



*David Davies, A hot day. By 1888, a year of high temperatures and low rainfall, a new generation of Australian painters had begun to recognise the harsh beauty of their land. Oil, 1888.*

NATIONAL GALLERY OF VICTORIA

## CHAPTER 3

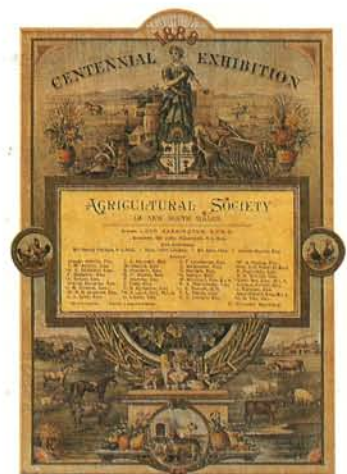
# LAND

AUSTRALIA'S APPROACHING CENTENARY was an apt time to reflect on the transformation of the Australian landscape. 'We are living in a world of changes', declared Reverend Dr William Woolls to the gentry of Parramatta in his lecture on New South Wales, past and present. Dr Woolls, a noted botanist as well as clergyman, drew a pleasing contrast between the rude wilderness of 1788 and the cultivated countryside of his own day. The clearing of the forests, the progress of agriculture, the gradual disappearance of the Aborigines, the increase of flocks and herds, the extension of geographical knowledge and the discovery of wealth beneath the soil were the measure of the white man's conquest of the material environment. 'Civilization and art have beautified the waste places of the earth', he exulted, 'and made the desert to blossom like the rose'.

During centennial week, visitors to the Agricultural Society's exhibition were able to inspect the trophies won by the Australian people in their contest with nature. From the pastures of the blacksoil plains came great draught horses and fleeces of newly shorn wool. From the hills of the south coast came consignments of butter, cheese and milk. From the wheat lands of South Australia came samples of wheat, barley and oats and from the tropical plantations of the northern rivers exhibits of sugar cane, cotton and tapioca. Opening the show, Lord Carrington recalled that when he arrived a few years earlier, New South Wales had been suffering from a succession of dry seasons. But the drought had now broken, and he hoped for a series of good seasons in the second century.

## THE DRIEST YEAR

Carrington's hopes had been encouraged by an unseasonably wet summer. On Christmas Day black clouds had rolled across the western plains of New South Wales and by Boxing Day the outback towns of Dubbo and Parkes had been drenched with 100 millimetres of rain. A few days later the Hunter River at

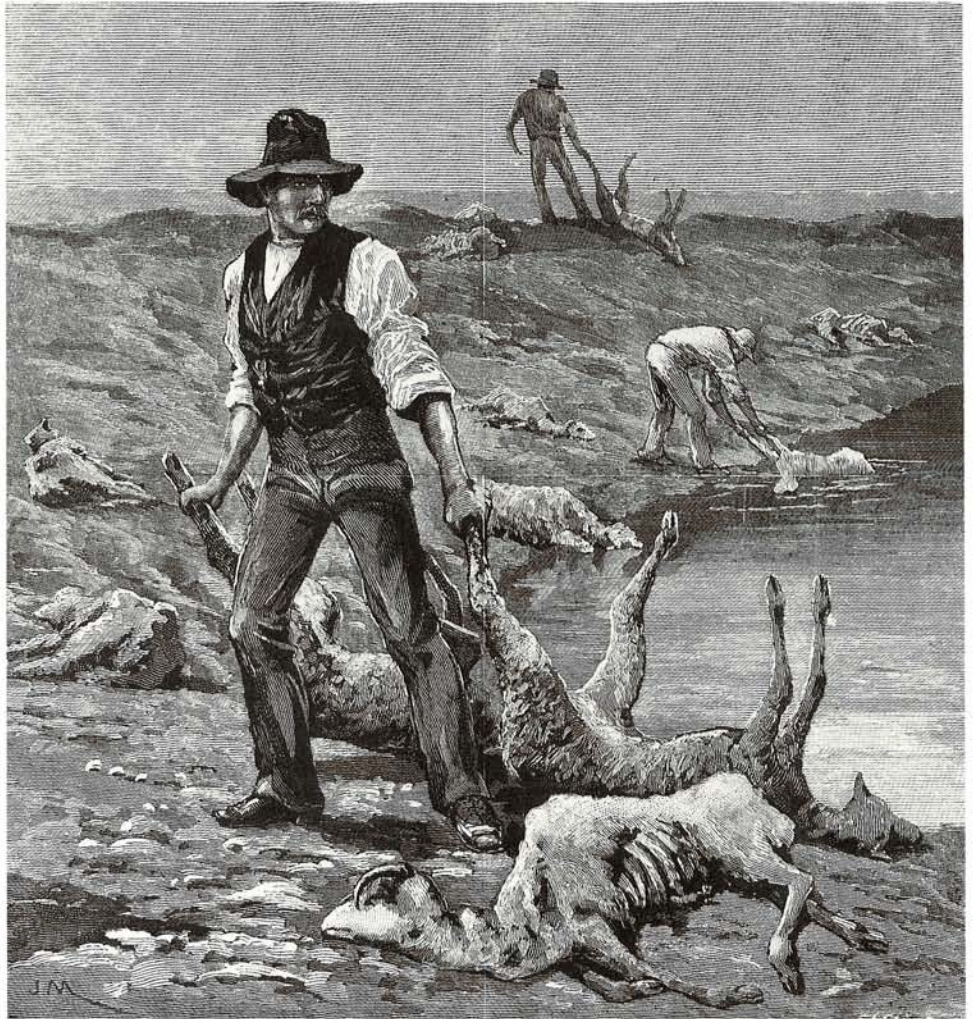


*Agricultural Society of New South Wales, illuminated list of councillors.*

AGRICULTURAL SOCIETY OF  
NEW SOUTH WALES



*Many thirsty sheep died on the banks of dams and streams. Within sight of water the flocks often stampeded, drowning each other in the rush or becoming bogged in the muddy banks. Stockmen rescued all they could, but many perished. Illustrated Australian News, 12 Jan 1889.*



Singleton and the Macleay at Kempsey had broken their banks and New Year revellers were paddling packing-case boats down the main street of Yass. The rains were a setback to farmers, helpless before their muddy paddocks, and unable to begin harvesting as the ripe grain sprouted in the humid air. All over the continent, it seemed, the seasons were out of joint. A few weeks later and 3000 kilometres to the west, a cyclonic rainstorm swept over Western Australia's Pilbara. With 'a sound like distant thunder', floodwaters rushed down the Greenough valley, ripping out gum trees, washing away crops, drowning animals and driving settlers from their farms.

But in autumn the rains ceased. Land that had been too muddy to harvest in January was too hard to plough by May. Farmers who had delayed sowing in the hope of rain waited in vain for the ground to be moistened. Cold frosty nights were followed by clear sunny days through the late months of winter. Sometimes a tuft of cloud appeared on the horizon, raising hopes of a downpour. But usually it drifted overhead with no more than a tantalising sprinkle, leaving the ground as cracked and parched as before. No sooner had the new potatoes come up than they were blackened by frost. Young vines in the Hunter valley and newly planted sugar cane along the northern rivers withered in the cold. On the northern tablelands, more than half the new lambs perished from cold or drought.



