

GLOBALISATION AND THE HISTORY OF ENVIRONMENTALISM, 1650-2000

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It is a common fallacy to think that globalisation and environmental crisis are new phenomena, or products only of the post Second World War World. Global environmental concerns are often similarly considered to be relatively new. But the story of environmentalist reactions to human-induced ecological changes operating at a global scale is actually more than three centuries long. Many of the anxieties that motivated the first environmentalists are still with us, albeit on a much more threatening scale. Important lessons can be learnt from reflecting on the characteristics of global environmental change over the last few centuries, and on the personalities and motivations of the environmentalists themselves. What were they trying to do and have they been successful?. Has there been, historically, any real identity of interest between the environmentalism of the rich countries and the environmentalism of the poor majority of the world's population?.

The emergence of a truly global environmental awareness was a very specific historical development. It depended on a new empirical knowledge of the scale of the world and actual observations of the ability of humans to change the natural environment on a worldwide basis. Global environmental awareness was thus directly connected with a new capacity for people to travel huge distances, transform the earth and acquire knowledge about it. We can date the emergence and understand the context of this awareness very accurately. Two elements were

really necessary; firstly the institution of capital and shareholder-rich maritime trading companies backed by state legislation and assistance, and, secondly, the settlement of previously naturally pristine islands and (sometimes) continental peninsulas in the tropics and subtropics by colonial settlers and planters. The profit motives and mechanisms of these trading companies, especially the East India Companies of Portugal, The Netherlands, Britain and France, tended to manifest in intensive cash-crop plantation activities on oceanic islands, and in the clearance of forests for agriculture and for ship construction. These processes had already begun in the context of Portuguese and Spanish settlement and plantation agriculture on the Azores, Canaries and Madeira during the fourteenth century, but the sheer scale of impact was massively expanded as the European trading companies developed their routes to India, the East Indies and the Caribbean. As early as the 1670s the catastrophic consequences of their capital and labour intensive activities became clear as the early island colonies experienced drought due to the drying-up of perennial streams, soil erosion, dust storms and the obvious disappearance of animal and plant species. These all made practical survival on oceanic islands difficult and encouraged wider questions about the sustainability of a confined settler. Islands soon became metaphors for the explored world, and encouraged ideas about limited resources and the need for conservation or sustainability. But it was the question of species

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disappearance that first proved critical to the formation of a distinctive new global rather than local environmental awareness. Colonial expansion and Company trade enabled and even sponsored the growth of botanical and zoological knowledge that was virtually global in scope. The activities of botanical collectors and salesmen ensured that the 'uniqueness' and endemism of isolated island biotas, for example, had already become apparent by the end of the seventeenth century when the first official attempts were made to protect rare species. The attempts by Governor Roberts to protect the indigenous Redwood on St Helena island in 1707-1709 are especially notable in this respect.

The idea of regional environmental degradation or control was not new; indeed the very word 'conservancy' was first adopted in England in the 14th century in relation to the control of whole River basins such as those of the Thames or Ouse rivers. Similarly in the Venetian Republic ideas about the control of deforestation in hill catchments in order to control erosion and silting downstream were well developed in a regional sense. For Japan Conrad Totman has documented the sophisticated attempts to protect forests made by the Tokugawa Shogunates during the seventeenth century. In Brazil the authorities tried to protect the Atlantic forests during the eighteenth century. It may be argued that these kinds of initiatives were the early signs of responses by new kinds of highly sophisticated maritime states to the first consequences of early merchant capitalism and trade that had a global reach. Indeed it can be argued that even before the advent of large continental-based European empires in the East, Africa and the Americas the scale of artificially caused environmental change was already being transformed as European maritime countries started to exploit new kinds of natural resources on a global scale. Small islands, especially in the West Indies, Indian Ocean and East Indies were planted for sugar and other crops essential to the new European urban markets. Fisheries after about 1400 extended at an oceanic scale while seals and whales were hunted from pole to pole in what John Richards has called 'The World Hunt'. The extension of what Immanuel Wallerstein has called the capitalist 'world system' on a global scale between 1200 and 1788 had a critically important dimension in

terms of the exploitation of resources. European merchants and companies found that they could exploit the trade goods, markets and resources of almost every land. Capitalist accumulation and trade developed quite autonomously in South and East Asia. Here too major transformations of the natural landscape took place. Some, like the deforestation of the Ganga basin, had already been long in train; but were quickly accelerated after about 1400 as powerful mercantile empires developed. However, it was in the tropics that the destructive environmental impact of globalisation made its most obvious impact to the observer.

