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Romain Garcier, Emmanuel Martinais et Laurence Rocher

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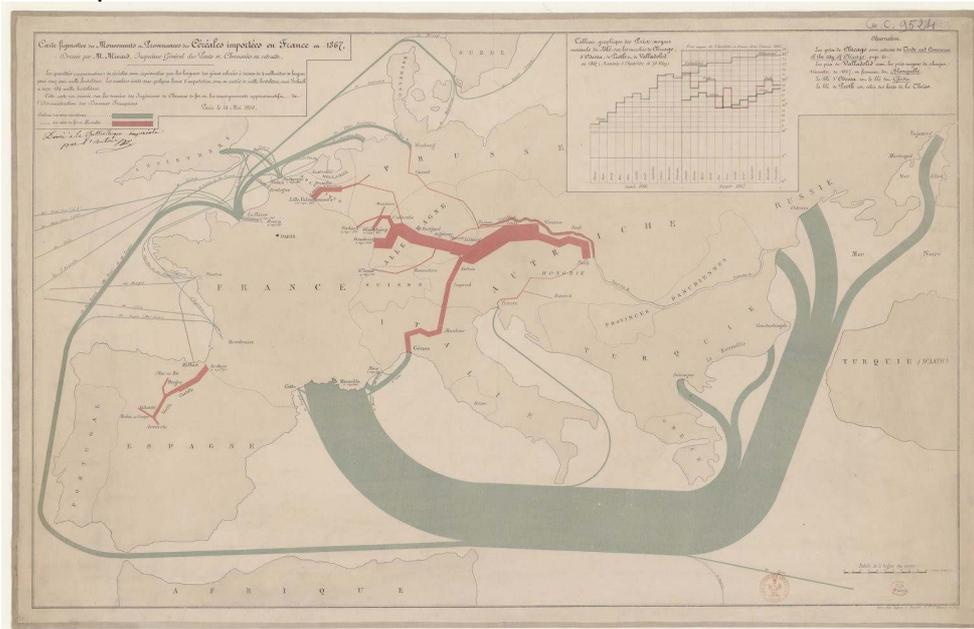
Naming, measuring and controlling: the politics of flows and “circulations”

Romain Garcier, Emmanuel Martinais et Laurence Rocher

Traduction : John Tuppen

- 1 Charles-Joseph Minard (1781-1870) is known for being one of the inventors of modern data visualisation. Among the abundant production of maps and diagrams emanating from this engineer (from the prestigious ‘Ponts et Chaussées ‘grande école’ at Paris), there exists a series of highly innovative diagrams providing a spatial representation of flows. In 1884 Minard invented a form of representation that he entitled a “graphic chart” of rail passenger traffic (Minard, 1862, p. 2). Subsequently, Minard devised and produced numerous maps of flows of goods on the railways and waterways, of cereal imports into France (Figure 1) and cotton imports into Europe, as well as of the quantities of animals transported by train to feed Paris¹. These striking, concise diagrams are extremely evocative. However, it is not their graphic or semiotic qualities which are studied here: instead, it is what they reveal of the importance given in the 19th century to the description and administration of “circulations” referred to by Minard as “movements” but called here “flows”.

Figure 1: A representational map of the origins of cereals imported in France in 1867 (J-C Minard), Bibliothèque Nationale de France



