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**Nature, politics and the 'disorder of water'.  
Theories of environmental  
vulnerability in the Mediterranean  
(1750-1865)**

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## Abstract

This paper explores the perception of environmental vulnerability in the Mediterranean between the end of the so called Little Ice Age and the publication of a seminal study in conservation: G.P. Marsh's *Man and Nature* (1864). This period is of particular interest to the environmental historian of Europe for two reasons: first, because it was marked by a sensible climatic shift from colder to warmer temperatures. Second, because it also witnessed major political and economic changes with a significant impact on the management of natural resources. Characterized by a general demographic growth, the 18<sup>th</sup> century brought about widespread privatizations of land and water, and new politics aimed at extending State control over natural resources. Unlike most areas in North Europe, however, Mediterranean regions were characterized by a geography of mountains and hills with a still high population density. The combined effects of climate change and political economy had thus a significant impact on upland populations, and resulted in unequal patterns of social and environmental vulnerability.

The paper will first consider some of the available literature on environmental change in the Mediterranean between 1750 and 1865. It will then offer a critical examination of environmental discourse in one particular Mediterranean region, the Apennines of southern Italy. In particular, it will analyse the 'disorder of water' theory elaborated by the Neapolitan Enlightenment School as a political-economy explanation of floods and malaria. The paper will finally examine the role that contemporary environmental change in the Mediterranean Apennines played in G.P. Marsh's *Man and Nature* (1865), a founding text of early conservationism in the Euro-Atlantic world.

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# I

In the years 1850-54 an American erudite named George Perkins Marsh, visited parts of the Mediterranean as the recently appointed US ambassador to Turkey. A native of Vermont, where he run his family's farm, Marsh had developed an early interest into environmental degradation as related to deforestation. Once catapulted into the, apparently so different, Mediterranean landscape, he found something that would allow his Vermont observations to develop into much more than the expression of local agrarian knowledge. On the southern shores of the Mediterranean Marsh saw what he believed were the long term effects of deforestation occurred in ancient times, leading to desertification. The locus of ancient civilizations and empires, the Mediterranean appeared to Marsh as the living example of how environmental degradation could be a powerful force of social and political collapse; the negative model to raise before the eyes of his compatriots to show them the importance of preserving the forests of North America. A few years later, in 1861, he moved to Italy as the new US ambassador in that country, and there remained until his death in 1882. On the northern shores of the Mediterranean, and especially on the Apennines and Alps between Italy and France, he saw incumbent disasters resulting from deforestation occurring in his own time. The result of Marsh's encounter with the Mediterranean landscape and history was his masterpiece *Man and Nature*, a book still considered a founding text of modern conservationism, first published in 1864<sup>i</sup>.

In short, *Man and Nature* argued for a stable natural order disturbed by humans, and for the need of repairing the negative effects of such human interference – not by leaving nature alone but by the means of active and scientifically sound restoration. In fact, nature left alone could restore itself in a way malignant to human habitation, like in formerly terraced and then abandoned mountain slopes, prone to landslides and ravines. With its wealth of history, culture, and even myth, the Mediterranean was what transformed *Man and Nature* into the first global narrative of environmental declension.

It was the Mediterranean to give start to the story told in the book, ant that story was one of declension and loss. At the time of the Roman Empire – the author argued – ‘the Mediterranean comprised the regions of the earth most distinguished by a happy combination of physical advantages’ (climate, fertility, biodiversity, mineral resources and facility of transportation) such that ‘the abundance of the land and of the waters adequately supplied every material want, ministered liberally to every sensuous enjoyment’<sup>ii</sup>. This naturally wealthy Mediterranean evoked by Marsh is a quasi mythical place in a mythical age. Although the author generically refers to ‘ancient historians and geographers’ as his sources of information, he does not quote any in particular, nor does he give us any time framing except that of the roman empire, roughly 500 years

long. Nor does he give us any geographical specificity as regards the places he is describing. What matters to the author is to emphasize the current environmental degradation of the Mediterranean as compared to an undetermined 'antiquity'. More than one half of the former roman empire, Marsh argues, is either deserted or greatly reduced in both productiveness and population. The original cause of all this waste lay with deforestation: with the disappearance of vast forests and the subsequent soil erosion – he argues – also water resources are lost:

Meadows, once fertilized by irrigation, are waste and unproductive, because the cisterns and reservoirs that supplied the ancient canals are broken, or the springs that fed them dried up; rivers famous in history and song have shrunk to humble brooklets; the willows that ornamented and protected the banks of the lesser watercourses are gone, and the rivulets have ceased to exist as perennial currents, because the little water that finds its way into their old channels is evaporated by the droughts of summer, or absorbed by the parched earth, before it reaches the lowlands; the beds of the brooks have widened into broad expanses of pebbles and gravel, over which, though in the hot season passed dryshod, in winter sealike torrents thunder; the entrances of navigable streams are obstructed by sandbars, and harbors, once marts of an extensive commerce, are shoaled by the deposits of the rivers at whose mouths they lie; the elevation of the beds of estuaries, and the consequently diminished velocity of the streams which flow into them, have converted thousands of leagues of shallow sea and fertile lowland into unproductive and miasmatic morasses<sup>iii</sup>.