One of the first symptoms of the early phases of globalisation was the marginalisation, enslavement and then extinction of small indigenous cultures, especially those of island peoples, the indigenes of the Canary islands being a useful example. However it was on uninhabited islands such as St Helena and Mauritius that the full effects of highly capitalised plantation and forest clearance and the imports of alien animals (especially pigs, goats and rats) were first observed. The extinction of the Dodo made a great impression on contemporary naturalists. The fact that oceanic islands were perceived as highly desirable 'Edenic' locations in long-running European cultural traditions served to emphasise the shock of their manifest and rapid degradation. Moreover their degradation threatened their role as watering and supply stations for Company ships. In these circumstances the colonial governments of many small islands became 'environmentalist' if only to ensure their own survival and the survival of agricultural settlers and their slaves. Some of the first comprehensive forest protection legislation on such colonies was introduced in 1702 on Montserrat in the Caribbean Leeward Islands. Here the mountain forests of the island were protected from felling by a rigid Ordinance in the knowledge that unrestricted logging caused soil erosion and flooding on lower ground and in towns. The Caribbean islands, with their large settler and slave populations, came under sustained ecological pressure at an early date and, as on Mauritius and St Helena awareness quickly grew of the physical changes and extinctions that commercial clearance brought about. Already by 1650 measures had been taken to protect indigenous edible sea birds on Bermuda. By the mid-

eighteenth century overfishing and major reductions in catches was taking place around many now densely populated islands. In 1753 this was worsened by a long drought caused by a strong El Niño event. Strict laws were introduced on Antigua to restrict the size of fishing net mesh and the catches allowed to each fisherman.

Before the 1760s the impacts of colonial economic globalisation were responded to on a piecemeal basis, in order to protect local food, fuel and timber supplies and to protect what were already recognised as rare island species. However in the mid 1760s responses to deforestation in particular suddenly changed. This was due to the rapid spread of a theory, first enunciated in France by Pierre Poivre which linked deforestation to rainfall and regional climate change. The theoretical underpinnings of this theory originated in the work of Stephen Hales, a pupil of Isaac Newton and the author of *Vegetable Statics*, a book published in 1727 which outlined the part played by transpiration in linking vegetation cover with the constituents of the atmosphere. The growing internationalisation of science during the mid eighteenth century meant that these ideas were quickly taken up by Duhamel du Monceau, a French agronomist. Their implications for the specific climatic impact of tropical forest clearance were then explored by Pierre Poivre, who had already observed the effects of extensive deforestation in the East Indies and on Mauritius, then called the Isle de France.

The wider implications of these remarkable theories were quickly taken up by the British, which had gained control of several heavily forested islands in the Eastern Caribbean under the terms of the Peace of Paris in 1763. These were Tobago, Grenada, St Vincent and Dominica, all highly valuable for plantation crops. A fear now grew, however, that unrestricted deforestation might lead to economically damaging rainfall reduction. As a result an Ordinance was passed in Tobago in 1764 designating the mountainous part of the island as protected forest, "reserved in wood for rains". This protected forest still exists within its original boundaries. The legislation which created it marked a critical watershed in the history of environment concern, since it applied a universal scientific theory about earth-atmosphere processes (since shown to be sub-

stantially correct) to a local environment. It was thus the forerunner of all subsequent national and international attempts to control rainfall and climate change. The 1764 Tobago Ordinance specifically recognised the need to restrict profits to sustain an environment in the long term. Moreover the mechanisms used to set up forest reserves under the Ordinance justified the alienation (in the face of much local litigation) of large amounts of private plantation land to colonial state control and implied a permanent role for the state, rather than the individual, in conserving forests and atmosphere. In 1765 identical ordinances were applied to Barbados and Dominica.

Then, in the hundred years after 1764, forest reserve legislation responding to fears of artificially induced climate change brought about by deforestation began slowly to spread around the world, especially throughout the French, British and Dutch empires.