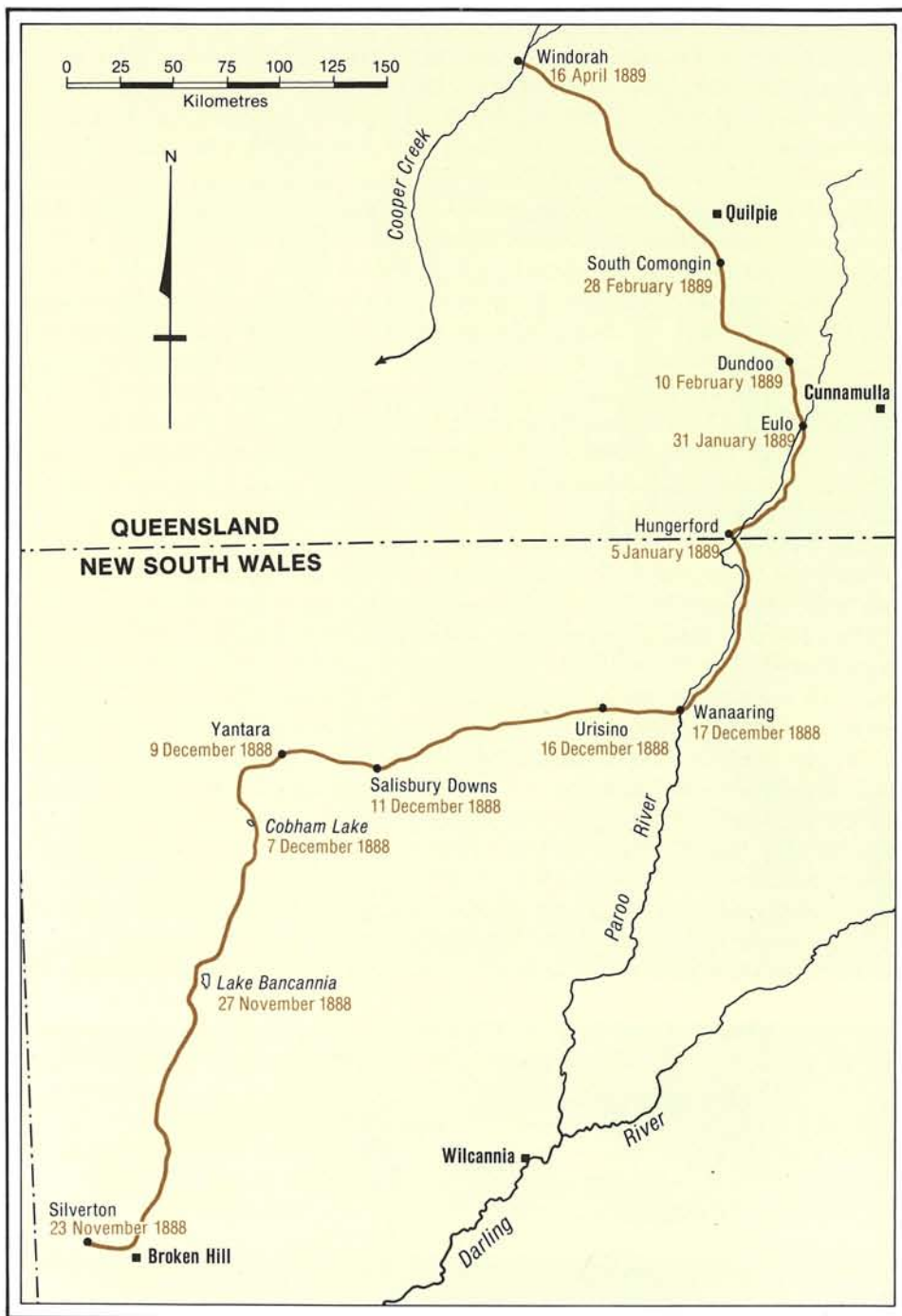
By September it was plain that the rains would not come. Along the South Australian wheat frontier farmers saw their crops die almost as soon as they germinated. In many parts of the interior, the season was the driest in memory. An observer in the Riverina estimated that, by the size of the trees that died, it must have been fifty years since there had been such a severe drought. Dams and rivers were already low. The Darling River at Wilcannia was no longer navigable and in Bourke drinking water was selling at 6s for 100 gallons (455 litres). In the tawny grasslands around Bathurst, bushfires had already begun to break out.

The drought hit hardest in the arid marginal lands of outback New South Wales and South Australia. Many outback pastoralists were heavily in debt and the drought drove some off their properties. A reporter who travelled west of the Darling found that many settlers had lost up to nine-tenths of their flocks. Driven for many waterless kilometres, sheep were so thirsty that they rushed into the waterholes and drank themselves to death. Dying animals stood trapped in the mud while crows picked their eyes out. The manager of a Melbourne pastoral company who travelled by coach from Hay to Wilcannia estimated that he saw 100 000 sheep, dead or dying, along the track. The carcasses were so thick that they had to be pulled away from the gates at the end of each paddock.

Desperate times drove outback graziers to desperate measures. In the Riverina they paid unprecedented rates for agistment in the better-watered mountain country. Back of Bourke, they drove flocks hundreds of kilometres in search of water. Late in November at Silverton near Broken Hill, R.B. Pitt, an experienced stockman, signed a droving contract with Patrick Boylan, a Queensland pastoralist. Boylan had already driven a mob of cattle south to Adelaide. Now he planned to buy a large flock of sheep at Wanaaring on the Paroo River and drive them 750 kilometres back to his run at Stony Point on Cooper Creek. He gambled on being able to keep the sheep alive long enough to restock his run before the monsoonal rains brought floods down Cooper Creek in early autumn. Pitt would have to travel about four hundred kilometres to the pick-up point on the Paroo and survive several months of hardship on the track to collect his pay cheque, but with stock dying everywhere around him, he was in no position to bargain with Boylan. 'As times are very hard, I took him at his word', he wrote in his journal.

*An artist for the Illustrated Australian News recorded this image of the drought for city readers. Illustrated Australian News, 12 Jan 1889.*





*A map of Pitt's journey.*  
GARY SWINTON

From Silverton, Pitt and two other stockmen rode north, parallel to the Barrier Range, towards Eurowrie where they found the tin mines shut down for lack of water. At Lake Bancannia they camped and waited for Boylan, who arrived direct from Adelaide aboard the Mount Browne coach, together with his Aboriginal servant Jimmy. Next day the five horsemen set off in a northeasterly direction, picking their way from one waterhole or bore to the next across the saltbush plain. Sometimes they rode for two or three days before they could refill their waterbags.



The horses grew weaker and their progress slowed from 40 or 50 down to 25 or even 15 kilometres a day. To save energy they rose at 3am and did as much of their travelling as possible before midday. All along the way animals lay dead or dying beside the track. Around Bourke, they heard, farmers were giving sheep to anyone who would drive them away, while further down the Darling the squatters were cutting animals' throats rather than see them starve to death. 'The bodies of these wretched animals', Pitt was told 'were so wasted away that they are neither worth skinning or boiling down, and their bodies are left on the Plains to feed the crows and dingoes'.

In mid-December they reached the Paroo, now a dried-up sandy channel. Boylan bought 2300 sheep, the skinny survivors from a flock of 10 000, for 2s a head, the stockmen refilled their waterbags and a few days later the party set off towards Hungerford on the Queensland border. Grass was scarce and the stockmen had to cut down branches of mulga and whitewood scrub to feed the sheep. Whenever they came to a waterhole, the sheep charged towards the muddy banks and were bogged. Pitt and his mates stripped to hats and shirts, waded into the water and manhandled them out. On New Year's Day the stockmen worked from dawn to dusk watering the sheep, and then sat down to one small johnny cake and a quart of tea. Their horses were skin and bone and the sheep could barely travel five kilometres a day. A week later, when they reached Hungerford, the 2300 sheep were down to 1623. Pitt's two original companions, tired of their privations, quit the party.

After two days' rest, Boylan, Pitt, Jimmy and two newly hired shepherds set out on the last stage of their journey. The most direct route to Cooper Creek, through Thargomindah, traversed 65 kilometres of waterless country, so the stockmen took a more roundabout route through Eulo. The first few days were easier going. The sheep were freshly watered and a shower of rain as they reached Hungerford had brought up patches of green feed. But a few days later they were again short of water. Jimmy was sent in search of a waterhole, but returned with the waterbags full of thick, clayey liquid. 'You could not call it water', Pitt wrote, 'for you can slice it with a knife'. Their misgivings about drinking the stuff were borne out when both shepherds later complained of violent stomach pains.

