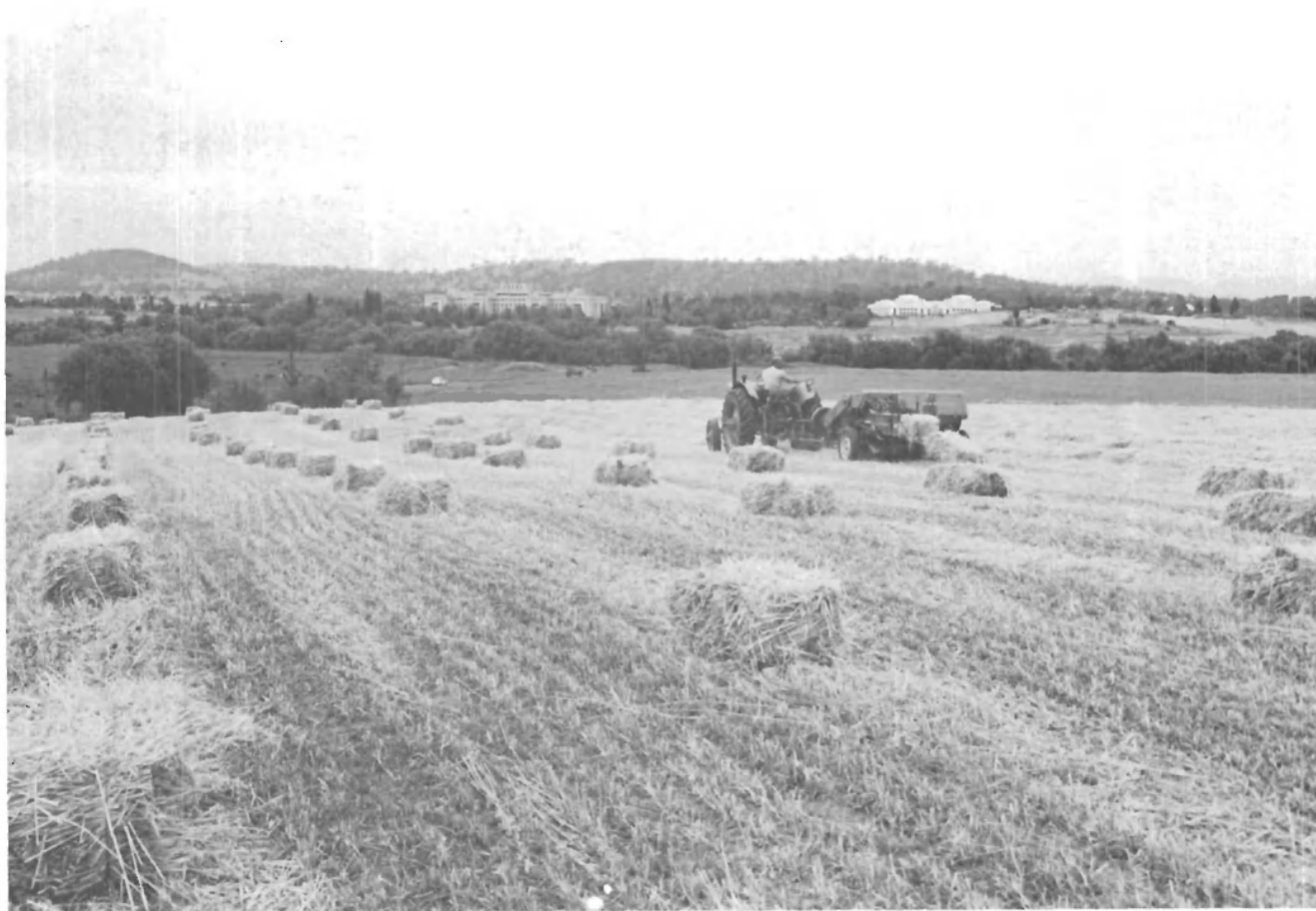


Fig. 5. Images of Canberra.





NATIONAL LIBRARY, CANBERRA VIEWS 1927-1950

**Plate 24.** The persistence of productive agricultural land use in the heart of the National Capital had a charm and directness that has been lost, perhaps inevitably — but it would be a serious cultural loss to banish agriculture from the ACT.

public grassed areas are usually much greener. Canberra goes in for low unit-cost maintenance in much of her public grassland; and large areas consist of little more than rough-mown *paspalum* and other weed species. The writer of the editorial thinks Canberra cut off from contact with 'the harsh Australian environment' but himself comes from Sydney, which is a much gentler environment than Canberra. Nevertheless, the hostility to Canberra's open spaces should be noted. It relates to an image, and therefore to future planning policies.

It should also be made clear that some of the vast and underpopulated land in central Canberra, especially the Parliamentary area, is reserved for special uses. The triangle and Capital Hill together comprise 150 hectares. The ward of Paddington in Sydney, which housed a population of 26,000 people in 1910, and still has a population of 20,000, has a total area of 80 hectares. The area under vineyards at Pokolbin in the Hunter Valley comprises 250 hectares. The Parliamentary area will seem empty for many years to come, yet it can only be put to a limited range of uses. It should certainly be the prime area for future national buildings, unless there are very compelling reasons against its use for specific buildings. It would be folly for example, to transfer the proposed Museum site in Canberra from the Parliamentary area to outer Canberra, as has been mooted.

It is not my intention here to attack the Griffin Plan. Whether or not such a plan in the grand manner would be chosen today for a national capital, at least part of the plan has now been built firmly into the structure of the city. It has some fine attributes, even in its present very imperfect realisation. My aim in pointing out that it constantly faces planners and city managers with obstacles and problems is not to deny its virtues, but rather to ensure that its rewards are fully realised.

Sydney began life with a topography both difficult and of exciting beauty, and its long battle and love affair with such a tough and rewarding site has yielded a memorable city. Melbourne began life with an open, easy landscape that yielded a convenient, dull monotone of a city. Canberra began with a site as open and simple as that of Melbourne, but Burley Griffin created obstacles and constraints that, like the constraints of the sonnet form or Sydney Harbour, give it tension, drama and balance. Because we shall now always be paying the costs of such a plan, we should make sure that we reap its full benefits. One of them is undoubtedly the prominence it gives to the natural hill landscapes, especially those of Mt Ainslie, Red Hill, and Black Mountain, all of them now basic to the form of the city.

The fate of Black Mountain is instructive. The fight against the communications tower and revolving





NCDG

**Plate 25.** Sunday in the Park — one of the rare occasions on which Commonwealth Gardens are heavily used.

restaurant was fought and lost. The tower is now nearly finished (May 1977) and it is clearly a handsome structure rising cleanly above the bushland hill that rises 250m above the Canberra plains. It is, in itself, a fine composition. But — to overstate the case — Black Mountain has gone. The scale of Black Mountain was never great, and it has now been diminished almost to insignificance. From many views, especially looking north across the lake, it looks rather like a comic World War I German officer's spiked helmet. From Belconnen, it emphasises the sense that one is seeing the *back* of Black Mountain — and hence that the real Canberra is around the corner, Belconnen being a poor relation. One must concede that it does provide a point of orientation in a city where most newcomers have difficulty in acquiring a sense of direction. But this is to make good a deficiency of the Griffin Plan by negation rather than a richer fulfilment. The worst effect of the tower is that it upsets the balance of the Griffin composition — a number of carefully balanced elements are now unbalanced, because the eye is drawn to the spike from all over Canberra. Capital Hill was to have been the main focus of Canberra, not a revolving restaurant. The tale has a moral and an application. The moral: if the essential character of the Griffin composition had been properly understood, the decision would have been different. The application: the scale of the low residual hills that rise above 'the limestone plains' is easily diminished, and careful attention should be given

to scale effects in any proposed development that might impinge on them.

The symbolic function of Canberra's open space system is not restricted to the consequences of the Griffin plan, and the plan itself has many aspects other than its symbolic function. Nevertheless, it has been discussed first and at length because it is a major determinant in the Canberra scene, and because it contributes so largely to the sense of superabundant space in the city. In practice, much of this space is relatively inaccessible, as we shall show in more detail later; standard calculations of 'hectares of open space per thousand population' should make allowance for this fact of Canberra life.

Griffin was concerned with the city as a National Capital. He was not an Australian, and had not visited Australia or seen the site at the time of submission, but he had a good understanding of the site. In his Report Explanatory of October 1913, Griffin wrote:

*Taken altogether, the site may be considered as an irregular amphitheatre — with Ainslie at the north-east in the rear, flanked on either side by Black Mountain and Pleasant Hill, all forming the top galleries; with the slopes to the water, the auditorium; with the waterway and flood basin, the arena; with the southern slopes reflected in the basin, the terraced stage and setting of monumental Government structures sharply defined rising tier on tier to*



GEORGE SEDDON

**Plate 26.** Commonwealth Gardens and Nerang Pool, Lake Burley Griffin. These gardens, designed by Dame Sylvia Crowe, are of outstanding quality, although they lack the finish that skilled maintenance could give. They are heavily used on summer weekends, but are usually quite empty during the week; although there are bus-loads of tourists at the NCDC exhibition at nearby Regatta Point, it is a fair walk to the gardens, and they are remote from the Civic Centre.

*the culminating highest internal forested hill of the Capital; and with Mugga Mugga, Red Hill and the blue distant mountain ranges, sun reflecting, forming the back scene of the theatrical whole.*

(See fig. 6.)

Perhaps the only deficiency in Griffin's understanding of the site was his failure to grasp the prominence that the ridge now known as the Acton Peninsula would take when the Molonglo was dammed; that could have been the site for the Prime Minister's Lodge.

Griffin also had an over-riding concern to make the city symbolise the nation — yet the visitor might ask: 'Where, then, is the *essence of Australia*?' The national institutions sited in Canberra are the major expression of this concern; Griffin also named and oriented the street system with a heavy-handed symbolic intent. Much of the city, however, is now an international landscape, with as much local character as an airport. The natural Australian landscape survives only in the hills. It is interesting to recall Oskar Spate's comment in 1954 on the proposed Lake Burley Griffin, now a reality:

*A few reactionaries (including myself) would like to see the Molonglo left as far as possible as it is now — despite the willows (exotic, but surely by now native to the Southern Tablelands landscape) it is the most Australian thing within the City. (ANZAAS, 1954, p. 233).*

But if Canberra itself cannot adequately symbolise Australia, the ACT can still do so, and this is one important argument for retaining both natural and pastoral landscapes near the city; for example, the East Lake and stock holding paddocks near the Molonglo to the east of Canberra, and the Bulgar Creek area to the west. For the overseas visitor, the importance of this easy access to 'the real Australia' — the general store at Hall, with verandah; the sheep and the woolsheds — can hardly be stressed too much (figs. 8-14).

#### (b) Show-piece

Canberra is and must be a show-piece. Some elements function primarily as display, and this is true above all of the lake and parklands that surround it (a major ornamental feature was stipulated in the design competition, and the lake was Griffin's response). Although both lake and parkland are heavily used for recreation, much of it is not accessible to casual weekday use — not in the sense that the Adelaide parklands are part of the daily life of many Adelaide people, for example. This is partly because of the display function, which is a necessary part of a national capital, and because of their relative isolation from the centre of activity. Office workers from the Russell Offices sometimes take their lunch break in the lakeshore parklands, but they generally drive there, and are linked by a direct road access. It would be physically possible to extend Nerang Pool, an inlet in Commonwealth Park, northwards along a narrow and minor valley that runs to the



SHIBU DUTTA

**Fig. 8.** The Woolshed, *Yarralumla* — once a functional farm building, now a popular social centre, the right setting for a barn dance.

**Fig. 9.** Tharwa; country living.

SHIBU DUTTA.



Lake from the Glebe Park. If this were flanked by a foot and bicycle pathway that underpassed Constitution Avenue and Parkes Way, the lakeshore parkland could be carried in to the Civic Centre, with a corresponding increase in accessibility.

### (c) Tourist and educational functions

Canberra and the ACT have become a tourist resort, and there can be little doubt that tourist numbers will increase greatly, especially if there is better provision for medium and low-cost accommodation (rental flats, for example, which are very popular in Victorian resorts such as Bright and Cowes). Tourists come to Canberra for all sorts of reasons, but the most important is to experience the national capital. I suspect that this experience is not yet adequately stimulated. Americans surely get more out of Washington and its environs than Australians do out of Canberra. The White House is fully visible, whereas Yarralumla very patently excludes ordinary Australians (see figs. 1-3). When the Prime Minister's Lodge is rebuilt it should be as visible as Kirribilli House in Sydney, probably on the lake and in the park system. Canberra has nothing to match Mt Vernon or Gettysburg, both within easy reach of Washington. Anzac Parade is a great processional way, better than anything in Washington, but the War Memorial and Parliament House, its termini, lack the distinction of Washington's counterparts. Pennsylvania Avenue, moreover, is part of the daily life of Washington, where Anzac Parade is like the front parlour of the Victorian era, dusted off only for very special occasions.

What else do tourists look for in Canberra? To confound the cynics, they look for education — visitor numbers at the Botanic Gardens, Tidbinbilla and Lanyon Homestead show this very clearly. *Lanyon*, relic of the great pastoral runs, is perhaps the nearest equivalent to Gettysburg, given the very different history of Australia and the United States of America, and it evokes complex emotions, which should not be repressed in the interests of prettiness. The convict gaol is as much a part of what *Lanyon* represents in our history as the cedar panelling and fine garden. It is a pity that *Duntroon* and *Yarralumla*, the two homesteads of Canberra itself, have been put to such exclusive use, and have thus failed to exorcise the ghosts of the squattocracy.

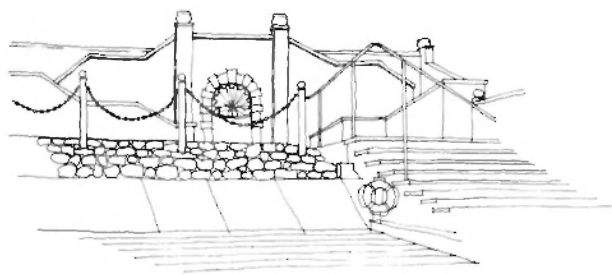


Fig. 10. The Water-gate, Yarralumla. This might have a ceremonial function, using the Lake from Yarralumla to the Federal area.

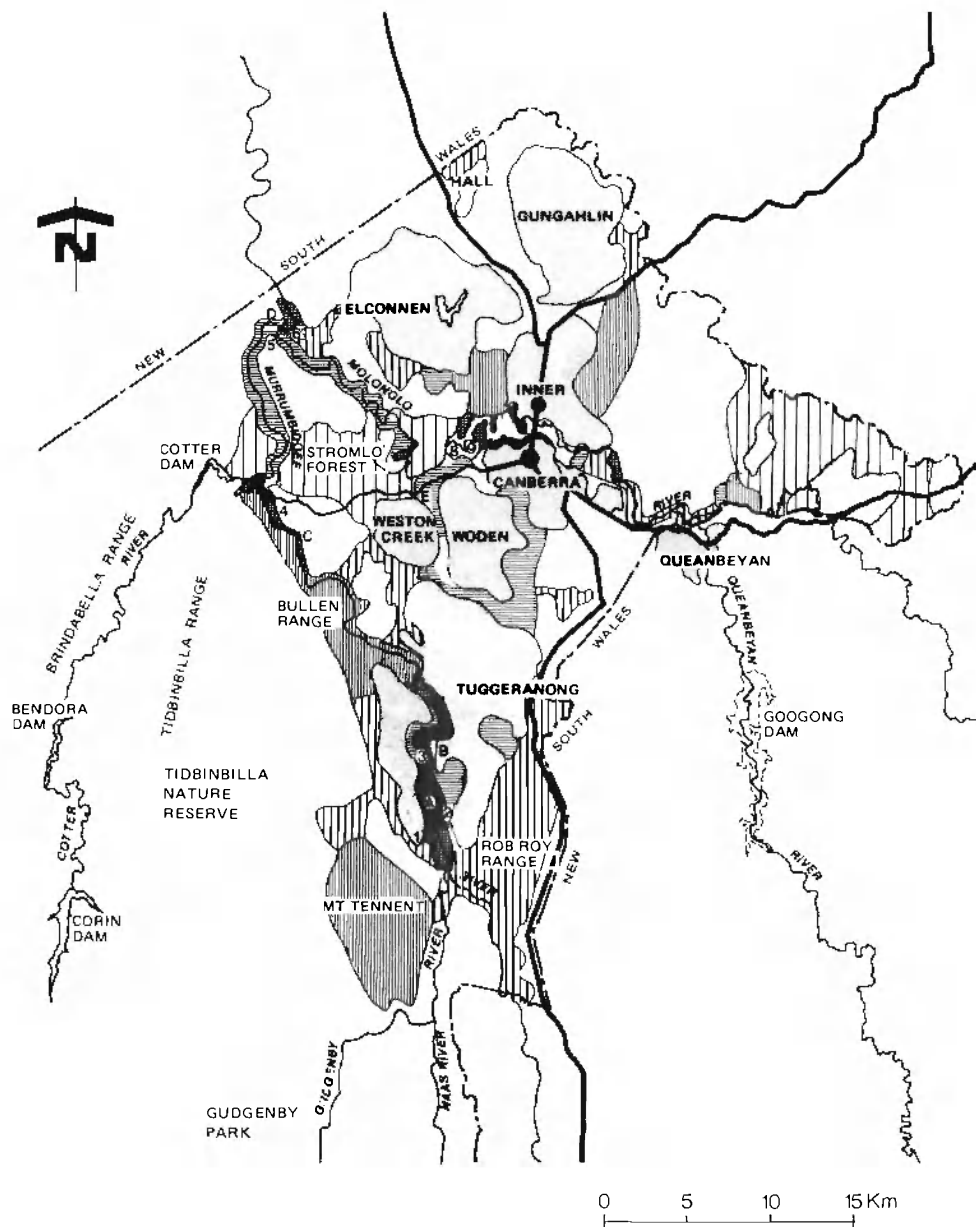
A high proportion of the visitors to Tidbinbilla Nature Reserve are tourists, most of whom make some effort to learn from it. The thirst for information is very real, and the ACT has a responsibility to meet it. For this reason, there is a need for reserves representing each of the ecological types found in the ACT, including the natural grasslands, which have almost disappeared, the wetlands, which were never plentiful, and the high alpine zones, which are scarce nationally, and very fragile. Many more interpretative centres and well documented trails are needed.

Visitors also undoubtedly come to Canberra to learn about urban planning, and to take ideas back to their own community, a fact well attested by the popularity of the NCDC Exhibition in Commonwealth Park. However, this interest requires no special open space provision.

It would seem at first sight that visitors do not come to Canberra to go for picnics, or to go pleasure driving in the country, or to use outdoor recreation areas — but there is clear evidence that they do all these things. Most visitors to the ACT come from the capital cities, especially Sydney and Melbourne. Going for a drive in the country (with picnicking, swimming, and so on) are still very popular with Australian city dwellers, but they are much less accessible around the big cities than they are around Canberra, partly because of the relatively high rural densities which envelop the State capitals but also because they lack that sharp boundary between city and country that is such an attractive feature of Canberra planning. It would seem therefore that visitors to Canberra are getting something they still very much want, but can no longer get easily in their home towns.

