



A Strange Natural Environment: Colonists in Eighteenth-Century Sydney

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It is important to examine documents and other evidence from the past in the context of the societal norms, knowledge, and perceptions of the time, allowing for reinterpretation according to twenty-first-century equivalents without letting these dominate. This article deals with perceptions by the earliest Sydney residents of their new environment in the closing years of the eighteenth century. It also discusses the ways in which that environment limited and otherwise affected their activities.

The early colonists' perceptions of their newfound environment around Sydney Cove and beyond in the last twelve years of the eighteenth century was more crucial in determining how they interacted with it than was a more objective and scientific view of it. The more objective view tended to only come later, especially as 'experts' were in very short supply in those early years. Governor Phillip, for example, is

quoted by Burrell as saying: 'I must beg leave to observe, with regret... I am without one botanist, or even an intelligent gardener in the colony.'¹ Hence decisions involving interactions with the environment were based almost entirely on the perceptions of laypersons. The settlers, by and large, had very little prior information about this strange new place. The few educated, literate persons among the very earliest European settlers may have read reports from Cook's 1770 expedition, particularly those of Joseph Banks. Later, such people, before they left England, may have seen reports from those already in the colony, but the information contained therein was often inaccurate, as discussed below. In fact, false information based on the type of perceptions may have been reinforced and even compounded by such accounts.

This article explores early perceptions and two-way interactions between colonists and their environment – how perceptions limited or permitted possible actions, and how people changed their environment. It relies largely on eighteenth-century evidence, in words or in visual forms such as maps, sketches and paintings. It is important to allow for the background from which the authors and artists came, one based on familiarity with very different ecosystems and climates. Both artistic works and written accounts were to varying degrees subjective, involved artistic or poetic license, and were largely created to cater for the seemingly insatiable curiosity of the educated classes in Britain. Perhaps the weirder and more outrageous the reports, particularly concerning fauna and flora, the greater the sales on the London market.

It is crucial to keep in mind the contrast between their situation and that of a modern traveller with access to the Internet, television, guide and other books, and tourist brochures galore. Another crucial flow of information came from the Aboriginal inhabitants who had a thorough, sound knowledge of all aspects of their environment. This knowledge often assisted the settlers to come to terms with, and in fact to survive in, the Sydney environment; just a few examples are included below. First, however, reference will be made to modern and more objective and scientific re-creations of the original, late eighteenth-century environment. The main focus of the article, though, remains on eighteenth-century perceptions.

RECONSTRUCTIONS

A number of attempts have been made to reconstruct, figuratively speaking, particular elements of pre-European landscapes and ecosystems in the Sydney Basin, and more particularly those immediately around Sydney Cove. Vegetation has received the most

attention with two botanists giving comprehensive conjectural reconstructions, while the historian Grace Karskens also refers at length to the probable vegetation.² Topography has had much less specific attention, although the present author, a historical geographer, has attempted a detailed reconstruction for the area of the present Central Business District.³ In the present context, late eighteenth-century perceptions of both vegetation and topography are important, but it was vegetation that was impacted on to the greatest extent. While there were certainly major alterations made to local topography, such as the infilling of the head of Sydney Cove, they occurred later than the period covered here. Campbell, writing for a prestigious history journal, gave the most complete reconstruction of the vegetation undertaken until recent years, at least as far as is known to the author, while also commenting on the original topography.⁴

Not surprisingly, the Tank Stream and Sydney Cove have received the most attention, along with the pattern of ridges either side of the central valley. A comparison of eighteenth-century maps and works of art with the modern landscape gives a good idea of the changes that have taken place. Modern geological maps also clearly indicate areas of infill in coastal waters and inland valleys, the most common form of major topographic change. As far as vegetation goes, early artistic impressions, often made to document what was there as much as, or more than, to create an aesthetically pleasing work of art, are useful. One problem, however, is that Australian plants were often rendered to look rather more like European ones than they actually were, a case of perception coloured by memory and nostalgia along with a lack of understanding of the nature of the local flora.

It is difficult to use modern evidence, as so little of the original vegetation remains, particularly in the area of the late eighteenth-century colonial town. Other aspects of the environment will be considered in passing only. Climate and weather were poorly documented and, as now, were highly changeable from year to year. Fauna was remarked on for its strangeness, but had little impact on the settlers in any practical sense except for its very limited role as a food source. Finally, the first settlers often considered the Aborigines to be 'part of the environment', doing a grave disservice to their understanding and dismissing their humanity. But, as Karskens points out: 'the British were nourished by the same fish and fruits as the Eora, the coastal Aboriginal people, they used the same paths, and their most prized landscapes, the open woodlands, had been created by Aboriginal fire regimes'.⁵ At the same time, it should be noted that the colony only partially took on board the

Aborigines' knowledge of food sources; otherwise, the shortages might not have been as dire.

