Founding Gardeners. The Revolutionary Generation, Nature, and the Shaping of the American Nation © Andrea Wulf 2013[1]

This paper is based on my book the *Founding Gardeners* (2011), which examines the creation of the American nation and the lives of George Washington, John Adams, Thomas Jefferson, and James Madison through the lens of gardens, landscapes, nature and agriculture. Vegetable plots, ornamental plants, landscapes and forests played a crucial role in America's struggle for national identity and in the lives of the founding fathers.[2] Golden cornfields and endless rows of cotton plants became symbols for America's economic independence from Britain; towering trees became a reflection of a strong and vigorous nation; native species were imbued with patriotism and proudly planted in gardens, while metaphors drawn from the natural world brought plants and gardening into politics.

The founding fathers' passion for nature, plants, gardens and agriculture is woven deeply into the fabric of America and aligned with their political thought, both reflecting and influencing it. I believe, it's impossible to understand the making of America without looking at the founding fathers as farmers and gardeners.

[1] Bibliography: please refer to my bibliography in *Founding Gardener* (2011).
[2] The term 'founding fathers' describes a group with a fluctuating membership. When I refer to the four main protagonists in this paper as a group - George Washington, Thomas Jefferson, John Adams and James Madison - I have taken the liberty to use the term 'founding fathers'.

I've chosen four themes from the *Founding Gardeners* to discuss in this paper:

1.George Washington's Mount Vernon: Native Species as Political Statements

2. Thomas Jefferson's and John Adams's English Garden Tour: Gardens as Political Statements

3. Agriculture and the Making of the Nation

4. James Madison America's First Environmentalist

1. George Washington's Mount Vernon: Native Species as Political Statements

By the summer of 1776 Manhattan had been transformed into an armed camp. American soldiers drilled in the wide tree-lined streets and troops took over the elegant brick mansions normally occupied by the New York elite. Huge wooden barricades were erected where fashionable woman had promenaded only weeks earlier, and forts were built around the tiny hamlet of Brooklyn to defend the city. New York faced 32,000 British troops – more than one and a half times the city's entire peacetime population and the largest enemy fleet ever to reach American shores. The prospects of victory were slim. The commander-in-chief, General George Washington, had less than half the manpower with his numbers declining even further as small pox spread through the camps. Many of his officers had yet to experience the field of battle; those who had, had certainly never seen warships as menacing as those which approached New York - the combined firepower of just five of these was enough to outgun all the American cannons on shore. On the first day alone, more than one hundred enemy vessels had anchored in a bay south of the city, turning the water into a forest of looming masts.

Then, as the British troops were preparing their ferocious onslaught, Washington brushed aside his generals and his military maps, and wrote a long letter to his estate manager and cousin Lund Washington at Mount Vernon, his plantation in Virginia. As the city braced itself, Washington pondered the voluptuous blossom of rhododendrons, the sculptural flowers of mountain laurels and the perfect pink of crab apple. These 'clever kind[s] of

Trees (especially flowering ones)',[1] he instructed, should be planted in two groves by either side of his house.

It may seem baffling that amid this unprecedented crisis the commander-in-chief was designing new ornamental groves for his pleasure ground. But his horticultural letter is perhaps easier to understand when we consider the trees Washington was insisting be planted: soaring white pines and tulip poplars, glorious alabaster dogwood and stately red cedars. Only American natives should be used, he wrote, and all could be transplanted wild from the forests of Mount Vernon. As the young nation faced its first military confrontation in the name of liberty, Washington decided that Mount Vernon was to be an American garden where English trees were not allowed.

After the War of Independence, Washington continued with this idea. When he returned to Mount Vernon at the end of 1783, he created the first truly American garden in the new republic. Mount Vernon was more than just fields that provided Washington's livelihood, it was also an expression of his social standing within Virginian society. For centuries estates and houses had been public articulations of their owners' status, taste and politics, and gardens in particular had long been utilised as a sign of the owner's wealth and power. At Mount Vernon, Washington's rising position in society had been similarly imprinted on his 8,000 acre estate, which had changed radically from the 2,500 acres plantation that he had inherited almost three decades previously.

[1] GW to Lund Washington, 19 August 1776, GW Papers RWS, vol.6, p.86

Just before his marriage in 1759 to the wealthiest widow, Martha Custis, he had marked his move into the upper echelons of society by completely rebuilding the house. He had added another storey to the seven-room farmhouse, extended the estate and built two walled gardens for flowers, fruit trees and vegetables. He had also turned the orientation of the house from the east to the west. By the time that Washington had brought his wife home, the principal entrance and rooms faced not to the ocean and Britain beyond it but to the west towards the interior of the country. By turning his back to the Old World, Washington had expressed his belief that the future of the colonies lay in the west beyond the Appalachian Mountains. The final touch had been a straight half-mile vista which Washington had cut through the dense forest, opening a spectacular view from his parlour and dining room towards the fertile lands beyond the frontier, 'the Land of promise, with milk & honey'.[1]

When he returned from the war, he decided that what had been perfectly adequate for a colonial plantation owner, was now woefully inadequate. Fresh from revolutionary triumph, he resolved to tear up the driveway, pull down the walls and dig up the hedges to liberate his garden from its claustrophobic corset of geometry, just as he had freed his country from Britain's imperial yoke. As he returned victoriously from the battlefield to the plough, Washington would transform Mount Vernon once again. This time it wouldn't just be the estate of a Virginian planter – instead it would be the landscape garden of a revolutionary.

[1] GW to Lafayette, 25 July 1785, GW Papers CS, vol.3, p.152

With the soil and plants holding the hope of America's future, Washington decided to 'diversify the scene'[1] by bringing nature from across the United States into his gardens. At Mount Vernon species from the North and the South, from the mountains in the West and the coastal plains in the East would grow together in horticultural union, shaping the first truly American garden. Washington ordered flowering trees and shrubs from South Carolina and conifers from the northern states, as well as transplanting many from his own forests.

Washington's new garden was to be truly American, a radical departure from the traditional colonial plots, for it was the first ornamental garden in America to be planted almost exclusively with native species. Since the first settlers had arrived in 1607 in Virginia, colonists had tried to recreate the gardens that they had left behind in Britain, including the Old World species which often cost a fortune to procure and cultivate. Colonial gardeners such as John Custis in Williamsburg (Martha Washington's previous father–in–law) would have thought it pointless to plant American native trees and shrubs when these were growing in abundance, almost like weeds, in the wilderness just outside their garden gates. Since most American gardeners remained wedded to their old European plants and traditional plots, Washington's adoration for native species was revolutionary.

