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Rivers and Humans:

The Civilizing Project of Leonardo da Vinci and Niccoló Machiavelli

The diversion of the Arno

In October 1502, an extraordinary meeting of two Renaissance geniuses took place in the fortress of Imola, in the province of Bologna. One was Leonardo da Vinci, painter, sculptor, architect, inventor, anatomist, musician, costume designer and hydraulic engineer. The other was a political star, Niccoló Machiavelli, a chancellor and secretary of the Florentine republic. Leonardo worked as a military engineer for Cesare Borgia, the conqueror of a sizable part of Italy and an accomplished murderer. Machiavelli was in Imola to negotiate the French military campaign to re-conquer Pisa, a recalcitrant city, which blocked the Florentine merchants' access to the sea. The meeting of Machiavelli and Leonardo was one of the most fateful – and most enigmatic – events in Europe's intellectual history. Neither man spoke about it in his notebooks, letters or diaries. But out of the brainstorming at Imola emerged a project which was as momentous as it was daring: In order to vanquish the rebellious Pisans, Leonardo – *il fondatore idraulica* - was to design a plan of diverting the Arno and thus to deprive Pisa of its life-giving source. Leonardo and Machiavelli seemed eminently qualified to take up the challenge. Leonardo was obsessed by the idea of civilizing rivers; Machiavelli was determined to civilize politics. Leonardo drew countless hydraulic contraptions that were to turn unsanitary Italian metropolitan areas into precursory "bio-cities" with an advanced system of canalization. Machiavelli was a seasoned diplomat longing for a united Italy, where the competing families would be less preoccupied with plotting of how to outshine, outwit, and crush one another, and engage more in creating viable defenses against the forays of the Spaniards and the French (Masters, 1998). The success of the project would ensure not just a seaport for Florence, but wealth and prosperity for all of Tuscany, and the possibility of a playing a significant role in the conquest of the New World.

But the alternative history of European civilization authored by Leonardo and Machiavelli was never to materialize. The diversion of the Arno ended in a spectacular disaster: the channels for the

diverted river turned out too shallow, the gushing Arno demolished a dam, and a storm destroyed the walls of the ditches, causing death and destruction. The question is: Is there anything to learn from this magnificent fiasco, beyond the fact that the transformation of nature undertaken by the Florentines was beyond the range of sixteenth century technology? My contention is that the most fascinating dimension to the Machiavelli-Leonardo collaboration has less to do with the unfulfilled aspirations of the sixteenth century science, and more with the ideas on nature and humanity which informed – and grew from – the Arno project. There has been a consensus among leading historians, such as Barzun, Burke and Bouswma, that the European Renaissance has either failed or “continues to recede from us at an accelerating rate” (Burke, 1998; Bouswma, 2002; Barzun, 2000). On the contrary, I wish to suggest that the important strains of the Renaissance cosmology shared by Leonardo and Machiavelli, as well as their civilizational critique are strikingly relevant for our present concerns and the search for creative exits out the environmental and humanist crisis.

Cosmos and Polis

Even a peremptory look at the way Leonardo and Machiavelli spoke about nature – the tropes and metaphors they invoked and the tone they adopted – is enough to see two important facets of their cosmology: firstly, the anthropological humility of man, and secondly, an organic, holistic view of man and nature. “Even if man was as large as our earth, he would look no bigger than a little star which appears but as a speck of the universe,” insisted Leonardo. For him: “This earth has a spirit of growth, and its flesh is the soil; its bones are the successive strata of the rocks which form the mountains; its cartilage is the tifa stone; its blood the spring and the rivers.” (Richter, 1970: no. 880; 929) Similarly, for Machiavelli the rivers were “history, the trees and the buildings are civilization and the dikes and dams are good laws and good arms which can be established by outstanding leaders.” (Machiavelli 1985: 98). This constant navigation between the world of nature and the world of humans – and the corresponding complementary studies of the body of the earth and the human body, reaffirmed the microcosm-macrocosm analogy which we find in such Renaissance writers and thinkers as Shakespeare, Erasmus and Montaigne (Danby, 1968). And although it is hazardous to generalize from a plethora of movements and traditions, their cosmology displayed three distinctive characteristics: firstly, it abandoned the medieval conception of the *natura naturata* (the created nature), and marshalled *natura naturans* - a complex, creative process which participates in the divine essence. Secondly, it questioned the medieval, unified view of nature and boldly explored the infinity and plurality of worlds springing from the womb of becoming. Nature was a mutable pattern: sometimes representing reason that holds the community together (cf. Erasmus), at other times seen as a