### (d) Recreation

The recreation function of a public open space system is the primary function, and often the only one considered. It overlaps in part with the functions listed above. Both physical and emotional well-being are served by outdoor recreation. The drift away from organised sport to more informal outdoor recreation has been very marked in Australia over the last decade, and the high level of car ownership has led to a pattern of recreation in which the car trip is a major component of the outing. While it is clear that the ACT will need more scenic roads, it cannot be taken for granted that what people do is what they want, or what is good for them. Apparently aimless driving is characteristic of Australia, especially of inland country towns, and it doubtless serves a function that is not evident to the casual observer. It looks as if many people drive around in search of an interest and excitement that they never find, and this seems especially true of Canberra, a city that is beautiful but less than exciting. Partly because they spend so much time sitting down, at their desk or behind the wheel, the general level of physical fitness of Australians is exceptionally low (see Basil Hetzel, *Health and Australian Society*), and a conscious campaign to get Australians out of their cars is desirable. This needs organisation and planning — many people might hire a bicycle if they could do it on the spot — at, say a



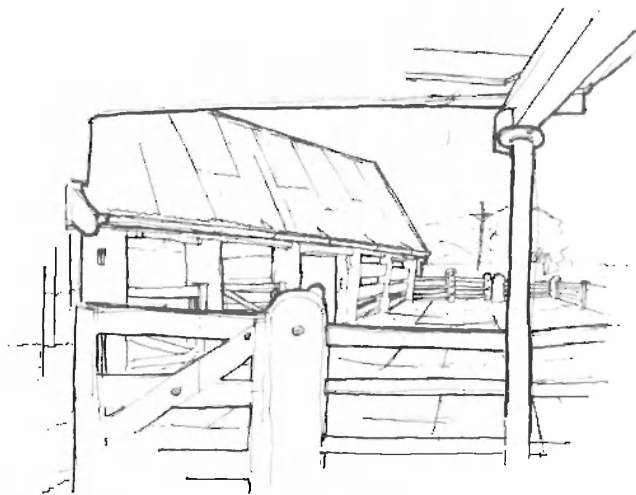
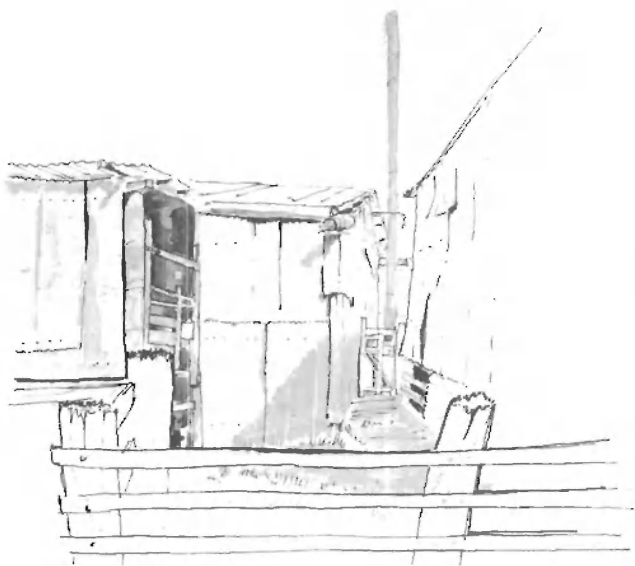
#### LEGEND

- 1 Cuppacumbalong Arts & Crafts Centre
- 2 Lanyon Homestead
- 3 Lambrigg Homestead
- 4 Cotter Mouth Scouts Centre
- 5 YMCA Camp
- 6 Lower Molonglo Water Quality Control Centre
- 7 Queanbeyan Sewerage Plant
- 8 Government House
- 9 Royal Canberra Golf Course

- A Lanyon
- B Lambrigg Loop
- C Bulgar Creek
- D Belconnen West
- E Weston Creek

- Natural woodland
- Other natural areas
- Pine plantation
- Rural areas
- Intensive management zone

**Map 2** Management zones, National Capital open space system



Figs. 11. Congwarra 13. Booroomba  
12. Booroomba 14. Lanyon

Farm buildings at Congwarra, Booroomba and Lanyon. Simple, functional, vernacular buildings like these have an elusive quality that stems in part from their being self-conscious.

Lower Molonglo Park. Bicycles can already be hired at the Ferry Terminal on Lake Burley Griffin, and this might be extended. The enormous popularity of canoe and boat hire in the Royal National Park in NSW and Studley Park in Melbourne shows the demand for active recreation of this kind. Good park systems have both planned activities and opportunities for spontaneous ones.

#### (e) Social function

A good public open space system serves a social function, much of which is implicit in what has been said above. A defect of inner Canberra is that much of the open space has been conceived as a setting for buildings rather than as a setting for people. The system as a whole should be designed to give privacy to those who seek it, and to give opportunities for mixing to the gregarious. Canberra gives very little of the latter — it is a city that tends to isolate rather than mix people, although there are some gregarious activities, such as the 'Sunday in the Park' program,

and gregarious recreation spots, such as Casuarina Sands on the Murrumbidgee, and Commonwealth Park at weekends. Certain kinds of urban and park design can stimulate spontaneous mixing. The success of the Forecourt Fountain in Portland, Oregon, is worth study. This water-works was designed by Lawrence Halprin, who understood how to invite participation. It has become a playground for children, and their spontaneous delight and absorption is so infectious that bystanders start talking to one another. The Captain Cook Memorial Water Jet is well enough in its way, but it does not invite participation, and its powerful ejaculations do not impel total strangers to strike up conversation. Like so much of Canberra, it is a non-involving, purely visual set piece. I am told that the race to be the first canoe to be swamped by the jet was a noticeable local event, but this example reinforces the point that people have a real need to relate to monumental Canberra, as to any environment, in a human way.





GEORGE SEDDON

**Plate 27.** The verandah at *Lanyon*, a station homestead that is now maintained to a high gloss finish.

**Plate 28.** The Forecourt Fountain in Portland, Oregon; a design that stimulates spontaneous activity, mixing and social interaction, physical involvement and participation. In contrast, Canberra's monuments stimulate little more than the vacant stare, and the click of a shutter, proving — in Dame Edna's words — that 'at least you can say you've seen it'. It is worth noting that 'space' is three-dimensional, yet open-space planning is habitually two-dimensional only. The vertical element is an essential component in design for use.

GEORGE SEDDON





NCDC

**Plate 29.** The Captain Cook Memorial Water Jet is a handsome show-piece, in good scale with the lake and its setting, a part of monumental Canberra, and admirable in its way. King Hakon of Norway was a familiar sight to his subjects, riding a bicycle through the streets of Oslo. This is the touch that Canberra altogether lacks.

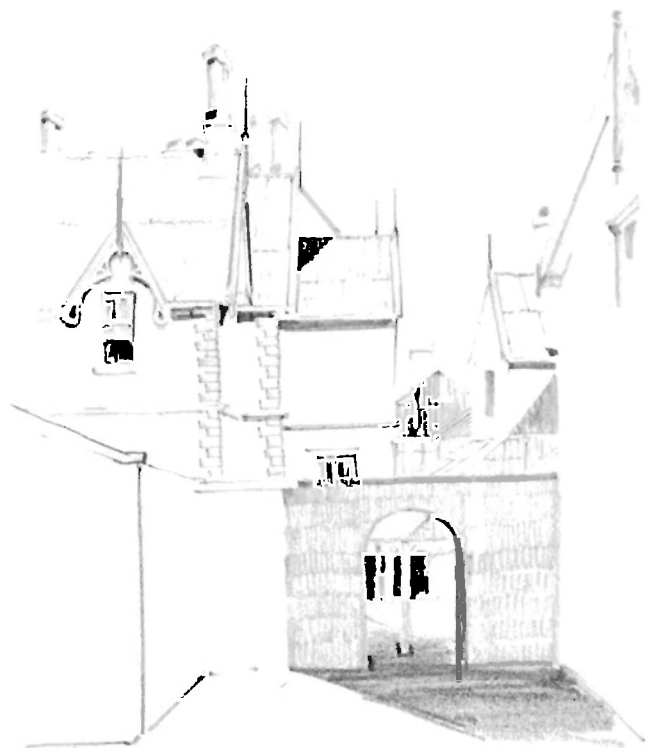
It is a common criticism of Canberra that in its concern to shun vulgarity, it has succeeded in repressing vitality and spontaneity. This criticism is grossly unfair, but there is still some truth in it. Fun fairs, street hawkers, produce stalls, circuses, hot dog stands, all have a place in a living city. Canberra can produce isolated examples of all these things, but nothing like Circular Quay in Sydney — although Circular Quay is partly a function of city size, and of a heavily used public transport system.

#### (f) Social science laboratory

Canberra is also a national laboratory, testing ground, and demonstration-piece in urban and regional design. This is a most significant function, and has already been of great national value. Its land tenure system has been innovative, and it has influenced Albury-Wodonga and Monarto. Its planned separation of pedestrian and car traffic in many neighbourhoods has been another influential demonstration-piece, and there are many more. Innovation is difficult in the older cities, and Canberra can show the way. It therefore has a special responsibility in developing an integrated open space system.

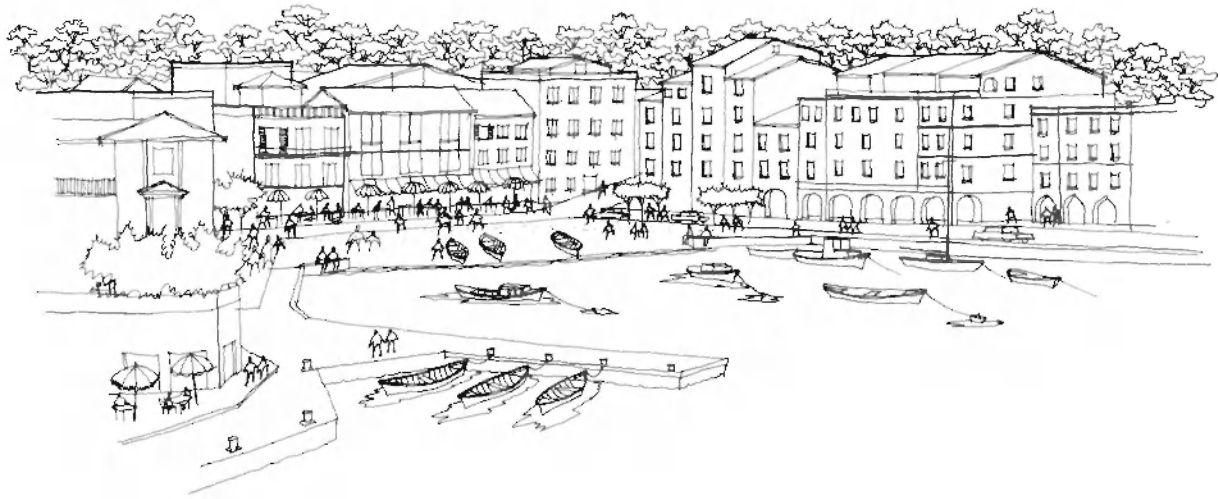
There is a dearth in Australia of what architects call 'post-construction analysis', and this is especially apparent in open space acquisitions. Most councils in the big cities buy or acquire land opportunistically,

without any clear idea of what a particular park might be for. It is then planted and equipped, perhaps with swings and slides and park benches and barbecues. It may be heavily used, or used for different purposes from those to which the land or planting or equipment are suited. There is almost never a monitoring program, to see who uses what facilities for what purpose, although such information is essential if we are to make good decisions, to serve people well, and to spend money wisely. Canberra is uniquely well equipped to run such a monitoring program, using the combined resources of its planning and maintenance agencies and its tertiary institutions. It can monitor, direct behaviour by skilled design, assess, redesign and demonstrate, for the rest of Australia. Above all, it can pay attention to problems of distribution. The rich are pioneers in pleasure. That is one of their uses, and one reason that communist countries tend to be dull. The rich are also adroit in seeing to it that their pleasures are subsidised — by, for example, good access roads to the snowfields. In most countries, alpine roads have been paid for from the public purse to facilitate the winter sports of an affluent minority. In Australia, most of the alpine roads were built by the Snowy Mountains Authority; public access has been good for some years, and skiing is not an exclusive sport. It is a general principle, however, that reasonable public access to new pleasures can only be achieved by conscious policy.



**Fig. 15.** An alleyway at Duntroon. The sense of space depends on a varying contrast between the wide-open and the enclosed. Without the latter, a city lacks intimacy, has few surprises and no mystery.





**Fig. 16.** Burley Griffin had proposed a Westlakes Boulevard for the southwest margins of Lake Burley Griffin, with a 'hard-edge' treatment. He had never intended a uniform ring of lake foreshore parkland. The open space around the lake would feel more positively open if some of it were closed. The purely notional sketch above suggests the kind of development that would be possible in an area like Yarralumla Bay, with road access from the rear, behind the shops and apartments. The paved area between water and buildings would be a well-defined 'sociable space', a place for sitting, eating, drinking, watching, mixing. It would be quite wrong to develop all the lake like this, but right for some of it.

#### **(g) Natural science laboratory**

The idea that the parks have an ecological function is relatively new in Australia. The indigenous flora and fauna have been obliterated from our major cities with remarkable success, only partly because of our rejection of them — the Australian flora and fauna have both been far more vulnerable to competition from exotics than that of North America, for example. The possum is the only Australian mammal that has adapted to suburbia. There is a great deal to be learned about regeneration, habitat requirements for both plants and animals on the urban fringe, and management techniques for the natural environment in settled areas. The ACT is singularly well sited and well equipped to give a lead in all these areas — as it is already doing, for example, in its experimental use of native rather than exotic grasses in the management techniques now employed for hill areas; in the study of the cultural requirements of a wide range of Australian plants in the Botanic Gardens; and in the use of the Tidbinbilla Nature Reserve for environmental education. Canberra's role as a major research centre is likely to grow, and for this reason alone it is important to reserve viable samples of all of the natural environments of the ACT. Wetlands and natural grassland are not adequately represented now. The Geological Society of Australia has nominated eleven 'geological monuments' in the ACT, and these should also be reserved and commemorated, both for their scientific interest and as a public resource. The unconformity or structural discontinuity so well displayed in the road cutting at State Circle, for example, is a thing of beauty in itself, and will be enhanced by the explanatory brass plate being prepared by the Department of Capital Territory. (The other sites are: Woolshed Creek; the Deakin anticline; Yarralumla Brick

Pit; Fyshwick Dykes; Lyons Ashstone; Black Mountain Fault; Narrabunda Tors; Crace Hill; Tuggeranong Expressway; Capital Hill.)

#### **(h) Water catchment and environmental protection; land bank**

An open space system must serve some functions which are not recreational in any sense. In Australia in general, water catchments are carefully protected, as they must be. The Cotter Catchment and other major water catchments in the south of the ACT must continue to be protected, and this function must have primacy over all others, although this need not exclude all recreational use. Habitat protection is of biological significance, and requires representative and viable reserves. Environmental protection is of general importance, and specifically so in vulnerable areas, such as the banks and waters of the Murrumbidgee and Molonglo, which are part of a river system that supplies water to more than one million people. Any large and growing city needs a land bank, Canberra more than most because of the special, but often unforeseeable, demands made upon it as a national capital. Burley Griffin could not have reserved land for the Tidbinbilla Tracking Station, but the land was there when it was needed. There are also many predictable future land needs, for which land must be held in reserve, the most obvious in Canberra being the need for land for urban development.

#### **(i) Landscape protection**

One set of functions that an open space system should now be asked to perform is to protect, enhance and define the landscape. Certain key landscapes are important to Canberra, especially the pastoral foreground along the Cotter Road to the triple-tiered backdrop built up in succession by the Bullen Range, the



COLIN TOTTERDELL

**Plate 30.** Open space as a scientific resource: CSIRO officers carrying out a grassland quadrat study. Kangaroo Grass (*Themeda*), in the foreground, with Red Grass (*Bothriochloa*) in the background. This area was one of the best remnants of natural grassland near Canberra, now greatly disturbed by the Molonglo Arterial.



COLIN TOTTERDELL

**Plate 32.** *Eucalyptus blakelyi* — *E. melliodora* alliance, Red Gum (left) and Yellow Box (right), near Canberra, showing regeneration growth of saplings — a rare sight in Canberra's savannah woodlands. These trees have a life-span of some 200 years, and most of them are near the end of that span in much of pastoral Australia.

**Plate 31.** Red Rocks Gorge on the Murrumbidgee, looking down Freshford Creek, a minor tributary, south towards Tharwa and Mt Tennent. *All of the land within the field of view to the foot of Mt Tennent is committed to urban development* (although this will include a river corridor of public open space). The impression of illimitable open space around Canberra is very much an illusion.

FRANK INGWERSEN



Tidbinbilla Range, and the Brindabellas occasionally glimpsed behind and above both.

Landscape can also be used to emphasise the identity of towns and neighbourhoods, for example by the use of theme planting in the streets and reserves of a given area. Some of the new suburbs — Aranda in Belconnen and Urambi Village in Kambah are beginning to evolve a distinctive style that helps to give them identity, which is especially important in a city in which the comparative newness and generally low standard of architecture make for a more than usually insipid suburbia.

### 3. Accessibility of open space

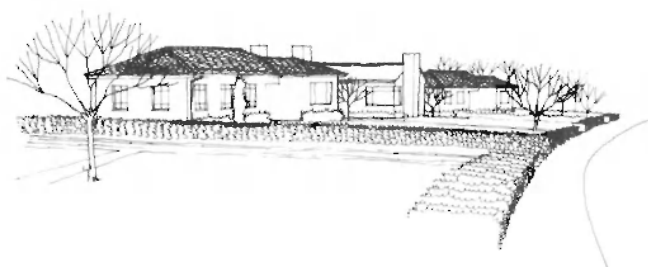
Much of what needs to be said about accessibility is covered by discussion of function and distribution. Problems of access are therefore reviewed here in summary form only.

#### (a) Visual access

'Can you see the open spaces of Canberra and the ACT?' may seem a comic question — the city is lost in the landscape for many visitors. Melbourne, by contrast, has far more public open space than people generally realise, but much of it is hidden away, and thus has low visibility. Moreover, the high visibility of the open spaces of the ACT is not accidental — both urban and rural parkways have consciously been planned and maintained as visual corridors, designed to be read at 60 kph. The concern for appearance from a moving automobile is conscious and general — for example, rural lessees along the main entry corridors to the ACT are encouraged to keep their land

in good visual repair. There are more attractive and varied landscapes for pleasure motoring elsewhere in Australia than anything the ACT can offer (much of Tasmania, for example), but nowhere in Australia is the landscape so well groomed for the motorist's pleasure. The very success of the responsible authorities contributes to the illusion that the Territory has illimitable open space at its disposal.

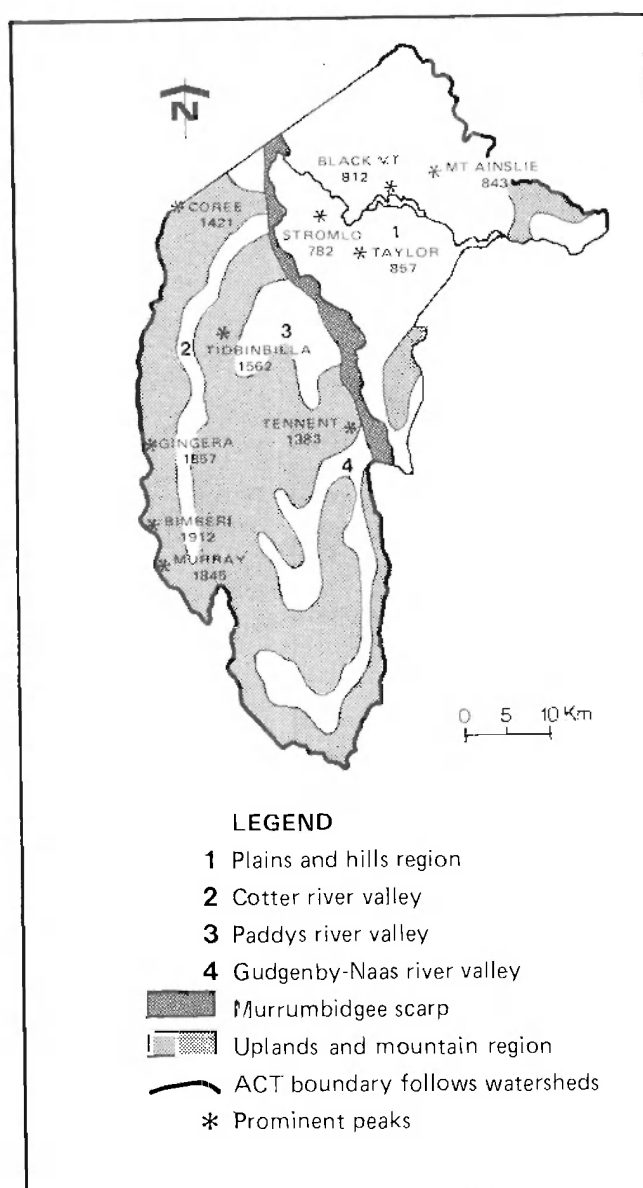
There are, however, some elements in the landscape that have better visual access than others. Griffin's Canberra has relatively low visibility, as noted above. The hills have high visibility. The rivers, on the other hand, have very low visibility, for which there are two reasons. The first is natural: both the Molonglo and the Murrumbidgee are incised streams over much of their course in the ACT, and flow well below the level of the plains. The plains themselves are not normal floodplains, but are in part an abandoned lakefloor, and therefore very flat. Thus there are few low rises from which the traveller can look down into the river valleys. Where hills are to be found bordering a river, they are steep and fault controlled, like the Murrumbidgee escarpment, which road-makers avoid. The second reason is that there has been no occasion to build roads along the rivers. There is a strong case for a scenic parkway along part of one of the river corridors, but this clear need must be balanced against other considerations, especially the fragility of the river



**Fig. 17.** Canberra housing of the 1950s, never better described than by Sir Keith Hancock:

*Form is produced by pressure, or by the deliberate economy of space. The pattern of an hexagon which is so obvious on a paper plan is not an intelligible figure to citizens who must spend five or ten minutes pacing the length of one face of the hexagon. The design becomes invisible; all that is left is a series of bewildering jerks. Similarly, the curves of a street have no formal significance unless there is a just proportion between the width of the street and the height of the buildings which front it. If the houses stand up like a wall they will make the line of the street no less distinctly than it is traced on paper. But in the vast open spaces of Canberra's suburbs breadth has spread and height has shrunk till the houses have, from the point of view of general design, no more relevance than a kerb-stone. Perhaps the design may still be saved by 'punctuation' and the happy closing of vistas. But, in Canberra's suburbs, the work of translating the plan into three-dimensional form has already failed. Canberra is springing up in the familiar Australian way as a kind of suburban garden parcelled into plots by a network of paths which have no obvious beginning and lead to no visible end. It is a chaos of prettiness.*

