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## **Impersonal Rule and the Canal du Midi**

Chandra Mukerji, [University of California, San Diego](#)

**Abstract:** Building hydraulic infrastructure is a form of logistical politics important to the assertion and legitimacy of state power. In 17th-century France, the Canal du Midi was used to shift the balance of power away from local officials to the state, demonstrating the state could do that other power groups in France could not. Building the Canal du Midi was a practice of impersonal governance that changed local life, shifting power away from local noble officials and landholders to agents of the state. The control of water was used to demonstrate the powers of the government, and to reduce the personal power of elites other than Louis XIV.

In spite of its importance, most social theories of power—even those that seriously consider land use practices and/or infrastructure-- tend to focus on land rather than water as a political asset.<sup>1</sup> But because water is a liquid, it has properties that are quite unlike solids like rock and soil. It flows relentlessly downhill, so it can be used as a source of power for mills. And it floats boats, so it can serve as a medium for transportation. Alternately, it can cause floods, erode structures, destroy cities, and leave behind refuse and mud after a storm. So, water management raises distinctive engineering problems as well as opens up unique possibilities for social life. For this reason, water can be an important source of social change --as I found it to be at the Canal du Midi in 17<sup>th</sup>-century France.

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<sup>1</sup> Michael Mann. 1986. *Sources of Social Power*. (New York and Cambridge: Cambridge University Press).

The Canal du Midi or the Canal Royale des Deux Mers was built during the reign of Louis XIV to link the Atlantic Ocean and the Mediterranean Sea. It was a project of territorial stewardship as well as structural engineering that was designed to unite France's Atlantic and Mediterranean economies, and to create a physical presence of the French state in the then-rebellious region of Languedoc. In this remote part of the kingdom, representatives of the state like taxmen were sometimes murdered, so a canal was surprisingly useful. It was not alive so it could not be killed, but it could nonetheless have enormous importance in governing local life. (It was a kind of "drone" weapon of the early modern state, allowing officials to act at a distance through impersonal works of engineering.) Locals could resist a canal by breaking down the sides of the waterway where it was elevated, effectively stopping transport by stranding boats. But water would continue to flow out of the side of the canal causing flooding downhill that would damage local towns and crops, while doing nothing to the king or the power of the state. In other words, water was a significant tool of government even in the absence of political leaders because it had its own agential powers. So, the Canal du Midi became a significantly tool of impersonal rule built in an era that has ironically been called the period of Louis XIV's personal rule.

The Canal du Midi was constructed in roughly twenty years between 1663-1684 across the province of Languedoc just north of the Pyrenees.<sup>2</sup> It was roughly 150 miles long, and crossed the continental divide, linking parts of the province previously remote from each other, and cutting across fields and roads that had previously integrated local life. The work was contracted out by the king (officially) and Jean-Baptiste Colbert

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<sup>2</sup> Bergasse 1982; Maistre 1968; Rolt 1973.

(administratively) to an entrepreneur and salt tax farmer from Languedoc, Pierre-Paul Riquet. He was a financier with a large fortune but questionable social standing who had a reliable record of contracts with the state. He was no engineer, but successfully assembled people from Languedoc who could engineer a navigational canal. And to Colbert's horror, Riquet also discovered the surprising effectiveness of governing through impersonal rather than personal power—a discovery that implicitly threatened Louis XIV but was obscured by attributing the success of the canal to the king.

The waterway celebrated as a token of the king's grandeur and France's future. It was peaceful and abundant in an arid land of wild rivers, creating the uncanny sight of boats crossing a parched landscape. It was legitimated as a demonstration of political stewardship, and it was awe-inspiring because of its scale and local effects. Most importantly, it flowed far from institutions of the state or the person of Louis XIV, illustrating the monarch's capacity to reshape Creation itself to serve his will.