It was on the French colony of Mauritius, however, that the most far-sighted and comprehensive environmental measures were adopted, soon after the arrival of Pierre Poivre as administrator of the island in July 1767. Unlike the Lords Commissioners for Trade and Plantations, who had instituted the forest reserve measures in the Caribbean, Poivre's environmentalism was as much ideological as economic or scientific. Poivre was an adherent of the new politico-economic philosophy of Physiocracy pioneered in the 1750s in France by Francois Quesnay. As such, Poivre was specifically hostile to mercantile capitalism, absentee 'rentiers' and what he called "bullion accumulation". Instead he favoured the deliberate encouragement of the latest agricultural science to increase food production and boost the wellbeing of the rural economy and preserve the landscape aesthetics of what he termed the 'Eden' of Mauritius. Poivre's ideological standpoint is worth some attention.

He saw the polity of the shortlived Physiocratic state which he founded on Mauritius as a political bastion against the corruption, urban values and intolerance of Bourbon France. Indeed many of his Mauritius speeches were published and circulated as revolutionary tracts after 1792, while his son-in-law and biographer, Du Pont de Nemours, a revolutionary sympathiser, escaped France and made a

career in the United States as a friend of Thomas Jefferson (another early conservationist) and the founder of the Du Pont corporation. The life of Poivre is useful in drawing attention to the profound connections between early environmentalism and the development of social reform, popular and even revolutionary movements. This was a connection which grew steadily stronger during the next two centuries, allowing the proliferation of both state and non-governmental environmental discourses. Poivre had also radically enlarged the philosophical and practical ambit of the notion of the state and its possibilities. His standpoint was made stronger in the particular case of Mauritius, by the lucid articulation of an elaborate environmental discourse by Bernardin de Saint Pierre, the Colonial Engineer of Mauritius and a disciple of Jean-Jacques Rousseau. This discourse comprised the four volumes of *Etudes de Nature* (*Studies of Nature*) and three other books, *Voyage to the Isle of France*, *Harmonies of Nature* and the novel *Paul et Virginie*. These texts stand out as the first fully developed and evidenced critiques of the European impact on the world environment. Perhaps Saint Pierre's most profound remark concerns the innate destructiveness, as he saw it of Europeans:

"To contemplate the progress of a rising colony is a spectacle worthy of philosopher, for it is there that the culture of man forms a striking contrast with that of nature. That contrast was frequently brought before my eyes, in the pedestrian journey which I made in 1770... I entered spots lately brought into cultivation, where monstrous trunks of trees overturned by the axe and sometimes by gunpowder, lay along the ground¹".

In the eyes of Saint-Pierre, man had become destructive and had allowed commerce to run its destructive path because he had himself become denatured and been:

"Universally dissected, and now nothing is shown of him but the carcass. Thus the masterpiece of Creation, like everything else in nature, has been degraded by our learning".

As man had come to manipulate nature cruelly, he increasingly acted "the part of the

tyrant of Sicily, who fitted the unhappy traveller to his bed of iron; he violently stretched, to the length of the bed, the limbs of those who were shorter and cut the limbs of those who were longer". It is thus, Saint-Pierre added, "that we apply all the operations of nature to our pitiful methods, in order to reduce the whole to our common standard".

The environmentalist initiatives of Poivre and St Pierre on Mauritius were exceptional. They legislated and theorised deforestation, climate control, pollution control, fisheries conservation and tree-planting. But they were not immediately imitated in metropolitan France, although they continued in France until the British annexation of Mauritius and were carried on by the new coloniser. They were however apparently imitated in the Caribbean, where, in 1791 the Kings Hill Forest Act was passed on St Vincent, again setting up a 'rain reserve' in an upland part of the island. Similar measures were passed on the Atlantic island of St Helena in 1794. Both islands had been affected by the El Nino caused drought of 1791, a drought recognised as global in impact by East India Company scientists as early as 1816. Significantly the inspiration for the forest protection legislation on St Vincent was a Scotsman, Alexander Anderson, the first of a long series of Scottish scientists who formulated much of the earlier environmentalism of the British empire during the period 1780-1900 and influenced that of the American empire in the Western America, not least through the work of John Muir of Dunbar in Lothian. It can safely be argued that Western environmentalism has been dominated by French Physiocracy, the Scottish Enlightenment and, perhaps to a lesser extent (and at a later stage), by German Romanticism and English Liberalism. The Scottish influence was ultimately the most important of these, at least until the heyday of Rooseveltian Progressivist conservation in the United States, and the pioneer of that influence was Anderson, an Edinburgh trained surgeon who became the Curator of the St Vincent botanic garden (the first in the western hemisphere) in 1784. Like Bernardin de Saint-Pierre, Anderson justified and summarised his climatic environmentalism in a major discourse; the

¹ Saint-Pierre, J. H. Bernardin de, *Harmonies of Nature*. London, trans. H. Hunter, 5 vols, 1815, 177-178.