Source gallica.bnf.fr / Bibliothèque nationale de France

- 2 This importance is made obvious by two aspects. On the one hand, representing movements involves a high cognitive and economic cost because it supposes the invention of a mundane reality as a flow or a circulation and the creation of statistical and geographical data based on this reality (Palsky, 1996). In the middle of the 19th century the State’s technical services, of which Minard was an eminent part, were clearly inclined to support these costs; on the other hand, Minard explicitly conceived the representation of flows and circulations as an element feeding parliamentary debates and enlightening public choices (Minard, 1862) – for example, concerning customs barriers against imports, investment in canals or in the routes of new railway lines. The work of Minard also testifies to the importance accorded to circulations as government and political issues.
- 3 For Michel Foucault, it was in the 18th century that circulations became a question for governments. This acceptance expressed a change in government methods that Foucault attributes to a new manner by which sovereign power was exercised:
- 4 “*The territorial sovereign became an architect of the disciplined space, but also, and almost at the same time, the regulator of a milieu, which involved not so much establishing limits and frontiers, or fixing locations, as, above all and essentially, making possible, guaranteeing and ensuring circulations: The circulation of people, merchandise and air etc*” (Foucault, 2007).
- 5 Foucault remarks that actions related to circulations – whether they are concerned with designating, understanding, facilitating or preventing them – represent a “technology of power” (ibid., p. 71) which is essential not only in controlling and policing the territory, but also, and more fundamentally, in the exercise of political power. This power shows itself in determining what can or cannot circulate and in stimulating, in canalising or in managing the different forms of circulation. In this sense, circulations are not simply spatial movements of humans or non-humans, they also represent a technological materialisation of the application of political power. As such, the analysis of the different

forms of flow, their trajectories, their quantities and their periodicity makes it possible to comment on the way political power is composed, negotiated and exercised.

- 6 In this volume, the different authors adopt the approach of an extensive review of the notions of power and politics since these notions are not systematically linked to the actions of the sovereign power but, on the contrary, to those of a plurality of public, private, individual or collective authorities. Emphasis is also given in this volume to the timing and the circumstances of certain flows and circulations where they *become* political objects. These approaches, therefore, test the ideas of Foucault in relation to geographical, historical or politicized interpretations of historical or contemporary situations involving very different forms of flows and political power. Certain texts included in this volume are the result of a seminar organised by young researchers in the ‘Environnement, Ville, Société’ and ‘Triangle’ laboratories. They are complemented by articles from researchers who replied to a call for contributions for this volume. All the texts consider the concrete ways in which movements are designated, quantified or regulated in order to try to understand how they contribute, at different scales (from local to continental) to animating political dynamics, to feeding social concerns and/or to shaping space.
- 7 This introductory article has two main objectives. The first concerns the need to clarify the terminology and concepts which are used in the social sciences to discuss movements. At present there is a certain lack of precision in this respect which leads to confusion in the description and analysis of very different socio-temporal situations. Is it possible to differentiate between mobilities, flows (a term not used by Foucault), movements, circulations, trajectories, transport and itineraries? Can a coherent terminology be formulated which covers the whole range of spatial movement processes? The second objective aims to outline a theoretical framework to give a sense to the emergence of flows and circulations as political concerns, by making explicit the expression ‘political instrumentalization’, (suggested by Yannick Barthe in 2006) and by looking again at the process of designation which is apparent in all the texts.

Flows and circulations: some elements of definition

- 8 Since the 1990s, the notion of movement, in the most general sense of the term, has attracted the attention of numerous researchers in social sciences. The pioneering works of Roger Brunet and Olivier Dollfus (1990), of Manuel Castells on the network society (1998) and those of John Urry on a more mobile world (2005) (2000) gave awareness to the induced effects of globalisation: increased mobility, more movement, the development of interconnections between places and individuals who reorganize social structures and the future of national societies. Subsequently, research work has analysed the nature of movements of people, capital and financial products (Dunford *et al.*, 2014), raw materials, waste products (Crang *et al.*, 2013; Gregson and Crang, 2015), ideas or information. In paying particular attention to the forms and vehicles of such new movements (Ducruet, 2013; Birtchell and Urry, 2015; Ducruet, 2016), these researchers have shown that the development of transport and communication networks definitively heralded in the era of generalised mobility in a world where exchanges, commercial or otherwise, modify very substantially social interactions to the extent that they call into question even the concepts of society (Urry, 2005) and nation-state (Jänicke, 2005); Jouve and Roche, 2006). In addition, the present concern with the issues of sustainable development, resulting

notably from the exhaustion of natural resources and climate change, has led a part of this scientific community to test the robustness of these theories in the environmental field (Spaargaren *et al.*, 2006).