Exercising power using techniques of impersonal rule had enormous local effects precisely because it eroded patterns of personal power. It was at odds with the normal patrimonial relations of power that nobles and clergy cultivated using personal networks and patterns of influence. Perhaps because land had been stably in the hands of nobles and the clergy for a long time -- only with some estates being sold by impoverished noble families to rich new nobles—most nobles did not seek new powers from nature or expect natural materials like water to be used as political agents. Faced with logistical techniques of governance like the Canal du Midi, elites had no obvious weapons to fight with. The king had the right to indemnify lands for his own purposes, and could impose new taxes to pay for infrastructural improvements. Logistical projects could then be used to change

conditions of social possibility, structuring the landscape much like a mountain or river so that people had to reorganize their lives.

The Canal du Midi instantiated a new kind of power of the state: something superhuman, uncanny and daunting.<sup>3</sup> This “logistical power,” as I call it, I distinguish from strategic power—the power of social domination described by Weber. Strategic power or the exercise of will over others is routinely assumed in social theory to define all power, but there is another form of power that is often confused with it and rarely analyzed as distinct: logistics or the ability to mobilize the natural world for political effect.<sup>4</sup> Logistical activity shapes social life by designing the environment (context, situation, location) in which human life takes place.<sup>5</sup> But logistics are different from strategies in that they act through control of things rather than social modes of control.<sup>i</sup>

For a short paper, I cannot summarize the whole story of logistical power and the Canal du Midi, and for this panel, I want to focus on water. The canal could only work if it was designed to bring water in the requisite quantities to the proper places, keeping it flowing into the locks to raise and lower boats without allowing it to flood at any point.<sup>6</sup> This was clear to the king’s advisors, so they demanded that Riquet build a so-called “rigolle d’essai” or trial system used to test the water supply. That is the part of the project I want to address here.

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<sup>3</sup> Mukerji, *Impossible Engineering*, particularly ch. 7.

<sup>4</sup> Adams 2007; Anderson 1974; Beik 1985; Brewer 1996; Foucault 1979; Lynn 1997; Mousnier 1979; Sargent 1968.

<sup>5</sup> Carroll 2006; Joyce 2003; Joyce 2009; Mann 1986; Parker 1983; Scott 1998; Zukin 1991.

<sup>6</sup> Chandra Mukerji. 2008. *Impossible Engineering*. (Princeton: Princeton University Press).

The “Relation particuliere de la rigolle dessay”<sup>7</sup> that I use as my main evidence was a final report about this project—written I think by Riquet’s young assistant, Pierre Campmas, who helped the entrepreneur design the water supply. Campmas was the son of a local fontanier, and although Riquet trusted him, the extent of his experience was unknown. I think he may be the document’s author because the author writes that people doubted his ideas because he was so young. If the author were the junior Campmas, this would make sense. But we will return to this question later.

The “Relation particuliere de la rigolle dessay”<sup>8</sup> describes in detail the problems of capturing water in the Montagne Noire, and bringing it over the plain of Revel down to the seuil de Naurouze, the *pointe de partage*. The narrative focuses on agency, allocating agency to people and things, and looking at transfers of agency among things. Rocks are social actants that impede access to places; water does what it wants, including disappearing into sand; soils change from place to place and pose different problems of construction and water-tightness. Riquet and his workers try to change relationships among things. Rocks are moved to let water flow downhill in a new direction. Routes are chosen so water will not flow too fast. The agency of people is used to control the agential properties of water. All the work is done on rocks, sand, and gravel, but the parameters of the work are set by the properties of water. Even the success of the canal builders is measured by the arrival of water from the rigole d’essai at the seuil de Naurouze. Water is preserved as an agential material because it is needed for floating boats and flowing through locks to the seas. And success is the transfer of that agency to the state. Water is made a tool of impersonal rule.

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<sup>7</sup> ACM 2-14.

<sup>8</sup> ACM 2-14.