Geography and History of St Vincent, a work which remained unpublished during his lifetime.

A further impetus to fears about the global consequences of deforestation and climate change resulted from researches on vegetation-atmosphere relations by Alexander von Humboldt, the German geographer and polymath and Joseph Boussingault, a French chemist. Both men advocated large scale state intervention in forest protection. Once again these ideas were taken up on Mauritius, this time by Louis Bouton, whose advocacy led to a strengthening of forest protection on the island, and hence to the survival of the remarkable endemic birds of the island, apart, of course, for the Dodo, whose disappearance had helped to motivate Bernardin de Saint-Pierre in his writings. By the late 1830s and the 1840s, however, the reiteration of climatic environmentalism by Humboldt and Boussingault was being acted upon by environmentally-minded scientists and officials working not just on islands but in the large land masses of India, South-east Asia, Southern Africa and Australia, where the demands of European colonial empires were now bringing about deforestation at an unprecedented speed.

These early Victorian environmentalists were, like Anderson, mainly Scottish doctors or missionaries well trained in field observation and avid readers of the international scientific literature that flowed from the Scottish Enlightenment Universities. Most East India Company doctors, for example, read the *Edinburgh New Philosophical Review*, in which the findings of von Humboldt and Boussingault were quickly published. The emergence of an environmentalism in India was especially important, simply because of the huge areas of land involved. Since the 1780s there had been sporadic attempts by the East India Company to annex private or community teak forests for state use to ensure a sustainable supply for ship-building purposes, both for the Royal Navy and the Company Marine. Most of these schemes had failed, however, and the remnants were abandoned by Governor Thomas Munro, an advocate of indirect rule and the restoration of indigenous land ownership. After 1823, therefore deforestation proceeded at a prodigious rate, such that between 1823 and 1850 up to 50 % of the Indian forest area may have disappeared, a rate

only exceeded by deforestation in India after 1947. A succession of famines in the 1830s, as well as the writings of Humboldt and Boussingault forced a change in this laissez-faire approach. Moreover there was a growing interest in the forest reserves already set up by indigenous rulers in Sind and the Bombay Presidency, which appeared to provide a suitable model for a colonial forest reserve system. In 1843 a Sind Forest Department was set up, soon followed by a Bombay Forest department in 1847 and a Madras Forest Department in 1855. Further afield, a forest reserve was gazetted to protect the island of Penang by John Logan, a Scotsman in the government service. A paper of his published in 1847 and called 'the probable effects on the climate of Penang of the continual destruction of its hill jungles' was enthusiastically received in India. It persuaded three Scottish surgeons in the Company service, Alexander Gibson, Hugh Cleghorn and Edward Balfour to conduct a vigorous propaganda campaign to further extend the early forest protection efforts to cover the whole of the Indian subcontinent. Their arguments were summed up in a paper written for meeting of the British Association for the Advancement of Science and published in 1851, and entitled "Report of the Committee appointed by the British Association to consider the probable effects in an economical and physical point of view of the destruction of tropical forests". To the present-day reader this report seems remarkably modern in its concerns. Deforestation, its authors warned, threatened damaging reductions in rainfall and increases in regional temperatures. Potentially important drugs might be lost as little-known trees and plants were cut down, while fuelwood shortages would become serious. Famines would become more frequent. Surgeon Hugh Cleghorn, for his part, lamented the aesthetic loss as forests were cut down for road and railway building. The loss of perennial streams would encourage diseases thriving in the stagnant watercourses left after deforestation.