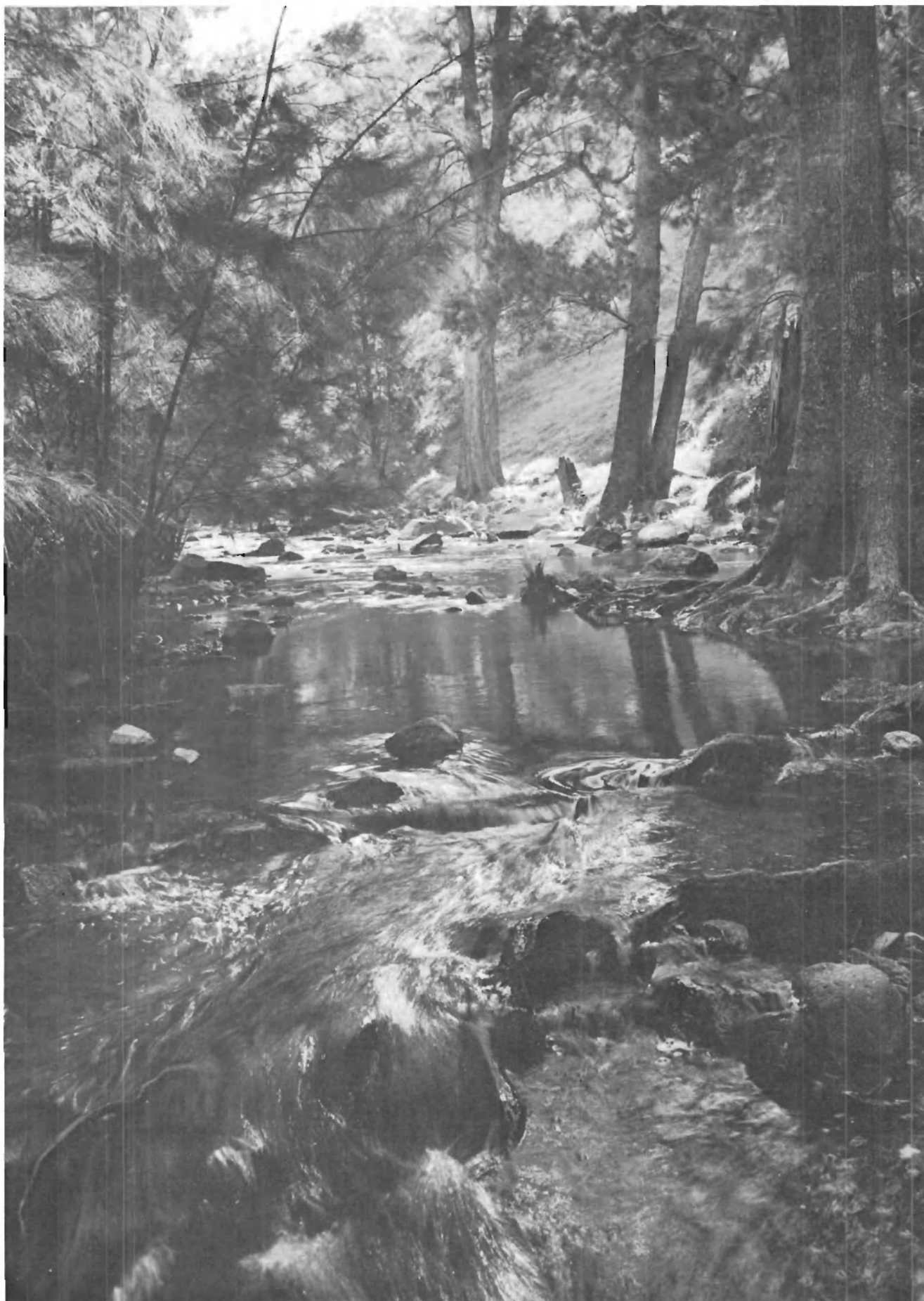
(Hancock, 1961, pp. 241-242)



**Map 3** Land relief

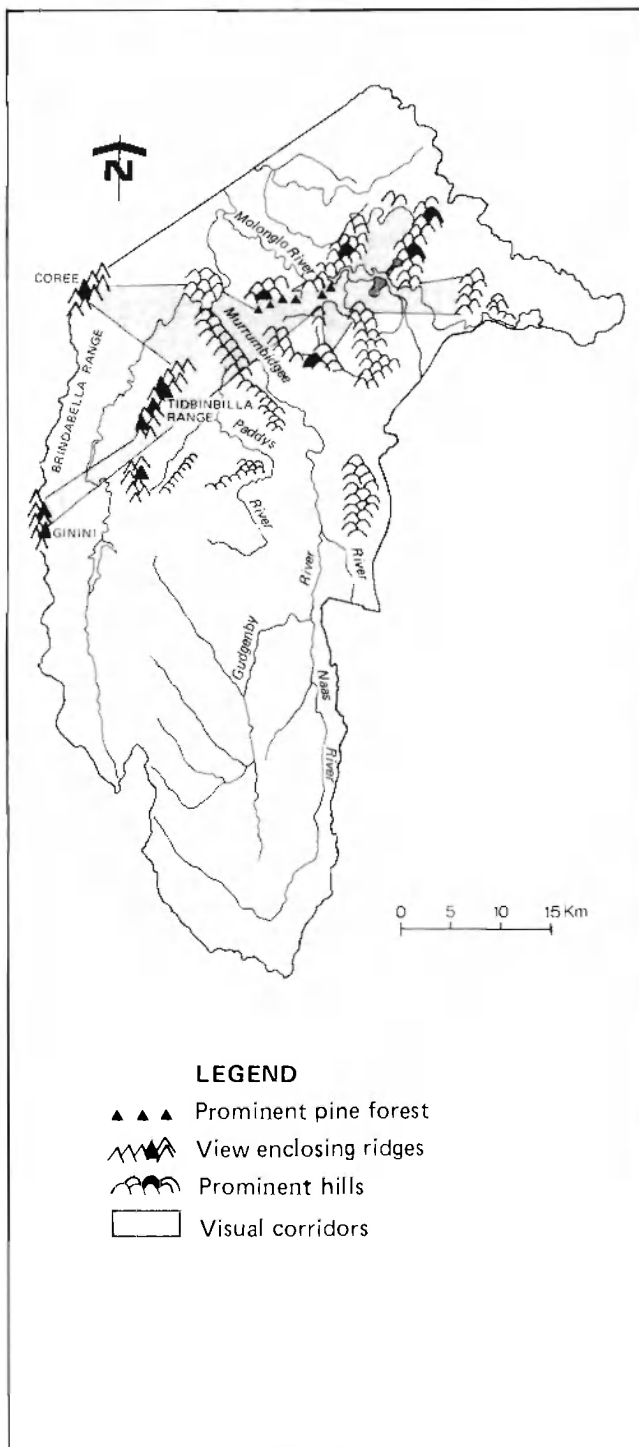
systems and the need to guard them against heavy use. It would be quite inappropriate to build a Canberra equivalent of Melbourne's Yarra Boulevard along the whole length of either the Molonglo or the Murrumbidgee in the ACT.

**(b) Pedestrian access** offers more than the purely visual experience of driving through a landscape in a glass and metal box: it offers sound and smells, a kinetic experience, a more intimate contact. Pedestrians are a rarity in Canberra for reasons that are complex. Most people in Canberra have little need to walk, and — it might seem — little wish to walk. It is equally true that there is little encouragement to walk, and this follows in large part from the open texture of the city. It is in part a corollary of the good road system: the road reservations in Canberra are so wide that it is a hazard to cross them on foot. City Hill offers a fine prospect, but a pedestrian faces a major traffic roundabout to get to it. Anzac Parade is too intimidating in scale for the pedestrian. The lakeside and Commonwealth Park are not accessible



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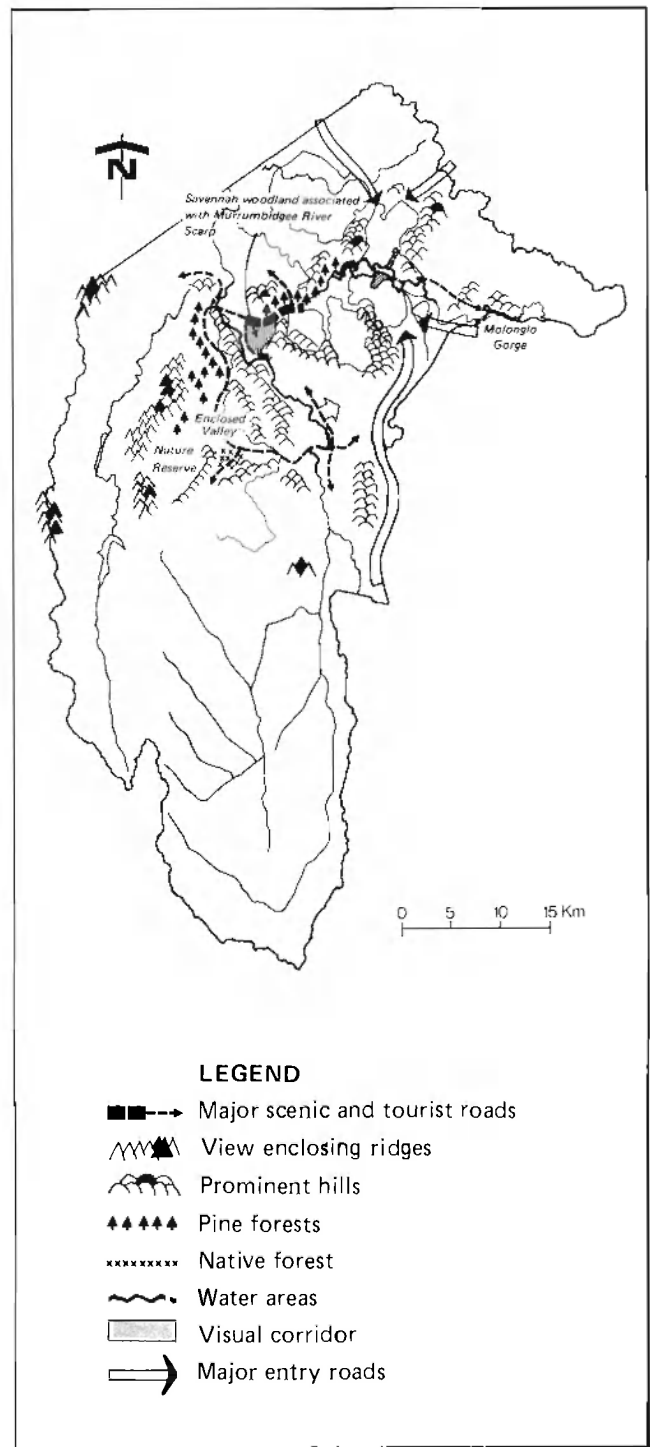
**Plate 33.** *Casuarina cunninghamiana*, the River Oak, at Swamp Creek.



**Map 4**

Qualities of the ACT landscape — (1) Static  
Visual corridors perceived from central Canberra

on foot from the Civic Centre. The University was always forbidding and baffling to the pedestrian. It is now impossible to drive around it either, so it has achieved the worst of both worlds on what was potentially a singularly attractive site. The buildings scattered around the site are architecturally unrelated, and lack a sense of spatial organisation as a whole; the group around the new Student Union Building and the Library make a striking exception, and show what



**Map 5**

Qualities of the ACT landscape — (2) Dynamic  
Visual corridors on major entry, scenic and tourist roads

might have been done generally in creating an environment that is a congenial human setting.

Rural Canberra also has poor pedestrian access, partly because much of the landscape is too bare and open to attract the pedestrian, who needs an intimate landscape with a high density of incident, of which the Tidbinbilla and Black Mountain nature trails and the Botanic Gardens offer good examples.



SHIBU DUTTA

**Fig. 18.** The dreaming spires of *Duntroon*, a Victorian Gothic fantasy that nevertheless offers more warmth and variety as a human setting than many expensive new office blocks at Civic and Woden Centres.

**Fig. 19.** The service alleys behind the original building of the Civic Centre have a potential 'Chelsea mews' character that should be exploited; this might stay the incipient blight created by the more affluent new shopping areas to the southeast of old Civic.

SHIBU DUTTA







Plate 34. Horse-riding.

NGDC

### (c) Equestrian access

The marked and growing popularity of horse-riding is a feature of the Canberra recreation scene. The popularity can be attributed partly to the relative affluence of Canberra people, to the ease with which horses can be kept in Canberra, and to the accessibility of attractive places to ride, so near to town. The nature of the landscape probably also plays a significant part in this popularity — the ACT is great riding country. There is not much interest or impediment at ground level. A horse gives you height enough to savour the panoramic view, and speed enough to avoid a sense of monotony in a landscape that often lacks richness in detail — it unrolls in large units.

The need to provide for horse-riding highlights many of the key issues in open space planning in the Canberra region, as follows:

- (i) the need for a *system* is especially clear. An equestrian wants to cover several kilometres. If he is to ride through reserves, the reserves must be *linked* in a substantial way. This is true both at the local and the national scale; if the proposal for an equestrian trail from Melbourne to Cairns looks like being implemented, then the ACT system should be linked with it.
- (ii) There are both opportunities for the multiple use of facilities, but also dangers of user incompatibility. For example, horse trails through the pine-forests are

a good multiple use — but a single trail for horses, bicycles and pedestrians is not desirable, nor are the horse-and-bicycle trails illustrated as a proposal for Tuggeranong (McCoy, 1976).

Horses can use quiet country roads, but for safety reasons, the best routes should probably be sign-posted as marked trails; a printed booklet would then identify the trails.

(iii) The terrain is such in the northern half of the ACT that horses could go almost anywhere. It is 'natural' riding country, the 'Marlboro Country' of the advertisements. But the lone stockman is one thing, and the phalanx of children of middle-class civil servants another. Iron-shod horses in large numbers are destructive of ground cover; they compact the soil, initiate erosion, and if there are enough of them, they contribute to water pollution along the rivers, erosion on the hill-slopes, and fly hazard where-e'er they drop.

(iv) Therefore the provision of horse trails raises the question of alternative management strategies. A tan-bark track, like the Rotten Row of Hyde Park and the Botanic Gardens in Melbourne, has a high capital cost, a high capacity, moderate maintenance costs and very good urban access. For the same investment one could provide a much longer country trail with a low capacity and low short-term maintenance, but the danger of expensive remedial work in the future if capacity were



DCT

**Plate 35.** Trail-bikes on Mt Taylor. Motor-biking and trail-biking is an activity that is rapidly growing in the number of participants (200 per cent per annum: Mercer, 1977, p. 5). It offers an experience of power, excitement, some danger, and a strong sense of group interaction — and it is very destructive of the natural environment. If legitimate outlets for these needs are not provided, illegitimate ones will be found. Disused brick-pits and old quarries should be considered as sites for bikes.

**Plate 36.** Bicycle paths.

NCDC





MICHAL LEWI

**Plate 37.** Low-cost rental accommodation on Rottne Island, Western Australia, owned and maintained by a State agency in the interests of the general public: a model of humane planning, dating from 1907.

exceeded. Canberra probably needs both, but the urban trail will be postponed indefinitely unless a positive plan is drawn up quite soon.

(v) Provision of horse trails also raises the problem of equity and distribution. Horse-riding is an expensive hobby. The choice is clearly either to plan for it, or not to plan for it; the activity will go ahead in either case. The responsible authorities should therefore plan for it, perhaps to the point of encouraging a healthy and pleasurable activity so well suited to the landscape. Yet how much public money should be spent on subsidising the pleasures of the well-to-do? A contribution from the user would be appropriate here, perhaps by way of a licensing fee. Distribution should also be considered carefully — the greatest demand will doubtless be in the prosperous suburbs of South Canberra, and the greatest need in Belconnen. The tan-bark trail could perhaps be designed for Lake Ginninderra rather than the more obviously appropriate Burley Griffin.

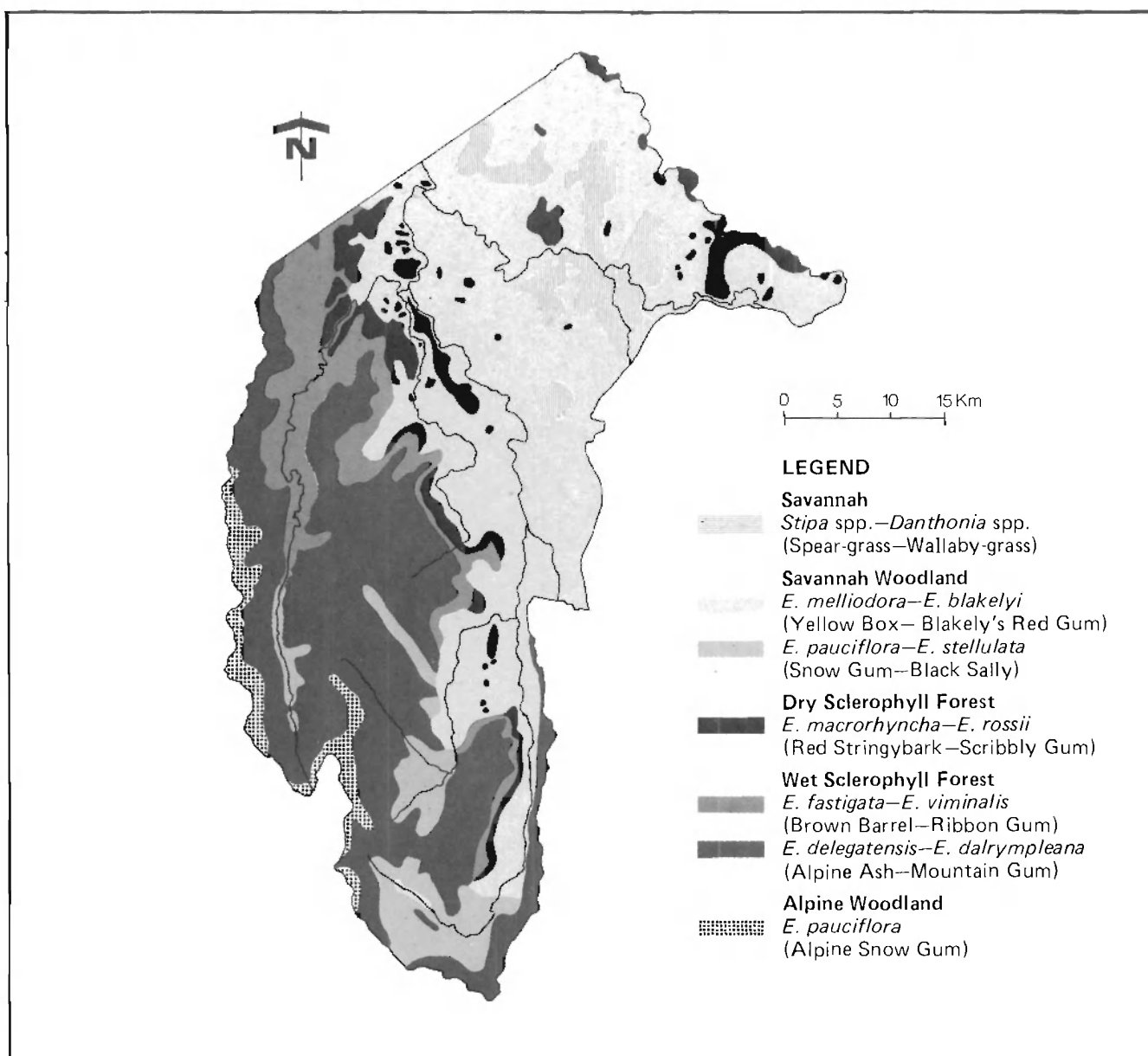
#### (d) Bicycle access

Despite a superficial similarity, horse trails and bicycle trails raise different problems. The bicycle is utilitarian as well as a play-thing. It is often the only alternative to walking for school children and other students. The working man on his bicycle, with cloth cap and lunch-

box, is not part of the Canberra scene, but the bicycle could be a means of transport for the young wife without a second car, if she could ride to the shops. Horses are more fun, but bicycles are just as healthy and a lot cheaper, and I would therefore give priority to both utilitarian and recreation trails for bicycles. The river corridors are especially well suited to recreation trails; cyclists need gentle grades that nevertheless offer pleasant views and good stopping places, and the river terraces offer all three. A modest licensing fee might contribute to the costs of trail construction and maintenance. The river corridor would in general be more appropriate for cyclists and equestrians than either pedestrians or motorists. It would not be suitable for trail-bikes, partly because of the erosion potential. Trail-bike circuits must be provided in areas where such conflicts are minimised, as in some pine forest areas.