The water supply was crucial to the project because the canal had to pass from the Mediterranean to the Atlantic watershed, crossing the continental divide or the “*pointe de partage des eaux*” as it was called at the time. At this *pointe de partage*, water drained in two directions toward the two seas, and had to be replaced by water from a higher source. Riquet had originally wanted to run the canal north over the plain of Revel to reach the Sor River that flowed to the Garonne north of Languedoc’s main east-west valley. This high plain was near the Montagne Noire that could serve as a water source. But an engineer named Bouthierou, who managed the Canal de Briare near Paris, was assigned to counsel Riquet about the plan before it was formally studied for feasibility. Bouthierou insisted that the canal should stay in the main valley of Languedoc where the continental divide at Naurouze was much lower, requiring fewer locks. But he thought Riquet could use his original canal route to bring water from the Montagne Noire to the Canal du Midi, and this was the plan they finally tendered to the king.<sup>9</sup>

This proposal was studied by a commission of local notables and “experts” (including Bouthierou). The commissioners concluded that the canal was feasible if the water supply was viable. They called for Riquet to build a *rigole d’essai*, a smaller version of the proposed water supply system, to show how much water he could deliver to the *seuil de Naurouze* from the Montagne Noire.<sup>10</sup> The report of this work was the “*Relation particuliere de la rigolle dessay*.”<sup>11</sup>

Riquet began working on the *rigole d’essai* in 1662, but progress was slow. There were technical roadblocks and damaging floods that impeded the work. Delivering water

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<sup>9</sup> Mukerji, *Impossible Engineering*, ch. 3.

<sup>10</sup> ACM 2-14; Mukerji, *Impossible Engineering*, pp. 56-59; letter Riquet à Colbert, 18 août 1665, ACM 20-21.

<sup>11</sup> ACM 2-14.

was no easy task because the mountain was wild and its sources were both high and remote. Also, the rigole had to cross the continental divide many times along the way, so keeping the inclines correct – a practice necessary to keep the water flowing – was not easy to assure. Building a watertight conduit in bad land was also no mean feat. So, while water could be diverted from streambeds near sources, what to do with it next was an on-going problem.

Workers hit new springs in some places, or ran into small underground tunnels that sucked the water away. There were rocks and high scarps that stood between the mountain's high rivers and the main canal that had to be crossed without turning the rigole's waters into a waterfall that would tear the rigole apart. The Montagne Noire and its rivers had accommodated each other over centuries, creating a topography that defined them both. Now Riquet and the commissioners were asking water to follow new paths, and workers were trying to use natural materials to create unnatural effects. Breaking down the habitual relationships of rocks, soil and water in the Montagne Noire was an act of hubris. But it was also a means for capturing logistical power for the state, using the power of water to break down local social relations that had kept elites of Languedoc strikingly autonomous from the king.

The "Relation particuliere de la rigolle dessay,"<sup>12</sup> says that the test system for the water supply started at the Alzau River at a place called Calz. At this remote spot high in the mountains, river water gushed in a steady and strong flow. The location was so remote that it could not even be approached on horseback. Employment records show

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<sup>12</sup> ACM 2-14.

that Riquet used local men for this work,<sup>13</sup> who apparently accessed this part of the mountain on foot. There were massive rocks at Calz that formed a deep ravine filled with sandy soil. There was no obvious way, the verification argued, to cut through the rocks or use the ravine without losing water. So, the crew built a wooden trough, presumably like the ones used for mills, to carry the water over the rocks and down through the ravine.<sup>14</sup>

Riquet, perhaps deciding that the whole rigole should be built this way, wrote to the horrified Colbert about this time, asking for permission to acquire masses of timber.<sup>15</sup> But before the minister could say no, the entrepreneur wrote back that he had found another way to proceed. Perhaps the workers started blasting the rocks. The verification document mentions in a later section that they had run low on powder, so perhaps they had been using gunpowder for getting past rocks.<sup>16</sup> What was rare in the mountain was a place where the soil was easy to dig, and the ditch would nonetheless hold water by itself.