What, then, was the physical environment of eighteenth-century Sydney like? The early town was built on the two ridges now occupied by The Rocks and Hyde Park, and in the Tank Stream valley between them. (See figures 1 and 2.) This stream rose on swampy ground on the western margins of Hyde Park and was fed by springs with groundwater trapped in joints in the sandstone bedrock. A discernible stream first appeared just south of King Street (modern names are used for convenience), between George and Pitt streets, drained most of the present Central Business District (CBD), and entered the shallow head of Sydney Cove at about the corner of Bridge and Pitt streets. The western side of the Cove then trended almost due north, while the eastern side trended generally northeast parallel to one side of Macquarie Place, then north from the present eastern end of Circular Quay. Mudbanks were prominent features at the mouth of the Tank Stream, but further north both shorelines had beaches of clean, white sand with rock outcrops, the latter particularly prominent on the western side. The two ridges were prominent, the appropriately named The Rocks indicating the particular prominence of rugged sandstone outcrops on that side. This general topography had practical consequences for the infant settlement, as we shall see. One associated fact of particular relevance is that soils in this area were generally poor. Figure 1 is the author's attempt at reconstructing this topography.

Campbell undertook the most complete reconstruction of the vegetation of this central area known to the present author; of course, nothing at all remains of it.⁶ Campbell states that the Tank Stream valley would have contained blackbutt (*Eucalyptus pilularis*), red gum (*E. tereticornis*) and turpentine (*Syncarpia laurifolia*); swampy areas, swamp mahogany (*E. robusta*) and bangalay (*E. botryoides*); higher, poorer soil areas, bloodwood (*E. corymbosa*) and smooth-barked apple (*Angophora costata*) and marshy areas at the head of the Cove, saltwater swamp oak (*Casuarina glauca*). Port Jackson figs (*Ficus rubiginosa*), Bangalow palms (*Archontophoenix cunninghamiana*) and cabbage-tree palms (*Livistonia australis*) would have been scattered throughout the valley, while there was an understorey of smaller trees and large shrubs.

A television report of the 1980s suggested that Bantry Bay, on the North Shore, had, at that time, the stand of vegetation most like that of Sydney Cove in 1788. The list of major species given above suggests something approaching a sub-tropical rainforest in the valley floor, probably with a denser ground level flora than might seem likely from

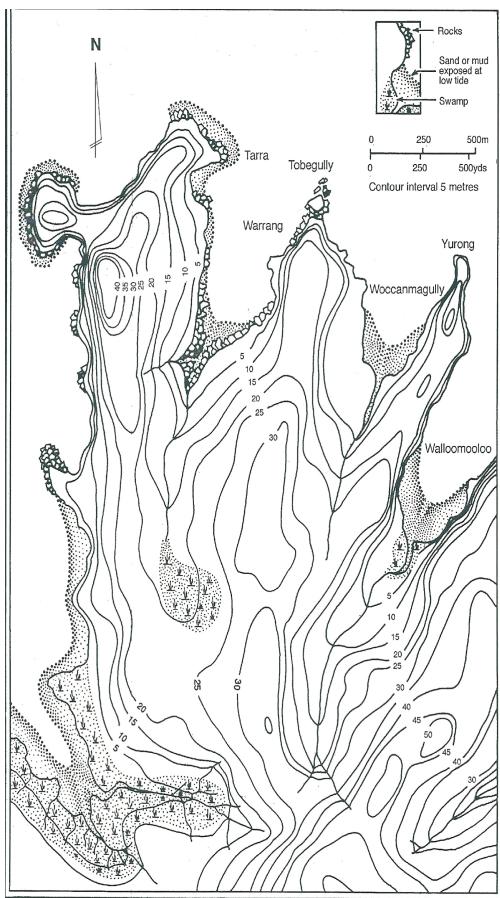
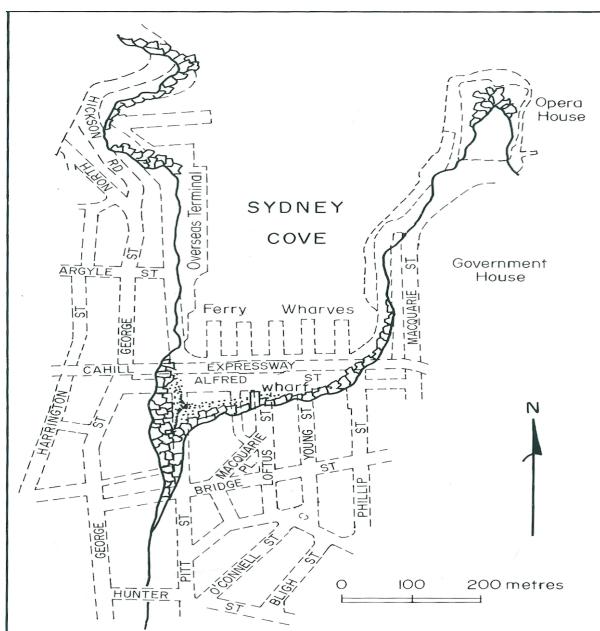


Figure 1 (above) Topographic map of current Sydney CBD, January 1788. Figure 2 (below) Sydney Cove foreshore, 1788 and early 1980s (the author)



the meagre list of species given by Campbell, which included acacias, tea-trees and Christmas bush. The upper, rockier, more exposed slopes with thinner and poorer soils would have been quite different, however, with less luxuriant vegetation and even, in places, small, stunted trees in place of the ones down in the valley that grew to 25 or even 40 metres tall.⁷ That vegetation would have been more like some of the rocky ridges of today's North Shore.