Mount Vernon became the most visited private house in the country and Washington made sure that the first thing the visitors saw, was an American garden. He planted in front of his house two shrubberies and wildernesses entirely of native species. It was the part of the garden that visitors would see

[1] GW to William Grayson, 22 January 1785, GW Papers CS, vol.2, p.282

first, and Washington made sure that they were seeing an American garden. He planted tall trees such as black gum, American linden - which George Clinton had sent from New York - and aspen which Washington had procured from Fairfax, Virginia. As undergrowth he chose mountain laurels which in spring would open their puckered pink flowers like mini-umbrellas. Many of the species that Washington collected in the surrounding forests were spring flowering shrubs that would also look magnificent in autumn. Sassafras, for example, paraded exquisite yellow flowers on its naked branches in early spring and colourful leaves in autumn; similarly the flowering dogwood, one of Washington's favourites, impressed with its perfect alabaster blossom in April and May and its brilliant red foliage in October. This garden was Washington's horticultural Declaration of Independence – a patriotic statement planted into his soil.

2. Thomas Jefferson's and John Adams's English Garden Tour: Gardens as Political Statements

In March 1786 Thomas Jefferson arrived in London. He was the American Minister to France but his colleague John Adams, the American Minister to the Court at St. James's Palace had asked him in February for help with some difficult trade negotiations in London. 'Come here without loss of time',[1] Adams had begged, because the discussions between Britain and the United States that he had been heading had completely stalled, as had the fraught negotiations with the Barbary States – Tripoli, Morocco, Algiers and Tunis –

[1] JA to TJ, 21 February 1786, TJ Papers, vol.9, p.295

that controlled navigation in the Mediterranean (asking for a hefty 'tribute' for allowing American ships to pass unmolested).

But the British were not interested in helping their former colonies - 'An ambassador from America! Good heavens what a sound!',[1] the *London Public Advertiser* had scoffed upon Adams's arrival in London in the previous summer. Adams had been right to be anxious about his new post: the British hated the Americans. 'This People cannot look me in the Face', he wrote after attending a ball – 'there is a conscious Guilt and Shame in their Countenances'.[2] Everybody, Jefferson agreed, was pugnacious towards the Americans – the king, the newspapers, and the courtiers; even the British government and the opposition agreed for once in their hostility. Putting forward a slightly eccentric theory, Jefferson mused, if it was 'the quantity of animal food' consumed by the British that 'renders their character insusceptible of civilisation'.[3]

Jefferson and Adams were so frustrated about their lack of progress that they decided to go on a garden tour which included fashionable gardens such as Woodburn Farm in Surrey, The Leasowes near Birmingham and Blenheim Palace in Oxfordshire. One of the gardens they particularly liked was Stowe in Buckinghamshire, a garden that brought landscape and politics together. Stowe had been created fifty years earlier by Lord Cobham, who had set out to celebrate liberty, honour and civic duty as well as the strength of a free England. He had turned against the geometrical baroque garden in which

[1] *London Public Advertiser*, quoted in McCullough 2001, p.333

[2] JA Diary, 30 March 1786, 44:2, MHS online

[3] TJ to AA, 25 September 1785, TJ Papers, vol.8, p.548-49

swirling arabesques had been cut into turf and trees had been trimmed into stiff globes, cones and pyramids. Cobham celebrated nature as it was (albeit stylized) with trees left unclipped, and paths snaking sinuously through irregularly planted thickets.

He had been a staunch Whig, a political group that had greatly influenced Adams's and Jefferson's political thinking by opposing monarchical tyranny in the name of liberty. In the late seventeenth century the Whigs in Britain had created a constitutional arrangement in which monarchical power was restrained by an elected parliament, thereby elevating the principle of individual liberty above the god-given rights of kings.

At the same time, some of the Whigs had begun to use their gardens to express these political ideas. Mirroring their rejection of tyranny, they had turned against the rigid designs, geometrical patterns and clipped shapes associated with Louis XIV's lavish Versailles (for them the home of absolutism and despotic rule). Over the course of the eighteenth century they had exchanged the artifice of straight canals and immaculately sheared hedges for serpentine lakes and clumps of un-pruned trees. The irregularity of nature had become a symbol of liberty, or as one of the most influential garden writers would tell George Washington a few years later, it 'opposes a kind of systematic despotism'.[1] Whig gardeners liberated the garden, and in so doing, 'Freedom was given to the forms of trees',[1] Horace Walpole, Britain's first garden historian had written in 1780. Jefferson adored this style, having read about it extensively in his many gardening books, and complained whenever an owner had not embraced it wholeheartedly enough – one garden 'shews

[1] Uvedale Price to GW, 31 March 1798, GW Papers RS, vol.2, p.165.

still too much of art'[2], elsewhere a 'straight walk' spoiled the landscape, having 'an ill effect'.

Stowe was particularly explicit in its political posturing as Cobham had in the 1730s turned parts of it into a denunciation of Robert Walpole, the first Prime Minister of Britain. Cobham turned against the centralised power around the court and government, accusing Walpole of corruption and debauchery. In line with this, Cobham's garden told a story of the choices between virtue and vice, between reason and passion and between civic duty and vanity. His intention was to distance himself from the immorality and flaws associated with Walpole and the court.

Jefferson, who liked to be prepared, purchased a guidebook which illustrated Cobham's landscapes and monuments. At the entrance of Stowe, visitors faced the choice between a path of vice or virtue. This was a moral dilemma popularised by the classical tale of the Choice of Hercules, in which Hercules was tempted by the Goddess of Pleasure to follow the easy path of dissipation and by Virtue who promised glory after a life of hardship. At Stowe the path of vice led to the Temple of Venus, which featured busts of famous adulteresses and the Temple of Bacchus with scenes of 'Mysterious Orgies'[3] – all of which the frugal Adams thought to be 'quite unnecessary as Mankind have no need of artificial Incitements, to such Amuzements'.[4] Not surprisingly he preferred the garden of virtue. This part of the garden had been inspired by

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[1] Walpole, Horace, 1780, Charlesworth 1993, vol.2, p.403
[2] TJ 'Notes of a Tour of English Gardens', March and April 1786, TJ Papers, vol. 9, p.369, 370, 372

[3] West 1732, ll.168

[4] JA Diary, 'Notes on a Tour of English Country Seats & c., with Thomas Jefferson', April 1786, 44:5, MHS online

a famous essay that both Adams and Jefferson had read. Written by Joseph Addison, an English Whig, it described a dream set in an ideal garden presided over by the goddess of liberty herself.