- 9 Numerous terminologies are used to describe movement patterns. The most frequently used word is undoubtedly “flows”. In the spatial sciences, a flow indicates first of all a quantity of items that move within a network: the flow is the labile component of a more or less permanent structure, the network, which supports the diffusion of and contains those items which are in movement. This can be a technical network (a network for distributing water, electricity or information, for example) or a natural network (flows of water and sediments within a drainage network, for example). However, the term “flow” can have a second meaning: that of a group of entities which are in movement between two poles (the departure point and the arrival point), which materialises the intensity of the interaction between the two poles. In the case of gravity models used in spatial analysis, this can be illustrated by the movements of individuals or things which result from the interaction between two large, spatially distant bodies – urban centres for example (Sheppard, 1979). In this instance, the network is a euphemism: what counts to define a flow is the existence and materialisation of an interaction. These two major traits allow certain characteristics of flows to be identified.
- 10 First, the moving elements which compose the flow need to be analysed as a whole: the flow materialises the individual movements of a group. Second, it is possible to give a quantified evaluation of the importance of the group: the flow has an intensity, measured by units of time. Third, the topology of flows is generally relatively simple, since it follows that of a network or is based on the identification of dipoles which enable the identification of the limits of the movements and potentially their direction (from an origin O to a destination D). The dipoles themselves are not necessarily linked to precise geographical locations: for example, to speak of the commercial exchanges between China and Europe is a linguistic simplification which aggregates the flows and the places of origin and destination aimed at showing the intensity of the exchanges. As indicated by Bahoken, Zanin and Grasland, “*A flow corresponds with an aggregate of which the individual characteristics have been lost in its construction, just as the spatial-temporal movement pattern between the origins and destinations is no longer known with precision*” (Bahoken, Zanin and Grasland, 2016, p. 65). It is in relation to these characteristics that flows have been the subject of recent work on the constraints which weigh on their cartographic representation: the research of Françoise Bahoken in particular illustrates the theoretical and practical questions posed by the representation of flows (Bahoken, 2016).
- 11 As for the notion of circulation, it has a slightly different significance. In general, the term refers to movements which follow a trajectory and therefore have a spatial reference. If circulation, as with the idea of a flow, refers to a movement or a trip, it follows itineraries, marked out by identifiable positions in geographical space. Circulation is not necessarily quantified but in contrast it is always located in space-time. As a result circulation describes the routes used by entities in movement (as in spatial diffusion studies, for example). In geography circulation constitutes an essential element of the human geography of Friedrich Ratzel who considers it as part of the existential experience of human groups (Hückel, 1906); for him circulation has almost an ecological significance. Such an interpretation has gradually fallen into disuse and has been contradicted by Gottman when he reformulated the concept of circulation in the 1950s, making it a principle of territories’ evolution and emergence (Labussière, 2009). From the

1930s, this concept is used principally, however, to describe the form and means (notably in terms of transport) adopted by human mobility (as in the “*Géographie des circulations à la surface des continents*” published by Capot-Rey in 1946). Thus, in 1951 Clozier makes a distinction between “the geography of circulation which considers transport modes and their relations with physical and human conditions” and “the geography of circulation movements” which relates to the major movements of people and goods around the world” (Clozier, 1951, p. 145) – in other words, flows.

- 12 This rapid analysis shows why these two concepts of flow and circulation are complementary in geography and in the social sciences: if they describe the movement of groups of things, they also stress their different dimensions – for the one, the quantity and the nature of the interaction and for the other, the spatial and temporal characteristics. In this volume, these two concepts feature in a very great variety of subjects and contexts, showing human movements (pedestrians at Albi, and the inhabitants of Jakarta, of Lyon and of several African countries) as well as very different material flows (water in the Provence canals, Russian gas, electricity in Europe, goods in Zambia and waste products in France)... All these contributions, in these different contexts, periods and scientific disciplines, shed light on the idea adopted here of the “political instrumentalization” of flows and circulation.