Beyond the immediate neighbourhood of Sydney Cove, a variety of topographic and vegetation characteristics were found in different locations.⁸ It is difficult to see most of these occurrences now as they have been all but obliterated by urban development. Sandy soils on old dunes southeast of the settlement would have had coastal heath vegetation with swampy conditions in the swales between the dune crests. This district, leading to the northern side of the Botany Bay they had just left, would not have been inviting to the first settlers.

Much of the northern shore of Port Jackson and inland areas had sclerophyllous forests and woodlands dominated by eucalypts, but these were of many different species, of vastly different heights, and growing at vastly different densities according to local geological and microclimatic conditions.⁹ Much of this extensive area was reported as having a grass cover under the trees, but relatively little understorey shrub or smaller tree growth was reported. Inland areas of the Cumberland Plain generally had sparser and lower tree cover than areas closer to the coast. Burrell claims that contemporary accounts almost certainly under-reported the density and complexity of understorey species.¹⁰ But it is important to remember that Aboriginal use of fire kept that understorey less dense than it would otherwise have been, and than it is now in remaining patches of natural vegetation.

The combination of more dense vegetation and, in many places, extremely rocky and virtually inaccessible terrain made much of the northeastern sector of the Cumberland Basin most uninviting, although it was explored, at least in outline, in the first few years of the settlement at Sydney Cove. Such areas, of course, also had poor soil cover, as did considerable areas south of the Harbour. Other forms of vegetation worth noting are heaths in small, coastal areas; mangroves in many coves and estuaries within Port Jackson; localised areas of saltwater or freshwater marshes; and areas of sub-tropical rainforest – or at least vegetation tending towards that type – in sheltered areas along stream valleys.

PERCEPTIONS

It is all very well to try to reconstruct, with the benefit of hindsight, the environment upon which the reluctant colonists were deposited, but how did they perceive their new home and react to it? The short answer, as elaborated on below, is that there were myriad different perceptions and responses.¹¹ It is necessary to first look at their reaction to Botany Bay and its shores, the place they were aiming for and that had been talked up by at least some British bureaucrats and members of Cook's expedition. The latter had no immediate interest in settlement, and it is no wonder that the First Fleet and, in particular, Captain Arthur Phillip saw the Bay's environment differently. They saw it as inhospitable, with much swampy land along the shores and, very importantly, no discernible source of drinking water, and poor, sandy soils. As Phillip wrote: 'The appearance of the place is picturesque and pleasing... but something more essential than beauty of appearance... must be sought in a place where the permanent residence of multitudes is to be established.'¹²

It is also important to be aware of the great variability of climatic and associated conditions in Australia, even around Sydney. A pre-Bicentenary piece in a popular news journal notes that: 'He [Cook] had seen the place during a freak, very wet week, and had obviously not dug a spade into that fine-looking dark earth. Phillip soon found that the soil was sandy, lacking any kind of substance'.¹³ The First Fleet perceptions were so negative that Phillip and his officers almost immediately explored further north, knowing that Port Jackson and Broken Bay, both noted by Cook, lay in that direction. On entering the former, there seemed no reason to explore the latter at that stage, as Port Jackson, and particularly Sydney Cove, seemed to offer a suitable site for the infant settlement.

The settlers had arrived by sea in the First Fleet, so needed good anchorage for their vessels and it would have been obvious to them that they would need to rely on shipping for their tenuous connections with the rest of the world, particular the British Isles. Phillip famously referred to Port Jackson as offering: 'one of the finest harbours in the world, in which a thousand sail of the line might ride in perfect security'.¹⁴ For the settlement itself, he chose the cove: 'which had the finest spring of water, and in which ships can anchor so close to the shore, that at a very small expence [sic] quays may be constructed at which the largest vessels may unload'.¹⁵

Once on shore, the First Fleet personnel, sailors and convicts alike, found a landscape and ecology completely alien to them, so unlike the

green fields and deciduous forests of England. Phillip noted that 'the coast, as well as the neighbouring country in general, is covered with wood'¹⁶ and that 'The necks of land that form the coves are mostly covered with timber, yet so rocky that it is not easy to comprehend how the trees could have sufficient nourishment to bring them to so considerable a magnitude'.¹⁷ This was in large part a response to comparisons with the generally deeper and more fertile soils of the British Isles, and possibly a knowledge that rocky, upland areas like the Scottish Highlands, the Yorkshire uplands and Dartmoor did not have tree cover, at least in modern times. Even today, it is difficult for all but experienced botanists and ecologists to see how quite large trees can survive in apparently barren conditions around Sydney, so Phillip's surprise is understandable. The journey from Sydney Cove to Botany Bay was made a number of times while the French ships under La Perouse were anchored at the latter place, and in relation to the process of moving all of the First Fleet to Port Jackson. Phillip quickly summed up the conditions en route (and note the British terminology of 'wood', not a term much applied to Australian vegetation in modern times):