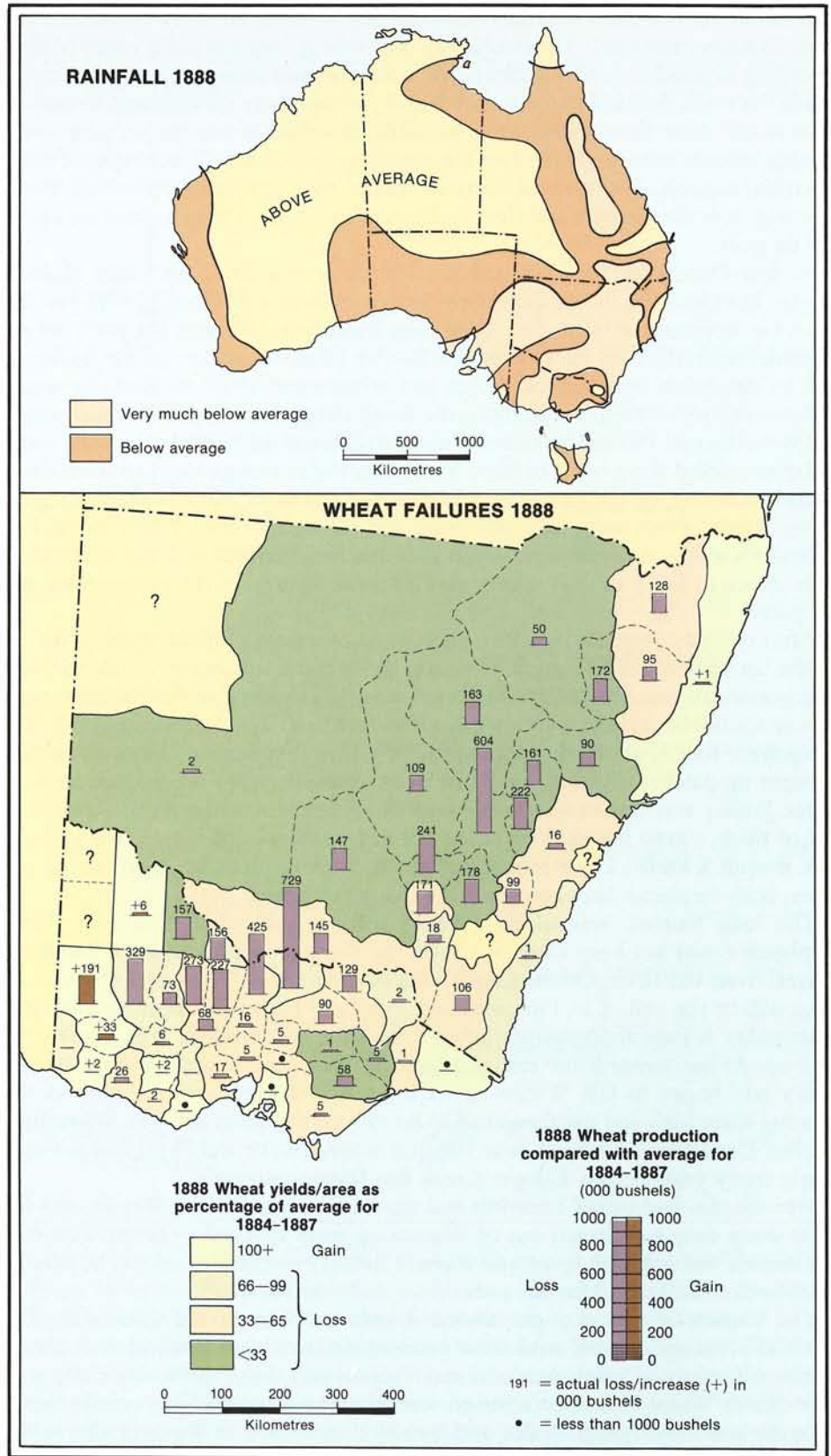
The long journey was taking a heavy toll on both sheep and men. Tired shepherds could not keep close watch on the sheep at night and some hundreds strayed from the flock. Others simply died in their tracks. 'I'm sure I don't know what will be the end of it', Pitt confessed. 'Anyhow I gave Mr. B[oylan] notice to leave today as I am thoroughly disgusted with the whole affair.' Yet, gamely, he kept on. At last, towards the end of March, as they approached Yullinga station, heavy rain began to fall. Within hours the creek where they had camped was running waist high and the sheep had to be moved to higher ground. When they reached Dead Men's Channel, near the spot where Burke and Wills had perished nearly thirty years before, Cooper Creek was flowing strongly.

Five months had passed since Pitt had signed his contract with Boylan, and the 2300 sheep they had driven out of Wanaaring were reduced to fewer than 600. Pitt himself was sick with fever, and when at last they reached Windorah he handed in his notice and headed for the pub.

The impact of the drought varied enormously across the continent. The worst-affected agricultural areas were concentrated in a band running through the northern districts of South Australia and Victoria and along the western slopes of New South Wales. Wheat production was down by almost 40 per cent in South Australia and New South Wales, and by about one-third in Victoria. But in the worst-affected areas of New South Wales, around Bathurst and Mudgee and in the

Rainfall and wheat failure.  
The 'very much below average' rainfall area covers all the wheat growing districts of South Australia and New South Wales.

GARY SWINTON







The dry season by  
J. Llewellyn Jones. Oil,  
c1889.

ART GALLERY OF NEW SOUTH  
WALES

western districts, the reduction approached 90 per cent. Good rains in previous seasons, which had replenished pastures and water reserves, cushioned some areas against the effects of drought, but in the Derwent valley of Tasmania, where the winter of 1888 was the third dry one in a row, the barley crop failed and plums and apples shrivelled on the trees.

Meanwhile some well-managed properties in less affected areas remained almost unperturbed by the drought. Warrah, the Australian Agricultural Company's huge station on the Liverpool Plains, received only 430 millimetres of rain for the year but, thanks to careful management by the stock superintendent, George Fairbairn, few sheep were lost. After the good season of 1887 Fairbairn had resisted the temptation to overstock and in the middle of summer the run was still covered with 'a luxuriant growth of green grass'. Little rain fell in early autumn, and by April the ground was cracked and parched. But although there was little new growth the sheep survived on the plentiful dry summer feed and surface water. A few centimetres of rain at the end of September helped to freshen up the grass, but even without it Warrah would not have been endangered, for throughout the



drought it could rely on an inexhaustible supply of underground water from its numerous wells. In December Fairbairn could report to his superiors that

Warrah has at no time during the year felt the effects of the drought, to anything like the same extent that neighbouring stations have; all the paddocks are well covered with grass . . .

Farmers and graziers were not the only ones to suffer. Without water in the creeks, miners could not sluice or pan for gold. The miners at Mount Browne in the far west of New South Wales experimented with 'dry blowing', while at Broken Hill and Silverton work contracts were temporarily suspended. Even the field parties drilling for underground water along the Bourke–Milparinka–Tibooburra track could not work for lack of water and animal feed. By the end of the year city dwellers, as well as outback graziers, were scanning the skies for signs of rain. Their gardens were wilting, the price of horse feed was rising and on the western fringes of Melbourne householders could get no water from their taps for days on end.