#### (e) Overnight access

To spend a night in a park or reserve gives a much more complex experience than walking or driving through it. The ACT has camp-grounds, especially the Cotter Reserve, but there is a need for cabins and tourist villages like those of Yellowstone and other National Parks in the USA, or Rottne in Western Australia. Gudgenby Park should probably have at



**Map 6** Original vegetation of the ACT

least one tourist village, and a very simple inn that could only be reached on foot, deeper in the Park, might be worth considering, to close the present gap between tough back-packers and those, the majority, who hardly leave their cars.

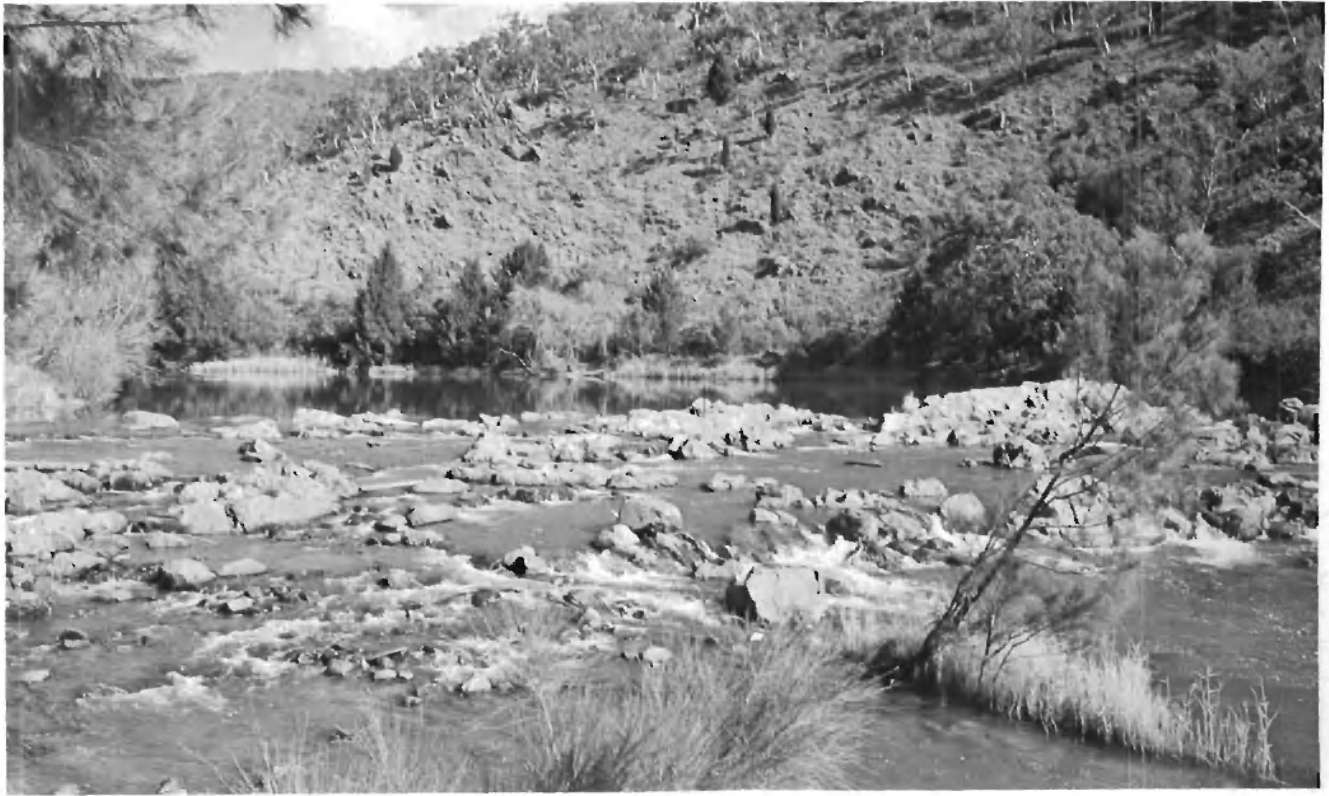
There is also a very urgent need for a much greater variety of tourist accommodation within and near the city, ranging from private householders who accept overnight guests — still going strong in both the United Kingdom and the United States of America, despite the motels — rental flats and apartments where guests can prepare their own meals, and farm accommodation within the ACT. Some of this accommodation should be in the public open space system, perhaps on Lake Burley Griffin adjoining Weston Park. The land between Banks Street and Lady Denman Drive is grossly under-utilised, housing only the Nursery, the Royal Canberra Golf Course and Government House grounds. Orana Bay to Scrivener Dam represents

about one-sixth of the foreshore of the Lake, and also one of its most attractive segments. Multiple use of this land at least to Warrina Inlet would be possible without serious loss of amenity to current land-users.

The pine forests in the ACT are already used for orienteering, horse-riding and long-distance running, and they too could be used as a background for log-cabin resorts on the outskirts of Canberra. The current deficiency in low-cost accommodation can be seen in retrospect as a part of the price of the Lake: a leaflet printed in 1939 by the Commonwealth Government Printer listing the city's tourist attractions reads as follows:

*Tourist Camp. Immediately past the Police Station to the right lies the turn-off to the Tourist Camp which stands 100 yards from the road in a paradise of willows and poplars and other trees which formerly gave shade and shelter to J. J. Moore's stock. It consists of fourteen spacious cubicles, each*





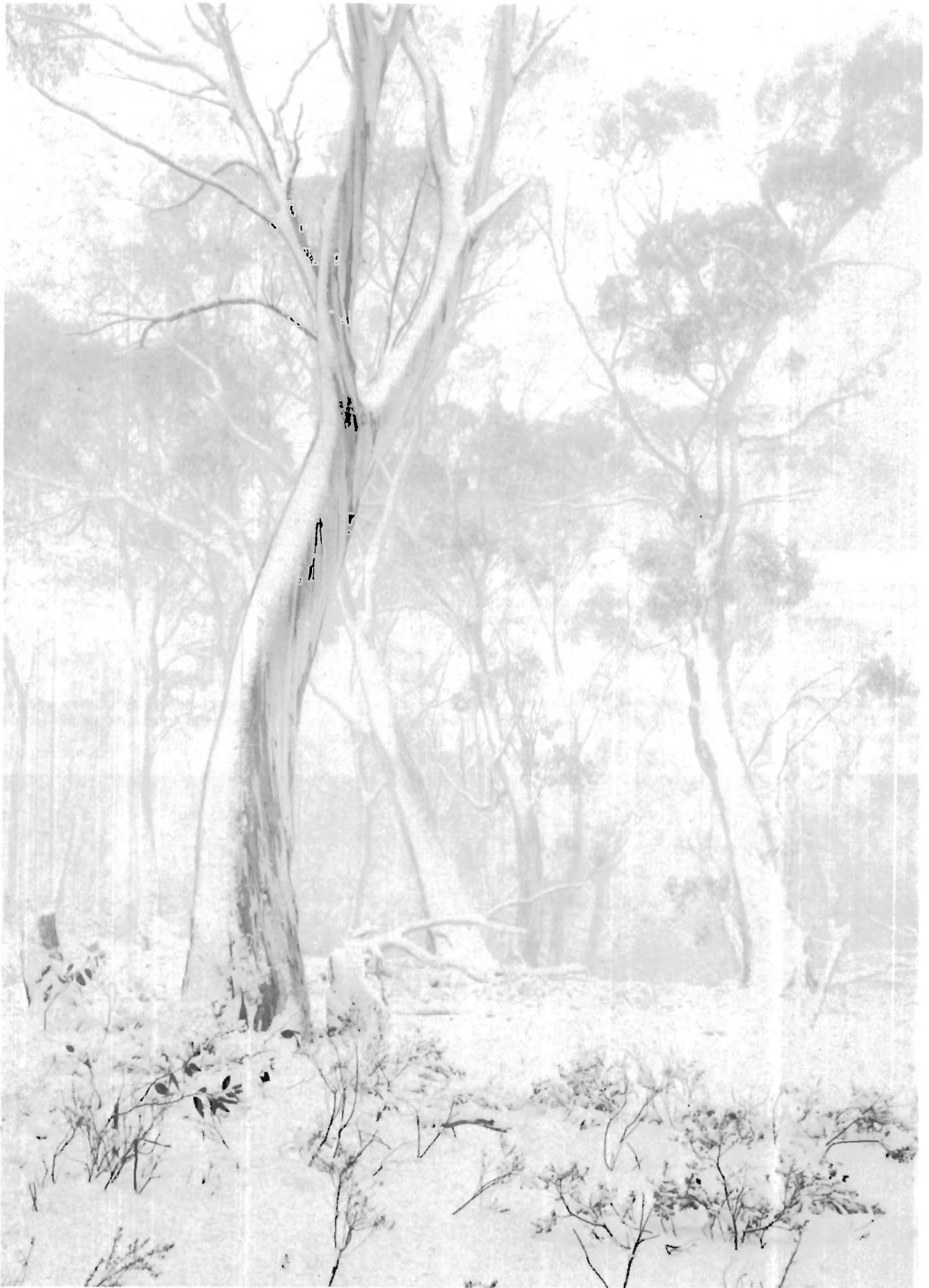
GEORGE SEDDON

**Plate 38.** The Murrumbidgee below Kambah Pool; the River Oaks (*Casuarina cunninghamiana*), the bare rock and the dry sclerophyll woodland on the far bank give the characteristic colours and form of the indigenous landscape, which has a subtle harmony rarely equalled by man-made landscapes.

**Plate 39.** Blossom-time in old Canberra. The exotic trees in the garden city can have a delicate beauty of their own, as they do here, but they are an imposed and cosmopolitan landscape, without reference to colours and forms of the indigenous landscape.

GEORGE SEDDON





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**Plate 40.** Snow Gums (*E. pauciflora*), and snow.





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**Plate 41.** *Eucalyptus stellulata*, Black Sally, in the Naas Valley; typical in and around the margins of frost-hollows. The Tussock Grass is *Poa labillardieri*. The grassy banks of the stream are noteworthy.



COLIN TOTTERDELL

**Plate 43.** *Eucalyptus delegatensis*, the Alpine Ash, a magnificent forest tree of the cooler, shaded slopes.

**Plate 42.** *Casuarina luehmanni*, Bull Oak, reaches its eastern limits in the ACT. It is more usually a tree of the western plains. This survivor is on Black Mountain Peninsula.

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**Plate 44.** *Dicksonia antarctica*; tree-ferns are a part of the understorey in the wet sclerophyll forest of Tidbinbilla.

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COLIN TOTTERDELL

**Plate 45.** *Eucalyptus pauciflora*, one of the Snow Gums, Mt Ginini.



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**Plate 47.** *Eucalyptus mannifera* subsp. *maculosa* on Black Mountain.

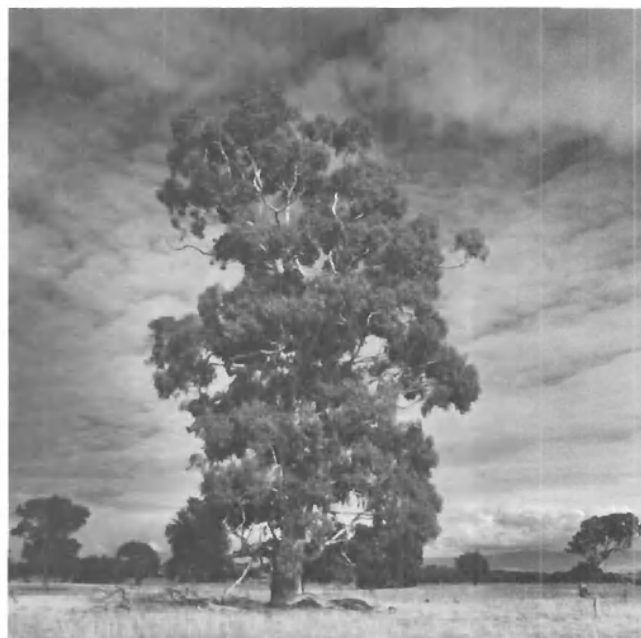
**Plate 46.** Dry sclerophyll forest, Black Mountain.

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**Plate 48.** *Eucalyptus rubida*, Candlebark, near Hall, 1975. This magnificent tree has since come to grief, probably by lightning strike, and has no successor on this site.

COLIN TOTTERDELL





**Fig. 20.** *Booroomba* outbuilding.

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**Fig. 21.** Canberra Inn, an old staging house now serving the horseless carriage trade.

SHIBU DUTTA





FRANK INGWERSEN

**Plate 49.** Flynn Primary School, a new neighbourhood in Belconnen, north of Ginninderra Creek. This area is bleak in its newness, but will be an urban forest in a few years, and many details of good planning can be picked out, especially the traffic segregation, from arterial roads, to feeder roads, culs-de-sac, bicycle paths and footpaths. There is a narrow, linear park system running north-south through the centre of the photograph, with underpasses at the entry to the sports-ground and school grounds. The provision of open space is adequate, but the quality will inevitably be low for some years. Nature's contribution to the site has been modest. A new area such as this would benefit greatly from a unified landscape treatment that included front gardens.

*equipped with iron beds and a small stove. Water is laid on to the camp, and wood is available. A small charge is made for the use of these huts, and a caretaker is in attendance. In addition camping space is available for those who prefer to pitch their camps beneath the trees. Within a minute's walk of the camp is a beautiful reach of the Molonglo River, and the Government buildings are glimpsed in a perfect setting across the stream. Few camps as picturesque exist in any part of Australia.*

Once lost, this facility was never replaced. Motel accommodation at \$30.00 a night is not meeting quite the same need.

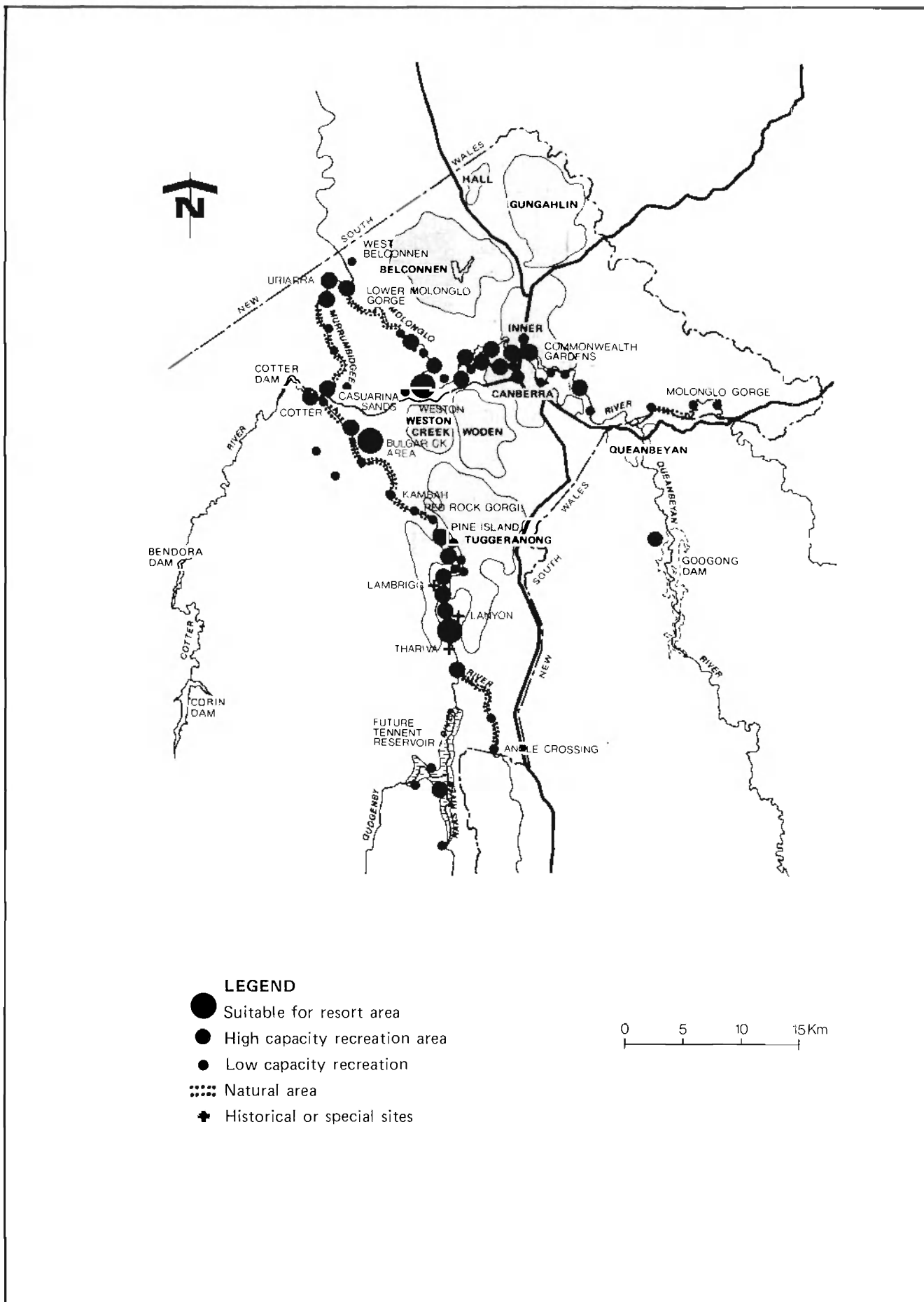
#### **4. Distribution of open space**

Distribution is linked to both accessibility and function. It is reasonable to ask whether recreation facilities are equitably distributed throughout the region; in more detail, one must ask whether the different kinds of open space provisions in the system are

accessible to the kind of people who need them, when they need them, by the kind of transport available to them.

Children especially need neighbourhood parks. In general, however, Canberra has been exceptionally good at providing for recreation at the neighbourhood level, and this does not require further review here. Most children can walk or ride a bicycle safely and quickly to a playground, a sports field, a tennis court, and a part of the 'nature park' system, usually a hillside under natural bush. The lakes (Burley Griffin and Ginninderra) are not easily accessible to most children except for the few who live in Yarralumla. On the other hand, most adults can get to the lakes, and to tennis courts and golf courses by car.

At the regional level, distribution is not good: this follows from the basic geography of the ACT, a geography which knows nothing of egalitarian principles. With the exception of Lake Ginninderra, which will be



Map 7 River corridor recreation resources



urban in character, all the natural sites for water-based recreation are on or south of the Molonglo. So are all the popular picnic and barbecue sites, the major natural reserves, the most impressive scenery, the areas popular with hikers, bushwalkers, skiers, naturalists and pleasure-motorists; most of the 'honey-pots' (*Lanyon*, Cuppacumbalong, Pine Island, Kambah Pool, the Cotter Reserve, Lake Burley Griffin) are also on or south of the Molonglo. Of the seven vegetative associations (of Pryor, in King, 1946), only three are represented north of the Molonglo. The north is comparatively monotonous and poor in natural resources for recreation. To get to the attractive central and southern areas, traffic from Gungahlin and North Canberra is funnelled through two bridges, Commonwealth Bridge and the Tuggeranong Parkway. There is a second city bridge, the Kings Avenue Bridge, but it doesn't go anywhere, for reasons outlined earlier in this report. Both these transport corridors are well designed and landscaped, but they are utterly familiar to all Canberra residents, and are not therefore an enticing beginning to a pleasure drive. Because the natural distribution of resources is so uneven, the north has special claims when man-made recreation resources are planned and designed, on grounds of equity, accessibility, fuel conservation, and efficient use of the road network.

Coppins Crossing offers a fourth route south from Belconnen, by-passing Canberra to the west. It is under 8 km from Belconnen Town Centre to the Cotter Road, and under 4 km to the Molonglo. Thus the remoteness of Belconnen is in part perceptual; a clear sign-post at the corner of Belconnen Way and Coulter Drive would be a good investment: 'Molonglo River, 4 km'.

That Canberra is an inland city is another fact of geography, and this also affects the distribution of a basic recreation resource, access to the coast. Sea beaches are the most valued of natural resources for recreation by most Australians. Because access to the sea is relatively expensive — it needs at least a car, fuel and time, and preferably a holiday house at the coast — it is most accessible to the affluent. It might therefore be argued that equity requires a special effort to provide compensatory recreation within the ACT for those not able to use the coast freely, or a fast and cheap bus service.

Compensatory recreation would consist in the provision of more water-based recreation sites with good access by public transport.