That neck of land which divides the south end of the harbour from the sea is chiefly sand. Between Sydney Cove and Botany Bay the first space is occupied by a wood, in some parts a mile and a half [2.4 km], in others three miles [4.8 km] across; beyond that, is a kind of heath, poor, sandy and full of swamps.¹⁸

Despite certain misgivings, Phillip appears to have remained positive in his outlook towards the new land, or perhaps he was determined to give a positive impression to keep up morale in face of difficulties discussed in the following section. Not all members of the First Fleet were as positive, however. Lieutenant Ralph Clark, for example, wrote in July 1788:

I shall only tell you that this is the poorest country in the world, which its inhabitance [sic] shows they are the most miserable set of wretches under the Sun... there is neither river or Spring in the country that we have been able to find... all the fresh water comes out of swamps which the country abounds with... the country is overrun with large trees not one Acre of clear ground to be seen... the Thunder and Lightning is the most Terrible I ever herd [sic], it is the opinion of every body here that the Government will remove the Settlement to some other place for if it remains here this country will not be able to maintain its self in 100 years...¹⁹

Our concern here is with the environment, not with the Aboriginal population. But Clark's comment on the native peoples is not atypical. Their way of life was just so radically different from that of the First Fleeters, especially the officials and naval personnel. It is surprising, though, that Clark seems to give the colony (only) 100 years before abandonment.

The later sections of Captain John Hunter's journal from the first four years of the settlement are more even-handed, and also deal with areas further from Sydney Cove, the result of several exploratory excursions to the west and southwest. After commenting on the predominance of 'a poor, sterile soil, full of stones' around Sydney Cove, he writes guardedly, but somewhat optimistically, of the Parramatta district:

but near, and at the head of the harbour, there is a very considerable extent of tolerable land, and which may be cultivated without waiting for its being cleared of wood; for the trees stand very wide of each other, and have no underwood: in short, the woods on the spot I am speaking of resemble a deer park... but the soil appears to me to be rather sandy and shallow, and will require much manure to improve it... however, there are people... who think it good land... The grass upon it is about 3 feet [nearly a metre] high, very close and thick; probably farther back there may be very extensive tracts of this kind of country...²⁰

Hunter's reference to the 'deer park' nature of these inland sections of the Cumberland Plain is not at all unusual. Early accounts also frequently refer to trees being alight and fires being lit by the Aborigines, though the causal connection is rarely made.²¹ A modern writer, however, states that, despite an awareness of the Aboriginal use of fire:

there is not one mention in the early journals of the threat of fire. The reason seems to be that the Aborigines' fire stick farming... had kept fuel loads down. Despite the tinder-dry conditions there was little to burn. Without these burning practices, there is every chance the infant Sydney would have perished in flames.²²

Hunter also acknowledges that there had not been time to venture very far into the interior. There were, however, a number of exploratory expeditions in the first two or three years of the settlement.

Annotations on Tench's 1793 map are an interesting source of shorthand information gleaned from accounts of these expeditions.²³ The general impression given is that most of the country was seen as being very poor from a farming point of view, a sign of a not unreasonable preoccupation in light of the parlous nature of the settlement's food supply. According to these annotations, the land from the town to South Head was 'exceedingly rocky, sandy & barren', while the area northwest of Botany Bay was 'sandy barren swampy Country'. North of the Harbour, the coastal stretch from Manly north to Mona Vale was 'sandy, rocky and very bad Country' and the Ku-ring-gai Chase area, not surprisingly, 'very bad & rugged'. The Cattai area was 'very dreadful Country'; while southwest of Prospect Hill it was 'bad Country frequently over-flowed'.

Signs of floods on the Nepean-Hawkesbury were recognised: 'In floods the water rises to the height of 50 feet [15.24 metres] perpendicular leaving Reeds &c in the Trees'. Despite all this gloom and doom, there were some patches of 'good land' and 'tolerably good land' marked on the map in Tench's account, but they were just that, patches, islands in a sea of land that was bad, or worse. It is no wonder, then, that the settlers hoped for better country beyond the Blue Mountains, if they could ever traverse them. The immediate prospect was not good, though, as looking towards the Caermarthen Mountains, as the northern Blue Mountains were briefly known:

All this country as far as the eye can reach from very high Hills, bears the most dreary barren appearance which can well be imagined, nothing to be seen but ridge beyond ridge of Mountains covered with Trees & in many places with Rocks, without a single visible interval of plain or Cultivable Land.²⁴

Not everyone, however, was as negative, or, perhaps, not everyone was as disinterested in the aesthetic character of the countryside.²⁵ George Worgan, an educated man and surgeon with the First Fleet, is an example. Presumably referring to Phillip and his exploratory party, he writes: 'Though the description given by the Gentlemen who first visited this Port was truly luxuriant, and wore the air of Exaggeration, yet they had by no means done its Beauties and Conveniences Justice.'²⁶