Addison's imaginary garden was an allegory of honour and virtue, values that the revolutionary generation held dear. He had described, for instance, a Temple of Honour to which men who had promoted 'the good of their country'[1] could retire - a sentiment that Adams and Jefferson shared. What Cobham had done at Stowe was to make Addison's allegorical landscape real. As Adams and Jefferson strolled along the gravel paths, past dozens of temples and statues, they walked through a story of political dissent.

On a grass mound and enveloped in evergreen laurel, just as Addison had described it, stood the flawless classical Temple of Ancient Virtue housing Greek philosophers, lawgivers and thinkers that embodied wisdom, virtue and moderation. Opposite it and within sight - as if engaged in a political dialogue - was the Temple of Modern Virtue. Cobham had deliberately built this as a ruin to illustrate the moral decline caused by the Prime Minister's corruption and political hold over parliament. And if this allusion was not strong enough, Cobham had also placed a headless statue dressed in contemporary clothes next to the ruin - it did not take a huge leap of imagination to identify the figure as the prime minister Robert Walpole.

Anything that criticised the British government as depraved would have delighted Adams and Jefferson, for whom 'it was certainly the most corrupt and unprincipled government on earth'.[2]

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[1] Addison, Joseph, Tatler, no.123, 21 January 1710.

[2] TJ to William Duane, 13 November 1810, TJ Papers RS, vol.3, p.208

Opposite the Temple of Modern Virtue, on the far bank of a snaking river, they saw the Temple of British Worthies which eulogised those who had stood for such public virtue. This was Cobham's answer to the 'Temple of Honour' in Addison's essay. In sixteen niches, Cobham had placed busts of British heroes divided into men of action and ideas, including King Alfred, the Black Prince, and William III – all embodiments of the Whig ideals, representing freedom and liberty, for they had fought against the shackles of tyranny. Adams admired its celebration of virtuous exemplars who served the public good. And Jefferson with his passion for enlightenment thinking and science, realised that this kind of monument to leaders and thinkers was exactly what he wanted for Monticello: a pantheon of heroes who stood for liberty and virtue as well as lauding the advances of science, political philosophy and exploration.

A few months after the visit to Stowe, Jefferson began to compile his own collection. Like Cobham he bought Francis Bacon, Isaac Newton and John Locke ('my trinity of the three greatest men the world had ever produced',[1] Jefferson said), as well as William Shakespeare, seventeenth century parliamentarian John Hampden and explorer Walter Raleigh. To Raleigh he would later add Columbus, Magellan, Vespucci and Cortez because 'our country should not be without the portraits of its first discoverers'.[2] And because he would celebrate America's revolutionaries instead of princes and kings, Jefferson asked Adams for his portrait 'to add it to those of other principal American characters which I have or shall have'.[3]

[1] TJ to Benjamin Rush, 16 January 1811, TJ Papers RS, vol.3, p.305
[2] TJ to Joseph Delaplaine, 3 May 1814, DLC

[3] TJ to William Stephens Smith, 22 October 1786, TJ Papers, vol.10, p.479.

Amongst many others that he acquired were portraits and busts of Franklin, Washington, Madison, and Thomas Paine. Probably inspired by Cobham's temple, Jefferson would later call his paintings and busts 'my American worthies'[1] – the largest private collection of American heroes in the country.

Continuing their tour of Stowe, Adams and Jefferson found yet more inspiration when they came across sheep which seemed to be grazing in the midst of the garden. Only when they came closer, did they see how these pastures had been separated from the pleasure grounds by a deep ditch that encircled the entire garden. This was a ha-ha, the most revolutionary gardening device of the eighteenth century. Because cattle couldn't cross the ditch, a ha-ha provided the same security as a fence or a wall (keeping the animals outside the ornamental garden) without spoiling the views. Instead of high walls that screened the wider landscape from the garden, the ha-ha allowed panoramic vistas across the surrounding countryside. Across England the ha-ha had liberated the garden from its brick corset. In the United States Washington had already built one in Mount Vernon at the back of his house in the months after the Declaration of Independence and was about to begin with the construction of another at the front of his garden. Both Adams and Jefferson would follow, building their own to incorporate vistas of the rugged American landscape – as well as pastures, farm buildings and orchards – into their garden views. It was in Stowe that Adams and Jefferson saw how gardens could be used as a canvas on which to paint a political statement.

3. Agriculture and the Making of the Nation

[1] TJ to William Short, 6 April 1790, TJ Papers, vol.16, p.318.

Adams, Washington, Jefferson and Madison all agreed that agriculture should be the foundation of the nation. The improvement of agricultural methods and crops was not only an immediate economic necessity. While at a more prosaic level farming provided a basic livelihood for most Americans, for the founding fathers free husbandmen with their small self-sufficient farms would be the footsoldiers of the infant nation.

This was not a new idea – Aristotle had claimed that for a republic 'an Agrarian people is the best'[1] and the Romans had elevated the farmer as the most virtuous kind of citizen, imbuing the hard-working peasant at his plough with patriotic pride. Virgil's poem *Georgics* had been admired as a celebration of virtuous country life, while Cicero had written that 'of all the occupations by which gain is secured, none is better than agriculture, none more profitable, none more delightful, none more becoming to a freeman'.[2] This emphasis on farmers as the foundation of a free society had its origin in the belief that republics were the most fragile form of government. With the removal of the monarchy, the traditional control mechanisms of society - which were based on fear and force - had to be replaced by self-control, moral integrity and industry. 'Only a virtuous people are capable of freedom', Franklin had written – 'as nations become corrupt and vicious, they have more need of masters'.[3] As such the strength of a republic – the people - was also its weakness. People's selfishness, ambition, avarice and vanity in America posed such a threat that Adams worried 'whether there is public Virtue enough to support a

[1] Aristotle 1992, p.368.