The water in the mountains kept responding to gravity more than the will of the king. If building the rigole was a matter of asserting human agency over the water, human agency was losing. Working with the materials that workers had at hand in the mountains, they kept losing this elusive fluid rather than delivering it to the central valley of Languedoc. Both gravel and sand leaked water, sending it back to the rivers where it wanted to flow. Sand was easier to dig and could produce a nicely shaped ditch that could be reinforced with pilings, but often the rigole walls collapsed like sugar cubes into the

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<sup>13</sup> Michel Adgé, "Premier Etats du Barrage de Saint-Ferréol." *Les chaires d'histoire de Revel*. 7 (2001).

<sup>14</sup> ACM 2-14, pp. 1-2.

<sup>15</sup> Lettre de Riquet à Colbert 3 septembre 1665, ACM 20-19.

<sup>16</sup> ACM 2-14, p. 11.



currents when water started to flow. Sand often seemed to flow like a liquid along with the water it was supposed to contain.

Rocks made the terrain hard to traverse to get access to sources, and impeded the construction of the rigole. Where there were large boulders or scarps, there was no hope of removing or moving them. Routes could be blasted through them using gun powder, but this was hard, slow and expensive work. The granite of the Montagne Noire paid the dividend, however, of providing strong, watertight material for the conduits. Sometimes workers used natural riverbeds as part of the rigole, adding more water from mountain sources, and taking it out later where the conditions were less taxing. Many techniques were tried because the problems were varied and the inclines had to be precise no matter what type of terrain needed to be crossed. The rigole d'essai was a struggle with the solid materials of the mountains, but the parameters for its design were set by the demands of water itself.

Not all the technical problems were solved to create the rigole d'essai. The structure was provisional and remained leaky. The permanent rigoles made later were more watertight, lined in many places with a layer of pounded clay. Still, wooden pilings and planks, blasted rocks, and high berms shored up the experimental structure well enough to bring water in large quantities from the Montagne Noire across the plain of Revel and to the seuil de Naurouze.

In only one part of the “Relation particuliere de la rigolle dessay”<sup>17</sup> were workers criticized for the poor quality of their efforts. If the mountain and its materials created the problems in capturing water from high sources, faulty surveyors created the problems of

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<sup>17</sup> ACM 2-14.

routing on the plain of Revel. On this plain, the channel had to cross from the Atlantic to the Pacific watershed, but following the prescribed route, the water did not flow where the rigole had been dug. If most of the story in this report described human agents prevailing against the unruly forces of nature, at this point where human intelligence was most necessary, it failed. But common sense prevailed, as the rigole was routed along mill streams that also crossed this divide.

Once the rigole left the plain of Revel, it passed down a long valley with good soil that was easy to dig, held its shape, and did not leak significant water. Attention to elevation remained crucial, since the water had to move by gravity feed alone toward the canal at the continental divide. The slopes were gentle, but the valley had hillocks to navigate around. In some places, the rigole was elevated with stone, wooden, and dirt berms to maintain its incline and remain above the level of the sieul de Naurouze.

Along the way, the rigole picked up more water from local sources, helping restore some of what was lost on the mountainside. Naurouze itself had water sources that added to what was collected in the reservoir for the canal. So, by the time the rigole d'essai reached Naurouze, it brought a massive flow of water to this spot, a man-made-river of sorts, that had circled down from the mountains, flowed into rivers and out, and skirted across the plains to provide alimentation for the Canal du Midi.

The test water supply system provided a calculable input of water into the Canal du Midi that was judged nearly adequate in itself for navigation in the dry summers of Languedoc. About a third of the water was thought to be lost but mostly recoverable in a permanent rigole. This proved to be an exaggeration, and the canal sometimes had to be closed in summer because of a lack of water. Still, the rigole d'essai was a massive

success, and this assessment allowed Riquet to receive a contract for construction of the Canal du Midi.

The “Relation” ends with some congratulatory and celebratory remarks about Riquet’s success. The report emphasizes that no one really had had a full sense of the complexity of the project of building the rigole, but that the concept remained correct and was shown to be viable. The author asserts that the verification vindicated him by demonstrating that his proposal was an honest one based on true knowledge. It shows him to be a person of honor, not just ability. He argues that he would not have proposed a project that was not feasible.