Most of the book's narrative describes water-related problems. It may be said, in fact, that the environmental decline of the Mediterranean described by Marsh is almost entirely a matter of hydrological instability and vulnerability.

The origins of such environmental decline – according to Marsh – are to be searched among two orders of factors: one is ignorance, or rather 'man's ignorant disregard of the laws of nature'; the other is politics, or 'an incidental consequence of war, and of civil and ecclesiastical tyranny and misrule'. But the 'primitive source, the causa causarum', was the empire itself, that is 'the brutal and exhausting despotism which Rome herself exercised over her conquered kingdoms', and then the political legacy of the empire, that is 'the host of temporal and spiritual tyrannies which she left as her dying curse to all her wide dominion, and which, in some form of violence or of fraud, still brood over almost every soil subdued by the Roman legions'<sup>iv</sup>. Nature and politics together had acted along many centuries as powerful forces of environmental decline: 'man can not struggle at once against crushing oppression and the destructive forces of inorganic nature' – Marsh concluded<sup>v</sup>.

To sum up, Marsh's explanation of environmental degradation in the Mediterranean was grounded in political economy: imperial despotism, first, and then feudalism had caused the ruin of once naturally wealthy areas. The author however did not go deep into the political economy theme:

rather, he gave this part for granted, and devoted his efforts to describe the physical aspects of society-nature relationships, especially the combination of geology and climate.

Destructive changes – he wrote – are most frequent in countries of irregular and mountainous surface, and in climates where the precipitation is confined chiefly to a single season, and where the year is divided into a wet and a dry period, as is the case throughout a great part of the Ottoman empire, and, more or less strictly, the whole Mediterranean basin<sup>vi</sup>.

In mountainous areas, rain and snow fall in greater quantity, ‘and with much inequality of distribution’; the snow is then often ‘almost wholly dissolved in a single thaw, so that the entire precipitation of months is in a few hours hurried down the flanks of the mountains, and through the ravines that furrow them’; due to the natural inclination of the surface, the gathering currents of rain and of melting snow acquire ‘an almost irresistible force, and power of removal and transportation’; mountain soil itself is ‘less compact and tenacious’ than that of the plains, and if the forest has been destroyed, ‘it is confined by few of the threads and ligaments by which nature had bound it together’.

Hence every considerable shower lays bare its roods of rock, and the torrents sent down by the thaws of spring, and by occasional heavy discharges of the summer and autumnal rains, are seas of mud and rolling stones that sometimes lay waste, and bury beneath them acres, and even miles, of pasture and field and vineyard.<sup>vii</sup>

The combined effect of climate, altitude, and the quality of soil thus formed the primary explanation of erosion and flooding, and determined the environmental consequences of deforestation in different places – notably, mountains and plains. Two regions of the Mediterranean, in particular, served as examples of this phenomenon: the French Alps, whose soil ‘yields very readily to the force of currents’, and the Italian Apennines, ‘covered with earth which becomes itself a fluid when saturated with water’. Hence, the erosion of such surfaces was ‘vastly greater than on many other mountains of equal steepness of inclination’. Especially on the northern shores, from the mountain ranges of the Balkans throughout Italy’s Apennines to the Alps and Pyrenees, nothing describes this contrast so well as the issue of river degradation. And in fact, large parts of Marsh’s book were devoted to the topic of river degradation, which he reputed the most important consequence of deforestation.

By contrast, however, the geological formation of the Mediterranean was also what explained the flourishing civilizations emerged there as compared to the ‘barbarian tribes’ of northern Europe. On the Mediterranean shores, nature offered both great opportunities for agriculture, commerce and art, and great obstacles to human habitation, and so it stimulated human ingenuity and the mastering of environmental risk. In fact, we might consider such inextricable mix of natural wealth and danger as the very essence of human habitation in the Mediterranean in the long run.