[2] Cicero, De Officiis, Book 1:42

[3] BF to the Abbés Chalut and Arnoux, 17 April 1787, BF online

Republic'.[1]

To put the common good before ones private interests, the founding fathers believed, was the foundation of a non-tyrannical and non-monarchical government (again a notion that was lifted from classical literature), and the only basis on which a republic could be founded. Closely linked to the concept of 'public virtue' was 'private virtue' which was described as being frugal, temperate and uncorrupted – traits that the founding fathers ascribed to farmers. 'Cultivators of the earth', Jefferson wrote, 'are the most vigorous, the most independent, the most virtuous'.[2] They elevated the independent yeoman to an elemental place in American life. Hard-working and independent farmers were the pillars of American society because only a virtuous and industrious people would be able to hold together the republic.

As long as a man had a piece of land of his own that was sufficient to support his family, Franklin had said, he was independent. Jefferson went even further, arguing that only farmers should be elected congressmen because more than any other they were 'the true representatives of the great American interest'.[3] A man who cultivated his own soil was immune to moral corruption, Jefferson said, unlike the deplorable merchants who 'have no country'[4] and therefore no real attachment to their nation. Laborers employed in manufacturing and factories would never be bound to their country as farmers who worked the soil. 'The small landholders are the most precious

[1] JA to Mercy Warren, 8 January 1776, Adams 1917, vol.1, p.202

[2] TJ to John Jay, 23 August 1785, TJ Papers, vol.8, p.426

[3] TJ to Arthur Campbell, 1 September 1797, TJ Papers, vol.29, p.522

[4] TJ to Horatio Gates Spafford, 17 March 1814, DLC

part of a state',[1] Jefferson insisted, and had written into his draft for the Virginia Constitution that every free person was to be entitled to fifty acres of land (he had failed to get it passed). Madison agreed and published an article in the *National Gazette* declaring that the greater the proportion of husbandmen 'the more free, the more independent, and the more happy must be the society itself'.[2]

The well-tended fields of small farms became a symbol for America's future as an agrarian republic. John Adams had been the first to provide a legal base for the elevation of agriculture, when he chiseled the promotion of useful arts (of which agriculture was regarded the most important) into the constitution of Massachusetts in 1779. He had included a section stating that the government should encourage societies and awards that promoted agriculture and other useful arts. Eight years later the framers wrote into the Constitution that the federal government had the duty 'To promote the Progress of Science and useful Arts'.[3]

It was easy for Adams and Franklin to proselytize based on the idea of the independent yeomen farmer, but it was more problematic for the slave-owning Washington, Jefferson and Madison. On a political and economical level they might have been fighting for their dream of a nation of free farmers but back at Mount Vernon, Monticello and Montpelier hundreds of slaves were harvesting wheat and corn, working from dusk to dawn six days a week.[4]

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[1] TJ to Madison, 28 October 1785, TJ Papers, vol.8, p.682

[2] JM, 'Republican Distribution of Citizens', *National Gazette*, 2 March1792

[3] Constitution of the United States, Article 1, Section 8

[4] In the past Jefferson had even thought that small-scale farming held the possibility of ending slavery in Monticello. While still in Europe he had considered settling German farmers 'intermingled' with his slaves on farms of fifty acres each. The Germans who he had met were

Despite this contradiction Washington, Jefferson and Madison still firmly believed that widespread small-scale farming, in principle fostered an independent people.

With the elevation of the small farmer as the guardian of liberty, seemingly mundane tasks such as collecting manure, planting seeds and devising crop rotations became elemental parts of nation building, and the founding fathers' political rhetoric became ever more infused with agricultural imagery.

If agricultural improvements had become political acts, then experimental farmers, Madison argued, were 'patriotic individuals'.[1] Every advance the founding fathers made would make America stronger and more independent. They were, as Madison quipped, 'worshippers of Ceres',[2] the Roman goddess of agriculture. Their agricultural correspondence zigzagged the country and crossed the ocean. They exchanged the latest books, shared valuable seeds of new crops, reported about the yields of their harvest and compared their experiments. They kept up-to-date with innovative methods by reading gardening and agricultural books – mostly from Britain. Washington kept a whole collection of gardening and farming books open on the table in his study including old favorites such as Philip Miller's *Gardeners Dictionary* and the latest publications from agricultural writer Arthur Young. Whenever an

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'absolutely incorruptible by money' – the epitome of the virtuous farmer. The slaves would remain his property but their children would be free and by being brought up in the proximity of the German farmers, Jefferson believed, they 'will be good citizens'. Jefferson never implemented this scheme (nor any other) and when he returned to his plantation he abandoned his plans to free his slaves. During his life he only freed three slaves and a further five through his will, while Madison never freed any of his slaves. Only Washington freed the slaves who belonged to him after his death.

[1] JM to George William Featherstonhaugh, June 1820, DLC

[2] JM to James Monroe, 29 October 1793, JM Papers, vol.15, p.132

American agricultural book or pamphlet was published (which was still rare) they enthusiastically bought those too. In the previous summer, for example, they had all eagerly read John Bordley's *Sketches on Rotations of Crops,* the first American treatise on the subject.

They were also fascinated by new agricultural technology. Threshing machines in particular excited them because for millennia farmers had separated the grains from the chaffs by hand or by letting their horses trample over the wheat (neither efficient nor very hygienic as the grain mixed with the dirt and excrement). Washington constructed an innovative sixteen-sided barn at Mount Vernon in which horses ran in circles 'treading' on the upper floor, the clean grain falling through narrow gaps onto the floor below. In 1791 Washington and Jefferson had together inspected a threshing machine on a farm just outside Philadelphia and Jefferson had become so interested that he had ordered a model from Britain through the American minister in London. Like an excited child, he had constantly updated Madison about his progress – 'I expect every day to receive it',[1] 'I have not yet received my threshing machine', it had at last 'arrived at New York'. When he finally constructed and tried it in August 1796, it was a 'great success'.[2]

That summer Jefferson was also ploughing his fields with his newly invented 'mould-board of least resistance'.[3] He had a knack for mechanics and could spend years brooding over a single invention. Ever since he had seen the badly designed ploughs in the Netherlands and France he had

[1] TJ to JM, 19 May 1793, TJ Papers, vol.26, p.62; TJ to JM, 9 June 1793, TJ Papers, vol.26, p.241; TJ to JM, 1 September 1793, TJ Papers, vol.27, p.7.