It is not as if he were writing in later years when the colony was more established and less at the mercy of environmental exigencies, either. He added some of his own very positive, aesthetically oriented perceptions, too: 'the whole, (in a word) exhibits a variety of Romantic views, all thrown together into sweet confusion by the careless hand of Nature' and later 'Here, a romantic, rocky craggy Precipice over which, a little swirling stream makes a cascade. There a soft vivid-green, shady lawn attracts your Eye.' Worgan did, though, also have a more practical view of his surroundings:

Happy were it for the colony, if these appearances did not prove so delusive as upon a nearer Examination they are found to do... we meet with, in many parts, a fine black soil; luxuriantly covered with grass, & the Trees at 30 or 40 yards [27–37 m] distant from each other, so as to resemble Meadow land, yet these spots are frequently interrupt[ed] in their Extent by either a rocky, or a sandy, or a swampy surface, crowded with large trees, and almost impenetrable from Brushwood which being the case will necessarily require much Time and Labour to cultivate any considerable space of land together.²⁷

Perhaps surgeons had a different approach to the environment, or did not have the task of clearing or cultivating the land. But another First Fleet surgeon, Arthur Bowes Smyth, also recognised beauty in the landscape:

The general face of the country is certainly pleasing, being diversified with gentle scents, and little winding vallies, covered for the most part with large spreading trees, which afford a succession of leaves in all seasons. In those places where trees are scarce, a variety of flowering shrubs abound, most of them entirely new to an European and surpassing in beauty, and number, all I ever saw in an uncultivated state.²⁸

Two further quotations show once again the contrasting perceptions of the earliest settlers. One David Blackburn, wrote to a Richard Knight:

Our knowledge of this country is still confined to the Extent of About 70 miles [113 km] Along the Coast and Nearly as much of the Interior Country. A few small spots

of tolerable good ground are to be found, but in General the Country is either Immense Barren Rocks, tumbled together in Large Ridges which are almost Inaccessible to Goats, or A Dry Sandy Soil and A General Want of Water.²⁹

On the other hand, Arthur Bowes Smyth, on entering the Harbour on 26 January 1788 described the water now spanned by the Sydney Harbour Bridge as follows:

The finest terras's, lawns and grottos, with distinct plantations of the tallest and most stately trees I ever saw in any nobleman's ground in England, cannot excel in beauty those wh. Nature now presented to our view. The singing of the various birds among the trees, the flight of the numerous parraquets, lorrequets, cockatoos and macaws, made all around appear like an enchantment; the stupendous rocks from the summit of the hills and down to the very water's edge hang'g over in a most awful way from above, and form'g the most commodious quays by the water, beggard all description.³⁰

I have not even touched on particular plant species or said anything at all about the fauna, all extremely peculiar and almost impossible to understand for First Fleeters. As Tim Flannery writes: 'The vegetation the early Europeans found growing on the Sydney sandstone both delighted and appalled them.' However, 'when the First Fleet arrived, the hungry settlers realized in despair that this magnificent vegetation offered little sustenance.'³¹

CONSTRAINTS

A number of important negative aspects of the environment soon became evident to the first and subsequent European settlers. First, while Phillip was correct in saying that Port Jackson was one of the world's best, most well-sheltered harbours, difficulties arose as soon as larger ships came into use. Where there was deep water near the shore that presented difficulties in building wharves, and there were certainly shallow waters at the head of Sydney Cove and many other inlets, necessitating lighterage between ships and shore.

Perhaps of more fundamental importance, despite Phillip's initial enthusiasm the water supply was soon found to be inadequate. Very soon after initial settlement, the little stream draining into Sydney Cove

became inadequate in both its quantity and quality of water. This resulted from siltation following vegetation clearance, and from pollution by rubbish, effluent and livestock. In addition, Captain John Hunter, writing in the early 1790s, remarked that:

all the streams from which we were formerly supplied, except a small drain at the head of Sydney Cove, were entirely dried up, so great had been the drought; a circumstance, which from the very intense heat of the summer, I think it probable we shall be very frequently subject to.³²

In February 1791 ‘the surveyor was employed in cleaning and deepening the run of water which supplied the settlement at Sydney’.³³ Then, in the following month, steps were taken to protect the quality of the water:

To secure fresh water... the governor caused a ditch to be dug on each side of it [the Tank Stream] at some distance from the stream, and employed some people to erect a palisade upon the bank, to keep out stock, and protect the shrubs within from being destroyed.³⁴

The Governor was aware of the role those shrubs played in protecting against bank erosion and further siltation. By mid-1792 ‘tanks’ (rock hollows) had been cut in the sandstone bed to retain water from wetter times for use in periods of low flow.

In subsequent years there were further regulations to protect against pollution. A general order of 22 October 1795 prohibited pigs, paths and gaps in the palings, while a further general order of 2 May 1797 prohibited people from going through the palings for water, rather than using the tanks, the severe penalty for disobedience being demolition of their house. Also at this time, inspectors of fencing were appointed to ensure the palings were kept in good repair. Then according to an order of 20 December 1798, nothing was to be thrown into or washed in the stream. Similar concerns and orders continued into Macquarie’s time, well after the end date for this paper. An accumulation of sand, let alone rubbish, in the tanks did, of course, lessen their volume and their capacity to store water for later use. This source of supply was totally inadequate by the third decade of the nineteenth century, when the Lachlan Swamps were first tapped.