## II

To understand *Man and Nature* and why it became a landmark of 19<sup>th</sup> century environmental consciousness, we need to locate it within the material context of environmental change occurring in the Mediterranean in Marsh's time. From other contemporary observers, and from historical studies as well, one aspect seems to emerge as the most relevant: hydrological instability. Throughout the Italian Apennines, the Alps, and the Pyrenees, the nineteenth century seemed to be the time of floods, so Marsh was highly concerned with this particular issue. He devoted an entire section of his chapter on Water to the inundations of the Ardèche (a minor torrent, tributary of the Rhone), describing the two exceptional floods of 1827 and 1846, during which the Ardèche contributed to the Rhone more water than the Nile to the Mediterranean<sup>viii</sup>.

Around the mid century, floods had become such a dramatic threat throughout the Alps (not only in France, but also in Switzerland, Italy and even Germany) to spur the emanation of reforestation laws and a unified State regulation of water and forests. Experts from those countries also produced investigations about the possible causes of flooding. The most famous became that of French hydraulic engineer Alexandre Surell on the alpine torrents (*Etude sur les torrents des Haute Alps*), published in 1841. This study already exposed the theory, later referred to Marsh, of a causal link between deforestation and river degradation. Indeed, during the 1840s France was particularly plagued by flooding from a number of streams flowing into major watercourses such as the Rhone, the Garonne and the Loire, whose worst inundations hit in 1855 and '56. In 1857, Napoleon III came to pledge that 'rivers, like revolution, will return to their beds and remain unable to raise during my reign'<sup>ix</sup>.

Just when floods were escalating everywhere, social vulnerability was increasing too, due to the enclosure of greater extensions of land and water. In the increasing environmental vulnerability of the northern Mediterranean, only rainfall was the exogenous variable; all other causes were social, and especially related to important changes in political economy. Not by coincidence, in fact, the 19<sup>th</sup> century was also a time of massive changes in land property and use. Since the late 1700, huge amounts of formerly feudal, monastic and communal lands had been put on sale and enclosed all over Italy, France and Spain. The areas most affected by these changes in land tenure were exactly those of southern Europe, where feudalism had retained his grip until the late 18<sup>th</sup> century. After the French revolution and the Napoleonic wars, those areas were witnessing a frontal assault upon their forests and common pasturages, which were parceled out and sold to an emerging class of agrarian landowners. Extensive deforestations followed, as rising market prices spurred landowners towards cereal cultivation and timber selling. Peasants and mountain communities had to make their living from a seriously reduced amount of commons, and no doubt partly contributed



to deforesting and tilling what marginal uplands they still retained for subsistence. The result was environmental degradation of an intensity not registered in previous centuries. All this had been happening for quite a few decades when Marsh moved to Italy in the early 1860s: already by the end of the previous century, in fact, intellectuals and civil servants throughout the Italian peninsula were aware of being witnessing a time of unprecedented deforestation and feared the dire consequences.<sup>x</sup>

Marsh is considered an initiator of western environmental consciousness, and he was in many respects. Nevertheless, he also came as the final solo of a longer chorus that, like in a Greek tragedy, was evoking the same story of environmental decline, with similar explanations and in a similar mood for recovery and restoration. Roughly 80 years before Marsh first set foot on the shores of the Mediterranean, philosophers, geographers, engineers and statisticians throughout southern Europe were already theorizing the nexus between deforestation, soil erosion and river degradation in mountain areas. One notable example of such early environmental consciousness had arisen in the southern part of the Italian peninsula, in what was then the kingdom of Naples, or the Two Sicilies: here a new theory of environmental degradation in the Mediterranean emerged, at the core of which lay the concept of ‘disorder of water’.

The first work in which the ‘disorder of water’ was theorized as a key political economy issue in southern Italy was the *Descrizione Politica e geografica delle Sicilie* (Political and geographic description of the Two Sicilies), by Neapolitan geographer Giuseppe Maria Galanti. This was the first statistical enquiry over the whole territory of southern Italy, conducted in many years of travelling and data collecting, which appeared in five volumes between 1786 and 1794. Commissioned by the king himself, the *Descrizione* was very influential in shaping a new consciousness of the relationship between nation and nature in the kingdom<sup>xi</sup>.

From Abruzzo to Sicily, Galanti represented southern Italy as the world of the Apennines: an area totally dominated by mountain ranges and hills degrading towards the sea, where they formed ‘fertile and delightful plains’, and by torrential watercourses. The mountains of southern Italy, however, were not a waste and deserted wilderness. Rather, they were an intensely inhabited and naturally diverse environment, where different climate patterns created a diversity of soils and wildlife. Thanks to the mild temperatures, Galanti stated, the vegetation in the plains was always green and different plants grew in different seasons. The sea winds mitigated the summer heat and ‘one can see the spring when other regions suffer the hardest winter’. This was a land bearing ‘crops of varieties unknown to the other countries of Europe’, and ‘a land of a new and marvellous fertility and delight’<sup>xii</sup>.