[2] TJ to William Booker, 4 October 1796, TJ Papers, vol.29, 170.

[3] TJ to John Sinclair, 23 March 1798, TJ Papers, vol.30, p.202; TJ started using his mould board in 1794.

thought about making a more efficient mouldboard (the wooden part of a plough that lifts and turns the sod). The plough, Jefferson believed, was the most important agricultural tool, 'to the farmer what the wand is to the sorcerer'.[1] With his inveterate fondness for science, Jefferson had created a mathematically perfect mouldboard. When it was finished, his slaves yoked the oxen to the plough and watched their master draw it through the red soil with ease.

They were all obsessed with manure. Washington believed that the mud from riverbeds might be used as manure and when he heard of a dredge in Philadelphia - 'Mr. Donaldson's Hippopotamus' [2] - he decided to dig up the mud from the Potomac and spread it on a field. He tested marl (similar to lime), ash and fish heads. He used the human waste from the 'necessaries', corresponded extensively about manure and bought the latest agricultural publications from Britain (because 'no Country has carried the improvment [*sic*] of Land & the benefits of Agriculture to greater perfection than England').[3] Washington was so obsessed with manure and the improvement of the soil that he was actively seeking a farm manager who, 'Midas–like', could 'convert every thing he touches into manure, as the first transmutation towards Gold'.[4] He was so innovative in his agricultural methods that many were said to regard him as 'the first farmer in America'.[5]

Mundane as it seems, manure was of the greatest concern to all four of

[1] TJ to Charles Willson Peale, 17 April 1813, Betts 1944, p. 509

[2] GW to Levi Hollingsworth, 20 September 1785, GW Papers CS, vol.3, p.268.

[3] GW to George William Fairfax, 30 June 1785, GW Papers CS, vol.3, p.89.
[4] GW to George William Fairfax, 30 June 1785, GW Papers CS, vol.3, p.90.

[5] Robert Hunter, November 1785, Lee 2006, p.31

them, for one of the reasons why yields in the United States of America were declining so drastically was the lack of manuring. Since the first settlers had arrived in the early seventeenth century, American farmers had let their livestock roam freely in the forests, where they scattered their manure miles away from the fields.

Over the years Adams had experimented extensively with dung, mixing it with mud, lime and seaweed, which was easily available from the nearby shore. One of the most charming images from Adams's life - and proof of how different he was to the powered and bejeweled diplomats in Europe - was his close investigation of a manure heap just outside London. Teasing apart the straw and dung, the American Minister to the Court at St. James's Palace 'carefully examined'[1] the stinking pile and clearly didn't mind the muck on his hands. He noted the exact contents and ingredients, before announcing with glee that it was 'not equal to mine'.

Where Adams had his arms up to the elbow in the dung, the studious Madison used pen, paper and numbers to tackle the problem. In spring 1796 in the midst of the Jay Treaty controversy, he had managed to find time to calculate precisely how many wagonloads of manure were needed to produce a healthy harvest of potatoes and dispatched instructions to Montpelier to cover the fields with dung. Unsurprisingly, Madison approached agriculture with the same attention to detail as he approached legal and political issues.

Somewhat ironically, these steaming piles of dung became icons of the founding fathers' agricultural vision. While other farmers let their cattle and hogs drop the nutritious dung far away from the plantations, Washington was

[1] JA Diary, 8 July 1786, 44:15, MHS online

the first American to build a stercorary - a covered dung depository where manure could be stored, aged and mixed. 'Nothing, is more wanting in this Country',[1] Washington wrote to Jefferson, asking him to share all knowledge on manures with his friends. Jefferson thought a British pamphlet on the subject so delectable that he declared it a 'charming treatise'.[2] All agreed with Washington that 'the profit of every Farm is greater, or less in proportion to the quantity of manure which is made thereon'.[3] For them the improvement of agriculture became a republican and therefore political endeavor.

4. James Madison: America's First Environmentalist

In May 1818, James Madison gave a speech that would make him one of the most respected farmers in America and would place him at the vanguard of forest and soil conservation decades before a concerted effort was made to preserve America's nature. It was a speech to the Agricultural Society of Albemarle in Virginia, but because it was published in many American newspapers it became known across the country and Europe.

Madison's speech was the sum of all that he had learned from reading the most progressive agricultural publications over the past decades, his own observations and experiments at Montpelier as well as a life's worth of conversations with farmers and scientists. The speech was a lament of all that was wrong with American agriculture as well as a catalogue of measures that could rectify the problems. Most importantly it was a call for change and an

[1] GW to TJ, 24 April 1794, TJ Papers, vol.28, p.56

[2] TJ to William Strickland, 23 March 1798, TJ Papers, vol.30, p.211

[3] GW to George Augustine Washington, 31 March 1789, GW Papers PS, vol.1, p.472

explanation of what Madison called the 'symmetry of nature'[1] – the interrelationship between earth and mankind.

More than thirty wealthy landowners and progressive farmers listened when Madison stood up to talk about soil erosion and the devastating effect of ploughing 'up and down hilly land.'[2] This method was fatally flawed because rain turned the furrows into channels that washed away the soil and seeds. Instead, Madison advised, farmers should plough along the lie of the land, following the contours of the hills – the horizontal ridges created by the plough would act as mini-dams, keeping the soil and seeds where they belonged. Madison acknowledged Thomas Mann Randolph - Jefferson's son-in-law, who was also in the audience - as the inventor of this method, although he had already used a similar technique at Montpelier almost three decades earlier. Madison also underlined the importance of irrigation, and highlighted the need to restore the depleted soils using manure and plaster of Paris.

But Madison's speech was more than just a list of practical advice about ploughing and manure. He wanted to change his fellow Americans' perception of nature by putting an end to the destruction of once fertile soil and the increasing exploitation of timber resources. He knew that man's reckless use of his environment would only change if Americans understood the broader context of agriculture, its pivotal place within the delicate balance between man and nature. When Madison began to explain what he meant, it became clear just how radical his ideas were.