This report came to the receptive ears of the Governor-General of India, Lord Dalhousie, who used it as the scientific justification to set up an India-wide Forest Department in 1864. Dalhousie, a Scotsman, was a friend of the botanist Joseph Hooker, and like so many of his Scots compatriots, imbued with the desirability of the tree-planting fashion which had swept his native

land. He had already had occasion to lament the stark absence of trees on the arable plains of the Punjab, deforested early in the nineteenth century. This had led him to organise an extensive tree-planting programme under the aegis of the Punjab Agri-Horticultural Society, soon after arriving in India. But the foundation of a Forest Department, motivated by dual concerns for maintaining a sustainable timber supply and curbing drought, was his crowning achievement and one of the most durable achievements of British rule in India. By 1880 the Forest Department controlled a fifth of the land area of India. The exclusionary forest reserve system, which often shut out hunters and farmers from their traditional resources, has caused chronic social conflict since its foundation. Without it, however, no significant forest cover would have survived in South Asia which, like most of the tropics, was subject in the nineteenth century to an entirely new kind of globalising economic penetration which traditional common property arrangements could not have survived. In China and Thailand, where no significant reserve system developed, the forests have now largely disappeared. By contrast in India the forest area was stabilised for nearly a century after about 1870.

Why does the history of colonial environmentalism, based mainly on the fear of climate change, matter to us today? The answer is quite simply that the Indian forest reserve system, developed under British rule, using French, Scottish and German theories, became the basis for state land use reservation on an enormous scale throughout the world, and not only in British and French colonies. It is true that a variety of environmentalisms developed after about 1870 in the temperate northern countries, in the context of highly urbanised and prosperous societies. Here the preservation of 'wilderness', in the form of 'national parks' or 'game reserves' by the state after 1872 or the preservation of erstwhile common land (for which the Commons Preservation Society campaigned in after its foundation in England in 1865) appealed mainly to aesthetic and species protection agendas. Such agendas were sometimes transferred to the tropics especially in post-war Africa, but they never acquired the global significance of the kinds of forest reserve systems developed in India.

Even in the United States, actually a latecomer to forest conservation, the founder of the Forest Service, Franklin Hough, pointed in 1873 to the Indian Forest Department as the example that the United States would do well to imitate. Congress soon concurred with this view when faced with the evidence of catastrophic rates of deforestation throughout the country. Hough and his successors, particularly under President Theodore Roosevelt, proceeded to build up a public land holding, much of it forest, unequalled outside India itself. The underlying assumption in state land control of this kind was that private capital interests could not be trusted to safeguard and conserve resources on which environmental stability and hence human and long term economic wellbeing depended. State forest conservation as it developed in India was a system evolved specifically to counter the perceived risks and rapacious demands of a globalising capitalist world economy. In a world in which privatisation is now a fashionable buzzword beloved of global financial institutions it would be unwise to forget the relative success, albeit modest, of a state environmentalism that had its origins in an understanding of the connections between economic globalisation and global environmental risks.

It is of course ironic that an exploitative colonial economic system should have provided the conditions for the emergence of an environmental awareness that did not develop in Europe or North America until the late nineteenth century. The methods of state forest and water conservation were inadequate and easily distorted for commercial and elitist purposes. However, they provided a conservation infrastructure that is now, in many countries, available for sophisticated new kinds of community management. Entirely novel kinds of globalising ecological pressures are present these days. The main threat to species-rich tropical forests is now posed by multi-national timber companies based in Malaysia, Hong Kong and Japan for whom notions of sustainability have no meaning. These concerns can now buy access to the relatively untouched forests in Mozambique, the Amazon, and Melanesia and have been virtually impossible for poorer states to restrain. As a result, in areas largely outside forest reserves, 11 million hectares of tropical forest are now disappearing annually,

at a time when the temperate forest areas of the rich countries, measured globally are now increasing

In Tobago, for example, where the story of colonial environmentalism first began, the principle threats are still those posed by unrestrained private capital, but this time in the form of major tourist developments, now the most serious global environmental risk faced by many poor countries. When a multinational hotel chain chooses to dynamite a species-rich coral reef to make a marina for its western guests, as the Hilton chain has, astonishingly, just done on Tobago, the conservation solutions of a colonial empire are quite inadequate. The historical lesson to be learnt, perhaps, is that for private capital and international trade interests global environmental wellbeing is generally an accounting irrelevance. Only local communities, in effective collaboration with national states and global environmental networks and institutions, can serve as guarantors of our fragile 'island' earth's wellbeing for future generations. The kinds of climatic anxiety encapsulated in the intentions of the Kyoto Treaty on global warming have been with us for centuries. History shows that only serious state intervention to control capital or corporate interests can hope to deal with the deadly risks of climate change, forest loss and species extinction.

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