The final comments are an assertion of agency that associate the author’s capacities to realize the rigole d’essai with the power of the human mind to exercise dominion over nature. Campmas, if he is the author, speaks in a language familiar to the Huguenots of this region about the nature of logistical power. Forcing water from the mountain and taking it to Naurouze was an act of human dominion, an act of stewardship based on human intelligence given by God to men. Exercising logistical power, in this context, is not just a way to control people through the control of things, but a moral act of political efficacy. Men are supposed to tame wild nature and make it more serviceable, using Creation wisely.

Campmas (I think) defended his moral standing and personal honor by showing how Riquet’s workforce made the water supply successful. Riquet and his workers could only exercise logistical power for the king by recognizing the properties of natural, using materials in the mountains to control the agential properties of water and supply a navigational canal to join the two seas. This was an act of stewardship.

The report was necessary to document to the commission that the system worked, too, but it was not the measure of its success. That was the flow of water. Everyone who saw the water arrive at Naurouze understood that Riquet's plan had passed the test, and could testify as witnesses. The blow-by-blow account of the hard work and technical difficulties involved only demonstrated the heroic dedication of Riquet and his men to make the king a good steward of his kingdom.

Building an effective hydraulic infrastructure was a means of asserting and legitimating a new kind of power—logistical power. Building the Canal du Midi was a practice of impersonal governance that changed local life, shifting power away from local noble officials and landholders to agents of the state. The water system changed a whole region of the kingdom, demonstrating the significance of territorial governance both as an act of royal will and as a deployment of natural forces for human ends. The exact properties that made the water in the Montagne Noire so difficult to contain and deliver to the Canal du Midi also made the Canal du Midi a powerful force in the region. This hydraulic system could not be easily destroyed easily. It was an act of power that was hard to counter, and changed the patterns of local life.

Once landowners had their own mills, but now they used the ones along the canal. Once they controlled rivers and roads, but now they needed the king's waterway. The post now came by boat on the canal; women washed laundry in it; and merchants traded in textiles, leathers, and wine. All this entangled local elites with an administration that was far away—far enough away to be ignored before. Now the northern monarchy had an unrelenting presence in Languedoc that could not be erased and had to be accommodated. This was politics “by other means” to use the phrase popularized by Donna Haraway.

Breaking apart rocks in the mountains, and lining sandy conduits with clay put into the hands of the state a new capacity for shaping social life that was startlingly novel and a powerful form of government.

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<sup>i</sup> Strategic power is a practice of social domination, using favors or intimidation to control social outcomes in order to gain or maintain rank in a social hierarchy.

Participants in the system use strategic calculation of advantages over others to win contests of power. The authority of ruling elites is legitimated by defining them as morally and/or intellectually superior, allowing them to dominate a political hierarchy. In contrast, logistical power is the use of material world for political effect, physically reworking land to shape the conditions of possibility for collective life. The exercise of logistical power depends on natural knowledge-- either practical experience in working with materials or formal knowledge useful for reshaping the environment. The effectiveness of a given material regime lies its mute presence as a form of impersonal rule. Without words, the built environment shapes social life without political dispute, and comes to seem as inevitable as the natural order.

Sociologists tend to distinguish between institutional and constructivist approaches to social life. Often constructivist studies focus on logistics (how social life proceeds on the

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ground), and institutional studies focus on strategics (social domination). What logistical analysis can do for constructivist analysis is provide a means for thinking about the material aspects of activity and the physical character of the social settings of interaction.

Mead, George Herbert and Anselm L. Strauss. 1956. *The social psychology of George Herbert Mead*. Chicago: University of Chicago Press. So, even though this paper addresses historical data about state formation, the theory of strategics and logistics presented here is not meant to be limited to this large-scale institutional level. In fact, figured world theory, which is at the center of this analysis, comes from social psychology. Holland, Dorothy C., William Lachicotte, Debra Skinner, and Carole Cain. 1998. *Identity and agency in cultural worlds*. Cambridge, Mass.: Harvard University Press.