benevolent arrangement (cf. Hooker and Bacon) or as a lion-headed goddess “red in tooth and claw” (Hobbes), or as a combination of all these (Shakespeare). Finally, the majority of Renaissance thinkers believed in the idea of limits of nature – and of human nature. Nature, to be mastered, had to be studied and understood. Even Francis Bacon – chastised by modern environmentalists as an apologist of the “rape of nature” – insisted that “we cannot command nature otherwise than by obeying her.”(Danby: 87). The educational ideal coruscating in this vision was a paradoxical project of mastering human instincts *and* natural elements without violating the essential nature of neither. Leonardo reasoned: “The river which is to be turned from one place to another must be coaxed and not treated roughly or with violence.”(Richter, 1970: 351-2) There was a pragmatic “elemental diplomacy” permeating his project, akin to Machiavelli’s idea of realist politics. But the most inspiring facet of Leonardo’s and Machiavelli’s *Weltanschauung* had to do with their view that Cosmos – the order of the universe – and Polis – the order of society – were interdependent. Leonardo and Machiavelli were never studying nature or culture, history of man and history of the elements separately, but always in conjunction - as a “cosmopolis” (Toulmin, 1990). Related to this preoccupation with the “cosmopolitan” order, was their obsession with two central actors that (mis)ruled this order: humans and water.

The forgotten “ecohumanism”

Water was a key element in Leonardo’s cosmology - *vetturale di natura*, a symbol of flowing energies and the basis of all life. Leonardo’s life-long search for the aquarian vocabulary to capture the qualities and movements of water was a preparation for a grand treatise on water, a project which, like many others, never actually materialized (Kemp, 2006: 125). His paintings – full of enigmatically smiling women and images of running water – bespeak a Heraclitean philosophy of changeability and flux (Pater 1873; 1986: 71). Winding rivers, gentle falls and distant seas – so prominent in the portraits of the Madonnas – are a stock motif in Leonardo’s art. But the most striking is his compulsion to draw a maelstrom of swirling lines and surges, ebbs, and vortices. Though Leonardo did not believe in the biblical flood, (Røstad, 1995) his 16 deluge drawings are apocalyptic fantasies displaying an obsessive fear of the destructive powers of water.

When seen in this light, the diversion of the Arno represented not just a technical, but an existential challenge: mastering the element which had a god-like status in Leonardo’s scheme of things. More importantly, the failure to control the river had unexpected and interesting consequences. As Masters has suggested, in the process of working together, Leonardo influenced Machiavelli’s political anthropology, which came to define modern society (Masters, 2009). Not only did Machiavelli

begin to describe a social order that was rational and scientific; the work on the Arno provided him with the central metaphors in *The Prince*. The book is full of elliptic references to the "dikes and dams" that control "the river of fortune" and civilize social and political processes. In one famous passage Machiavelli observed: "I likened her (that is Fortune) to one of these violent rivers which, when they become enraged, flood the plains, ruin the trees and the buildings, lift earth from this part, drop in another; each person flees before them, everyone yields to their impetus without being able to hinder them in any regard" (Machiavelli: 98).

There is, then, a good reason for revisiting some chapters of the Renaissance cosmology. It springs from the lacunas in much historical and environmental research today, which not only has divorced the studies of the Cosmos from the Polis, but has disregarded human nature as a salient factor in the process of social change. The greatest achievements of the Renaissance thought – the work of Erasmus, Shakespeare, Montaigne, Leonardo and Machiavelli – amount to a long meditation on the ways to restrain nature's furies and the beastly side of human nature as two sides of the same project. This original, "ecohumanist" tradition has been brushed out of modern scholarship and replaced by a rationalist, technocratic agenda which has perverted much of modern understanding of nature and culture.

Leonardo and Machiavelli's Renaissance is not receding from us. On the contrary, it is waiting to be rediscovered.

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