## 5. Capacity

Carrying capacity has two components, physical and perceptual. The latter is often ignored, but an understanding of its implications is basic to good design. Perceptual capacity — the conditions under which people do or do not feel uncomfortably crowded — varies from culture to culture and one person to another. A recent study of Hong Kong, for example, has shown that judged by the behavioural indices of overcrowding to the point of stress, Hong Kong is not perceived to be overcrowded by most of its residents. Sydney-siders tolerate or enjoy a density at Bondi



COLIN TOTTERDELL

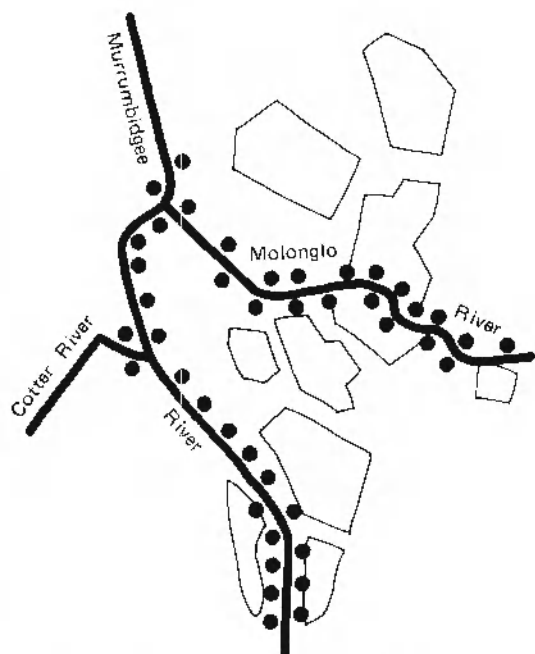
**Plate 50.** The Cotter Dam and its pine plantations, which give definition to the landscape.

Beach that many Australians from a less urban society find intolerable. Nevertheless, even at Bondi, people stake out a personal space, if only with a beach towel, and if that small space is violated, they do feel overcrowded. A chair is enough to define personal space in Constitution Square in Athens — a big square full of people, but not crowded if you have your chair. Part of the success of Casuarina Sands as a river-beach in the ACT is that the trees, their gnarled roots, and their fine drooping branchlets create a multitude of nooks and crannies that give some privacy without cutting out the public scene entirely. The swimming pool at Sea Ranch in northern California is an artificial reconstruction of such an environment. The winds off the North Pacific are cool even in summer, so the pool has a redwood deck and an irregular redwood fence with projecting screens that gives shelter from the wind, and a great variety of micro-environments from which people can choose according to taste and circumstance. It also allows a fairly dense population without the sense of overcrowding. Such design makes one realise how crude most of our proudly labelled 'Olympic Pools' are by comparison.

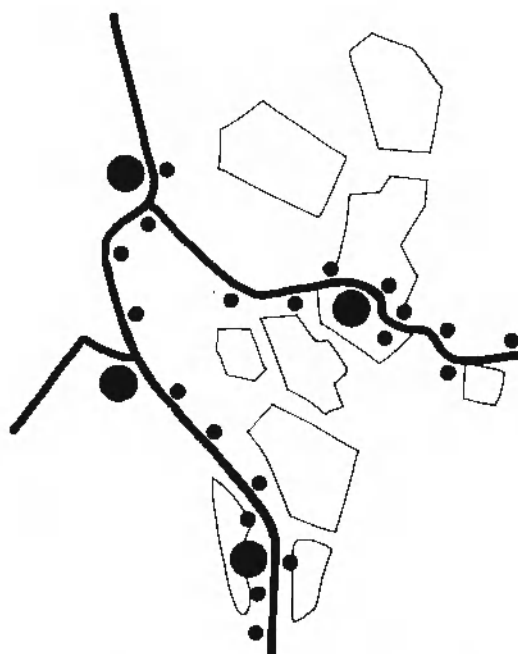
The physical carrying capacity of a given area for recreation is not fixed either — at best one can estimate the degree of wear and tear an area can stand under a specific recreational use and a specific system of management, without serious deterioration. Alternative management strategies may increase carrying capacities, but at a cost — economic, social, environmental, or all three. Sometimes this cost is justified, sometimes not.

It is apparent that the carrying capacity of many recreation sites is already exceeded under current management. For example, Weston Park and Black Mountain Peninsula are showing signs of erosion, begun by cars driven off the road. To drive on the grass to a spot of your choice is a very pleasant, informal way to picnic, but neither park will stand up to it. The remedy is to fence the road and build more

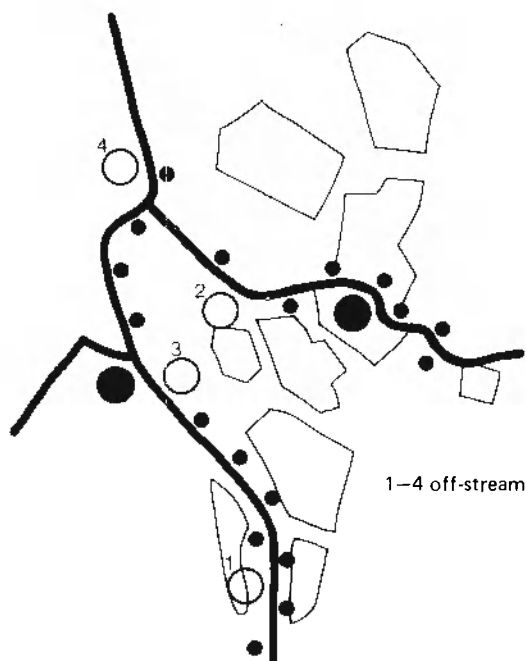




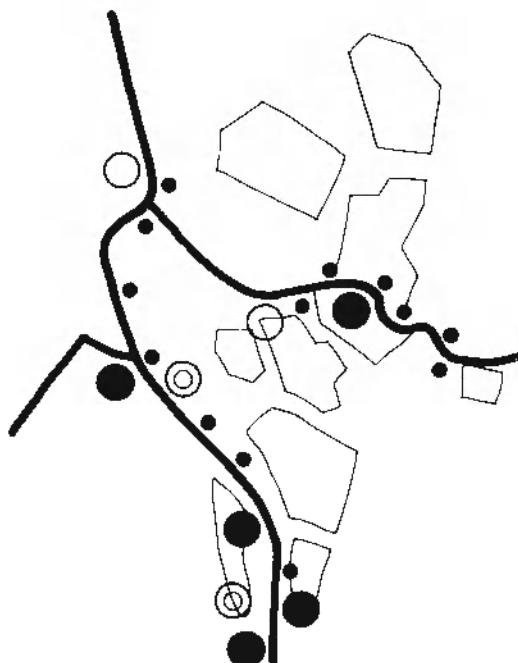
**Option 1** Minimal development of all areas within the river corridor.



**Option 2** Selective development of low and high capacity recreation areas at strategic locations within the river corridor.



**Option 3** Development of off-river recreation areas at strategic locations and low capacity areas, only within the river corridor



**Option 4** Development of several high capacity resort areas at off-river locations, other off-river areas and high and low capacity areas within the river corridor

- ⊙ High capacity off-river resort area
- Off-river recreation area

- High capacity river corridor recreation area
- Low capacity river corridor recreation area

**Fig. 22.** Options for location of future recreation areas.

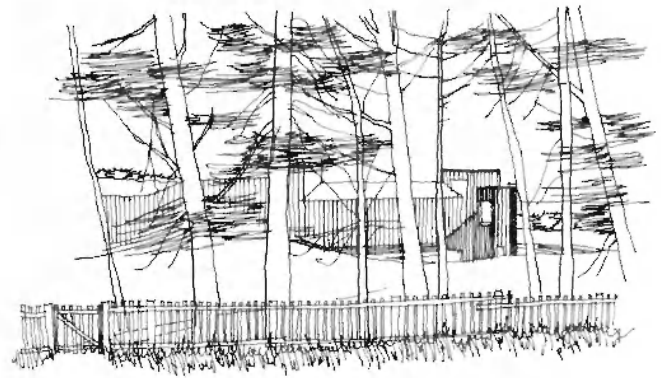
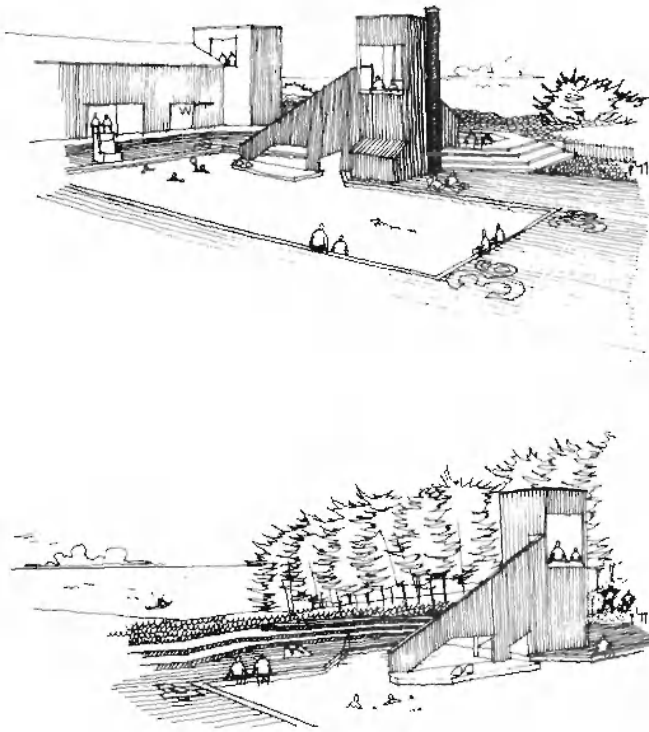


Fig. 23. The swimming pool at Sea Ranch. Mendocino County, northern California. The design offers a wide choice of environments according to personal preference and the weather.

car-parks — that is, to change the management — but the quality of the recreation is changed in the process. Informality is replaced by control, although subtle control measures may hardly be noticed by the user.

Some degree of regimentation is inevitable in urban areas, but it must not be intrusive in semi-natural rural areas. Consider the future of Pine Island, and similar picnic places along the Murrumbidgee in the Tuggeranong area. Car-parks are barely adequate, and the demand exceeds capacity on some summer weekends. The sandy beaches can be kept clean, given the maintenance staff. How many people can safely swim in the Murrumbidgee is not known (nor is it known with certainty that the water can be kept clean enough for swimming, in an urban setting). What cannot easily be maintained in this case is the natural setting. Tracks and trails are worn indiscriminately from car-parks to beaches. Made paths, with barriers and extensive replanting, will be necessary, and to keep a natural appearance, dominated by rock outcrops and *Callitris endlicheri*, the native 'pine' of Pine Island, will need highly skilled design. Some plane trees and other exotics have been planted for shade at Pine Island. There is a place for exotics to fulfil limited and specific functions, but they should not be allowed to dominate the river corridors, which would reduce the Murrumbidgee, one of the characteristic rivers of Australia, to triviality. A tame Murrumbidgee would be an inferior recreation resource.

Whether or not it is made trivial — and this depends primarily on design — it is certain that the river corridor from Tharwa to Kambah will need intensive management and design, and this will leave only the Murrumbidgee south of Tharwa and from Kambah to

Uriarra, and the Lower Molonglo, in a condition approximating their natural state. These river stretches have an inherently low carrying capacity for recreation and one useful strategy of protection is to deflect recreation demand elsewhere by constructing rural recreation facilities away from the river corridors.

It is worth bearing in mind that Canberra is a city located directly by policy rather than by natural economic and demographic forces. In 1943, the average population density of the ACT (excluding the Canberra City area and the Cotter Catchment Area, each of which for different reasons distorts the typical pattern of rural density) was 0.8 persons per square kilometre, and this indicates the kind of population that such land supported under broad-acre rural occupation. This figure has increased as the pressures from the city have been exerted on it — but it is still very low — 1.1 in 1966 to 1.3 persons per square kilometre in 1976. By contrast, in 1976, the Canberra urbanised area had a density of 926 persons per square kilometre. No other large city in Australia shows such a contrast in densities, and the mining towns like Kalgoorlie and Mt Isa are more like Canberra in this respect than Melbourne or Brisbane. We have already noted that the sharp rural-urban boundary in Canberra is the outcome of policy, but the above figures also say something about the character of the land. The State capitals are the focus of a dense population network, set in landscapes that are for the most part tolerant of heavy densities.

This difference is partially reflected in the contrast between the density of the urban areas for Sydney, Melbourne and Adelaide with the population density of the Statistical Divisions for each of these areas, which include the rural periphery of each city.



DR OSCAR GIMESY AND THE **AGE** NEWSPAPER, MAY 27, 1977

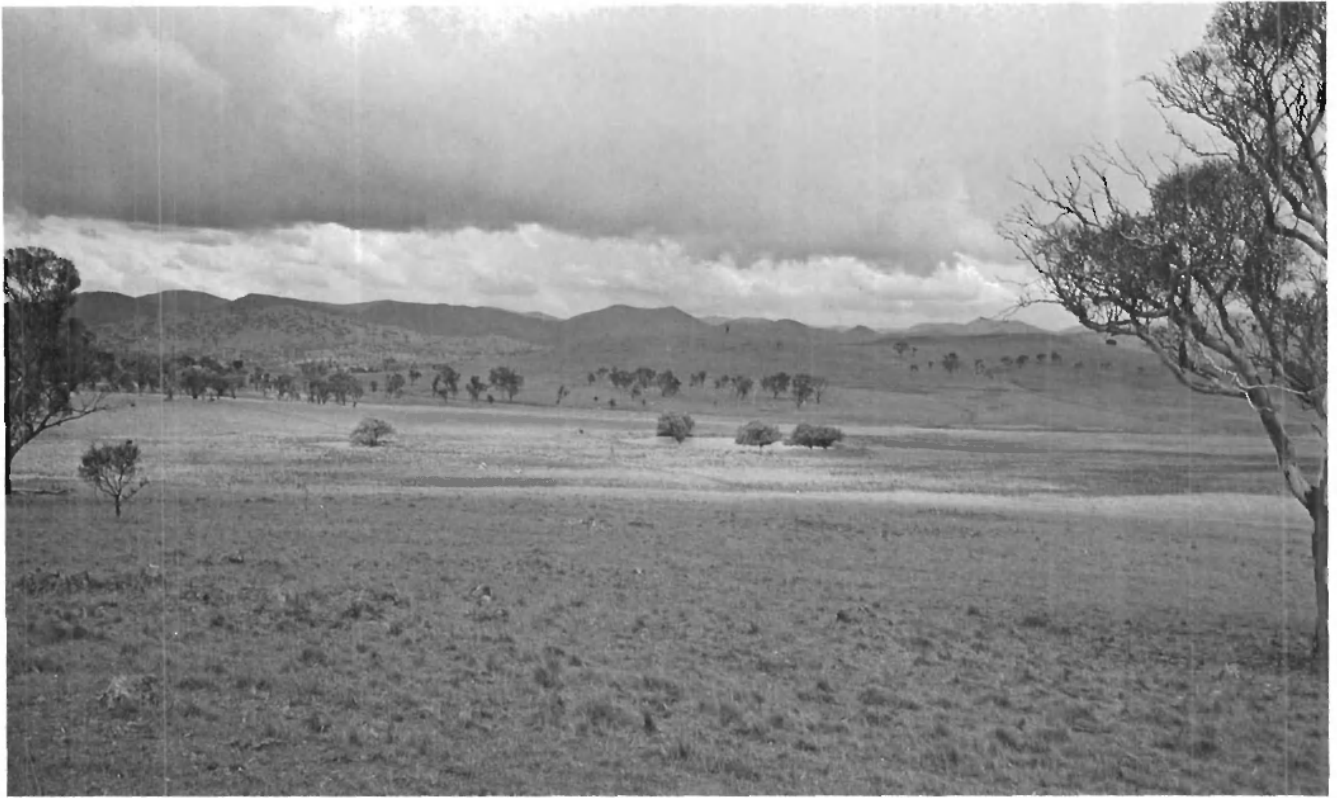
**Plate 51.** Swimming Pool, Whitley Bay, Northumberland.

Water is fun to play with. Whitley Bay — and many other similar leisure pools built overseas since — has an irregular-shaped pool. There are shallows shelving gently up to the pool edge, like a beach. The deep water areas are marked off by bright red, yellow and orange inflated 'rocks'. Swimmers can sit and play on them. The most striking feature of all is the wave-making machine. For 10 minutes in every 30, breakers roll across the pool, re-creating the play enjoyment of the waves at the seaside. Air temperature is maintained at 30°C and the water is a luxurious 28°C. There are also saunas, steam baths and an aerotone 'bubble-bath'.

**Plate 52.** The Cotter River, around 1920, offering simpler pleasures.

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**Plate 53.** The bare plains of Tuggeranong, essentially an old floodplain of the Murrumbidgee, which has now cut a course below this level near the foot of the escarpment, and is thus out of sight.

**Plate 54.** The Molonglo River upstream from Lake Burley Griffin. This is not a natural river, nor an Australian one — it is fattened by the waters backed up by the Scrivener Dam and lined with willows and alders. The effect is that of a placid waterway like the Ouse in England. This stretch of river has a distinctive character, and it is a recreational resource that is not yet fully used, because of poor access and poor neighbours, especially the industrial estate at Fyshwick.

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**Plate 55.** The Murrumbidgee River near Uriarra Crossing, flanked by River Oaks, *Casuarina cunninghamiana*.

**Plate 56.** *Callitris endlicheri*, the Black Cypress Pine, is common on the rocky slopes rising from the Murrumbidgee and the Molonglo. It is a tree with a powerful landscape character, and it is indigenous to that environment. It is a *landscape resource*.

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**Plate 57.** Large granite outcrops near Mt Kelly in the proposed Gudgenby Park: the vegetation is sub-alpine with *Eucalyptus pauciflora*. There is some evidence that this area was used by the aborigines for initiation ceremonies.

COLIN TOTTERDELL





POPULATION DENSITIES FOR THE URBAN AREAS AND FOR THE STATISTICAL DIVISIONS; JUNE 1971.  
(Source: Australian Bureau of Statistics)

	Urban Area area, km <sup>2</sup>	Stat. Div. area, km <sup>2</sup>	Urban Area population	Stat. Div. population	Urban Area person per km <sup>2</sup>	Stat. Div. person per km <sup>2</sup>
Sydney	1,422	4,074	2,717,069	2,799,634	1,911	687
Melbourne	1,323	6,133	2,388,941	2,497,993	1,806	407
Adelaide	554	1,850	809,466	842,611	1,458	455
Canberra	135	714	140,966	158,594	1,056	222

These figures have no absolute meaning, and the variations show differences in the way the Statistical Divisions have been designated for each city, but they do show that whereas Canberra's urban density in 1971 was more than half that of Sydney's, the density of Canberra's Statistical Division was less than one-third.

That Canberra is not the focus of a dense population network shows up, not so much in her urban function, as in her recreational pressures on the surrounding rural lands with their inherently low carrying capacity, and for this reason, good planning and construction is especially significant. The city of Canberra is itself evidence that the area is capable of sustaining high densities, but this requires high levels of engineering, capital investment, and imports of food and other consumer goods. The point here is that the natural and rural landscapes of the ACT cannot withstand much wear and tear unless they are subject to radical transformation.

To say this is perhaps enough to give meaning to the somewhat obscure phrase 'inherently low carrying capacity', although it might be possible to give a bio-energetic account of the concept. The growth rates of most vegetation on the southern tablelands are low compared with coastal rates, because the growing season is shorter; the winters are colder and the summers drier than those of most coastal sites and the wetter months do not coincide well with the warmer months. Thus damaged vegetation takes longer to recover, erosion is harder to control, pests like the rabbit more destructive — degradation easier and recovery slower than in a more tolerant environment.

Good planning will consist in recognising the low capacity of the river corridors and hill landscapes, and in complementing them with areas designed for heavy use. The Botanic Gardens on Black Mountain are an extreme example of such an area: the gardens can take heavy use because the path system is designed for it. Heavy use does not detract from the recreation experience, because crowds can disperse, because the density of incident is high throughout the area, and because isolation is not an essential part of the experience. Marked seasonal variation makes the gardens the target for repeated visits — *there is always something new to see, and something new to learn*. Thus the gardens are a model of one kind of recreational resource.

## 6. Quantity of open space: standards of provision and costs

How much open space does Canberra need? How much can it afford? These are linked questions, but

the second is in some ways easier than the first. Minimum standards for the provision of parklands generally adopted by planning authorities are both arbitrary and of limited relevance — limited, because quality and accessibility of open space are far more important than quantity; and arbitrary because there are so many special considerations for specific cities. As we have already seen, some of the open space in Canberra is not really usable space, and vast areas of apparent open space are already firmly committed to urban development; the corridor from Tharwa in the south to Hall in the north will all be urbanised by the time the city reaches the half million mark. Indeed, Canberra is so much a special case that comparison with Melbourne and Sydney is often misleading. Nevertheless, the gross question, 'How much?' may be put, and the comparison made, so long as the limitations of these approaches are kept in mind, and it is used as a starting point, and not as a conclusion.