Compared with other nearby places, the trees in the valley at the head of Sydney Cove ‘stood more apart and were less incumbered [sic]

with underwood', but nevertheless 'their magnitude was such as to render not only the felling, but the removal of them afterwards, a task of no small difficulty'. The difficulty came in part from the inadequacy of the tools at their disposal and the absence of draught animals, but also from the very nature of the trees and their timber. Despite this, 'by degree large spaces are opened, plans are formed, lines marked, and a prospect at least of future regularity is clearly discerned'.³⁵ However, Mrs Macarthur, when she arrived in 1790, was not at all taken with the appearance of the settlement, her description in passing throwing light on the incomplete nature of clearing: 'the stumps and fallen trees, and the boggy tracks wending their way round rock and precipice; the oozy Tank Stream spreading itself over the sand by the head of the Cove'.³⁶ Tree stumps remained in road reservations long after 1790, and streets were often tracks winding slalom courses between the stumps.

Clearing the tree cover could also have a deleterious effect on the vegetation substrates and the soil, as realised in relation to Botany Bay by Arthur Bowes Smyth soon after the First Fleet arrived:

The soil to a great depth is nothing but a black sand, when exposed to the intense heat of the sun by removing the surrounding trees, is not fit for the vegetation of anything, even the grass itself then dying away which in the shade appeared green and flourishing...³⁷

This is an example, perhaps uncommon, of an early awareness of ecological interactions that were unlike those of British landscapes.

Stephensen summarises the far more common lack of such understanding, particularly relating to both water supplies and the soil erosion resulting from clearing, in his classic work on Port Jackson:

Soil erosion was not understood by the pioneers, who, bred in the lore of the damp islands, believed 'springs' of fresh water were perennial. Nor could they understand that the clearing of the trees and the 'underbrush' and the cultivation with spades and hoes of the shallow topsoil, would cause the topsoil to be washed away by heavy showers of rain, leaving the sandstone subsoil exposed. So British settlement in the Vale of Sydney quickly destroyed the 'spring' of fresh water and the fertility of the soil – two of the principal features that had caused Governor Phillip to decide to form the settlement there.³⁸

Further afield, on the Hawkesbury, the severity of flooding and its effects were seen as being related to clearing. In 1795, following indiscriminate clearing of vegetation, Hunter gave a strict order that: 'no timber whatever be cut down on the ground which is not marked out or allotted to individuals on either of the banks or creeks'.³⁹ An order of 1803 even more specifically protected riverbank vegetation.

The thin nature of the soil in many parts of the districts occupied by the end of the eighteenth century was well understood. It was certainly largely poor and infertile in the immediate vicinity of Sydney Cove. George Barrington writes that in late 1789 many houses had gardens adjoining 'but unluckily these gardens are not very productive, as the soil is very indifferent', but that 'a mile or two from the Cove, the soil is considerably better, where the officers and others have little farms'.⁴⁰ The latter area was near Brickfield Hill, as Barrington refers to the brick-kilns there.

Attempts at agriculture or horticulture close to the settlement, as at Farm Cove, were largely unsuccessful. As a result, farming was taken up further west, especially along the Hawkesbury, although the major development there was not until the start of the nineteenth century. John Hunter saw the difference between the Sydney Cove and Rose Hill districts, although the latter was not without problems, too:

From the little I saw of the soil about Sydney Cove, I think it is very bad, most of the ground being covered with rocks, or large stones, which are used for building... A little below Sydney-cove there is another, called Farm-cove, at the head of which there are about 15 acres [6 ha] of ground in cultivation, but the soil is very indifferent.⁴¹

Whereas at Rose Hill:

The soil is loam, sand, and clay: the trees are not so large here as lower down the harbour, but the large roots lying on the ground render it difficult to clear. A fine stream of fresh water runs into the head of the harbour, which in the winter, and when heavy rains fall, sometimes rises 7 or 8 feet [2.13–2.43 m] and becomes a rapid torrent.⁴²

The land at Rose-Hill is very good, and in every respect well calculated for arable and pasture ground, though it be loaded with timber, the removal of which requires great labour and

time; but this is the case with the whole country, as far as had been seen, particular spots excepted.⁴³

However, a settlement was founded at Rose Hill – Parramatta – as early as November 1788, and a government farm established there in the following June, the month in which the Nepean and Hawkesbury were separately discovered, soon to be acknowledged as the same river. A very limited amount of private farming had started by the end of 1789.