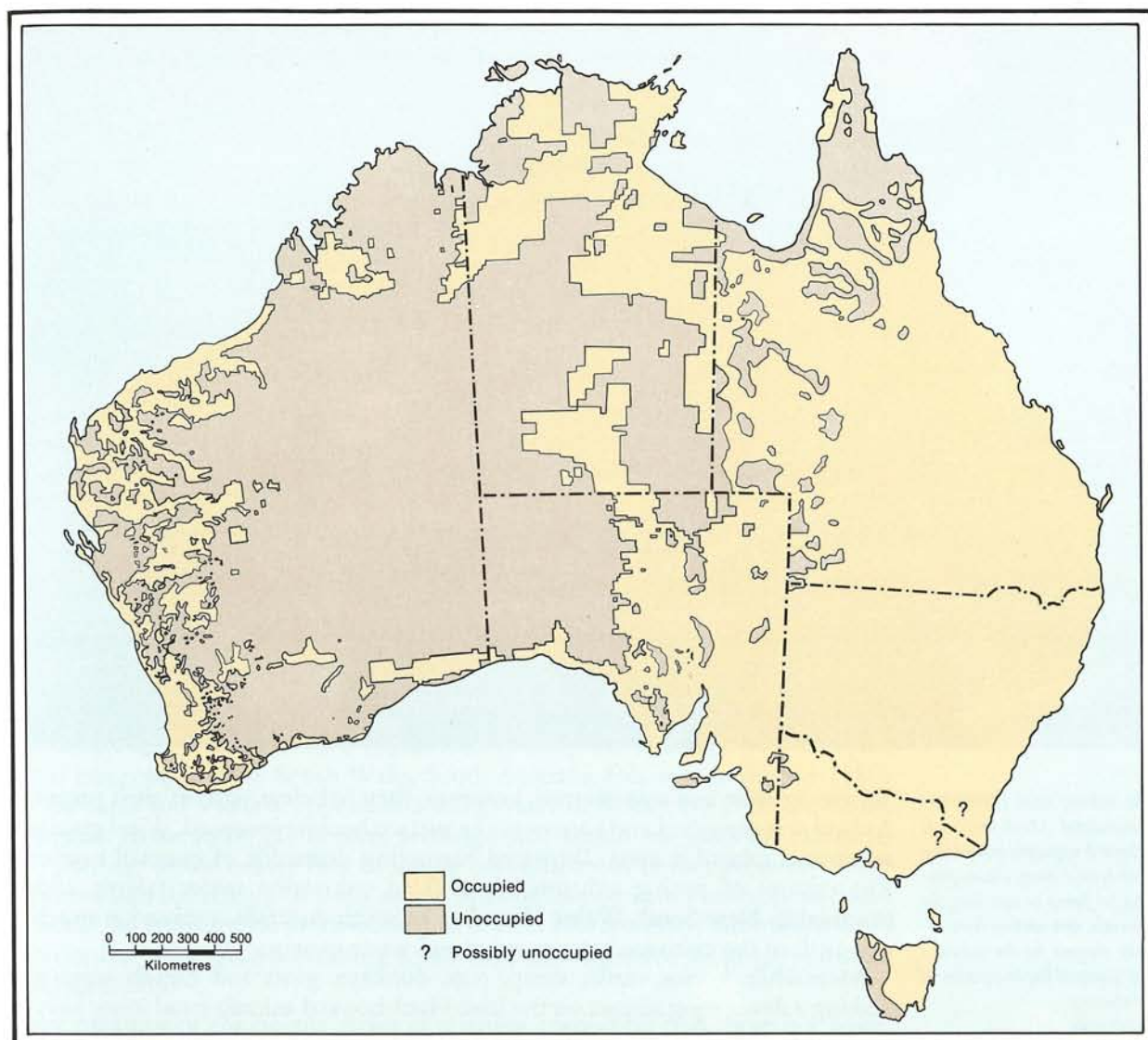
The drought challenged the claims of settlers and scientists to have mastered the Australian environment. All their knowledge and skill were powerless, it seemed, against the capricious forces of nature. Some clergymen saw divine intervention as the only hope. The Anglican Dean of Sydney proclaimed 31 August a special day of humiliation and prayer for rain and similar days were held in Tasmania on 26 and 27 February and in Victoria on 18 November. Moralists saw the drought as punishment for the 'practical infidelity in our midst'. It was significant, one thought, that its onset had coincided with 'the insensate hue and cry against the Chinese'. Practical people were prepared to give prayer a trial alongside other more scientific remedies such as flying electric kites or discharging cannons from the peaks of the Blue Mountains. Liberal churchmen thought that in tackling such a grave and complex problem there was room for both faith and science.

If irrigation is a good thing, and if tree planting is necessary to restore to us our seasonable rains, let the men of science and the men of enterprise see to that. But cause lies behind cause in this vast universe, and revelation warrants our belief that the united prayers of habitually praying men will beneficially touch some of them.

Colonial Australians had inherited a long Judaeo-Christian tradition emphasising human mastery over nature. 'Be fruitful and multiply, and fill the earth and subdue it', the God of Genesis had commanded and the British people had also sought their destiny in discovering and colonising the waste places of the earth. They could demonstrate their conquest of this new land in their statistics of hectares cleared and sown, animals shorn and slaughtered, rivers tapped and tamed. Only when nature fought back in drought and bushfire, flood and earthquake, plague and pestilence were they suddenly reminded of the limits of their power. In 1888, as they crossed the last frontiers of settlement, some Australians began to recognise that the land was neither as limitless nor as tractable as they had once believed.

## CHANGING THE LAND

'It is an accepted fact that on the continent of Australia proper there is very little unexplored territory left, and that we pretty well know what resources in the way of land we have still to fall back upon', wrote the explorer Ernest Favenc in *The history of Australian exploration* published in 1888. This common acceptance, Favenc thought, was both right and wrong—right in that knowledge of the continent was



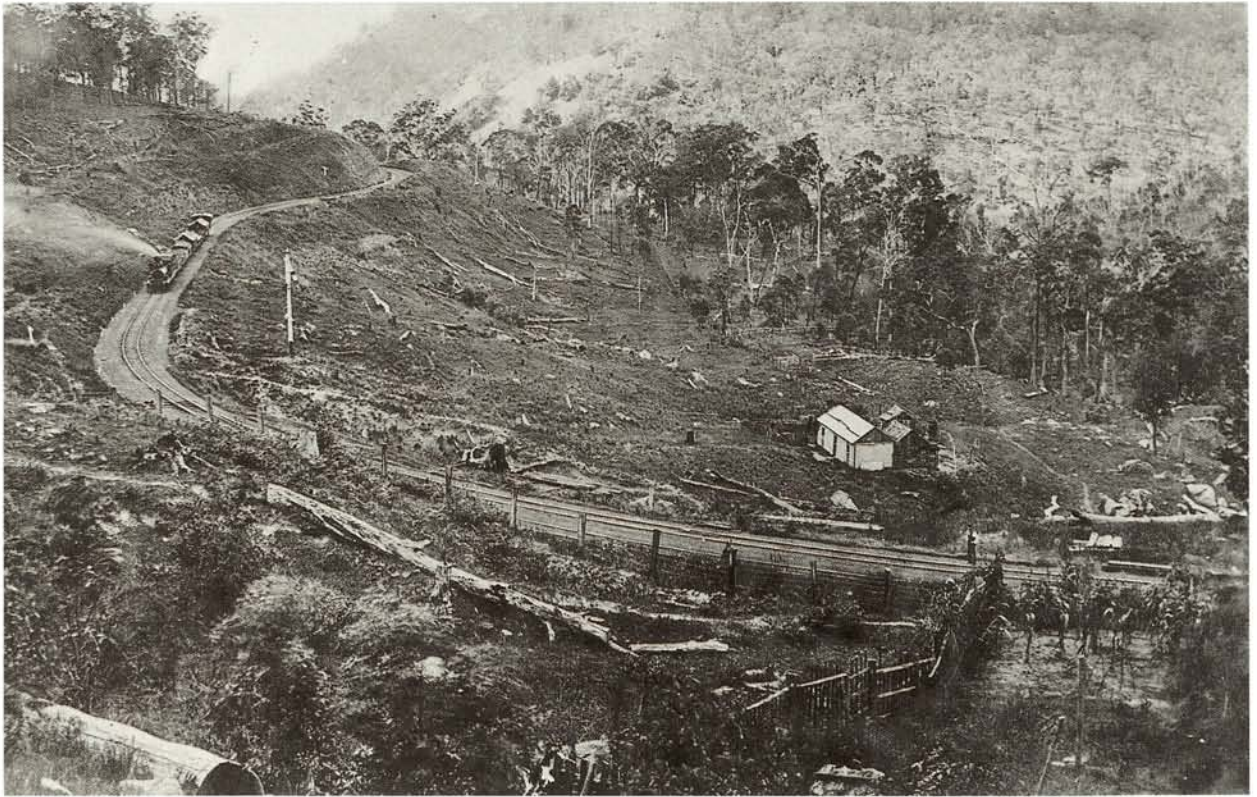
full enough to rule out the future discovery of a new Australia Felix or an inland sea, but wrong in that there remained some potentially exploitable land, particularly in the far northwest, still to be explored. No sooner, in fact, had he completed his *History* than Favenc set out, with the backing of an English syndicate, to report on the prospects of pastoral settlement along the Ashburton and Gascoyne rivers.

*European Occupation in Australia, 1888. 'Occupied' shows areas alienated, in process of alienation, leased or reserved.*

GARY SWINTON

The process of settlement lagged well behind discovery. More than nine out of ten Australians lived within 160 kilometres of the coast, and even Australia's 80 million sheep, 8 million cattle and 1 million horses occupied only 44 per cent of the continent. The sheep were confined essentially to the grasslands south of the Tropic of Capricorn, particularly in New South Wales. The cattlemen were the main pioneers of the 1880s as they pushed into the central ranges, the Northern Territory and the Kimberleys. Only 2.8 million hectares, or about half of one per cent of the continent, had been brought under the plough, most of it in the fertile river valleys near the coast or on the red soil plains of South Australia and Victoria.