Galanti’s way of seeing southern Italy was largely influenced by classical sources: the greek geographer Strabo, Pliny the Elder, Virgilius. In fact, Galanti’s geography is based on a powerful

mix of history, geography and Arcadian myth: ‘This country of ours must have suffered terrible and extraordinary revolutions of nature’, he notes, ‘yet nature here is beneficial and this is the most beautiful country in Europe’. It abounds in varied and useful products which ‘open opportunities for its industry and commerce’ – in other words, the country is filled with ‘natural resources’. Nevertheless, what makes this country ‘worthy of the philosopher’s attention’, are the great changes which humans have made on the nature of the country. These changes have spelled disaster: with the fall of southern Italy (then called Magna Graecia) under the domination of Rome, beautiful cities, fertile lands and delightful places ‘have been converted into deserts’, while its inhabitants had become slaves. A general decline has taken place in both humans and nature: its causes have been wars, foreign invasions and political domination – indeed a whole history of ruin and ‘reduction into barbarism’. From the barbarian tribes, which invaded the country after the fall of the Roman Empire, down to the last dynasty which ruled over the kingdom before its independence, all acted as conquerors and deprived the people of their status as citizens of their nation. This was the political cause of both the current ‘backwardness’ of the country and of environmental decline<sup>xiii</sup>.

Indeed, beyond the emphasis of the first chapter on the natural wealth of the country, the *Descrizione* is filled with remarks on the disproportion between the population and condition of the country and ‘our natural forces’. ‘Where once there were cities famous for their population’, Galanti wrote, ‘today there are marshlands deprived of inhabitants’. The whole country represented a shameful contrast between the wealth of nature and the misery of people: a contrast which an enlightened government was called to overcome by means of political economy<sup>xiv</sup>.

Along with the myth of fertility, however, the ancient authors had already observed the dangers coming to southern Italy from nature itself in the form of earthquakes, volcanic activity and the corrosive action of water in forming hills and valleys. As Galanti repeated, most of the soils were of volcanic origin, while most of the plains had been created by the rivers tearing down soil from the mountains and depositing it along the coasts, thus conquering land from the sea. Of the many rivers crossing the country, the author noted, all had lost the navigability that they enjoyed at the time of Strabo. This was a very important, indeed crucial, observation, one upon which Galanti himself, and many other authors after him, built their narrative of nature–politics relationships in the kingdom: the ‘disorder of water’. One clear example of environmental and social decline due to river degradation was the Liri-Garigliano basin, on the western banks of the central Apennines, a region called Terra di Lavoro. This region had been described by Virgil, Pliny the Elder and Polybius as a very fertile and culturally rich place, comprising the most beautiful and famous cities of ancient Italy. But the Barbarian invasions had ruined it, and the most notable evidence for its decline was in what Galanti called the ‘disorder of water’. All its rivers, he reported, were

navigable in ancient times, when people lived on the coastal plains near the estuaries and knew the art of river embankment. Cities and castles lay along these rivers in order to host the foreign merchants who sailed up them from the sea; one of these cities was Minturnae, at the mouth of the Liri: ‘Nowadays nothing is there but a barge and a squalid inn’<sup>xv</sup>.

The ‘disorder of water’ was thus caused by war and de-population; once the cities were destroyed, the waterworks were abandoned and water regained control over the plains. Finally ‘the abuses of the feudal government’ kept the watercourses from recovering their initial condition of navigability. In Galanti’s view, like in that of other exponents of the Neapolitan enlightenment, feudalism had been the mother of all evils and the primary cause of environmental degradation in southern Italy. The *Descrizione* had a very clear and precise political intent: that of invoking the abolition of feudality and the advent of private property in land. Only private property would have allowed land improvement and environmental restoration. The Neapolitan Improvement project – a peripheral version of European political economy – required the political liberation of nature, hence the emphasis on the abolition of feudalism.

A few years after the publication of the *Descrizione*, with the French army arriving to southern Italy, such political revolution became real. Conquered by Napoleon in 1806, the kingdom became part of the French empire until its collapse in 1815. Those ten years changed the country completely: feudality was abolished, and huge amounts of formerly feudal and monastic lands were put on sale; even rivers were withdrawn from feudal control and became ‘open to all’. Unfortunately, the new political economy long invoked by the Neapolitan philosophers failed to restore environmental stability in the country; in fact, it ended up by making things even worse.