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[1] JM, Address to the Agricultural Society of Albemarle, 12 May 1818, JM Papers RS, vol.1, p.269.

[2] ibid., p.271

Taken individually, no single argument or proposition of his speech was an entirely original one, but Madison was the first American to weave together a myriad of theories from different fields, combining political ideology, soil chemistry, ecology (though the term didn't yet exist) and plant physiology into one comprehensive idea. He brought together Alexander von Humboldt's warnings on the destruction of forests, Thomas Malthus's theories on population growth (and decline through disease and famine), Humphry Davy's recent writings on agricultural chemistry, Joseph Priestley's discovery of oxygen and Jan Ingenhousz's understanding of plant respiration as well as practical experiments recorded by the British Board of Agriculture.

Just as Madison had digested two hundred books on modern and ancient republics into one succinct paper in preparation for the Constitutional Convention three decades previously, he now fused the latest theories into one voice, rallying Americans to safeguard their environment.

In a world where many still believed that God had created plants and animals entirely for human benefit, Madison told the members of the Agricultural Society of Albemarle that nature was not 'subservient'[1] to the use of man. Not everything could be appropriated, Madison said, for the 'increase of the human part of the creation'[2] – if it was, nature's balance would collapse.

Plants gained their nutrition from their environment – from the atmosphere, soil and water - but they could also return it. This reciprocity, Madison pointed out, 'is sufficiently seen in our forests; where the annual exuviae of the trees and plants, replace the fertility of which they deprive the

[1] ibid., p.263

[2] ibid.

earth'.[1] Instead of exploiting nature ruthlessly as most farmers did, Madison's conclusion was that man had to return what he took from the soil. The more those parts of the crops (digested by cattle as manure or as stalks, straw and chaff) were ploughed back into the soil, the more fully the exhausted fields would be restored – 'Vegetable matter which springs from the earth', he said, must 'retur[n] to the earth'.[2]

Madison's theory of nature was complex and innovative. Soil chemistry, for example, was still in its infancy and scientists had yet to grasp the full implications of ecological systems such as the nitrogen and carbon cycle.[3] But at least since the early 1790s Madison had been struck by the symmetry of nature, writing that the different species of flora and fauna 'have a relation & proportion'[4] to one another.

In preparation for his Address Madison had also read Diderot's *Encyclopédie*, which had hinted at this interrelationship. If man were to eradicate the weasel (which was regarded as a pest), one entry in the *Encyclopédie* read, a chain of destruction would be set in motion. With no weasels, their natural enemies - field mice – would multiply excessively. In turn the increased population of field mice would devour the chestnuts, acorns and beech masts which were needed for the natural regeneration of the

[1] ibid., p.272

[2] ibid., p.273

[3] Madison probably not only read Humphry Davy's revolutionary *Elements of Agricultural Chemistry* (1813) which he had only received a few months previously but also Erasmus Darwin's *Phytologia* (1800) which explained the importance of nitrogen, carbon, phosphorus in plant nutrition. Madison had procured it for a friend and had also, he admitted, 'a very unfashionable admiration of Darwin's poetry' (a publication in which Darwin had turned Linnaeus' plant classification system into a charming poem).

[4] JM, Preliminary Draft of an Essay on Natural Order, 'Symmetry of Nature', circa 10 November 1791, JM Papers, vol.14, p.101.

forest. If the balance of nature is broken, the entry concluded, 'we can no longer trust nature'[1] to restore herself.

Animals, plants and their environment were in an equilibrium, Madison realized, and brilliantly linked these ideas to Priestley's and Ingenhousz's theories of plant respiration. Animals respired air that was 'unfitted for their further uses',[2] he explained, but plants reversed the process. If the 'whole class of vegetables were extinguished',[3] Madison concluded, animals would not survive, as they were dependent upon each other. The 'economy of nature',[4] Madison told the members of the Agricultural Society, was an 'admirable arrangement' and a 'beautiful feature'. Never before had an American so vividly explained how to learn from nature.

Having established the principle of the balance of nature, Madison now added a Malthusian flavor. Having just read Malthus' three volumes on the limits of the growth of populations - and which included his famously gloomy prediction that human populations would grow faster than their food supply - Madison asserted that, left alone, nature guarded against 'excessive multiplication'[5] of one species over another. Overcrowding of one species always resulted in its eventual reduction through epidemics and the demise of its food supply and habitat. Enter man, Madison said, and the equation changed dramatically. Man had increased certain plants and animals – crops

[1] Diderot's and d'Alembert's *Encyclopédie, 1751-1772,* entry 'Forêts', (Botan. & Econom.), ARTFL Encyclopédie Project online

[2] JM, Address to the Agricultural Society of Albemarle, 12 May 1818, JM Papers RS, vol.1, p.265

[3] ibid., p.266

[4] ibid., p.265

[5] ibid., p.266

and livestock – 'beyond their natural amount,'[1] thereby tipping the scales towards his own advantage. The danger was that it could also swing the other way.

Today, Madison's thoughts on nature's balance and ecology are all but forgotten, but at the time his approach was radically new. Decades before Henry David Thoreau called for the protection of America's nature, Madison warned about man's destructive force. The preservation of the environment was essential for the survival of mankind, Madison believed, not so much in order to live in romantic harmony with nature but to live off it without destroying it. The reasons were economic rather than idealistic, but the goal was the same.

It is most likely that Madison had initially been introduced to many of these ideas by the German explorer and scientist Alexander von Humboldt. After his five–year exploration of South America, Humboldt visited Washington, DC in June 1804, where he met Madison and Jefferson. Humboldt returned from his extraordinary travels with ideas about human-induced climate change, for example, when he warned that deforestation could have devastating effects on the soil, on water levels and the climate. Humboldt saw correlations everywhere. Nature was according to Humboldt 'a whole, animated and moved by inward forces'.[2] Nothing, not even the tiniest organism, was looked at on its own. In the great chain of causes and effects, Humboldt said, 'no element and activity can be in examined in isolation.'[3] This

[1] ibid., p.268

[2] Humboldt, Cosmos, 1846, vol.1, p.xviii

[3] Humboldt, Essay on the Geography of Plants, 1807, ed. Jackson and Romanowski 2009, p.79

balance of nature, he explained, stems from the free play of forces, and to understand it we have to look at every force. With this insight Humboldt had invented nature as we know it today: as a web of life, a concept so bold that it still shapes our thinking.