*The railway near Highfields, Queensland. Much forest was destroyed as people moved into more remote areas, clearing the land for farms or searching for minerals, and cutting trees to make sleepers for the railways that hastened the occupation of the country.*

OXLEY LIBRARY

Wherever men and animals trod, however, they left clear signs of their presence. As land was ploughed and harrowed the surface became loosened. Wind gusts and rainstorms carried it away. Repeated harrowing drained it of essential nutrients. The custom of resting exhausted land from cultivation under fallow, widely practised in New South Wales, Victoria and South Australia, exposed as much as one-fifth of the cultivated area to wind and water erosion.

Meanwhile horses, cattle, sheep, pigs, donkeys, goats and camels were also making a devastating impact on the land. Hard-hooved animals tread more heavily than marsupials. A sheep treads six times more heavily in relation to its hoof area than a kangaroo, and a bullock seventeen times more heavily. On the stony soils of the eastern highlands, sheep and cattle pads followed the contours of the slopes and did not disturb the subsoil, but on the softer soils of the interior the effect of grazing was spectacular. Horses often sank to their fetlocks in the red soil, while brumby and cattle pads created new drains for surface water runoff. As animals disturbed the soil, the wind in drought seasons blew it across the land in blinding clouds, mounting in banks against yards and fences and burying farm buildings up to their eaves. By 1888 some inland pastures consisted of 'cane swamps'—level stretches of hard, white clay thinly covered with coarse grass—with only tiny islands of the original surface soil still standing in the midst. To enable the land to carry more stock, pastoralists had rainwater tanks dug at low spots on their runs and at the inlet they usually put in a smaller tank to act as a silt trap and filter. Yet so severe were the effects of soil erosion that, even with this protection, tanks five metres deep silted up within five years.

Constant cropping without manuring was exhausting the farmlands. In some places the wheat farmer found that for every hectare he reaped, he obtained only two-thirds of the crop produced by the same land a decade earlier. Many farmers



and experts were fatalistic about the exhaustion of the soil. 'We can never expect to get high averages', one South Australian farming authority remarked, 'but it is not the fault of the land; it is the lack of moisture'. Few had the scientific authority to refute him. In the mid-1880s J.D. Custance, the director of the Roseworthy experimental farm, had carried out an investigation into the beneficial effects of nitrate of soda, bone dust and guano upon the depleted soils. In 1887 he resigned, and his findings were largely ignored by the farmers, who preferred to blame their misfortunes on the weather, which they could not alter, rather than on their own faulty farming practices.

No tool had had a more devastating impact on the Australian environment than the axe. In 1788, about one-third of New South Wales had been wooded or forested. Some areas of precious timber such as the hoop pine and red cedar forests of northern New South Wales and Queensland, were swiftly harvested. Squatters ringbarked trees across the inland plains to encourage the growth of grass. Miners destroyed whole forests in their search for pit props and engine fuel. In time of drought, axemen were hired to cut down mulga to feed sheep in outlying areas. After a century of settlement, about four per cent of the original forests and woodlands of New South Wales had been felled and a further third ringbarked. In Victoria the great mountain ash forests were under attack, and sombre clouds from the fires of clearing parties blackened the sky each summer. 'The genius of destruction is everywhere', remarked the English visitor J.A. Froude after inspecting the country around Fernshaw.

Could the ravaged forests be restored? A small but growing number of people advocated the deliberate control and replanting of the forests. Laws were introduced in the 1870s to curb timbercutting along the Murray River and part of the east coast of New South Wales. South Australia, followed in the late 1880s by Tasmania and Victoria, appointed a conservator of forests. By 1888 the South Australian conservator, J.E. Brown, predicted that within ten years his extensive tree planting would enable him to supply one-quarter of timber presently being imported into the colony. 'It is my strong opinion that no better investment could be made', he reassured his profit-conscious hearers. But too many Australians were interested in quick returns. Nothing would happen, a dispirited Victorian journalist concluded, until

the majority of the people arrive at a strong conviction that there is a noble heritage in our timber, and that we have allowed splitters, prop getters, settlers and sawmill owners to run amuck in it too long.

When the botanist Dr Woolls surveyed the 'marvellous transformation' of the Australian landscape, what impressed him most of all were the changes brought about by the introduction of exotic plants. He believed that

Plants ... whether introduced by design or accident, are playing an important part in the economy of nature, and in some parts of the colony the truly Australian flora is becoming a thing of the past.

As an authority on the native plants of New South Wales, he could appreciate both the benefits and the dangers of introducing new species. Many of the 200 plants popularly regarded as weeds had been imported as decorative garden plants. St John's wort had been introduced to Victoria in 1880, but eight years later its yellow flowers already covered thousands of hectares of the countryside. Other plants had come as stowaways, such as the English wildflowers the Victorian astronomer had noticed sprouting in his rubbish heap from seeds concealed in the straw packing for his scientific instruments.



Whether a plant was called a weed depended on whether it was considered useful, especially as stock feed. In New South Wales four species were identified as noxious weeds. Trifol burr had infested 24 of the colony's 60 stock districts and Bathurst burr 21, while two proscribed thistles were less widely distributed. In 1888 the Bathurst burr was spreading in the far west at 'an ominous rate', while at Warrah on the Liverpool Plains the burr had grown so extensively that it was uneconomical to try cutting it.

Not all the troublesome plants were foreigners. Human occupation had also altered the distribution of native flora. Because bushfires occurred less often after European settlement, many inedible plants, such as the pine scrub and the whipstick scrub of the outback, grew more prolifically and invaded pastures. Experts were divided, however, on what should be done. While the plants were useless for stock feed, some district commissioners of crown lands believed that they were the saplings of the 'noble pines' that bordered the Murrumbidgee and Lachlan rivers and that they should therefore be preserved.

Yet not all the felling, clearing and planting was harmful. As well as manmade deserts there were millions of hectares of stable, well-grassed pastures. When settlers ringbarked trees they hoped to stimulate native grasses to take over as ground cover, and they often left plenty of trees as shade for livestock. When they cleared and burned the dense clumps of mallee from the dry country, they often stimulated a growth of grass so luxuriant that the sheep would not go in until it was cropped by cattle. To improve their pastures some settlers were also experimenting with European clovers and rye grasses, and in the 1880s official exchanges of seeds through the colonial botanical gardens were common. Viable stands of clovers and rye grasses now existed in most temperate colonies.

New grasses were often introduced in an attempt to repair the disastrous effects of livestock grazing upon the native vegetation. Since the 1860s stock inspectors had been warning against the practice of overstocking—carrying too many animals for the available feed. But economic pressures were forcing many outback graziers to exploit the land to the utmost. Some, whose rents had been increased or whose leases had been curtailed, were desperate to maintain profits. Others, encouraged by a run of good seasons and the promise of plentiful artesian water, were tempted to increase their flocks immoderately.

By 1888 the consequences of overstocking in the back country were becoming terribly apparent. John McCaughey, owner of Toorale station on the Darling River, noticed that

the edible scrubs on the back country [away from the river frontages] are decreasing very fast and those remaining are out of the reach of sheep ... The heavy crop of feed [when he took over the station in 1880] ... has been eaten off and is very different now. The disappearance of the scrub alone is a very great matter.

One expert estimated that in twenty years the stock-bearing capacity of the plains had deteriorated by 20 or 30 per cent. The English socialist critic Francis Adams put it even more strongly:

Pastoralism, beginning with cattle and continuing into sheep, the rabbit following swiftly in their train from south to north, has, thanks to reckless overstocking and a system of tree destruction equally reckless, pressed a pitiless stamp of desolation on the face of the land.

But few graziers were prepared to acknowledge their responsibility for the desolation of the land; like the farmers, they preferred to blame the drought.