Once the commotions of war were over and the long-programmed political changes were finally implemented, the colonisers were confronted with environmental devastation. Since the first decade of the century, a deluge of complaints concerning floods and landslides arrived to the capital city from civil servants and local communities all over the kingdom. Tilling the forest, farming on the slopes and dam-milling were the most frequently lamented causes of inundation. In 1813, for example, the governor of the district of Sora in Terra di Lavoro reported to the Minister of the Interior about the situation of preannounced disaster impending over the town.

Sir, I repute it very important to submit my observations about the Liri river-course – the governor wrote – in order to take into serious consideration the enormous damage that it will soon cause not only to the town of Sora, but to all the surrounding countryside, [throwing into misery] the nearby populations which draw their subsistence from it<sup>xvi</sup>.

In the following decades, as both land enclosures and industrialization proceeded apace along the course of the river, the preannounced disaster became fully real, as the Liri valley witnessed

dozens of major inundations, plus ordinary floods recurring every year in the rainy season, and a formerly healthy area became a place affected by elevated risk proneness and by malaria.

In launching the alarm over the ‘disorder of water’ from the district of Sora, the governor was neither alone nor unheard. His voice actually resonated with those of many others in the early years of the French rule, all forming a new consciousness of environmental instability in southern Italy as related to deforestation and mill-damming. If the ‘disorder of water’ had been a mostly rhetorical figure in Galanti’s work a generation before, now it had become a very real and inescapable reality throughout the country. Writers of this period, however, still retained Galanti’s vision that the gradual advent of private property was the proper response to environmental degradation. Beyond their internal differences, the writers of the Napoleonic period actually agreed on what they saw as a common undisputed enemy, the diversity of practices and use values that the peasants of southern Italy attributed to the forest. Be they pasturage or hunting, wood, hay and wild fruit gathering, all subsistence economies were invariably assumed to be destructive of the forest and responsible for environmental degradation. This discourse was articulated around the idea that the country’s original, ‘natural’ wealth could be restored only by bringing back its pre-feudal institutions and especially the Roman Law with its absolute, inalienable individual rights. By introducing in the kingdom the Napoleonic Code, which was informed by a strong Romanist approach, the French had thus accomplished the first essential step of the restoration. The second step was that of recreating land tenure patterns similar to those which were believed to exist in the classical golden age, in a mythical pre-latifundium and pre-slavery society<sup>xvii</sup>.

Such myth of a classical nature–society harmony is the most recurrent *Leitmotif* among agrarian writers of the French decade. It was in the situation of the rivers – they believed – that the ‘negligence and ignorance of feudal government’ had produced the damage most difficult to repair.

The rivers, which, conducted in man-made dikes, used to irrigate and fertilise the land, today inundate it – writer Domenico Tupputi wrote – forming sterile and deadly swamps. The harbors of Crotone and Sibari, Salapia, Siponte and Canosa do not exist any more: the territory of these once flourishing cities has become deadly for their inhabitants. [...] All the rivers which the ships once navigated in search of merchandise from the internal regions now have their beds covered with sand and mud [and], transformed in rash torrents, devastate the lands that they once enriched<sup>xviii</sup>.

Not only do these torrents, by their floods, ‘take land away from agriculture’ – the author continued – but they also ‘form swamps that infect the air’, thus causing the decline of rural population and the desertion of the countryside.

Most other authors of this period shared this widely accepted declensionist plot, all invariably comparing the present waste with the prosperity of the classical age.

In any case, by 1810 the situation of Italy's rivers appeared serious enough to require a special explanation. A leading exponent of the 'disorder of water' theory became the philosopher and mineralogist Teodoro Monticelli (1759–1845): with his *Memoria sull'economia delle acque da ristabilirsi nel regno di Napoli* ['Report on the Economy of Water to be Restored in the Kingdom of Naples'], published in 1809, Monticelli's explanation of the 'disorder of water' is at the origins of an early southern Italy' conservationism.

'We must regretfully admit', the Report states, that so great has been the negligence of our predecessors and our own in regard to water that for a long time now we have been subject to the deplorable state of suffering all the evils that can be expected from a bad economy of this substance either in abundance or in scarcity<sup>xix</sup>.

Monticelli's 'negligence' is that of governments and people alike, causing the depression of agriculture and grazing; and the 'long time' to which he refers is the twenty centuries separating the early 1800s from the 'very prosperous' times of the Magna Graecia. The fall from grace, as Galanti had stated, had started with the Roman conquest, which initiated a long history of wars, invasions and the devastation of environmental infrastructure – especially canals, dams and aqueducts – created by the Greeks. He conceded that the Romans took some care of water, but only when they were not busy with warfare. The real disaster, however, had begun with the collapse of the Roman Empire and the beginning of feudalism.