Despite these developments, rations had been reduced twice by mid-1790 due to a shortage of food. This inability to supply rations from local produce was in part a result of a lack of understanding of the local soil and climatic conditions, unfamiliar pests and plant diseases, and a lack of expertise and equipment. Crops transferred without modification from Britain were basically unsuitable. In the following two years, settlement expanded further on the western Cumberland Plain, but rations were cut further, too, as population increased with new arrivals and agriculture remained of limited success. Production of basic foodstuffs locally perhaps began to equal requirements from 1795, after the Hawkesbury district was opened for settlement. It should be added that some native plants and animals were tried as food sources⁴⁴, but for various reasons never became important.

There seem to be few accounts of attempts to source food from the local environment, but a female convict did write in a letter to England of November 1788: 'Our kingaroo [sic] rats are like mutton, but much leaner; and there is a kind of chickweed so much in taste like our spinach that no difference can be discerned.'⁴⁵ This chickweed was one of a number of plants tried as 'esculent vegetables' for the relief of dysentery, never obtained in sufficient quantities when needed in the days immediately following arrival. The First Fleeters did, though, find that 'in the dysentery, the red gum of the tree which principally abounds on the coast was found a very powerful remedy' and the yellow resin from the 'grass tree' also helped considerably.⁴⁶ Information to support this use was most likely gleaned from the Aborigines, but a strong sense of experimentation in desperate circumstances was also evident.

The supply of building materials also caused concern. The first bricks were made in March 1788, specifically for a house for the Governor. The first roofs were of thatch, but there was concern about fire, so it was ordained that: 'The barracks and all buildings in future, will be covered with shingles, which we now make from a tree like the pine-tree in appearance, the wood resembling English oak'.⁴⁷ The original huts built soon after the first landing remained for some time, however. David Collins, writing in November 1789 reported that the

clay used to plug gaps between the ‘cabbage-tree’ logs tended to be washed out in rainstorms, and that brick houses were preferable even if the mortar was ‘formed of the clay of the country’ because no limestone had been found.⁴⁸ George Barrington, describing the settlement at much the same time states that the Governor’s house is of stone, those of the officers of brick, but the rest are ‘generally log houses, plastered: the roofs are either shingled or thatched’.⁴⁹ Barrington goes on to say: ‘I wonder there are not more stone buildings here, stone, resembling that of Portland [England], being at hand in great abundance, exceedingly soft, but hardens very much after it is wrought, and exposed to the weather.’⁵⁰

Large numbers of stone buildings were, of course, constructed in the years that followed, using sandstone quarried from the western face of Observatory Hill, or from the Pyrmont peninsula. Obtaining adequate material for strong mortar remained a problem, as Cobley noted:

The want of limestone still obliges us to confine our buildings to a certain height, for although the clay is of a strong, binding nature, we cannot safely carry the walls of those buildings more than 12 feet above the ground, as the rains at times are very heavy, and should they come on before the clay is thoroughly dry, the walls would be in great danger from the great weight of the roof.⁵¹

At least that was the case until the practice of burning the shells of marine life to obtain lime was put into effect.

As pointed out above, I am primarily concerned with the physical environment. However, the Aboriginal inhabitants of the Sydney district undoubtedly presented difficulties for the settlers, and, of course, the settlers presented even greater difficulties for the Aborigines, into whose land they had intruded.

IMPACTS

The major impact on the environment in the eighteenth century was the clearing of native vegetation. John Hunter certainly saw a change over a short period: ‘When I left Port Jackson in Feb, 1788, the ground about Sydney Cove was covered with a thick forest, but on my arrival at this time [May 1789] I found it cleared to a considerable distance’.⁵² A similar comparison can be gained by comparing early paintings. One from 1791 shows the very early stages of clearing, with forest remaining immediately behind the first Governor’s House, while ones from 1793 and later show much more extensive clearing. One important

consequence of clearing was siltation of the Tank Stream, already referred to in relation to the water supply, and of the head of Sydney Cove. The same process also operated later in many of the other streams and coves near the initial settlement. In addition to vegetation and siltation, the fauna and the indigenous inhabitants were also adversely impacted upon in the early years of settlement. Major impacts on the environment, however, chiefly occurred after the end of the period covered here, hence the brevity of this section.

CONCLUSION

European perceptions of the environment of Sydney and its surroundings in the late eighteenth century were largely lacking any scientific basis and were coloured by uninformed, and perhaps largely unconscious, comparisons with the very different environments of England. The environment's constraints on the settlers were exacerbated by this lack of understanding, leading to extremely difficult times and a severe lack of adequate food supplies. The environment thus impacted on the settlers in ways largely seen as adverse. Of course, the settlers also impacted from the very start of settlement on the environment, chiefly, in the eighteenth century, in the forms of vegetation clearing and the resultant siltation.