The following table compares the total metropolitan and regional open space in the Sydney region and the proposed future provision in the ACT.

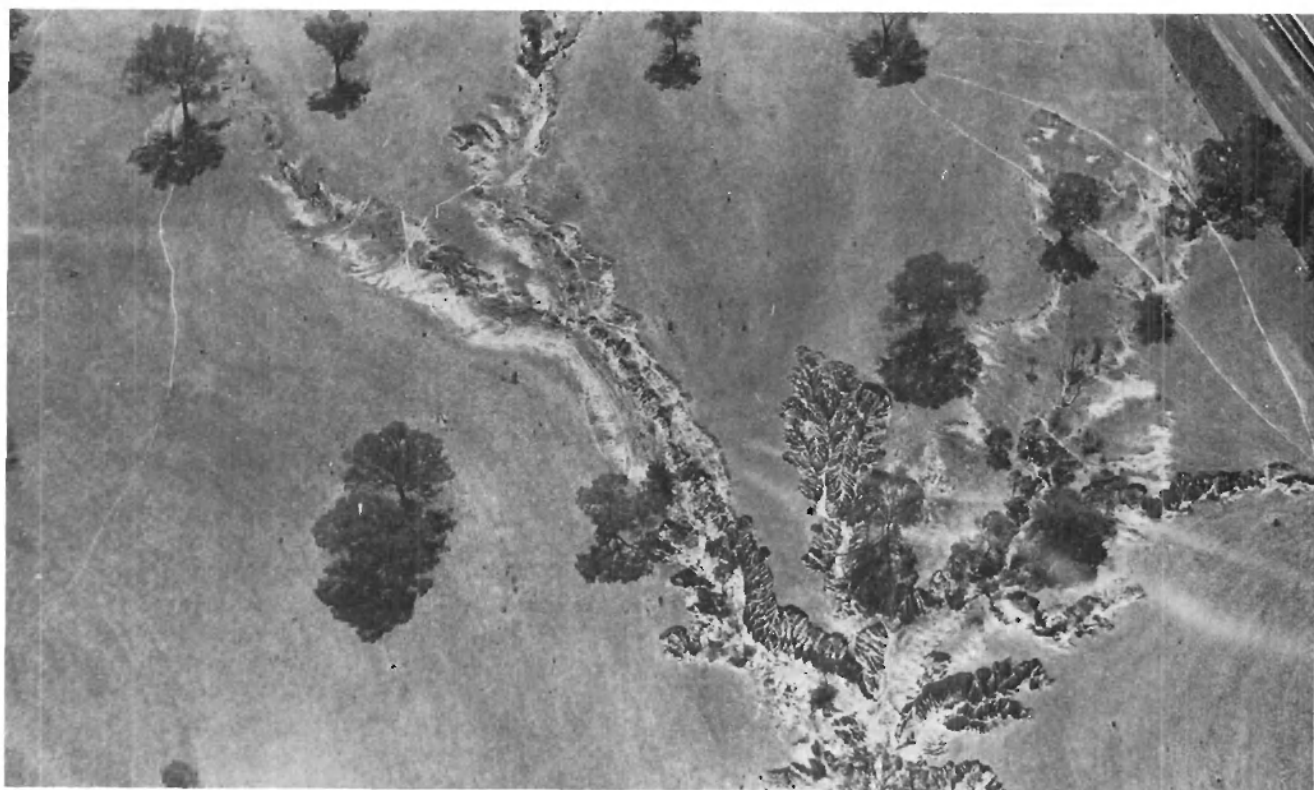
### COMPARISON OF METROPOLITAN REGIONAL OPEN SPACE

	Future ACT	Existing Sydney Region (4)
Total area	2356 km <sup>2</sup>	16000 km <sup>2</sup>
River Corridor Reserves	75 km <sup>2</sup> (1)	36 km <sup>2</sup> (to be extended)
Territory Parks & Nature Reserves	660 km <sup>2</sup> (2)	2300 km <sup>2</sup>
Water Catchments	469 km <sup>2</sup> (3)	1400 km <sup>2</sup>
Other Forests & Pine Plantations	392 km <sup>2</sup>	1500 km <sup>2</sup>
Other Metropolitan Hill areas & Reserves	120 km <sup>2</sup>	not available
TOTAL	1716 km <sup>2</sup>	5236 km <sup>2</sup>

- Note: (1) Area covered by Metropolitan Open Space Study  
(2) Gudgenby Park as defined by NCDC (570 km<sup>2</sup>)  
Tidbinbilla (46 km<sup>2</sup>)  
Black Mountain Ainslie — Majura (23 km<sup>2</sup>)  
Molonglo Gorge 1 km<sup>2</sup>  
(3) Cotter Catchment  
(4) Open space in the Sydney region (K. Hueneke)

(NCDC *National Capital Metropolitan Open Space System*, Interim report, 1976. The context in which these figures are quoted is given in Appendix 1.)





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**Plate 58.** Bulgar Creek area on *Fairvale*, an incipient badlands topography, now under control. The Cotter Road and pipelines, top right.

**Plate 59.** The Australian Capital Territory has for the most part the appearance of a 'natural' landscape; even the grasslands were there waiting for the cattle to arrive. In fact, however, the landscape of today is very much the outcome of careful management. At the time that the Federal Government assumed responsibility, and for some years afterwards, soil erosion was severe, rabbits were everywhere, and many slopes and ridges had been unwisely cleared. The first pine plantations in the Cotter catchment were intended more as an erosion control measure than as a commercial crop. Much of this is forgotten today: the work of the DCT is taken for granted.

DCT





SHIBU DUTTA

**Figs. 24, 25.** The old brickworks at *Yarralumla*. Industrial buildings with their strong and functional forms are an element in the visual diversity of most cities, rare in Canberra.





GEORGE SEDDON

Plate 60. Cattle at Mt Clear, southern ACT.

Although it is useful for comparative purposes to use such standards for the provision of open space, the figures are in a sense arbitrary, and must be qualified by special conditions. (There is a good review of the limitations of this approach, with a suggested alternative methodology, by Andrew Lothian in Mercer, 1977, pp. 141-151.) For a whole range of reasons already given, provision in Canberra should be more than usually generous. The relatively low carrying capacity of much of the land is one. The need to maintain water quality is another — and this is one area in which the Federal Government has a profound obligation to set and maintain high standards of performance, sitting in a Territory that includes the major tributary of the nation's only large river system. The many special demands made on a national capital are another. The very high rate of growth, and the need to keep land in reserve for future demands is another (the ACT will lose open space in the metropolitan area as the years pass). Some of the demands can be predicted now, for instance a demand for land for institutional use that will be much higher than the national average. Some can only be guessed at — allotment gardens, for example, might well come into favour as fuel costs increase the cost of imported food, and also the cost of fuel-prodigal recreation. (One good reason — but not the only one — for not proceeding with Burley Griffin's East Lake proposal is that the Pialligo — Jerrabomberra area contains most of the last remnants of land suitable for intensive agriculture in the ACT.) The fact that Canberra is an inland city is also reason for more generous provision than in the coastal cities, with their easy access to beaches and coastal waters. Finally it needs emphasis that much of the apparently prodigal supply of open space is not really fully available for recreation, and never will be.

The cost of acquiring and maintaining large areas of open space is very much less in the ACT than elsewhere in Australia. The nature of the leasehold system in the ACT allows a unique opportunity to dedicate land to open space functions at little cost, where a similar provision on the outskirts of the State capitals would be astronomically expensive. It would be foolish not to take advantage of this situation. Maintenance costs of much of the land in the system would be low and in some especially important cases, there need be no maintenance costs to the public purse, where land is leased, and maintained by the lease-holder. This option, rarely available elsewhere in Australia, should

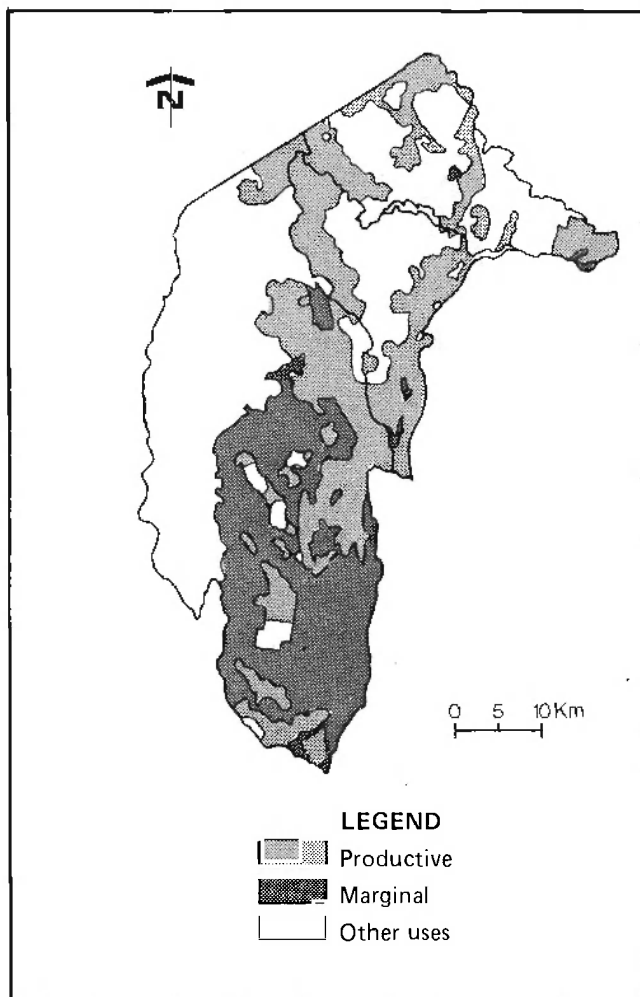
allow Canberra to maintain its sharp urban-rural boundaries into the future. It can do this by maintaining two categories of leased land at the urban fringe (map 8), that of broad-acre uses such as agistment paddocks for horses (for which there is a steady and growing demand), golf-courses, riding schools and a variety of institutional uses; and that of pastoral leasehold. Two major areas are shown on the map as appropriate to broad-acre leasehold, one between Belconnen and the Molonglo corridor, the other east of the Ainslie-Majura Ridge, the zone that buffers the airport. It is important that such uses be grouped rather than scattered, for reasons of scale:

*The introduction of broad acre and miscellaneous uses breaks down the subdivisions and the scale of the rural countryside to something between half country and half town. The size of sites, the building coverage, the intensity and type of tree planting as well as the methods and form of the planting, gives a scale and appearance different from that of the natural countryside or urban development. This appearance, as illustrated by the North Watson area between Stirling Street and the R.C. Seminary, along the Federal Highway, could be satisfactory in itself, provided that the difference between the scales of the three types of areas are emphasised and exploited to achieve a particular landscape effect.*

*If broad acre uses are allowed to happen anywhere, it would hasten this breakdown of the scale and appearance of the rural countryside, and much of the essential character of the ACT scenery would be lost.*

*For this reason, broad acre and miscellaneous uses should be grouped together in selected places appropriate to its landscape character. As far as possible, these areas should not appear isolated, but should be relative to the land form and to other areas where a change of scale of the same order has already, or will occur in future, such as between the town areas, linked to the hill reserves or along the freeway corridors. In this way, the break between city and countryside can be accentuated, adding to the interest and variety of the landscape. It also has functional advantages in facilitating access, and the provision of services to the sites.*

(Principles for the Location of Broad Acre and Miscellaneous Land Uses, Working Paper 23, Canberra Sub Region Study).



Map 8 Rural land

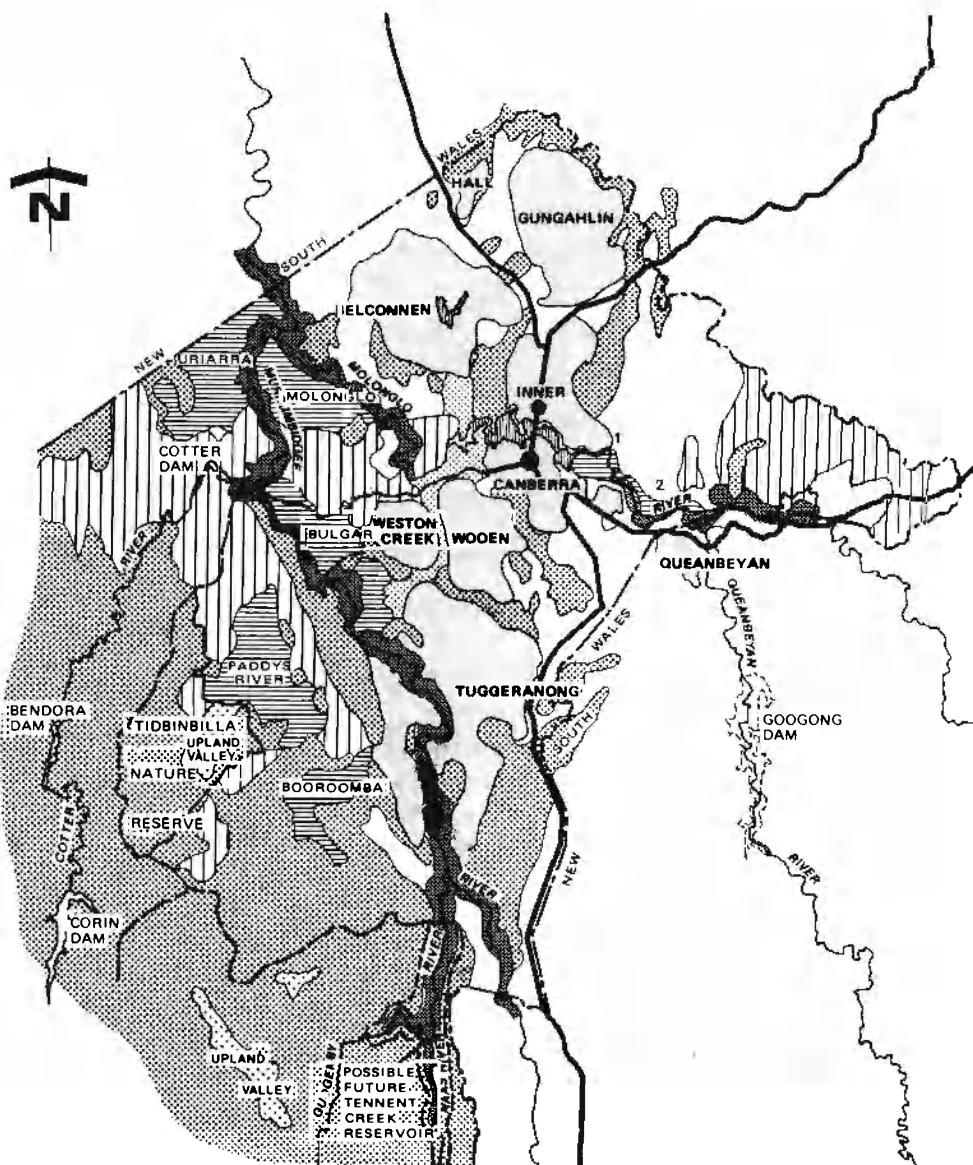
There are also some areas that should be positively zoned for pastoral use. This would be new in Australia, where rural zoning has generally meant little other than that the land is not currently needed for urban development, so that the rural zoning indicates the large piece of green cloth from which land is excised for specific purposes. This attitude is apparent in the National Capital Development Commission publication of March 1976 *A Land Use Plan for the ACT*, shown in sentences such as the following, describing areas zoned as 'rural': 'A second zone is a land bank which remains in rural usage until required for associated city uses which generally retains its open character' (p. 41). Earlier in the same report (p. 10) we read that 'both the area and possibly the output of ACT rural lands will decrease in the future as the city grows at the expense of the rural countryside'. Canberra, Woden, Belconnen, Tuggeranong and Gungahlin all have been or will be built at the expense of rural land; unless a policy decision is made to retain some land in rural use, the large pastoral holdings so typical of the history of the area will disappear quite soon.

The areas shown on map 9 suggested for positive rural zoning include two large tracts of undulating grazing







land west of Canberra City, comprising New Station Creek, Bulgar Creek, Molonglo and Uriarra. There are smaller tracts near the Molonglo in the east between Canberra and Queanbeyan, especially the East Lake area and Abattoir Stock Holding Paddocks, and more remote areas along Paddys River, in the *Booroomba* valley, and at Gudgenby.

The case for retaining these areas in pastoral use is probably best argued in the context of a public open space policy; although leased land is not in fact public, it would remain a visual part of the open space around Canberra, and public in that sense. The case is both visual and psychological, and much of it has already been stated in passing. In summary, then: Canberra should retain some visible links with its history, and be reminded physically of what is still a major primary industry and export earner in Australia. The Cotter Road and Uriarra Road both link urban Canberra with very popular recreation areas, at Casuarina Sands and Uriarra Crossing on the Murrumbidgee, and they are already in effect scenic roads. The large, open pastoral holdings give a rapid and complete change from the inevitably contrived atmosphere of the Canberra urban parklands, and they are a significant item in the variety of the ACT landscape. Their perceptual role is almost certainly far greater than the area might suggest, giving the illusion that Canberra is surrounded by vast pastoral lands, where in fact there is remarkably little left. Paddys River has the isolation and enclosure of a shallow basin, *Booroomba* of a narrow and remote-seeming valley, and *Gudgenby* of a highland valley surrounded by bush and mountain. *Booroomba* is in effect the last major working sheep-station in the Territory, and *Gudgenby* the last cattle-station. Both are well managed, and represent efficient land use, yet both also reflect faithfully the earlier pastoral history of the region, and are in that sense, survivors from the last century. The physical reminders of this past are well in evidence in the outbuildings, fences and stockyards, especially at *Booroomba*. *Gudgenby* lies within the proposed Gudgenby Park, to which a working cattle station adds variety. I should like to see both properties remain as working pastoral stations, not as model farms, or show-pieces). This could be achieved only if real economic opportunities and security are available to lessees.

To say that there would be no public maintenance costs in keeping these areas in pastoral use is not to deny that such use would have a cost — essentially the cost of foregoing alternative uses. (This would be negative in the case of *Gudgenby*, in that the economic return from the leasehold would have no direct equivalent if the land were absorbed in Gudgenby Park. Some of the other areas listed could perhaps have higher value land uses, but the cost of providing urban services in isolated areas such as Paddys River and Bulgar Creek would be very high, so that comparison becomes difficult.) The main point is that to keep these areas in rural use would incur no further cost to the public purse, either in acquisition or maintenance, which gives Canberra a unique opportunity.



#### LEGEND

-  River corridors
-  Hill areas
-  Urban lakes
-  Lake parkland and other open space
-  Pine plantations
-  Important rural landscape

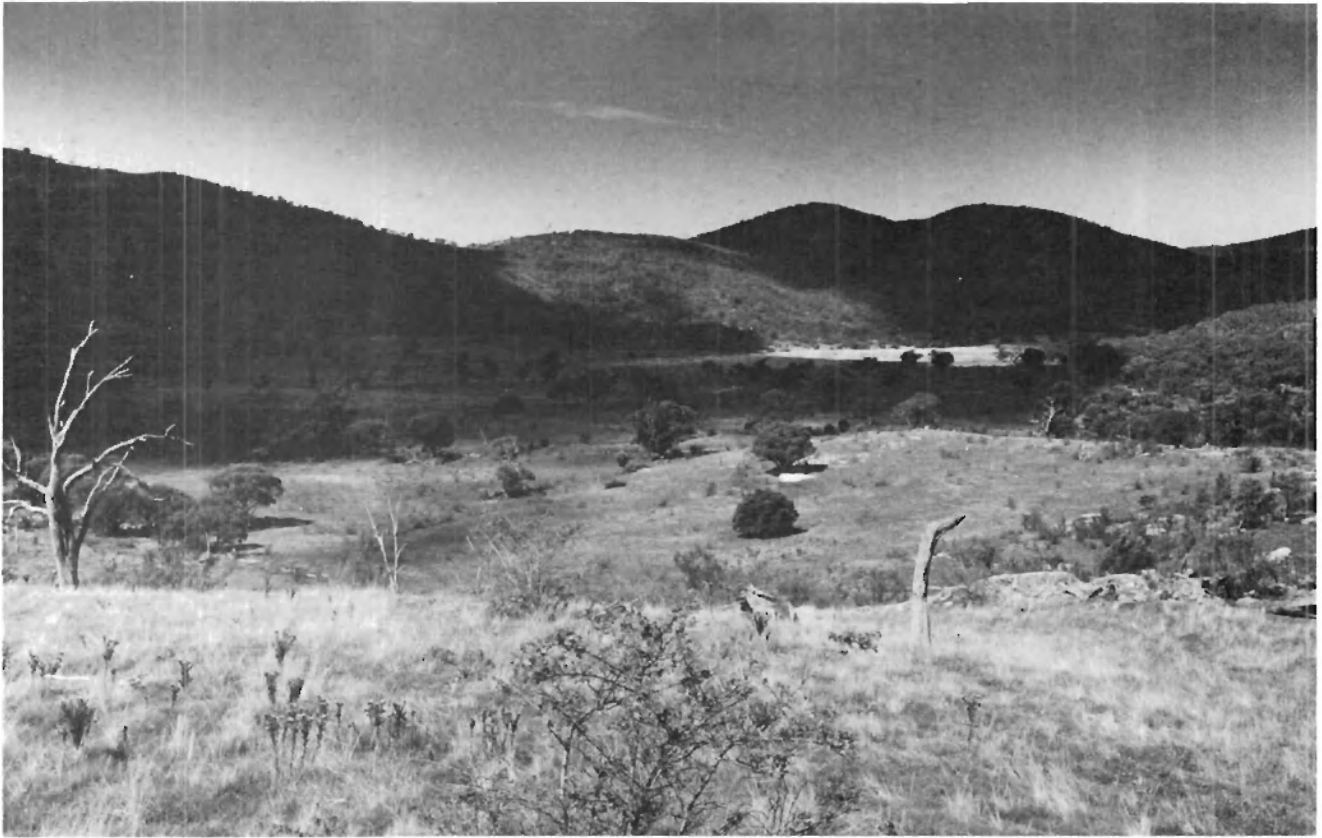
1 East Lake

2 Abattoir stock holding paddocks

0 5 10 15 Km

Map 9 Recreation resource types





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**Plate 61.** The narrow, enclosed valley at *Booroomba*: Mt Tennent in the background.