Despite his very long-term view of the 'disorder of water' – which he shared with others writers of the time – Monticelli clearly stated that the problem currently lay in the increased 'destruction of forests', which 'has inexplicably taken place for the last fifty years'. The scarcity of wood and the filling of riverbeds with soil were clear signs 'of the foolish deforesting practiced until now and the impotence of the ancient laws in this respect'. The most serious consequence of deforestation had been seen in the 'ruining of entire villages, taken away by the torrents, which grow before our eyes and acquire a devastating energy'. Despite all this, Monticelli complained, 'neither are we repairing the damage with new plantations, nor this obsession with deforesting has been stopped yet'<sup>xx</sup>.

Monticelli's explanation of the disorder of water, which became a 'scientific paradigm' for later generations, anticipated of 50 years the one later adopted by Marsh about the nexus between deforestation and river degradation. Monticelli searched the original causes of deforestation itself and found it in a circular process of vicious nature–society interaction. Deforestation, in fact, was due to the fact that most people in southern Italy lived on the mountains, because the plains were marshy and malarial; but destroying the woods and tilling the slopes to feed the population could only increase soil erosion and hydrological instability, which in turn increased the 'disorder of water' in the plain. This vicious circle, Monticelli believed, had gone ahead for centuries, since the

fall of the Roman Empire. To stop it would require putting into action a whole, comprehensive water-and-forest scheme: draining and repopulating the plains, while reforesting the uplands.

With all their administrative efficiency and intellectual effort, however, neither the French nor their Neapolitan collaborators were capable of seeing the ‘disorder of water’ as the crucial ecological contradiction of land improvement and political economy. Their visions and explanations, on the contrary, rested on ideological assumptions that actually kept them from recognising the primary role that agrarian capitalism, gradually affirming itself in the last decades of the feudal regime, had played in the drama of deforestation and hydrological instability. Monticelli acknowledged that, in the previous fifty years, environmental change had been accelerating abruptly and the effects were clearly visible: rivers filled with soil, floods, malaria and landslides destroying entire villages. As for the other writers, however, for him the present was the time of socio-environmental recovery and resurgence, due to the advent of political economy. Having destroyed all the old privileges and the barbarian laws that restrained the rich from investing their capital in agriculture and stock raising, the nation could finally devote itself to the improvement of ‘our very fertile lands’ with much greater interest and cleverness than before. Private interest, that of landowners, was believed to coincide with the public good.

A still clearer expression of this belief is in the writer Vincenzo Cuoco, the author of a report on *Rimboscimento e bonifiche* [‘Reforestation and Reclamation’], where he drew a detailed prospect of the actions to be taken by the newly created Department of Water and Forests. His idea of how to prevent soil erosion and landslides was to create a mutual check system among landowners: each individual should be entitled to the legal means by which to keep his/her neighbour from enacting any reputedly risky novelty on his/her own land. By means of this system the free disposal of private properties would be somewhat limited, yet in a positive way: ‘When the public good can be entrusted to the private interest, it cannot have a better guardian’, Cuoco concluded<sup>xxi</sup>. Between 1790 and 1810 the ‘disorder of water’ had become a major theme of political discourse in southern Italy. Crucially, rather than in recent processes of rapid political change allowing for the extensive spread of agrarian capitalism, these writers located the source of environmental decline in a far away past, that of Barbarian invasions. They did so because the declensionist narrative served a political aim: promoting anti-feudal reformism. One major result of the ‘disorder of water’ theory, however, was the institution of a Water and Forest Administration, created by the French in 1811 and maintained by the Bourbons after their restoration on the throne in 1816.

With the bureaucratization of this issue, the discourse on river degradation became to shift from the pages of political pamphlets and geography books to that of technical reportages. The man who, for almost thirty years, came to embody the politics of water-and-forest in the Two Sicilies was called Carlo Afan De Rivera (1779–1852) and was a hydraulic engineer. His *Memoria intorno*