The political instrumentalization of flows and circulations

- 13 The notion of “political instrumentalization” is now commonly used to indicate certain processes of appropriation of social or technical issues by politicians. Over recent years there have been numerous instances of this process: sustainable development (Daniel, 2015), services related to the environment and ecosystems, (Antona *et al.*, 2012), biodiversity (Deverre and de Sainte Marie, 2008), shared urban gardens (Mousselin and Scheromm, 2015) the natural environment in New Caledonia (Faugère, 2008) are just a few examples. Interestingly, the term has never been the subject of a clear-cut definition and in itself is not problematic: the concept is based around a series of ideas. It is not the concept de “political instrumentalization” or its use which are criticised but rather the processes which surround it. The concept has a history. In its original form, as proposed by the sociologist Yannick Barthe, it is very precise and distinctive. In his thesis and the resulting book, he expresses the need to talk about *political instrumentalization* to analyse and describe what he observes – namely the rapid transformation of a technical subject (the management of nuclear waste) into a political object right at the end of the 1980s. *Political instrumentalization* is the process of gaining access to the political sphere for a particular cause, a technical subject or a social problem which previously had not been treated politically. It differs from the notion of *politicisation* which “means according (the issue) a partisan character” (Barthe, 2010, p. 92). It is also different from the notion of *putting something on the political agenda* which concerns the construction and then the appropriation of a social problem by public intervention: whereas placing something on a political agenda relates to making an issue a subject of political policy, political instrumentalization corresponds with the deliberate transfer of a subject from a technical to a political arena by the joint process of publicising it, on the one hand, and opening it up to debate on the other. Political instrumentalization represents a deliberate strategy by certain actors who are not necessarily political: it consists of using the resources of the

politician to go beyond the technical limits of the problem. It also makes it possible to generate and organise different forms of deliberation on subjects emanating from other fields and thus to arrive at a form of decision or, as Barthe suggests, of indecision.

- 14 These somewhat theoretical points of view can usefully be related to the context in which they originated: the issue of nuclear waste. Between the 1960s and 1980s a consensus emerged amongst the nuclear community in favour of the geological storing at depth of such highly reactive waste. This consensus was based on the idea, as referred to by Barthe, of “irreversibility”; in other words, technical choices on which it no longer seems possible to go back: the baseline technical solution, discussed in closed groups of experts, is designed to be imposed without any real political discussion. It was exactly this impossibility to gain public acceptance for this decision at the end of the 1980s that the process of political instrumentalization was launched: “Not only is the political processing of the problem of nuclear waste essential when there is no longer anything to decide in terms of technical orientations but, in a certain way, it is essential because there is no longer anything to decide” (Barthe, 2006, p. 95). Political instrumentalization is therefore a means to escape from the impasse created by the technical management of the problem of radioactive waste. It makes it possible for solutions and concepts to emerge that the technicians had set aside, as for example the “reversibility” of the deep geological storage of waste. This precise use of the concept of “political instrumentalization” appears to harbour rich possibilities for understanding the time and the circumstances when flows and circulations are no longer part of a technical reasoning but become political and public issues. As will be demonstrated in the following paragraphs, three dimensions appear essential to understand the specific processes of “political instrumentalization” related to flows and circulations. First, the *designation* of a circulation or a flow as a problem is an essential dimension of this “political instrumentalization”; this means understanding how, in a generally contingent manner, such a flow is designated by one or other social actor as the object of specific treatment and/or political action. This designation, conceived as a means of making the object more visible, is accompanied in general by a representation or quantification of the flows or circulations under consideration. This quantification and representation (cartographic or statistical) consists of producing or diffusing information relative to these movements and, as such, contributing to giving them a framework and to their normalization. Finally, various forms of institutionalisation play an essential role in the process of “political instrumentalization”. Recognisable through the administrative elements of this question, which aim, through different organisations, policies and special measures to regulate flows, this institutionalisation involves the creation, the capturing and the redistribution of resources associated with the spatial movement of objects and people and by the same token effecting a (re)distribution of political power.

Designating: creating flows as political objects

- 15 The political weight of flows and circulations expresses itself first by the way in which they are socially designated. Moulded by the sociology of deviance, the concept of “designation” refers to labelling theory according to which a transgression does not exist in the absolute sense but results from a social reaction which leads to its identification and its recognition as such (Becker, 1963; Ogien, 2012). By analogy, it can be seen that flows and circulations do not exist independently of the labelling processes of which they

are the object; in other words the social conventions which have been developed, for example, to name, represent and classify them. As with acts of deviance at another level, they are in a way manufactured by collective actions which aim to designate them in a particular manner, notably with the aim of taking control. From this point of view, designation may be seen as a form of political qualification which creates flows and circulations as entities which are much more substantial than the simple movement of materials, goods or people which they are supposed to symbolise. Viewed in this way, they are recognised as representing numerous collective problems and they become, for example, the objects of public policies, the resources for action and the frameworks for regulations.