Perceived as a web, nature's vulnerability also became obvious. Everything hung together. If one thread was pulled, the whole tapestry might unravel. In the years after Humboldt's visit, Madison read every book that Humboldt published, staying abreast with these radically new ideas. In South America Humboldt had observed how the aridity of the land had increased since the arrival of the Spanish conquerors and in tandem with the destruction of the forests, an idea that fourteen years after he had met Humboldt in Washington, DC, Madison applied the same ideas to Virginia.

Madison ended his speech to the Agricultural Society by discussing what he believed to be man's most calamitous error: 'the excessive destruction of timber'.[1] What was left of the woodlands had to be preserved, he insisted, and what was destroyed had to be replanted. Early colonists had regarded trees with 'antipathy'[2] and had seen the forest as 'the great obstacle to their settlement,' but this attitude needed to change, Madison explained - it was essential to deal with it now.

Madison was the first politician (albeit a retired one) to make a public speech about the destruction of forests, and it was this aspect of his Address more than any other that seems to have had the most impact. Until this point there had been isolated voices in America but the discussion had never

[1] JM, Address to the Agricultural Society of Albemarle, 12 May 1818, JM Papers RS, vol.1, p.282

[2] ibid., p.282.

strayed beyond the realm of private letters and conversations. Madison lifted it onto the public stage, bringing together opinions of friends, acquaintances and writers into one concerted plea, arguing his case with the best possible evidence.

Although there were only some thirty people in the audience that day, Madison's visionary call for change was published as a pamphlet and in major newspapers across the country, as well as in the journals of other agricultural societies. Over the next year every enlightened farmer in the United States of America read Madison's Address and dozens of letters arrived in Montpelier from across the United States and Europe.

'I see, after a long night of darkness & obscurity, the Dawn of agricultural Light & Prosperity',[1] the Pennsylvanian farmer and agricultural writer Richard Peters wrote after reading Madison's Address. A London bookseller enquired if he could publish a British edition of it and the Portuguese Minister in America, José Corrèa de Serra – a talented naturalist and friend of Madison and Jefferson – was sure that Madison's words would 'produce the same sensation'[2] in Europe as Jefferson's innovative and award-winning mouldboard had done. Richard Rush, the American Minister in London, forwarded the pamphlet to John Sinclair, the former president of the British Board of Agriculture and it was also deposited at the library of the American Philosophical Society.

Madison did not see nature through a romantic lens of transcendent beauty but as a fragile ecological system that could be easily destroyed by

[1] Richard Peters to JM, 30 July 1818, JM Papers RS, vol.1, 320

[2] José Corrèa de Serra to JM, 5 September 1818, JM Papers RS, vol.1, p.353

mankind. As such the origin of the notion of conservation arguably lies not, as generally assumed, in the mid-nineteenth century with Henry David Thoreau or George Perkins Marsh's *Man and Nature* (1864) – a publication which has been hailed as the beginning of the environmental movement – but in the previous century with men like the founding fathers. Benjamin Franklin had talked of the 'loss for wood'[1] in the mid–eighteenth century – and as always he tried to tackle the problem with a practical solution, designing the fuel-efficient Pennsylvania fireplace in order to reduce timber consumption. Similarly Washington had complained that 'the waste which has been committed on my timber and Wood hitherto, has really been shameful'[2] while Jefferson had written to his overseer that 'we must use a good deal of economy in our wood'.[3]

Within their own lifetime attitudes to woodlands had been slowly changing, reflecting the progress the country had made from being mere colonies that served Britain to becoming a strong independent nation. As the colonies became the United States, and as settlers became patriots, trees that had been regarded as obstacles were now imbued with patriotic pride. In the 1750s, the twenty-year old John Adams had still hoped that the forests would be removed and boasted that the country had been transformed from 'dismall Wilderness'[4] to cornfields and laden fruit trees. Three decades later,

[1] BF to Jared Eliot, 25 October 1750, BF Papers, vol.4, p.70; for BF's Pennsylvania fireplace: BF wrote 'any new Proposal for Saving the Wood … may at least be thought worth Consideration', BF, An Account of the New Invented Pennsylvanian Fire-Places, 1744, BF Papers, vol.2, p.422

[2] GW to William Pearce, 9 February 1794, Conway 1889, p.38

[3] TJ to Edmund Bacon, 8 December 1806; TJ to Edmund Bacon, 13 May 1807, Betts 1944, p. 327, 347

[4] "JA Diary, 15 June 1756, 1:21, MHS online

as he negotiated with Britain and France after the victorious War of Independence, he wrote to Abigail, with palpable concern, 'Pray dont let a Single Tree be cutt'[1] when she had purchased a grove which he admired – 'I would not part with it, for Gold'. A decade later, in the summer of 1796, Adams recorded in his diary that the villagers who had stripped an ancient walnut tree of its bark to use as dye had 'murdered'[2] it. Similarly, Madison complained to a visitor that in his forests 'Great depredations are committed'[3] by neighboring tanners who left his trees naked when they scoured the forest for bark which they needed for the manufacturing of leather, while Jefferson had been shocked about the felling of trees in Washington DC.

These isolated concerns about American trees became stronger with increasing deforestation. People had initially believed that axing America's wilderness into fields had improved its climate, as summers apparently became cooler and winters less harsh. Hugh Williamson, for example – one of the delegates who had visited Bartram's garden during the Constitutional Convention – had, in 1770, told the members of the American Philosophical Society that forests created an air 'charged with a gross putrescent fluid',[4] creating a desperately unhealthy atmosphere for mankind. As the new century dawned, however, opinions were slowly changing. Jefferson's and Adams's old revolutionary friend Benjamin Rush traced the increasing number of sick

[1] JA to AA, 14 August 1783, MHS online

[2] JA Diary, 25 July 1796, 46:41, MHS online

[3] Sir Augustus John Foster, 1807, Davis 1954, p.140; for TJ and trees in DC see Margaret Bayard Smith, Hunt 1906, p.11-12

[4] Williamson 1769-71, p.280

people in Philadelphia to 'the cutting down of wood'.[1] He advised that more trees should be planted for they 'absorb unhealthy air, and discharge a highly purified air'.