**Plate 62.** *Booroomba* homestead, near the junction of Punchbowl Creek with Blue Gum Creek (a minor tributary of Paddys River), looking southwest into the proposed Gudgenby Park.

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**Plate 63.** Farm gate at *Booroomba*; the logs are probably local Yellow Box, with an adzed or axed vertical groove for the gate to turn. The 'authenticity' of *Booroomba* derives in part from the quality of the detail.

**Plate 64.** Barn at *Booroomba*, slab construction; Mt Tennent on the horizon.

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**Plate 65.** Open savannah near Uriarra (*Eucalyptus blakelyi* — *E. melliodora* alliance).

The decline in rural holdings is shown in the following table:

#### RURAL HOLDINGS IN THE ACT

	Number of Holdings	Area of Holdings km <sup>2</sup>	sq. miles	Percentage of ACT
1951-52	226	1599.8	617.2	67.7
1960-61	224	1514.7	584.1	64.1
1965-66	203	1437.7	554.7	60.9
1970-71	187	1365.3	526.7	57.8
1975-76	136	796.7	307.5	33.7
* 1990 (est)	?	176.0	68.0	7.5
Ultimate assuming policy to retain several Holdings in ACT	?	126.0	49.0	5.3

\*By 1990: It has been assumed here that there will be no rural holdings in the Gudgenby Park, which appears to be the current policy. The number of holdings in the proposed Gudgenby Park area today (1977) is 29, with a total area of 499 km<sup>2</sup> (192.6 sq.m)

The location of rural holdings in 1990 would be as follows:

	km <sup>2</sup>
Majura — Kowen (incl. East Lake, Pialligo, Stock Holding Paddocks)	31
Canberra City District (Jerrabomberra)	13
Uriarra — Stromlo	60
Paddys River (incl. Booroomba)	52
Lanyon East (Monaro Highway)	20
	<u>176</u>

Maintenance costs for other elements in the public open space system can be displayed in three ways. The first is in the average area that can be managed by one man, and since labour is the major cost, this serves as an indicator of relative maintenance costs. The figure varies from 1330 hectares per man in Stromlo Forest, 315 hectares per man at Tidbinbilla Nature Reserve, to 1.1 hectares per man in the Botanic Gardens. There are also figures showing the cost per hectare for some areas, and the cost per user. Thus Tidbinbilla, in 1976, cost \$41.87 per hectare to maintain. With approximately 150,000

visitors and costs of \$195,000, the cost per user was \$1.30. (The Jervis Bay Nature Reserve — which is also under the control of the Department of the Capital Territory — had higher costs per hectare, but more visitors, and therefore lower costs per user, at \$0.98.) Weston Park and the Lake foreshores have a relatively high cost per user, at \$1.20 and \$1.25, and the Botanic Gardens the highest cost at \$1.76. Despite the large numbers of visitors — 273,000 in 1976 — maintenance costs are high because one man is needed for every hectare, and high costs are therefore inevitable and justifiable in a reserve of this kind, which has an educational and national function, as well as its regional recreation function. One point of making such comparisons is to show by contrast how little rural picnic areas cost. These constitute 40 hectares, and one man manages only 4 hectares — not a large area, but the high man-power cost is due largely to the scattered nature of these reserves, and the time staff spend in travelling around them — with an overall maintenance cost of \$147,000 per year (in 1975/76). However, they are very popular, with half a million visitors a year, which gives them a current user cost of \$0.29. In other words, they are remarkably good value. The hill areas such as Black Mountain and Ainslie-Majura are also relatively inexpensive to maintain, with an average cost for all the urban hill areas of \$50 per ha (representing 2,800 ha and a maintenance cost of \$140,000). Recreational use of the pine forests in the ACT has an even lower user cost, and most of the broad-acre open space outside the city is not expensive to maintain. On the other hand, sportsgrounds average around \$1,000 per ha, general urban parkland around \$1,400 per ha, and the cost of maintaining the shrub-beds around neighbourhood shopping areas is estimated at \$8,500 per ha, over 200 times greater than maintaining 1 hectare at Tidbinbilla. Once again the point of comparison is not to argue against such urban landscaping, but to show how little the rural broad-acres cost. In the face of severe budget cuts, however, where choices had to be made, the shop precinct work and the small and scattered local parks, some of which are little used, should be scrutinised carefully, because that is where possible economies lie, especially in a city so well provided with private open space around the house. The advantages of a total systems approach are especially clear when relative costing is considered. When the costs of all elements in the system can be considered together by one authority and related to intensity of use, economic balancing can be achieved within the system, and economic rationalisation related to a policy that ensures that the competing needs of conservation and the whole range of recreation and tourist requirements are met.

## 7. Quality of open space: diversity and design standards

The Canberra setting is a noble and simple landscape with strong and well defined elements, of which the mountain block along the skyline to the west and south is dominant. For the most part, it is a singularly uncluttered landscape, never petty, deeply satisfying in its sweep and range. Plains, residual hills, gaunt

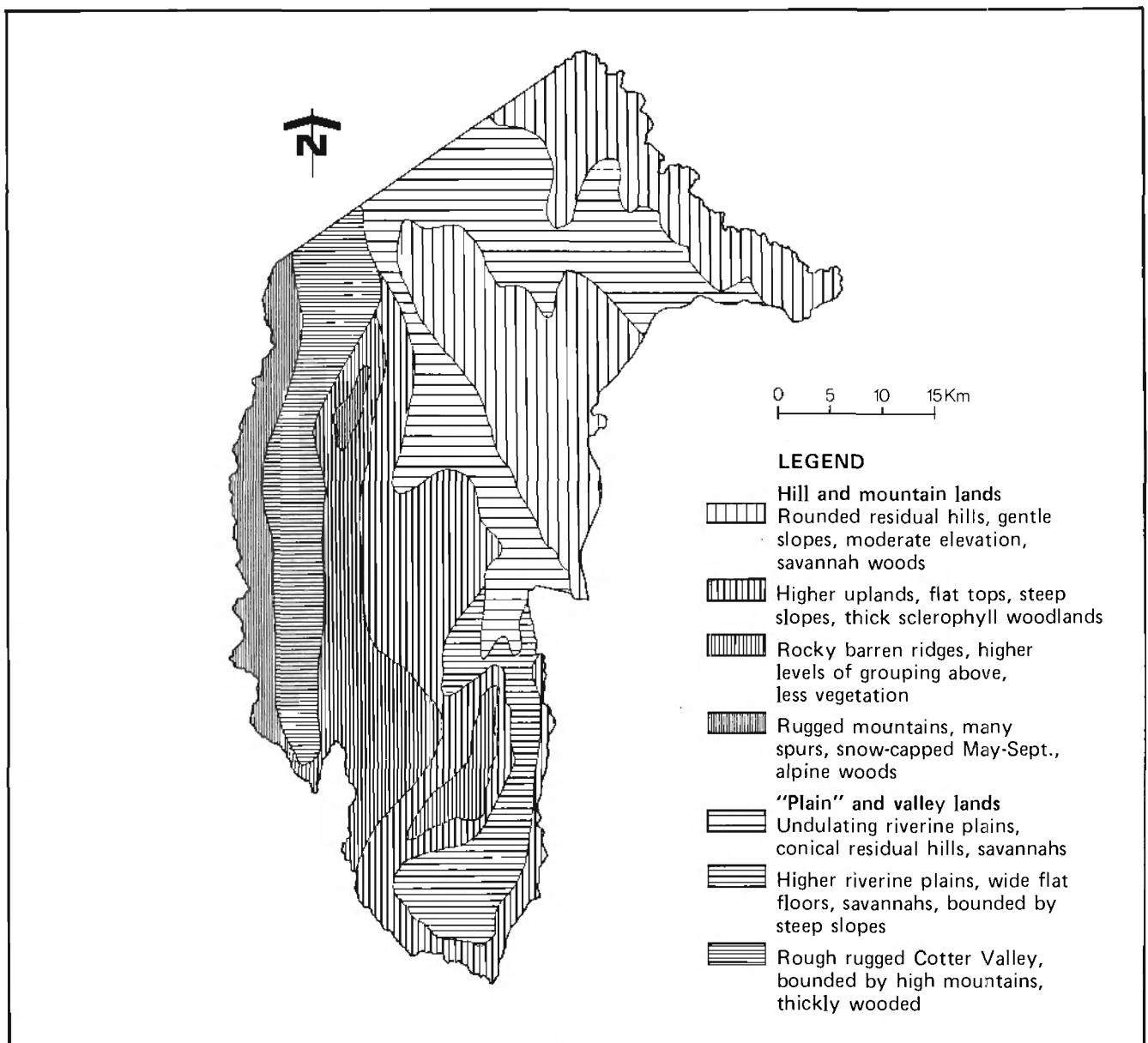
and strong river valleys and gorges, long views to the high country: these are the major elements, of which one is always conscious.

Noble, deeply satisfying — but not rich, intricate, diverse. The public open space system reflects this character too much — the open spaces are homogenised, too much in the same character. The popularity of the rain-forest gully in the Botanic Gardens is interesting. At first sight it seems a bizarre enterprise to attempt a rain-forest in such an unpromising setting. It is barely viable botanically, but a great popular success, because, in popular parlance, 'it's different'.

There is a great variety of landscapes in the Territory — map 10 shows seven regional landscapes — but only two of these are found in the north of the ACT to which urban Canberra and its immediate environs are confined. These are the riverine plains and residual hills. Cultural landscapes have diversified this

northern area — pine-forests, open pastures, cleared hills and ridges like Mt Painter and the Gungahlin and Gooroo Hills, in contrast with the wooded hills such as Black Mountain and the Ainslie-Majura Ridge. Urban Canberra set in a deciduous woodland around a lake adds further variety. The forest of Cork Oaks north of the Green Hills Pine Plantation is a uniquely distinctive landscape, but not easily accessible or well-known. The same holds for the wetlands at the mouth of Jerrabomberra Creek, and the intensive agriculture in the Pialligo area, very distinctive from the air, but not very accessible on the ground. The relative monotony of the northern ACT is part of its character, and it would be a mistake to break up its simple outlines by excessive attempts at diversity — the point is rather that it would be impoverished if the wetlands or open pastures or any other current element were lost.

Jerrabomberra Creek and the Pialligo area especially need more care than they have had to date. The



**Map 10** Regional landscapes



COLIN TOTTERDELL

**Plate 66.** Cork Oaks (*Quercus suber*), a man-made environment with a distinctive individuality.



COLIN TOTTERDELL

**Plate 67.** Jerrabomberra Creek is very rich in birdlife and great for canoes.

Jerrabomberra wetlands are a very rich potential recreation resource within urban Canberra, with a prolific wildlife. There are platypus in the creek (see appendix 2), and there are 53 species of water bird in the area, 24 of which breed there, in addition to other birds not tied to open water, such as the parrots, hawks, falcons, kestrels, and many songbirds (appendix 3). The stretch from the boat-harbour to the Canberra Avenue Bridge and the Molonglo anabranch running north towards Mt Pleasant are both well suited to bird-watching and canoeing. They make up a major resource for environmental education, with which the biologically sterile shores of Lake Burley Griffin are in striking contrast. This area has been little valued by planners in the past, judging by the strings of power lines that cross it, and by the continuing clumsy fill techniques that are used right up to the bank of the creek (where grading, occasional mounding, and screen planting are what is needed). The cows grazing by the side of the stream add to its interest, and the intensive agriculture and dairying in the Pialligo—Dairy Flat area provide an experience in which the ACT is generally deficient. Much of the Kingston, Causeway and Fyshwick areas by the Lake and Upper Molonglo have an air of neglect, which is all the more striking in contrast with the care that is evident in most of the city. Even the roads are poor in the Fyshwick industrial area. It is not a well laid-out industrial estate; it lacks functional efficiency, and there appear to be no design guidelines. The streets are generally tree-less, which is almost unique in Canberra, and there is no attractive recreational space for the workforce, which is approaching 5,000 people. The estate is currently pushing north to within a few hundred yards of the Molonglo, in a way that will depreciate the river environs. With quite modest expenditure, this part of the river could be made into a pleasant place for lunch on a sunny day — and it is one of the very few water areas with a large week-day workforce near enough to use it casually.

**Plate 68.** Pialligo, looking west to Black Mountain (top left) and Mt Pleasant (centre background); gravel pits along the Molonglo, left; Fairbairn Avenue, right. Any European city would have a tow-path along the river here, and a few landing stages for canoes and other small craft. These placid reaches of the Molonglo are rich in waterfowl.

NCDC



Design standards in Canberra are generally high, but the same standards are not apparent outside the metropolitan area. Pine Island, already discussed, is an example of inferior design, in layout, buildings, car park siting, and planting practice. Two areas of landscape design are discussed below as examples of the design problems and standards in the Territory.

The pine plantations in the ACT already have landscape value in some areas, such as Mt Stromlo, by giving density and a middle ground in contrast to the native grey-greens of the Brindabella Range in the background. This amenity would be greater if the boundaries were irregular with the topography rather than unnaturally regular. Glades and clearings into and within the plantation increase its internal diversity, and departure from a strict monoculture increases both ecological and visual richness. This is another area in which the ACT can function as a demonstration of best international practice: it is already doing so in the Green Hills and Kowen forests, but remedial work is desirable in other areas.

There is need for a conscious landscape policy for the transition zones between the indigenous vegetation (mostly on the hills, but some regenerated or surviving savannah woodland) of the nature park system, and the exotic vegetation of most suburban and 'garden city' Canberra. The lush, well watered greenery of deciduous trees from the temperate Northern Hemisphere has a marked visual impact on Australian sclerophylls when the two meet directly, generally to the disadvantage of the latter — Australian trees tend to look untidy and drab by comparison, although at least as beautiful in their own context. The transition needs design management. Conifers are often a useful buffer, mixing well with both eucalypts and deciduous trees. Green foliage can run up gullies, and dry sclerophylls down the ridges into the plain. Wattles come

in forms that span the transition within one genus, from tough, leathery grey-green trees to soft and feathery green ones. The transition can be managed in more than one way, but it needs thought and care.

There is also a need for a landscape policy within urbanising Canberra that has a stronger ecological base. Although very good of its kind, older Canberra has been planted in a bland and eclectic landscape style, the total effect of which tends to monotony. *In new Canberra, the role of the landscape architect should be to individuate, not to homogenise.* He can do this by analysis of land-form, rock exposure, typical colour range and form contrasts of the indigenous vegetation, and by accentuating them. If a theme is to be carried through successfully, street planting — already good — needs to be much better integrated with that of front gardens, which could give more usable space and much more effective design. This could be achieved adequately if the Commission were to prepare plans for all new streets showing location of trees and explaining the landscape philosophy for that street. This service should be advisory only, but many people would avail themselves of it.

Theme planting with an ecological basis is still also relevant in some situations in inner Canberra. A current design failure is that Capital Hill and Red Hill are nondescript, especially by contrast with the shapely and well defined forms of Mt Ainslie and Black Mountain to the north. The problem with Red Hill is that it is a straggling ridge, not set off against the higher ranges behind it; Capital Hill is lost against Red Hill, and equally lacks definition. Heavy planting of the northern slopes of the Red Hill — Mugga ridge with the dark green of *Casuarina stricta*, and Capital Hill with pale grey foliated acacias and *Eucalyptus polyanthemos* would aid in mutual definition, and greatly improve the focal value of Capital Hill.

## 8. Conclusions

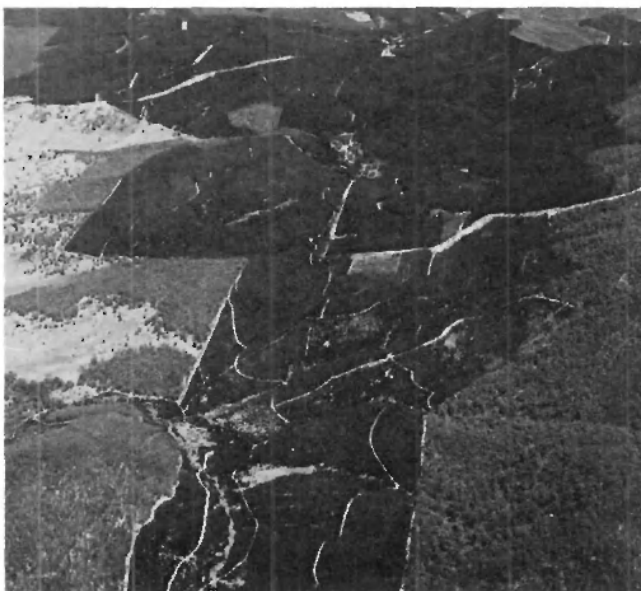
The major conclusion to this report is that Canberra needs, deserves and can afford a generous open space system, and that it should reserve open space now for the future needs of a major metropolis. The system should be integrated, sometimes physically, always in terms of policy, management and design. The functions of all the elements in the system should be specified, and thus define and direct management objectives and design goals for each element. The system should be monitored; without adequate feedback, no one knows how people perceive and use elements in the system, and therefore no one knows whether current management and design objectives are effective or appropriate.

Changes in recreational behaviour, including declining participation in organised sport suggest that the major need is for regional parks on the urban periphery. Special attention should be given to the needs of present and future residents north of the Molonglo because of inequities in the distribution of natural resources for recreation.

The development of additional resources for recreation needs an effective partnership between public and

**Plate 69.** Pine plantation (*Pinus radiata*) near Uriarra. Integration with the natural landscape is poor.

COLIN TOTTERDELL





private enterprise. (The provision of squash courts in Australia has been financed almost entirely by private enterprise.) There is room for a variety of public/private mixes in the ACT; provision of refreshments and for canoe and bicycle hire can be well handled by private enterprise with good design guidelines and maintenance procedures.

The emphasis on system is critical. The recent setting up of an NCDC Recreation Data Bank is a useful step forward, but use-data are inadequate for many areas. There is reason to think that some urban parks are under-utilised, and unrewardingly expensive to maintain. A systems approach can constantly review use, cost, and degree of user impact. It can also seek to remedy deficiencies in coverage — for example, of some ecological types. Physical linkage is already better in Canberra than in many cities, but there is still room for improvement — there is not yet a foot-path around Lake Burley Griffin, for example, although lunch-time joggers use some of its foreshores quite heavily.

Some good linear parks like that along Sullivans Creek are used by cyclists and pedestrians, but are not well known because they have low visibility and poor car access. The Ainslie-Majura foot trail is also poorly sign-posted. Telopea Park is a linear park with high visibility, and good car access. It attracts fairly heavy use. The ridges and the rivers are the natural sites for the linear parklands of future Canberra.

Within the present urban framework, there is a need to improve access to Griffin's Canberra by increasing viewpoints and opportunities for pedestrian experience of the axes at ground level, and for easier public participation in the national life of Canberra. This might include the opening of *Yarralumla* to the public at least once a month, but the whole question of involvement and participation and the ways in which they can be generated by physical planning needs much more thought. The 'keep off the grass' image that Canberra now presents to so many people must be broken down. There is also a need to create areas that stimulate urban events and encourage mixing — the Student Union at the National University is clearly serving a community function of this kind. There should be places to eat and drink around Lake Burley Griffin and more accessible car parks: the *cordon sanitaire* that has been thrown around the lake should be broken with limited but decisive hard edge waterfront development in one or two places. The hills of inner Canberra are an invaluable landscape resource and should become part of a Nature Park System, and where practicable, linked — for example, along the Ainslie-Majura Ridge to the Gungahlin Hills along the northeastern boundary of the ACT. Such linked reserves are of much greater ecological, recreational and landscape value than isolated reserves; they are also cheaper to maintain.