- 16 This instituting effect of the designation of flows and circulations is particularly well demonstrated by the contribution of **Angélique Palle** concerning the transport of electricity in Europe. Her text shows how the increase in demand and the strengthening of exchanges between the member states of the European Union at the beginning of the years 2000 led the main actors of the energy market to designate progressively energy flows not only by their technical characteristics but also by the conflicts that they created. This is particularly evident in relation to local conflicts linked to the development of infrastructure and national decisions likely to affect neighbouring states by potentially depriving them of an essential resource for the operation of their economies. As a result, the transport of electricity, which by its nature attracts relatively little attention and little media attention and is neutralised by market forces, has become more visible, attracting at the same time more attention from European regulatory authorities. From this point of view, it can be noted that the process of designation which makes flows appear as issues linked to state sovereignty (at the macro level) and to safeguarding the living environment (at the micro level) contributes finally to creating a form of management of networks and exchanges between neighbouring countries which is much more political in nature.
- 17 The contribution of **Rémi Desmoulières** relates to a very different context but it also shows this instituting effect of the designation of flows and circulations. Based on an ethnological study of urban journeys in Jakarta in Indonesia, Desmoulières analyses the “posting” of minibus rides. He shows that the recording of this service as regulated and regular flows enabled both the economic exploitation of the mobility needs of the population as well as the organisation of the supply of transport operators, bringing together owners, teams of workers (drivers and conductors) and co-ordinating organisations (co-operatives and firms). In a country marked by the absence of a centralised transport system, the availability of a transport service on fixed itineraries acts finally as a sort of labelling process which sustains the minibus lines, not just as movements traced on a route map but as territories of political control, co-constructed by transport operators and public authorities, principally the Governorate of Jakarta. The transport line, as a recognised flow, contributes therefore to limiting the effects of competition which are inherent to non-centralised transport systems by creating an income for which the access conditions, negotiated with the bus proprietors and co-operatives, ensure a minimum profitability for the transport operators who run the service. The appearance of this contractual system of remuneration also made the author note that “when the line is no longer a resource, it loses its political interest”.
- 18 In yet another context, the text of **Mathieu Durand, Jean-Baptiste Bahers and Hélène Béraud** also contributes to showing the political implications of the designation of flows

and circulations. It shows how the labelling of waste products as useful materials for the development of the circular economy is strongly correlated with views of the world and organisational models of society that privilege local exchanges, short supply-chains and the restriction of product transfers within limited territorial boundaries. By looking at the flows of waste products through the prism of the circular economy, the question at issue is to link the zones of production with recycling centres. In most observed cases the part of locally managed waste is that which has the least value-added, whereas the part that offers the greatest value-added economically is exported, often over considerable distances. To fight against such market forces which induce polarisation effects which are largely unrelated to efforts to plan locally or to restrict flows within local perimeters, the authors suggest the need to reflect on more diversified recycling development strategies, offering greater value-added, which privilege a more decentralised, and indeed more politicised, management of waste.

- 19 As with other texts brought together in this volume, this last contribution gives particular attention to describing the ways in which flows and circulations are socially designated to be of service to the political projects of relatively important social and/or professional groups. A part of these same articles underlines at the same time the relative and contextual character of such designations. These are never given once for all but are continually revised according to the interest aroused by the flows and circulations that they seek to establish. In adopting a medium or long term perspective, certain authors show the unstable character, more or less controlled, of the labelling processes and the agreements that govern them; as such this indicates the strictly social and political dimension of flows and circulations.