*alle devastazioni prodotte dalle acque a cagion de' diboscamenti* ['Report on the Devastations Produced by Water in Consequence of Deforestation'], published in 1825, embraced Monticelli's vision of the 'disorder of water', based on deforestation. The author maintained that 'beneficent Nature' had provided the country with forests so that rainfall did not damage the land and rivers did not become torrents, but Man had reversed this order by denuding the slopes. De Rivera also raised the unquestioned narrative of the once-navigable rivers of southern Italy (created by the previous generation of writers) as proof of environmental decline due to long-term deforestation. Man, the disturbing agent of nature's order, was the main protagonist of De Rivera's report; nevertheless, times had changed since Monticelli's 1809 'On the Economy of Water' and so had politics. In De Rivera's version, the 'disorder of water' was caused not by feudalism and communalism (these having largely disappeared from the country) but by the political revolution, war and imperial dominion of the 1799–1815 period, and by the division of the commons. De Rivera thus reversed the narrative of disaster created by the previous generation: the 'disorder of water' was being caused not by a lack of private property but by its very introduction in a country where cultivable land lay mostly on hilly and mountain terrain, the plains being swampy and malarial. Priority lay with the reclamation of such swamps, so that agriculture could return to its 'natural' place – the plains. And the agency for re-establishing this natural order disturbed by Man was the State<sup>xxii</sup>.

De Rivera's view of environmental policy was firmly Hegelian: only the State enjoys a comprehensive gaze over the country's physical nature and political economy, such that a general plan for the wise economy of water can be established. It is not up to private landowners to envision the effect of their actions over distant places, or to care about them. And even if they did, how could single disparate actions, he asked, be coordinated towards the common good? It behoves 'the beneficent hand of the King' to lead the citizens' actions towards both private and public utility by means of good laws and good administration.

The relevance of De Rivera's vision within the context of Neapolitan political economy of the time is the idea that public and private interest do not necessarily coincide and that private property should be regulated according to the nation's interest. His vision is not, however, of a return to common property. Rather, he distinguishes between false and true private property, the first being that created by the revolutionary laws for the partitioning of the commons, the second being that created through market transactions. In this way, he maintains an ideal distinction between good property – that held in bourgeois hands; and bad property – that held by the poor, considering the latter a major cause of devastation through deforestation for subsistence purposes. Much less investigated in De Rivera is the nexus between bourgeois property and deforestation for market purposes<sup>xxiii</sup>.

De Rivera was much more than a technician. The head of the water and forest Bureau, he travelled widely throughout southern Italy and published a book in three volumes which illustrated his technical propositions for a general redesigning of nature-society relationships in the country. While in Galanti's Description of southern Italy the answer to water's disorders was sought in anti-feudal politics and property rights, at the time De Rivera wrote his book private property in land had been long introduced, but had not fulfilled its promise of environmental restoration. For De Rivera, the solution was now to be sought in hydraulic engineering. Engineer De Rivera's gaze over the physical conditions of the kingdom is thus positive and forward-looking: restoring the 'natural' wealth of the country only requires injecting order into the 'disorder of water' and this can be done in two steps – by re-engineering the torrents into one-bed channels and by reforesting the Apennines. However, like in the previous generation of writers, De Rivera's explanation for floods was largely based on blaming the poor for deforesting the mountains<sup>xxiv</sup>.

### III

Connecting Marsh and the Neapolitan writers with both the material and the ideal context of 19<sup>th</sup> century political economy allows us to draw a critical view on the emerging consciousness of environmental vulnerability in the Mediterranean. First, the political aim of environmental discourse: the Neapolitan writers and civil servants, like Marsh, believed political economy to be the solution, rather than a major cause of environmental vulnerability – and this assumption forced them to search the causes of recent floods in the far away past of Roman and Barbarian conquests. Both in Marsh and in the Neapolitan writers before him, twenty more centuries of history are missing. Empires (the Arab, the Spanish, the Absburg, the Ottoman), medieval civilization (commerce and art), geographic expansion, Renaissance, all cancelled out by an indistinct story of barbarism. This is because all those writers shared the idea that only private property and market transactions were legitimate forms of environmental management, while collective property and the moral economy, which had characterized land management under feudal rule, were environmentally malign.

As we have no available data on rainfall patterns before the 20<sup>th</sup> century, we have no means to establish if river degradation and floods of the 19<sup>th</sup> were due to deforestation, as hypothesized by contemporaries, or to climate changes causing an intensification of extreme events. Nevertheless, what we can say is that the political economy explanation of environmental change prevailed at the time; neither did contemporaries apparently note significant changes in rainfall throughout the period.

Whatever the contribution given by climate, the political economy of land enclosures, and the idea of the coincidence between private interest and the public good, surely contributed to



environmental vulnerability and increased flood risk. Starting with the abolition of feudalism, land and water were appropriated by the rural bourgeoisie, who used them in purely individualistic fashion, with no consideration of social and environmental costs. By deforesting the slopes and damming the rivers, both agriculturalists and industrialists contributed to the palpable increase of environmental risk during the nineteenth century, causing river siltation, inundations, unhealthy work and living conditions and malaria.