The greatest need for new reserves is in rural and natural environments. The Gudgenby Park proposal is outstanding. It need not greatly change land use, and the area is not subject to threats of inappropriate development — but dedication as a Park would give



FRANK INGWERSEN

**Plate 70.** Ginninderra Falls, New South Wales. Ginninderra Creek rises in the ACT near its northeastern boundary (in the Gungahlin Hills). It runs southwest and west across the Belconnen plain where it is dammed to form Lake Ginninderra; it finally drops off this high-level plain in two waterfalls to join the Murrumbidgee some two kilometres across the border into New South Wales. The falls are on private property, and there is no public access, although permission to enter may be sought from the property owner. Two means of access on foot are described in Graeme Barrow: *Twenty-five family bushwalks in and around Canberra*, Dagraja Press, Canberra, 1977.

formal recognition to the *de facto* status of the area, and help to achieve management objectives. Park management along the lines of the English National Parks System would greatly increase the recreational value of the area, and should include nature interpretation centres. *Gudgenby Station* could persist as a working cattle station.

The proposed river corridors along the Murrumbidgee and Molonglo are essential for environmental protection, which must take priority over their recreational use. As a corollary to the above, it is important to develop recreation areas away from the rivers. Although there are tempting sites near the Murrumbidgee, the first such area should probably be in the north of the ACT, where natural recreation resources are few.

There is also a strong case for the development of a lower Molonglo Park, which would be readily accessible from Belconnen. A bicycle pathway and hire concession would give appropriate access to the western reaches, with a large car park and resort near the point of entry in the east. Resort villages and simple low-cost accommodation should be provided both on the metropolitan outskirts and in Gudgenby Park.





**Plate 71.** Savannah woodlands near Bulgar Creek.

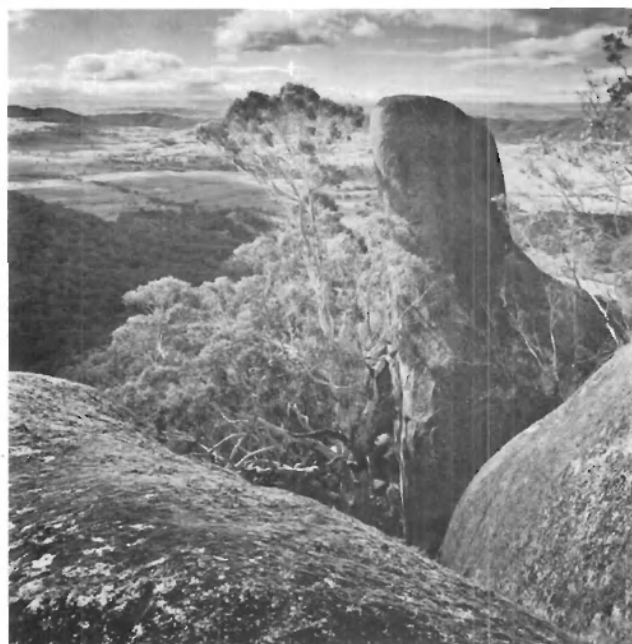
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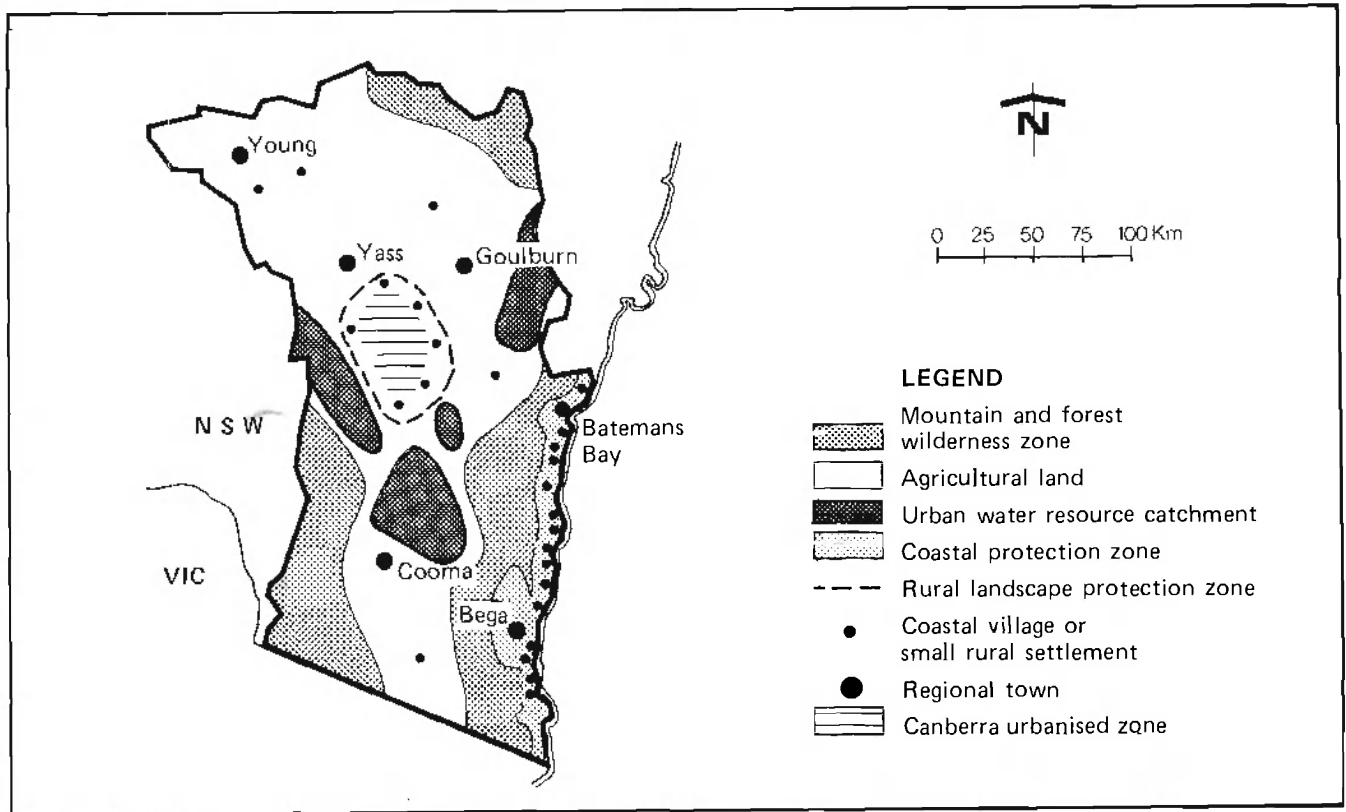
The concept of 'essential landscape foreground areas' as defined in *A Land Use Plan for the ACT* (pp. 31, 32) is sound, and should be recognised in planning and management strategies. The view southwest across Bulgar Creek from the Cotter Road is such an area: the open, pastoral country in the foreground greatly enhances the views of the Murrumbidgee escarpment and the Tidbinbilla Range in the background. In Japan and Britain, the retention of existing uses in a National Park is accepted. Thus pastoral country might form part of a Metropolitan Park.

Some key areas in the ACT should be zoned 'rural' in a positive sense. Rural zoning in Australia, as elsewhere, is traditionally weak — rural land is that from which land is excised for many specific purposes as the need arises. But there are some areas of the ACT which have great value as rural land beyond their rural productivity. An effective policy for rural lands will need further work, as the problems are complex, and not easily resolved. If land holdings are reduced in size, or subject to excessive constraints, they lose operational viability. Such land tends to dereliction, which would then oblige the Commonwealth Government to take it over and maintain it at considerable expense.

**Plate 72.** Rock outcrop, Tidbinbilla Valley, looking towards Canberra.

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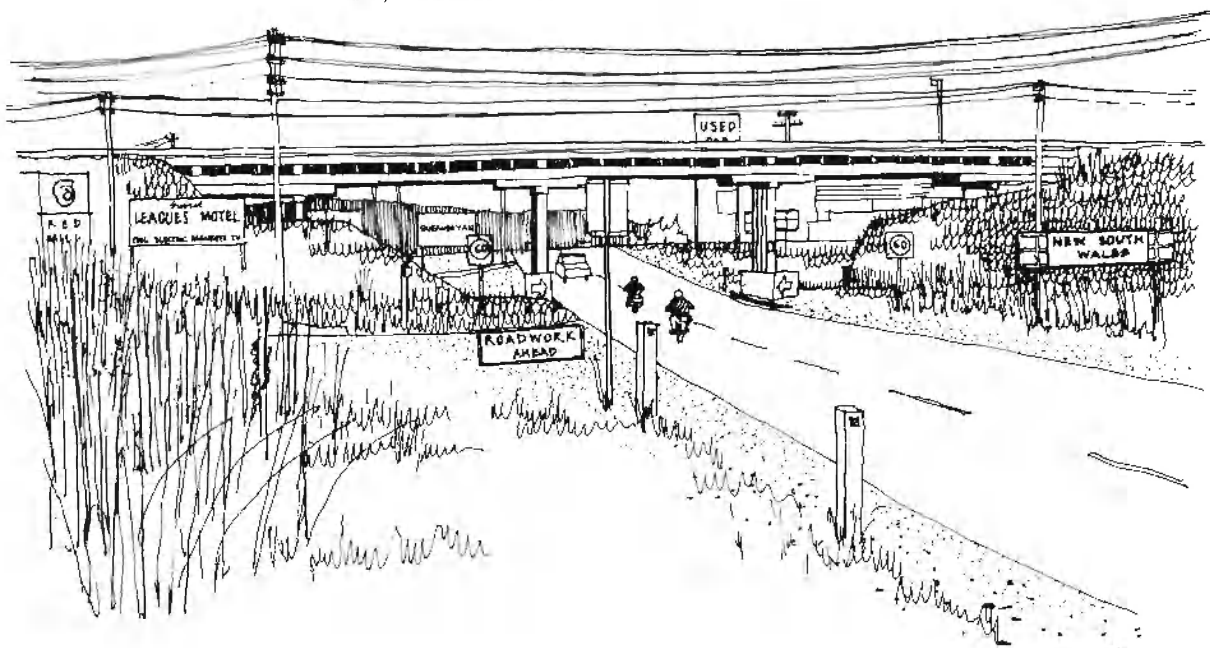




**Map 11** Possible regional land use structure

Planning considerations for the ACT can no longer stop at the ACT boundary. It can be misleading to prepare maps that stop at such an artificial boundary, and it is ill-suited to planning purposes (although most available maps, including those reproduced here, are presented in this form). Queanbeyan is functionally already a part of the Canberra region. Land prices, density of occupation, land use, and recreational demands generated in Canberra already extend well beyond the boundaries of the ACT, and the snow-

fields and the south coast are major playgrounds. The consequence of using up most of the land in the northcentral ACT for residential subdivision in the future would not have the effect of containing Canberra within the ACT: on the contrary, it would have the effect of pushing far more of the recreational demands of her population over the border into areas that had neither money nor opportunity to plan for or manage them.



**Fig. 26.** 'You are now entering New South Wales'.

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Fig. 27. Ginninderra schoolhouse.

## APPENDIX 1

The minimum standards for the provision of public parklands generally adopted by planning authorities both overseas and in Australia are as follows:

Parks and sports grounds 4 hectares per 1,000 population or 10 per cent of the gross urban areas

Metropolitan type parks, 5-6 hectares per 1,000 outside of the built-up area (but excluding national parks, nature and forest reserves)

Nature reserves and National Parks (but excluding water catchments) 5 per cent of the Territory or State Area

At the present time Canberra has 640 hectares of established parklands and reserves along the river corridor including lakeside parks (295 ha), the Cotter Reserve (304 ha) and other reserves along the Molonglo and Murrumbidgee Rivers (40 ha). This represents 3.0 ha per 1,000 Canberra-Queanbeyan population.

In comparison Sydney has 3595 ha of beach and riverside reserves or 1.6 ha per 1,000 while Melbourne has 4720 ha or 2.1 ha per 1,000 population. Both Sydney and Melbourne intend extending their river corridor systems.<sup>1</sup>

In addition to the river corridor reserves, the Canberra metropolitan open space has about 9000 hectares of hill areas and pine forests open to and used by the public. There are no accepted standards for hill and forest areas as this is largely a factor of the setting of the city. However, both Sydney and Melbourne have within the city region, hill areas, forest and broken country which are not being used for development and

which in time are likely to be dedicated as public nature reserves.

The present Canberra provision of 3.0 hectares per 1,000 population committed for river corridor parks is not excessive when compared with other cities. While the present total for metropolitan open space including hill areas is higher in Canberra, this must be considered against the nature of Canberra, its setting, its expected growth and the use made by tourists and visitors to the National Capital.

Considering that the population in the Canberra region has the possibility of growing to a million at some time in the next century, and using the standard of 6 ha per 1,000, a minimum provision of 6,000 hectares of metropolitan open space along the river corridor can be justified. However, in view of the likely increase in demand for outdoor recreation in the future, it would seem good sense to hold in reserve at this stage a much larger area for metropolitan parkland, particularly the entire 7,500 hectares (including water areas) within the Molonglo-Murrumbidgee and Gudgenby River corridors.

In addition to the metropolitan provision, the standard of 5% of the total territory for nature reserves could justify a minimum area of 120 km<sup>2</sup> in the ACT for this purpose. However, allowing for the existing nature reserves and the proposed Gudgenby Park, the total provision in the ACT could be about 660 km<sup>2</sup> or 28% of the ACT. However the mountainous nature of the ACT and the fact that the Gudgenby area is also a water supply catchment are influential in this estimate.

(NCDC. *National Capital Open Space System*. Interim Report, 1976. pp. 7-8.)

<sup>1</sup> *Recreation Facilities in the Country*, Chief Country Planner's Report, 1964. Also confirmed in letter July, 1970. Information given by Board of Works, July 1970.

Plate 73. Stockyards at Boboyan, southern ACT.

GEORGE SEDDON



## APPENDIX 2

This is a list of platypus caught, tagged and released in Lake Burley Griffin between 31/5/73 and 15/2/77. These animals were all caught in gill nets during fish netting operations. Source: Ranger Service, Dept. of Capital Territory.

Date	Weight grams	Length cm	Tag No.	Site
31.5.73			72	Opposite Duntroon
			73	" "
			74	" "
14.9.73	1620	48.0	77	Opposite Duntroon
	1250	46.5	78	" "
24.10.74			431	Jerrabomberra Creek behind Causeway
12.11.75	1520	50.0	432	(recapture) opposite Duntroon
	1720	53	437	(recapture) opposite Duntroon
	1020	34	433	(recapture) opposite Duntroon
	980	31.5	486	(recapture) opposite Duntroon
5.6.76	1605	51	478	(recapture) opposite Duntroon
18.5.76			437	(recapture) Black Mountain Peninsula
10.11.76	2160	57.0	472	Jerrabomberra Creek
	1290	50.5	487	behind Causeway
17.11.76	1370	50.5	442	Kallaroo Road Pialligo
10.12.76	1810	54.2	473	Opposite Duntroon
	1950	54.6	457	" "
	1395	51.0	476	" "
	1760	51.5	490	" "
	1995	56.5	436	" "
15.12.76	1480	49	482	West Basin, Acton Peninsula
15.2.77	1530	51.5	477	Opposite Duntroon
	1000	43.0	483	" "
	2200	55.5	434	" "
21.3.77	1520	51.5	442	(recapture) Kallaroo Road Pialligo

**Plate 74.** Pialligo, looking east along the Molonglo, with Woolshed Creek entering from the north (left); Dairy Road crosses the river from left to right in the foreground, intersecting Morshead Drive on its way to the airport (top left); Fyshwick industrial area (top right) already encroaches unnecessarily close to the narrow river corridor. Beltana Road (centre) angles its way through the midst of this checkerboard landscape of market gardens and nurseries.

FRANK INGWERSEN



# APPENDIX 3

## WATER BIRDS OF THE LOWER MOLONGLO AND JERRABOMBERRA WETLANDS

(Source: Ranger Service, Dept. of Capital Territory.)

Common Name	Scientific Name	Occurrence	Breed
Hoary-headed Grebe	<i>Podiceps poliocephalus</i>	Comm.	Bd
Little Grebe	<i>Podiceps novaehollandiae</i>	Comm.	Bd
Crested Grebe	<i>Podiceps cristatus</i>	Reg.	
Little Black Cormorant	<i>Phalacrocorax sulcirostris</i>	Comm.	Bd
Black Cormorant	<i>Phalacrocorax carbo</i>	Comm.	Bd
Pied Cormorant	<i>Phalacrocorax varius</i>	Comm.	
Little Pied Cormorant	<i>Phalacrocorax melanoleucos</i>	Comm.	Bd
Pelican	<i>Pelecanus conspicillatus</i>	Reg.	
Darter or Snake Bird	<i>Anhinga rufa</i>	Comm.	Bd
White-necked Heron	<i>Ardea pacifica</i>	Reg.	
White-faced Heron	<i>Ardea novaehollandiae</i>	Comm.	Bd
White Egret	<i>Egretta alba</i>	Comm.	
Plumed Egret	<i>Egretta intermedia</i>	Reg.	
Little Egret	<i>Egretta garzetta</i>	Reg.	
Cattle Egret	<i>Bubulcus ibis</i>	Irreg.	
Nankeen Night Heron	<i>Nycticorax caledonicus</i>	Comm.	Bd
Brown Bittern	<i>Botaurus poiciloptilus</i>	Irreg.	
Straw-necked Ibis	<i>Threskiornis spinicollis</i>	Irreg.	
White Ibis	<i>Threskiornis molucca</i>	Irreg.	
Glossy Ibis	<i>Plegadis falcinellus</i>	Reg.	
Royal Spoonbill	<i>Platalea regia</i>	Reg.	
Yellow-billed Spoonbill	<i>Platalea flavipes</i>	Reg.	
Grass Whistle-Duck	<i>Dendrocygna eytoni</i>	Rare	
Black Swan	<i>Cygnus atratus</i>	Comm.	Bd
Freckled Duck	<i>Stictonetta naevosa</i>	Irreg.	
Mountain Duck	<i>Tadorna tadornoides</i>	Comm.	Bd
Black Duck	<i>Anas superciliosa</i>	Comm.	Bd
Grey Teal	<i>Anas gibberifrons</i>	Comm.	Bd
Chestnut Teal	<i>Anas castanea</i>	Comm.	Bd
Shoveler	<i>Anas rhynchos</i>	Irreg.	Bd
Pink-eared Duck	<i>Malacorhynchus membranaceus</i>	Irreg.	
White-eyed Duck	<i>Aythya australis</i>	Reg.	
Wood Duck	<i>Chenonetta jubata</i>	Comm.	Bd
Musk Duck	<i>Biziura lobata</i>	Comm.	Bd
Banded Land-Rail	<i>Rallus philippensis</i>	Irreg.	Bd
Spotted Crake	<i>Porzana fluminea</i>	Reg.	
Marsh Crake	<i>Porzana pusilla</i>	Reg.	
Spotless Crake	<i>Porzana tabuensis</i>	Irreg.	
Dusky Moorhen	<i>Gallinula tenebrosa</i>	Comm.	Bd
Eastern Swamphen	<i>Porphyrio porphyrio</i>	Comm.	Bd
Coot	<i>Fulica atra</i>	Comm.	Bd
Spur-winged Plover	<i>Vanellus novaehollandiae</i>	Comm.	Bd
Banded Plover	<i>Vanellus tricolor</i>	Reg.	Bd
Red-kneed Dotterel	<i>Charadrius cinctus</i>	Irreg.	
Black-fronted Dotterel	<i>Charadrius melanops</i>	Reg.	
Greenshank	<i>Tringa nebularia</i>	Rare	
Japanese Snipe	<i>Gallinago hardwickii</i>	Irreg.	
Red-necked Stint	<i>Calidris ruficollis</i>	Rare	
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	Irreg.	
White-headed Stilt	<i>Himantopus himantopus</i>	Reg.	
Azure Kingfisher	<i>Alcyon azurea</i>	Irreg.	
Sacred Kingfisher	<i>Halcyon sancta</i>	Reg.	Bd
Reed Warbler	<i>Acrocephalus stentoreus</i>	Comm.	Bd

Note: This list does not contain birds which are not closely tied to open water but nonetheless occur in the wetland area, eg parrots, hawks, falcons, kestrels and many song birds.

Bd indicates that the birds breed in the Lake Burley Griffin Wetlands 24

Occurrence	Comm.	=	Common	22
	Reg.	=	Occur regularly in small numbers	15
	Irreg.	=	Occur irregularly	13
	Rare	=	Occur rarely	3

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