Measuring: a political formulation of flows

- 20 The data and methods used to record them and the forms of representation aiming to show flows and circulations are important indicators of their political, economic and social weight. The translation into figures, statistics, diagrams or maps, which implies the use of all sorts of measuring and quantification tools, is always the result of numerous contextual frameworks which translate intentions, values or political preferences (Desrosières, 2014). At the same time, the processes of data recording or of representation are not without having an effect on the actions they induce or authorise. Conceived to respond to specific objectives, these actions provide a framework themselves for the forms of regulation of the flows and circulations that they measure, as is shown in several articles in this volume; certain of these focus on the tools and the methods of representation. These articles emphasise notably that the creation or modification of categories of measurement or calibration play a crucial role in the processes of political instrumentalization.
- 21 The historical perspective adopted by **Louis Baldasseroni** to describe and analyse the procedures for counting cars at Lyon in the 19th and 20th centuries illustrates particularly well this duality of the processes of measurement and representation. By retracing successive moments of the local history of measuring traffic in the city, the article shows that the use of statistics is at the same time an “instrument of proof and of political management”. More exactly, the author observes that the fluidity and the continuous transformation of the flows which are measured, correlated with the profound mutations related to cars and their use for the period considered, were accompanied by the

continuous renewal of counting techniques. However, contrary to what common sense suggests in a similar situation, such progress or evolution is not so much determined by changes in the nature of the flows but by the contents and sense of the policies designed to regulate them. The systems for counting urban traffic created in response to problems of worn-out roads have evolved into tools for preventing accidents, then for creating smoother car flows in response to emerging problems of congestion. Therefore, it is not the object which determines the statistical method but rather the social or political uses to be made of it. In other words, the data used to materialise car flows are not a given but rather a value determined by measures of traffic management put into place by local authorities. This observation leads the author to emphasise that the process of quantification does not exclude a “qualitative political instrumentalization” of urban mobility.

- 22 This political duality in relation to measurement is also very distinctly apparent in **Hélène Blaszkiewicz’s text** on freight movements in Zambia. By also adopting an historical perspective, she shows that the political instrumentalization of flows of raw materials in this region of southern Africa results from the combination of two practical forms of management: on the one hand, the construction of transport infrastructure aiming to reinforce the country’s central position in the global system of freight circulation; and on the other hand, the collection of statistics on commercial movements to and from the major port zones of this sector. The author notes that the neo-liberalisation of trade, linked to policies of structural adjustment of certain international institutions such as the World Bank, the International Monetary Fund or the Organisation for World Trade Organisation, leads to a progressive change in the status of these transport infrastructures; they are less and less considered as factors of national unification but more and more as “supports of flows which are economically profitable”. Extending this analysis, she shows how this evolution has led to a reconfiguration of the State’s statistical apparatus which tends to favour profitable flows (notably the circulation of certain mined products such as copper) to the detriment of all others which, in losing their visibility, are no longer in a position to influence political choices in infrastructure development. In other words, the way of recording flows and circulation (calculation of figures and production of statistics), by focussing on certain types of goods such as copper, translates a political intention and desire (to satisfy the demands of international institutions) which in return produces structural effects (an unequal territorial development of infrastructure within the country). If the measurement of flows and circulation always has a political objective, it can however fail to orientate actions and decisions in the anticipated direction. Although conceived with a specific goal, it does not always produce the expected outcomes. This is illustrated, each in its own manner, by the texts of **Elsa Martin** on the regulation of pedestrian flows in the historic centre of Albi and of **Jérôme Rollin** and **Clio Hôte** on the modelling of the circulation of goods and people in the district of Gerland at Lyon. In the first case, Elsa Martin explains that the political policy to regulate tourist areas of the city prescribes a method of data recording which is based on a qualification process of pedestrian flows and their registration in a normative system. This aims to limit the effects of concentration and conflicts associated with the joint presence in the same places of large populations of visitors and residents. Inspired by the notion of “carrying capacity” defined by UNESCO to monitor the transformations and effects of heritage developments, the monitoring tools have difficulty in attaining their objectives due to the fact that the preferences of the different ‘populations’ are difficult to anticipate and represent “en

masse”. In this situation, actions to distribute and orientate visitor flows using signposting of tourist itineraries and circuits designed to regulate overcrowding and conflicts have not produced the expected results. In the case of the ‘Urban Modelling project for Gerland’ (MUG) studied by Clio Hâte and Jérôme Rollin, the hopes of an increased rationalisation of urban management, based on the use of modelling techniques, have proved largely disappointing due to the incapacity of the actors responsible for producing the data to reach agreement on an unequivocal representation of the diversity of flows and circulations that the model is supposed to aggregate. The complexity and the changeability of the items to be modelled explain these different interpretations and the attempts to translate them into a reality which finally is materialised by an infinite number of forms. The model’s sophistication, produced jointly by the traditional actors of urban networks and the new actors of the digital economy, has not succeeded in responding to the omniscient utopia of the different flows which are considered here in their multiple forms.