*When a sheep eats St John's Wort, its skin becomes sensitive to sunlight, and it can scratch until swelling and bleeding result. The plant also affects its nervous system, causing mental depression in some sheep and extreme excitement in others. It was a difficult weed to eradicate from Australian sheep farming areas. Illustration from A.J. Ewart, The weeds, poison plants and naturalized aliens of Victoria, Melbourne 1909.*



## CLIMATE

Some people believed that cutting down forests not only despoiled the land but stopped the rains from falling. By increasing the rate of evaporation and reducing the amount of water stored in the foliage, branches and trunks of trees, ringbarking was said to reduce the amount of moisture and precipitation in the general locality. Since the 1870s when this theory had first been put forward by Reverend W.B. Clarke, the New South Wales government geologist, it had won many converts. J.E. Brown, South Australia's conservator of forests, regarded it as 'a matter . . . long settled by all scientific men'. He himself had planted trees along outback railway lines and distributed hundreds of thousands of seedlings to farmers in an endeavour to prevent farms turning into deserts. 'I have seen rivers made and kept permanently flowing by forest planting, and I have seen rivers destroyed by the destruction of the forests, which clothed her permanent springs', he declared. But others, experts and practical men, denied that forest influenced climate. 'Rain follows the plough', was their cry. Breaking up the soil for cultivation, they believed, allowed the rainfall to penetrate rather than run off, thus increasing soil moisture. In 1888 the Hunter River pastoralist W.E. Abbott told the Royal Society of New South Wales that, so far from drying up, the streams on his property had flowed more copiously in the eight years he had ringbarked.

The controversy about forests and climate flourished in a land where rain was precious and scientific knowledge was scant. In their hearts most immigrant settlers still considered the hot, dry climate of Australia unnatural: it was at least inhospitable. They built their houses to shut out the summer glare and continued, in defiance of the heat, to dress and eat as though they still lived in the cool climate of northern Europe.

Scientists were coming to recognise that dry seasons were part of the normal climatic cycle of the Australian inland. Government meteorologists of the various colonies had begun to exchange daily rainfall and temperature readings and in the rainless spring of 1888 they met in Melbourne for their third intercolonial meteorological conference. Each weather man had his own theory about the causes and timing of droughts. They all agreed that drought in southeastern Australia coincided with a southern intrusion of high-pressure air created by the northern monsoons. But what brought about the disturbance? Some suggested that drought cycles coincided with the cycles of sunspots or southern auroras; others speculated on the connection with weather cycles on the Indian subcontinent. H.C. Russell, the New South Wales meteorologist, believed that Australia's droughts followed a nineteen-year cycle but conceded that three-, seven-, eight-, nine- and ten-yearly cycles also had their supporters. The South Australian meteorologist and surveyor of the inland telegraph, Charles Todd, was the only one prepared to formulate a definite law for predicting dry seasons:

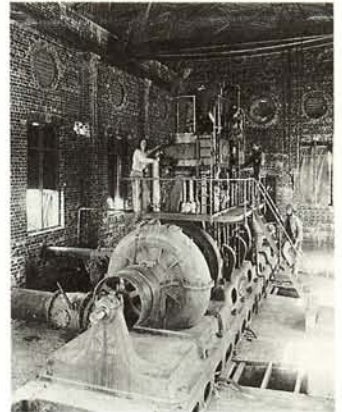
Summer *cool*, with *high* barometer; winter *dry*.  
 Summer *hot*, with *low* barometer; winter *wet*.

Even if they knew a drought was on the way, however, farmers could do little. 'The best advice I can give in regard to droughts', the Victorian astronomer R.L.J. Ellery remarked,

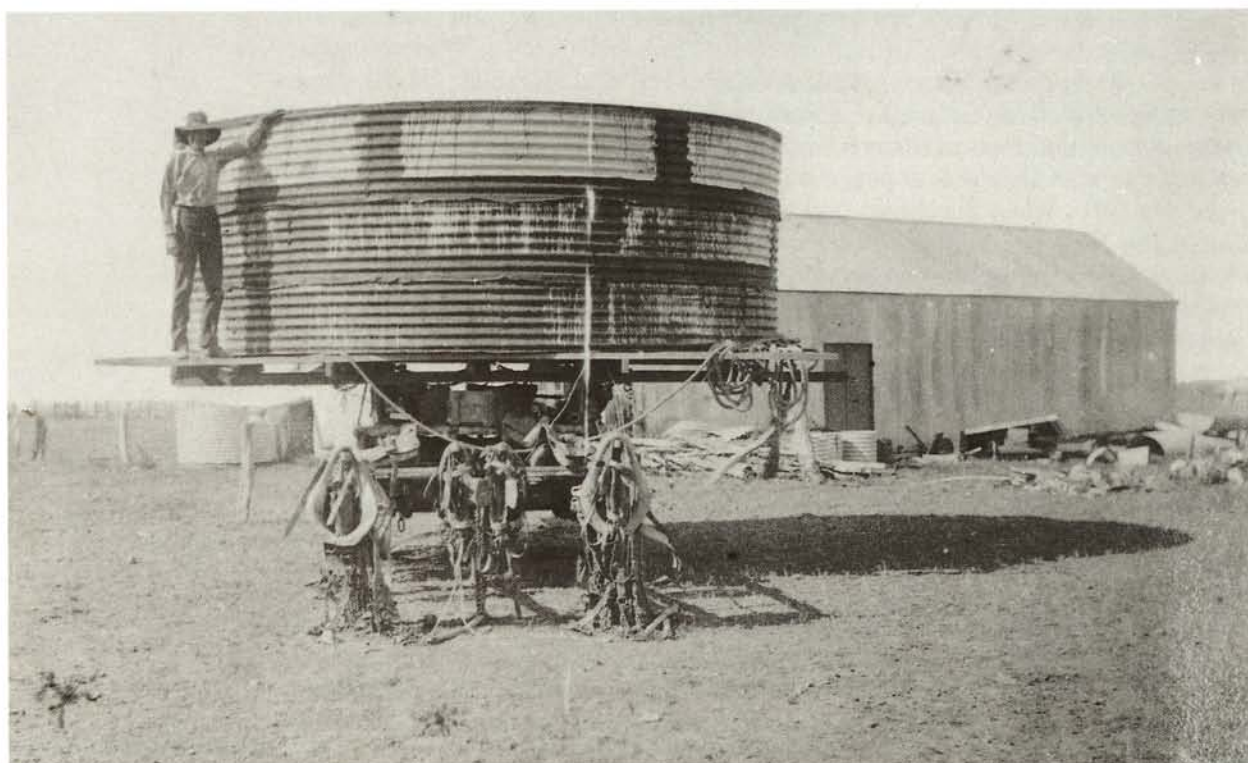
is that they should be fully provided against by water conservation. The lesson which is to be learnt by squatters, farmers and all those who so largely depend upon an abundant water supply, is to save in every possible way the rain when it does come.

*Chaffey's Number 3 Pumping Station at Mildura in Victoria. The improved pumping engine was built by Tanyes Limited, in Birmingham, England.*

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*A tank for the western district. On the almost treeless plains of western Queensland, a corrugated-iron water tank was a welcome sight for men and beasts. Horse collars and harness are hung over this tank stand.*

OXLEY LIBRARY

In his address to the geographical section of the Australian Association for the Advancement of Science, formed in 1888, the explorer and politician John Forrest placed irrigation at the top of the political agenda. The agricultural press drew local attention to the lessons of irrigation in California and India, while at Mildura, on the Victorian side of the Murray, the American Chaffey brothers had embarked on their visionary scheme to tap the river. Throughout the back country pastoralists were spending large sums on tanks and dams to insure themselves against drought.

One ray of hope shone through the haze of this dry year. All over the backblocks of New South Wales and Queensland, drilling parties were tapping the plentiful supply of water trapped in the Great Artesian Basin. In the seventh month of the drought the people of Blackall in central Queensland rejoiced when a drilling party finally struck an abundant flow of pure water at a depth of 500 metres. By 1888 Australians knew that the rains that fell upon the eastern ranges did not flow, as their forefathers had hoped, towards a great inland sea. But it was consoling to know that they did not simply evaporate into the air but were safely stored, far below, in a vast underground reservoir.