- <sup>i</sup> On Marsh see David Lowenthal, *George Perkins Marsh, Prophet of Conservation* (Seattle: University of Washington Press, 2000) and Id., 'Introduction to the 2003 Edition' of *Man and Nature* (Seattle: University of Washington Press, 2003 [1864]), pp xv-xxxviii; on Marsh's observations on restoration see also Marcus Hall, *Earth Repair: A Transatlantic History of Environmental Restoration* (Charlottesville: University of Virginia Press, 2005).
- <sup>ii</sup> See George Perkins Marsh, *Man and Nature, or Physical Geography as Modified by Human Action* (New York: Scribner & Co., 1864), 1.
- <sup>iii</sup> Ibid, p. 4.
- <sup>iv</sup> Ibid, p. 5.
- <sup>v</sup> Ibid, p. 6.
- <sup>vi</sup> Ibid, p. 49.
- <sup>vii</sup> Ibid, p. 50.
- <sup>viii</sup> Ibid, pp. 385 ff.
- <sup>ix</sup> On French floods and Napoleon III see Tamara Withed, *Forests and Peasant Politics in Modern France* (New Haven: Yale University Press, 2006) 56-58; see also Joachim Radkau, *Nature and Power: A Global History of the Environment* (Cambridge and New York: Cambridge University Press 2008 [2002]), 131-136; see also Lowenthal, *George Perkins Marsh*, 281.
- <sup>x</sup> See for example Bruno Vecchio, *Il bosco e gli Scrittori Italiani del Settecento e dell'Età Napoleonica* (Torino: Einaudi 1974).
- <sup>xi</sup> Giuseppe Maria Galanti, *Della descrizione geografica e politica delle Sicilie*, eds F. Assante and D. Demarco (Napoli: Edizioni Scientifiche Italiane, 1969); on the environment of southern Italy see for example Piero Bevilacqua, *Breve Storia dell'Italia Meridionale: dall'Ottocento a Oggi*. (Roma: Donzelli 1997); Piero Bevilacqua and Gabriella Corona, eds, *Ambiente e Risorse nel Mezzogiorno Contemporaneo* (Corigliano Calabro: Meridiana Libri, 2000); see also Stefania Barca, *Enclosing Water. Nature and Political Economy in a Mediterranean Valley, 1796-1916* (Cambridge: The White Horse Press, 2010), 16-25 and 85-95.
- <sup>xii</sup> Galanti, *Della descrizione*, 8-9.
- <sup>xiii</sup> Ibid, 13.
- <sup>xiv</sup> Ibid, 123.
- <sup>xv</sup> Ibid, 239.
- <sup>xvi</sup> *Il Sottintendente all'Intendente*, Sora 30 Aug. 1813, Archivio di Stato di Caserta (ASC), Intendenza Affari Comunali (IAC), 2356.
- <sup>xvii</sup> See Costanza D'Elia, ed., *Il Mezzogiorno agli Inizi dell'Ottocento* (Roma-Bari: Laterza, 1992) and Walter Palmieri, ed., *Il Mezzogiorno agli Inizi della Restaurazione* (Bari: Laterza, 1993).
- <sup>xviii</sup> Quoted in D'Elia, *Il Mezzogiorno*, 5.
- <sup>xix</sup> Teodoro Monticelli, *Memoria sull'Economia delle Acque da Ristabilirsi nel Regno di Napoli* (Napoli: Stamperia Reale, 1809), 1.
- <sup>xx</sup> Ibid, 7-11.
- <sup>xxi</sup> Vincenzo Cuoco *Rimboschimenti e Bonifiche*, now in Piero Bevilacqua and Manlio Rossi Doria, *Le bonifiche in Italia dal '700 ad oggi* (Bari: Laterza, 1986), 171.
- <sup>xxii</sup> See Carlo Afan De Rivera, *Memoria Intorno alle Devastazioni Prodotte dalle Acque a Cagion de' Diboscamenti*, (Napoli: Reale Tipografia della Guerra, 1825).
- <sup>xxiii</sup> On De Rivera see also Costanza D'Elia, *Bonifiche e Stato nel Mezzogiorno (1815-1860)* (Napoli: ESI, 1994), 30-32 and 74.
- <sup>xxiv</sup> See Carlo Afan de Rivera, *Considerazioni sui mezzi da restituire il valore proprio a' doni che ha la natura largamente concesso al regno delle Due Sicilie*. (Napoli: dalla Stamperia e Cartiera del Fibreno, 1832-1842).