- 23 As with several other texts in this volume, these four articles indicate that actions of regulation are very often based on initial activities of representation and quantification. Less expectedly, the same texts also show that the changeable and mobile nature (both in time and space) of moving objects, whether they are material or human, limits strongly the extent to which they can be defined and measured and that knowledge about them can be obtained. Managing flows and circulations necessitates the use of figures, of statistics, and of modelling or cartography and makes metrology both an element which is determined by the way in which they are politically influenced and which is decisive in this process.

Regulating: a question of political power

- 24 Whatever the contexts or the objects analysed, the intervention of institutions having a regulatory authority appears as a recurrent theme of the political instrumentalization of flows and circulation. The ad hoc creation and transformations of structures is often the most visible element of this bureaucratic process. This is most visible in networked services in the fields of energy supply (electricity, gas) and urban services (water, heating, sewage) where a multitude of regulation authorities intervene (tariffs, access to the service) as well as numerous operators (production, transport, distribution), in both the public and private sectors and sometimes in a monopolistic position. Regulation via the infrastructure has therefore become a dominant form of management and an obvious source of power. Speed and fluidity (whether they concern water supply, cars or goods...) are essential to optimise mobility, while hierarchies are created between connected spaces (often qualified as opened up) and peripheral spaces (Castells, 1998).
- 25 However, as has been shown previously, flows do not only relate to the routes of a network, while the circulation as such produces singular forms of government and of the constitution of power, independent of the networks which support them. The firms that control diffuse flows (of people, waste products, or “urban flows” as well...) give rise to new forms of management and regulation, comparable to the efforts to capture and “to concentrate a diffuse resource” as described by Olivier Labussière in relation to coal gases in the former mining sites of Lorraine (Labussière, 2016).
- 26 The forms of regulation of canalised flows and diffuse flows are based in both cases on systems of financial reward and the generation of an income, including by illegal means.

The physical, legal and economic control of infrastructures, whether it is for the transport of energy, goods or people, is therefore a considerable resource to capture all or part of the economic returns associated with such traffic and to control its redistribution. From this point of view, flows represent strong vehicles for the diffusion of neo-liberalism, in particular in regions of the world where State structures have difficulty in opposing the taking over of power and control by economic actors.

- 27 Several contributions to this volume, therefore, envisage the institutionalisation of flows as a product of the fight for power between States seeking to control them and international firms which profit from them. It is the case, for example, of the article of **Emmanuel Chauvin, Nora Mareï and Jérôme Lombard** which considers the movement of people and goods in North, West and Central Africa. It is based on an analysis using very different objects ranging from major infrastructures used for goods transport, subject to international norms, to daily human movements. The authors give details of the economic and strategic issues of being connected to globalized flows which have become more intense but distribute themselves in an unequal manner between different actors and territories and, in doing so, create or reinforce spatial hierarchies. Support for major infrastructures (rail, port, airport or road) translates by a privatization of the flows. The authors show how a “private administration of the flows” leads to a redefinition of the (weak) role of States which are mobilised by questions of risk and security. They describe the power relationships which form around flows and the capacity of stakeholders to adapt rapidly to globalized patterns of circulation and to bypass the related regulations.
- 28 In a similar way, the contribution of **Sophie Hou** demonstrates how the control of gas transportation infrastructures enables the Russian state to make the sector’s organisation comply with its own interests and to capture, at the same time, the whole of the associated economic rent. Two episodes are described in relation to this question: the creation of the Gazprom monopoly, linked to the development of the infrastructure in the west of the country; and its recent opening-up to limited competition, corresponding with attempts to extend the network westwards with the aim of exploiting new resources. There are thus two successive forms of government using infrastructures, related to a reformed regulation of gas markets and to the challenge to the Gazprom monopoly for the export of gas.
- 29 In the same vein, **Alexandre Gaudin** is interested in the administration of infrastructure for hydro-electric power production and irrigation in south-east France during the second half of the 20th century (1950-2000). He presents a form of government through infrastructures similar to that outlined in the previous article (a public enterprise controlled by the State). However, in this case it is to show that in Provence the aim is less to generate an income through the commodification of the water supply (and at the same time to dispossess the relevant territories as in the two preceding instances) but more to establish the principles of regulation which are adjusted to local issues and to the stakeholders involved. Two moments in time are again envisaged: that of government through the redistribution of the ‘rent’ from hydroelectric generation (1950-1970) and that from government through the normalisation of irrigation practices (1970-2000). The author describes the “creation of a water economy” through the identification and distribution of this “hydroelectric rent” which is based on “creating equivalence between the flows of water, energy and money”. Although they are not exclusive, because the same flow can be used several times and redistributed to several users (local authorities,