## INHABITANTS OF THE LAND

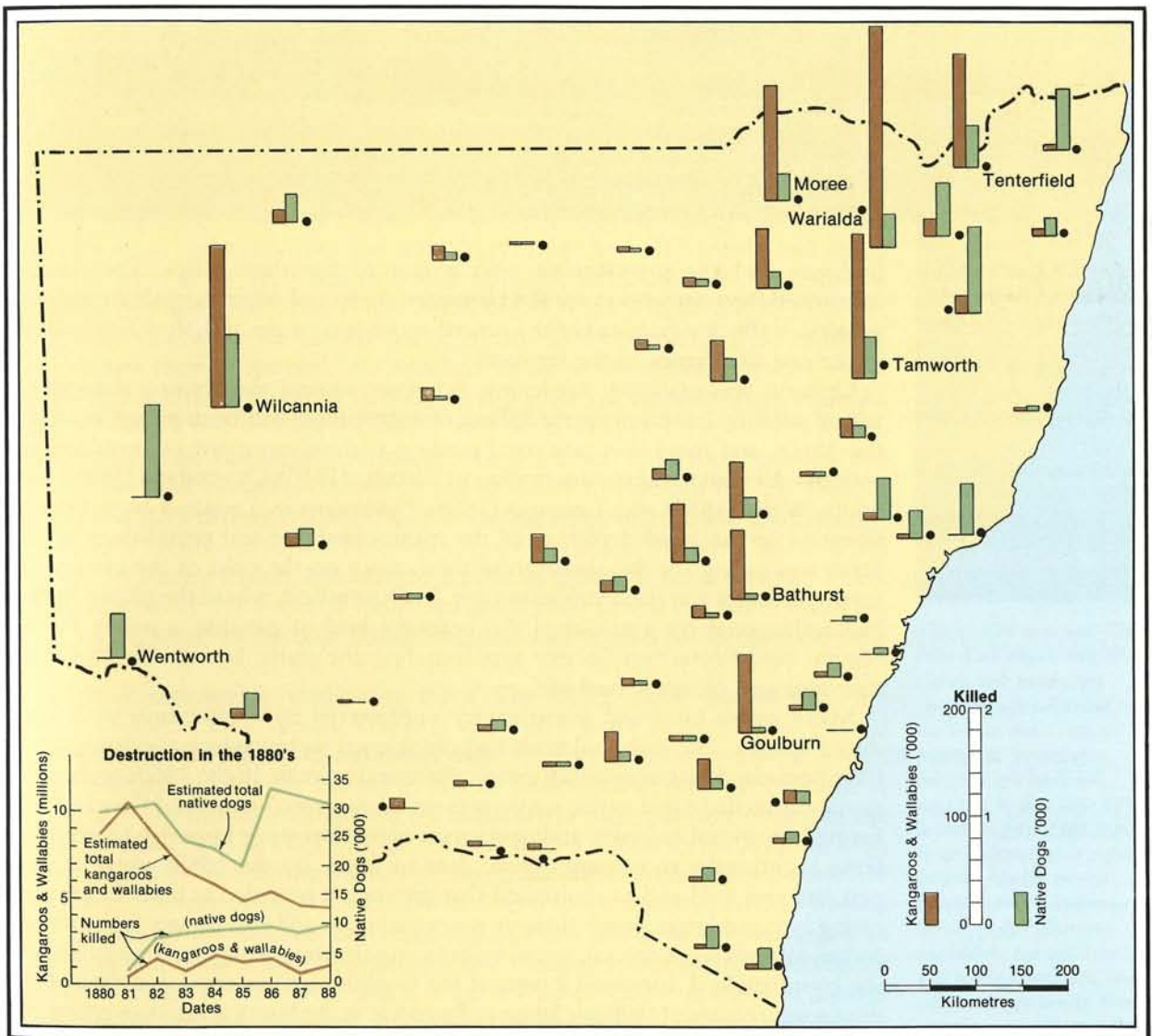
When the Hebrew God commanded mankind to subdue the earth and make it fruitful, he also made human beings his viceroys over the animal kingdom. All creatures great and small were offered for their use and delivered into their care. The first settlers of Australia brought with them the conquered animals of the old world and they began to capture, slaughter and tame the strange animals of the new land. Nobody knows how many native species were destroyed or decimated in the first hundred years of European settlement, but the plague of sheep, cattle, horses, pigs and men must certainly have altered radically the animal ecology of

eastern Australia. 'Change', wrote Dr Woolls, with a hint of sorrow, 'is also marked in the gradual extinction of marsupials and other animals which once roamed between the coast and Dividing Range'.

When Alf Broome took up his selection on the Cann River in the wilds of east Gippsland, he made an assault on the surrounding bushland. He hacked a clearing for his house, cut the eight-metre lengths of timber into slabs and shingles and burned the rest in great bonfires. A neighbour gave him raspberry, gooseberry, strawberry and blackberry plants for his garden and later he planted a boxthorn hedge. He killed snakes because they were dangerous, ducks and wonga pigeons for game, wallabies, kangaroos and opossums because they ate pasture or fruit, and lyrebirds for their beautiful tails. He captured a swarm of bees for their honey. Any living thing useful for his farmer's purpose he felled, burned, captured or killed.

In New South Wales one and a half million 'noxious animals', including kangaroos, wallabies and dingoes, were slaughtered in 1888. Animals were regarded as noxious when they competed with or preyed upon domesticated

*Destruction of wildlife in New South Wales in the 1880s.*  
GARY SWINTON







*Kangaroo scalpers' camp. In the centre two kangaroo carcasses, a pile of pelts and a small armoury of rifles and shotguns attest the bloody nature of the scalpers' trade. But their life was not entirely lacking in domestic comfort and refinement. Outside the kitchen tent one of the scalpers plays a fiddle while a woman, babe in arms, operates a treadle sewing machine.*

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livestock and the government paid a bounty for their scalps. The drought intensified the competition for feed between sheep and other animals; carnage was greatest in the dry grassland of the central mountain ranges and New England and, in the case of dingoes, in the far west.

Opinion was gradually hardening, however, against the wanton slaughter of native wildlife. Laws against the killing of native birds had been passed as early as the 1860s, and the 1880s saw the founding of field naturalist or ornithological societies devoted to their conservation in Victoria (1880), Queensland (1886), New South Wales (1887) and Tasmania (1888). Naturalists in Tasmania were drawing attention to the rapid depletion of the muttonbird and seal populations of Bass Strait and calling for the abolition of the bounty on the pelts of the carnivorous marsupial known as the Tasmanian tiger. In Queensland, where the plume hunters had endangered the survival of the beautiful bird of paradise, a newly formed Native Bird Protection Society was sounding the alarm against 'the dangerous disappearance of native bird life'.

Many native birds and animals were endangered by competition with introduced species. The early colonists had often tried to reproduce the landscape of their homeland by transporting exotic plants and animals. In the 1860s acclimatisation societies dedicated to the 'improvement' of Australia's fauna and flora had been formed in several colonies, and gentlemen naturalists were importing everything from nightingales to sparrows, from deer to foxes. By the 1880s many of these pets had run wild and so multiplied that they were regarded as pests. Foxes were eating lyrebirds' eggs, brush turkeys, marsupial mice and bandicoots. Sparrows and Indian mynahs were driving native birds from suburban gardens and spreading into the countryside. 'I destroyed 2 nests of the English sparrow, the 1st of their nests I ever seen', remarked William Stagg at Tarcowie in the South Australian wheat belt. 'English sparrows is a terrible pest in S.A. for they breed so quick in a sunny land



and destroy enormous quantities of fruit.' In the middle of the drought, plagues of English mice were overrunning the barns of wheat and maize farmers in places as far apart as Corowa and Singleton.

No other exotic animal went wild as quickly and devastatingly as the European rabbit. Although rabbits had arrived on the first fleet and were reported running wild in Tasmania in the early 1820s, their invasion of eastern Australia is usually reckoned to have begun with the release of wild rabbits on Thomas Austin's Barwon Park estate near Geelong in 1859. Twenty years later the rabbits had crossed the Murray into New South Wales and South Australia, and by the early 1880s they had travelled up the Darling into the far west of New South Wales. Early in 1888 they had penetrated the fence erected against them by the New South Wales government between Bourke and Barrington, and a few had been sighted in the southwest corner of Queensland.

The rabbits moved fast, partly because they reproduced so quickly but also because they were well-adapted to the environment of the western plains with its open grasslands and sandy, easily burrowed rises. Wittingly or unwittingly, human beings also sped their advance. Surveyor-General Goyder of South Australia believed that Aborigines carried rabbits into the interior and he alerted police to try and stop them. Rabbiters wanting to increase their tallies might also have helped them spread.