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ENDNOTES

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- ¹ J.P. Burrell, 'Vegetation in the Sydney area: 1788 and 1961', in H.A. Nix (ed), *The City as a Life System?*, Proceedings of the Ecological Society of Australia, vol 7, 1972. Burrell was writing as a botanist.
- ² ibid; M. Kartzoff, *Nature and a City: the Native Vegetation of the Sydney Area*, Edwards & Shaw, Sydney, 1969; G. Karskens, *The Colony: A History of Early Sydney*, Allen & Unwin, Sydney, 2009. pp23-25; 56.
- ³ G. Aplin, 'People in an alien landscape: early Sydney's environmental context', in G. Aplin (ed) *A Difficult Infant: Sydney Before Macquarie*, New South Wales University Press, Sydney, 1988, pp22-24.
- ⁴ J.F. Campbell, 'The valley of the Tank Stream', *Journal and Proceedings of the Royal Australian Historical Society*, vol 10, 1924, pp63-103.
- ⁵ Karskens, *The Colony*, p3.
- ⁶ Campbell, op cit; see also Aplin, op cit, pp21-22.
- ⁷ Aplin, op cit, p.22.
- ⁸ J.R. Dodson, 'Natural vegetation', in R.J. Harriman and E.S. Clifford, *Atlas of New South Wales*, Central Mapping Authority, Bathurst, 1987; Kartzoff, op cit.
- ⁹ ibid.
- ¹⁰ Burrell, op cit, p72.
- ¹¹ See also Karskens, op cit, p4 and more generally throughout her earlier chapters.
- ¹² A. Phillip, *The Voyage of Governor Phillip to Botany Bay...* (ed. J. Stockdale) (facsimile edition), Hutchinson, Richmond, 1982 (J. Stockdale, London, 1789), p52.

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- ¹³ H. Gordon 'Final leg at last', *Time Australia* Special Issue 'The World of 1788: a nation is born', November 1987, p.23.
- ¹⁴ A. Phillip, op cit, p47.
- ¹⁵ ibid, pp47–8.
- ¹⁶ ibid, p57.
- ¹⁷ ibid, p63.
- ¹⁸ ibid, p63.
- ¹⁹ P.G. Fidlon (ed) *The Journals and Letters of Lt. Ralph Clark 1787-1792*, Australian Documents Library, Sydney, 1981, pp262–3.
- ²⁰ J. Hunter (ed J. Bach), *An Historical Journal of Events at Sydney and at Sea 1787-1792* by Captain John Hunter, Angus & Robertson, Sydney, 1968, pp52–3.
- ²¹ Karskens, op cit, pp28–29.
- ²² T. Flannery (ed), *The Birth of Sydney*, William Heinemann, London, 1999, p.15.
- ²³ J. Hunter (ed J. Bach), *An Historical Journal of Events at Sydney and at Sea 1787–1792 by Captain John Hunter*, Angus & Robertson, Sydney, 1968, p266; see also W. Tench, *Complete Account of the Settlement of Port Jackson*, London, 1793 (held by Mitchell Library).
- ²⁴ W. Tench, *Complete Account of the Settlement of Port Jackson*, London, 1793 (held by Mitchell Library).
- ²⁵ Karskens discusses possible explanations for the widely varying descriptions and depictions, and in particular, for the seeming predominance of 'gloomy' accounts: op cit, pp235ff.
- ²⁶ G. Worgan, A Letter from Sydney Cove 1788 (ML C830).
- ²⁷ ibid.
- ²⁸ P.G. Fidlon and R.J. Ryan (eds), *The Journals of Arthur Bowes Smyth: Surgeon Lady Penhryn 1787-1789*, Australian Documents Library, Sydney, 1979, p62.
- ²⁹ Quoted in J. Cobley, *Sydney Cove 1791-1792*, Angus & Robertson, Sydney, 1965, p33.
- ³⁰ Fidlon and Ryan, op cit, entry for 26 January 1788.
- ³¹ T. Flannery, op cit, p13.
- ³² Hunter, op cit, p138.
- ³³ Cobley, op cit, p17.
- ³⁴ ibid, p55.
- ³⁵ Phillip, op cit, p57.
- ³⁶ Quoted in A. Birch and D.S. Macmillan, *The Sydney Scene 1788-1960*, (first published 1962), Hale & Iremonger, Sydney, 1982, p4.
- ³⁷ Fidlon and Ryan, op cit, entry for 20 January 1788.
- ³⁸ P.R. Stephensen and B. Kennedy, *The History and Description of Sydney Harbour*, Reed, Sydney, 1980, p103.
- ³⁹ *Historical Records of New South Wales*, vol 2, p341.
- ⁴⁰ G. Barrington, *The History of New South Wales*, London, 1802, p52. See also Karskens, op cit, p107.
- ⁴¹ J. Hunter, op cit, p267.
- ⁴² ibid.
- ⁴³ ibid.
- ⁴⁴ Karskens, op cit, pp274 and 367 for the exhaustion of some useful species.
- ⁴⁵ *Historical Records of New South Wales*, vol 2, p746–7.
- ⁴⁶ Phillip to Banks, quoted in Cobley, op cit, pp177–8.
- ⁴⁷ A. Phillip, Despatch to Lord Sydney, 9 July 1788, *Historical Records of Australia*, ser 1, vol 1, pp47–8.
- ⁴⁸ Collins, op cit, p87.
- ⁴⁹ Barrington, op cit, p52.
- ⁵⁰ ibid.
- ⁵¹ Cobley, op cit, p18.
- ⁵² Hunter, op cit, p266.