groups of farmers using irrigation), the choices concerning the use of the associated income are a source of tension between different users and territories (energy production, irrigation and water supply for coastal towns).

- 30 The role of transport networks for people in the organisation of urban political space is dealt with in several contributions to this volume. Using the example of the public transport system in the town of Vaulx-en-Velin, **Antoine Lévêque** discusses a process of politicization which has emerged through the attention given to flows (the inhabitants of peripheral areas) and networks (of the bus and then the tram) by political actors (local elected representatives) in the context of inter-communal actions (of the Lyon metropolitan area). The elected representatives of Vaulx-en-Velin want a better public transport service to improve the links with the central zones of the city for districts (and populations) considered as having been relegated. Infrastructure, as a means of facilitating movement, is seen in terms of its potential to connect and open up peripheral areas. If this seems a permanent feature of public transport, and indeed of other types of flow, Antoine Lévêque demonstrates how much this question has been politicized, taking on here an explicit and progressive character, evoking the successive reformulations of the question of transport in suburban areas.
- 31 Far from having the ambition to present an exhaustive picture of research work relating to the political nature of flows and movements, this volume of *Géocarrefour* intends to show, due to the diversity of ways in which the subject is approached, the numerous possibilities offered by the social sciences to try to understand better by what and by whom are created moveable objects and the phenomena of movement measured in terms of flows and circulations. Besides the concepts of politicization, agenda-setting and publicization, the notion of “political instrumentalization” (Barthe, 2006) can be used to renew the analysis of access to the political arena of issues or objects which were previously invisible, ignored or made routine by technical approaches. The analyses put forward in this volume show that in relation to subjects concerning flows and circulation, “political instrumentalization” involves three interrelated phenomena which relate to their designation, measurement and regulation. Analysing such questions of movement in relation to these three criteria makes it possible to go further than an understanding of these flows simply based on the networks which transport them and to widen the perspective to include the diversity of the forms of movement existing in the contemporary world and the political and economic importance of movement. The careful observation of the material attributes and the spatial trajectories of these objects also makes it possible to understand by what means and through what type of movement they constitute a resource (Garcier *et al.*, 2017).

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NOTES

1. A collection of these maps can be consulted on-line : Tableaux graphiques et figuratives, Bibliothèque numérique des ponts et chaussées, <https://patrimone.enpc.fr/ENPCO1Fol10975>

AUTEURS

ROMAIN GARCIER

Université de Lyon, Ecole normale supérieure, 15 parvis René Descartes, BP 7000, 69342 Lyon
cedex 07 romain.garcier@ens-lyon.fr

EMMANUEL MARTINAIS

Ecole Nationale des Travaux Publics de l'Etat, UMR 5600 Environnement ville société, -RIVES, 3
rue Maurice Audin - 69518 VAULX en VELIN Cedex, emmanuel.martinais@entpe.fr

LAURENCE ROCHER

Université Lumière Lyon 2, Institut d'urbanisme de Lyon, UMR 5600 Environnement ville société,
14 av Berthelot - 69007 Lyon, Laurence.Rocher@univ-lyon2.fr