Three decades later, some Americans had become so worried about the destruction of the native flora that they felt the need to collect and preserve them. Madison had called for 'plantations of the trees'[2] in his Address to the Albemarle Society of Agriculture and four years previously, in 1814, William Thornton had written to Madison that he feared that 'by clearing Lands, whole Families of plants are likely to be lost'.[3]

It would take until the 1870s for the first national park to be created. But in terms of conservation Madison made the first step by preserving some of his own forest. Proud of his very own piece of conservation propaganda, which proved that he 'had been at great pains to preserve some fine trees'[4] as one visitor enthused, he always ensured that tours of Montpelier featured this part of the estate. At the same time Madison remained a plantation owner who had to turn a profit, and to do so he continued to fell trees to bring new fields into cultivation. But today the James Madison Landmark Forest - a stately, two-hundred-acre deciduous forest of soaring tulip poplars, hickories and several species of oak – still stands as a testimony to his vision.

Madison's Address that day in May 1818 didn't turn Americans into innovative farmers and environmentalists overnight. Many Americans, as one

[1] Benjamin Rush, 15 December 1785, quoted in Chinard 1945, p.454

[2] JM, Address to the Agricultural Society of Albemarle, 12 May 1818, JM Papers RS, vol.1, p.283

[3] William Thornton to JM, 28 January 1814, DLC

[4] John Finch, 1824, Finch 1833, p.247

English traveller observed in 1820, continued to regard, every acre wrestled from the wilderness as 'a conquest of civilized man over uncivilized nature'.[1] But attitudes did gradually change. Ten years after Madison's Address, the members of the new Horticultural Society in New York were asked to ensure 'the preservation and the culture of plants indigenous to our soil'.[2] Native American plants were now under the 'guardianship' of the people. In the same year the naturalist John James Audubon yearned for the time when Ohio's forests had been 'unmolested by the axe of settlers'.[3] By 1832 the *North American Review* reported that 'a better taste is growing among us'[4] since increasing numbers of Americans had begun to agree that their forests were worthy of protection and celebration. 'Our forests offer us treasures, such as few lands can rival', the article continued.

By the 1830s Madison's rallying call was reverberating across the country, and writers were calling for the 'necessity of economizing'[5] and protecting what was left. 'Wherever they [trees] perish, the earth suffers',[6] the *North American Review* declared. In the same year the *New York Daily Commercial Advertiser* published a letter from the painter George Catlin, calling for 'A nation's Park, containing man and beast, in all the wild and freshness of their nature's beauty'.[7]

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[1] Adam Hodgson, 1820, quoted in Chinard 1945, Appendix 7, p.483

[2] John Frederick Schroeder, 1829, quoted in Otis 2002, p.109

[3] Audubon 1970, p.4

[4] Browne 1832, p.401

[5] Browne 1837, p.357

[6] Browne 1832, p.416

[7] George Catlin, 1832, quoted in Huth 1950, p.120

By this time, of course, the revolutionary generation had gone but they had left a legacy that continues to this day. Not only did they create the United States in a political sense, they had also understood the importance of nature for their country. The American landscape, forests, soil and plants made the nation. Nature was the backbone to her economy, feeding, clothing and sheltering the people. Their United States was a republic of farmers, and the opening of the West extended the vision of an agrarian people across a whole continent. At the same time the vast landscapes and stately forests became monuments of country's national identity.

With the maturing of the country from thirteen colonies to a strong and confident United States, the perception of the landscape changed dramatically, from an aversion to the wilderness to a patriotic celebration of it and concern for its preservation. Where once productivity had been the only measure, now nature was also appreciated for its sublime magnificence. At the same time, all over America, farmers were mixing manure and using the same methods of crop rotation that the founding fathers had pioneered, and those in the new states of Tennessee and Ohio were breaking the fertile earth with improved ploughs. And as new cities were founded in the West, the gardens of Memphis, Indianapolis and Cincinnati abounded with ornamental and edible plants, plucked from the riches of American soil. Andrew Jackson Downing, the most influential American garden writer of the nineteenth century, advocated native flora and suburban 'country' living for city dwellers, as well as suggesting that the Washington Monument on the Mall in

Washington DC be surrounded by a grove of 'American trees, of large growth'[1] - an appropriately arboreal symbol to celebrate their greatest hero.

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Hundreds of thousands of visitors have seen and continue to see the founding fathers' gardens today. As they walk through the groves and shrubberies that are planted with native species and see ornamental landscapes that incorporate experimental vegetable plots, agricultural elements and the forest, they can still experience the revolutionary ideas of Washington, Adams, Jefferson and Madison. The founding fathers' vision is indelibly imprinted onto their estates. In no other country, one magazine reported in 1819, would heads of state return to their private lives to promote agriculture, botany and other useful sciences which add 'to the welfare of their country and of mankind in general'.[2] Only in America 'we have witnessed, and still witness, such examples in the retired lives of Washington, Adams, Jefferson and Madison'.

So what does this all mean to us? Is gardening and farming still political today? Many of the gardeners that I have met over the past years in America are deeply invested in the environment. They are connected to the land because they work the soil. It gives many an understanding and ownership of the world around them (and the threat to this environment). Most people

[1] A.J. Downing to Millard Fillmore, 3 May 1851, quoted in Pauly 2007, p.85

[2] "to the welfare of": and following quote, Editorial, 'Mr Madison's Address', 5 June 1819, *The Plough Boy*, vol.1

today, though, don't regard gardening as an overtly political act, as it was for the founding fathers.

But gardening is political because it can empower people and local communities. The rise of urban farming and gardening across the country in the past decade, is one example, the increasing interest in local produce is another. It gives us control over our food and its production which for the most part is in the hands of industry and huge conglomerates. If you grow your vegetables, for example, or subscribe to weekly boxes of fresh produce from local farms – you're making a political statement. If you keep a compost pile, you don't need chemical fertilizers – you're making a political statement. If you have an organic garden that invites useful insects – you avoid the use of harmful pesticides – and you're making a political statement. If you eat local produce, you can reduce carbon emissions which are associated with industrial food production and long-distance transportation – you're making a political statement.

Over the years, the founders have been invoked by almost every politician and every political movement across the whole spectrum from the left to the right. Now, maybe, it's time for gardeners and environmentalists to claim their stake in the ideals that formed this nation.