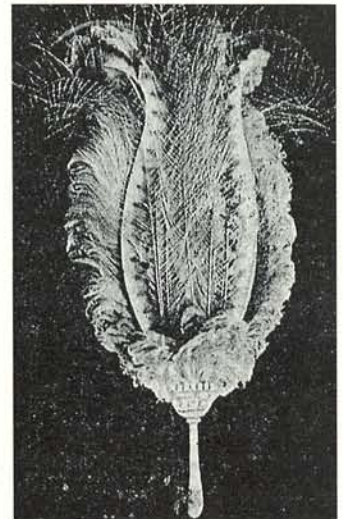
The good rains of 1886 and 1887 increased the growth of pasture and with it the rabbit population. The succeeding drought brought increased numbers of sheep and rabbits into competition for a drastically reduced food supply. The rabbits cropped the grass right down to the roots, stripped foliage and branches from the scrub and bark from the trees. Surveying the naked trunks and dying foliage of trees in the far north of South Australia, Samuel Hubbe, an inspector under the Vermin Destruction Acts, remarked, 'I think it is an outcome of the drought because when the rabbits cannot get any feed containing more moisture than the bark they eat the bark'. Rabbits had cut the stock-carrying capacity of the land along the Murray River by two-thirds, and in the northeast of South Australia by 40 per cent. It was enough, combined with the costs of rabbit control measures, to bankrupt some pastoralists. 'Australia would be, for us farmers, graziers and drovers, the most beautiful country in the world, if it were not for the drought and the rabbits', a drover remarked to the visiting Frenchman Oscar Comettant.

A fortune awaited anyone who could stop the invasion. The New South Wales premier, Sir Henry Parkes, had offered a prize of £25 000 for a solution. There was agreement by 1888 that all the existing schemes, such as the bounty paid for rabbit scalps, were ineffective. Rabbit trappers had tended to concentrate their efforts where the rabbits were most numerous, but to pass on to other infested areas before thoroughly eradicating them. The effect, some experts said, was actually to hasten their spread. Trappers also killed some of the rabbits' natural enemies such as crows, hawks and native cats.

The standard remedy for rabbits in official circles was a rabbit-proof fence. A barrier of 4-centimetre wire netting 90 centimetres high, partially buried in the earth, was thought to be effective. Queensland hoped to restrict the invasion to its southwest corner by erecting a series of such fences from Mungindi on the New South Wales border through Charleville and west to the South Australian border. After the fall of the Bourke-Barrington fence, New South Wales was urged to erect its defences for a last stand along a line running southeast from Mungindi through Narrabri to Newcastle. But a fence was an expensive method of control and an ineffective one. Foxes and dingoes broke through fences, opening the way for the rabbits. Young rabbits could squeeze through the netting. In the outback,

*Birds of paradise, Queensland. These beautiful but now endangered birds attracted the attention of the naturalist and painter Neville Cayley. Watercolour, 1888.*

MANLY ART GALLERY



*The lyrebird as export. The New York singer, Mrs W.A. Green, took home from Australia a fan described in the Town and Country Journal as 'formed of a full-sized lyre bird's tail, supported by four large ostrich feathers in grey'. Held in place by an embossed silver cup and an ivory handle, the fan formed 'a most harmonious whole'. Lady Carrington admired the fan when she saw it at government house, and ordered one for herself. Town and Country Journal, 2 May 1891.*





Farmers and officials try a variety of weapons in their battle with the rabbits. Illustrated Australian News, 18 Mar 1885.

the sand drifts were said to pile against the fences so that the rabbits could simply walk over. One grazier, who had conducted experiments in his woolshed, swore that a hungry rabbit could climb over a 90-centimetre wire fence if there was food on the other side.

Some pastoralists claimed to have controlled the plague with poison. Edward Lascelles, a large landowner in the Victorian Mallee who served on the Intercolonial Royal Commission on the problem, invented a machine for laying baits of poisoned grain. An absentee pastoralist insisted that poisoned carrots were



better than fencing. He had no reply when his manager wrote asking for rabbit-proof fencing for the carrot patch.

The rabbit plague was an unwelcome disturbance to the economy of nature and many people looked to the scientists to restore the balance. Every pest, they believed, had a natural predator and for every plague there was a natural antidote. Foxes fed on rabbits, but rabbits outbred foxes. Weasels, ferrets and mongooses were set upon the runaway rabbits, but without success. The fear, of course, was that the animals introduced to kill the rabbits might themselves become pests. Lynxes and jackals, for example, might kill more sheep than the rabbits starved.

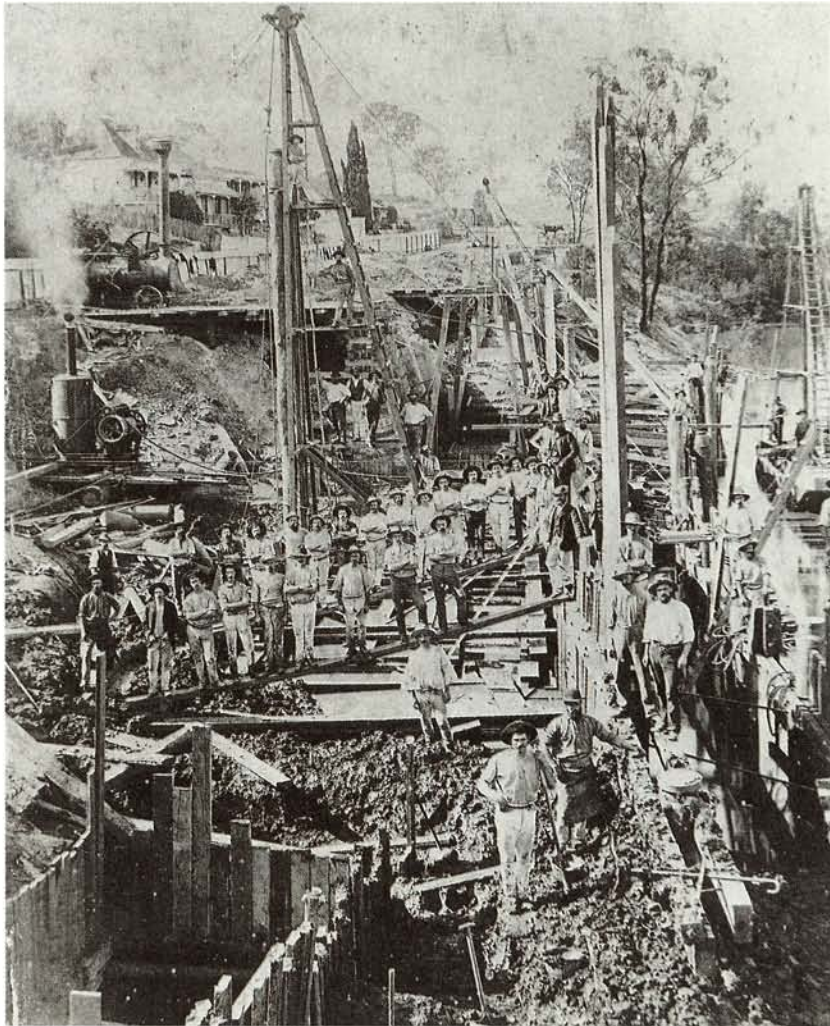
The most hotly debated schemes for rabbit extermination involved releasing deadly diseases. The celebrated French bacteriologist Louis Pasteur sent out his nephew, Adrien Loir, to conduct experiments using chicken cholera, while a previously unknown physician from outback New South Wales advocated the use of a mysterious disease which had allegedly decimated the rabbit population of Tintinallogy station on the Darling. Doubts remained, however, about the effectiveness and safety of the cures. Would chicken cholera also kill off the country's poultry? And had rabbits at Tintinallogy been slaughtered by the rabbit disease or simply by the prevailing drought and lack of feed?

While argument raged, the rabbits continued to multiply and spread. As they debated the rabbit question, Australians were facing the unforeseen consequences of their own confident invasion. The question made them more aware of the delicate interplay between land, climate, vegetation, animals and people that had sustained and was now remaking the Australian environment. The land, they were now beginning to recognise, was not simply an adversary to be conquered, but a precious resource to be cherished and conserved.



*A rabbit trapper. Illustrated Australian News, 19 Mar 1884.*





*Men at work on a retaining wall at the site of a major landslide between Boomerang and Skew streets, Brisbane.*

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