

## geographical airs – and areas

### valérie guillaume

Late in 2006, the ashes of the American actor James Doohan (1920-2005), the famous “Scotty” in the TV series *Star Trek*, were scattered in space by Space Services, Inc., a company specializing in space funerals (1). The event goes beyond biography – it shifts existence and history towards the ultimate, cosmic meaning. Once more, this switch in perspective tests the reciprocal boundaries of the reality discourse and the fictional narrative which, by sidestepping the saturation of meaning lying in wait for simple binary contrasts, lead to intentions of interpretative fields of non-differentiation, complementarity, interference, interaction and competitiveness. The “Paris Airs” exhibition, in its “Landscape, Architecture, Design” section, is part and parcel of this prospect, by the fact that it mobilizes composite tools and schemes of interpretation, which are, *a fortiori*, rarely compared. For example, the many-shaped *partition* produced by the designers Erwan and Ronan Bouroullec, which, in the exhibition, here replaces the traditional *picture rail* of the set arrangement, and, elsewhere, leans against the botanist Patrick Blanc’s plant *wall*. At the risk of creating tensions and contradictions, the four sequences of the circuit round the exhibition, respectively titled “Territorial Strata”, “Vertical Landscapes”, “Corporal Spheres”, and “Ascensional Horizons”, converge towards a pivotal and decidedly dynamic point. Sixteen projects presented by architects, urban activists, landscape artists and designers, to which the sociologist Latour and the photographer Émilie Hermant add a field survey, compare their areas of investigation with our “human condition”, taking a look at this latter from an angle that is more geographical than historical (2). The hypothesis put forward by Michel Foucault, whereby “there is cause to make criticism of this disqualification of space which has held sway through many a generation (3)”, upholds the present geographical challenge. The discipline has been affected, since the 1990s, by a cultural turning-point “focused on

human experience on earth, the sense of places, territoriality, rootedness and the meaning of landscapes (4)”. The first three sequences of the exhibition – “Territorial Strata”, “Vertical Landscapes” and “Corporal Spheres” – weave a shared spatial metaphor in order to broach places and territories endowed with many meanings, be they personal or shared, familiar or unfamiliar, known or imagined. The urban, social, political and ecological space nurtures representations which all the artists summoned question as to their future development. Specific recourse to interactive arrangements and immersive environments encourages an understanding of the physical dimension inherent to the experience of the geographical subject. Because it is not a matter of forgetting about the role of the body in the establishment of knowledge and know-how to do with space (5). Lastly, the fourth section of the circuit – titled “Ascensional Horizons” – which opens with a preamble about atmospheric sciences, presents one or two exploratory projects, both short- and long-term, on the boundaries of space and the undersea realm.

#### “Space Lapse” (6)

The city is entered directly with a field survey titled *Paris. Invisible City*, put online in 2004 by the sociologist Bruno Latour and the photographer Émilie Hernant, with the assistance of Patricia Reed, a website designer (7). Website consultation is divided into four parts, including the headings (written in French as infinitives, best rendered by present participles – “conveying” (*cheminer*), “sizing” (*dimensionner*), and “distributing” (*distribuer*), and, in more empathetic mode, “permitting” (*permettre*) – which encompasses observation of “invisible” metropolitan places on a day-to-day basis, such as “economy, sociology, water, electricity, telephone, the electorate, geography, climate, sewers, noises, metros, police surveillance, standards, yardsticks

and summaries, all this moving through Paris, in narrow corridors, none of which can act as a frame, infrastructure or context for the others (8)". Like Michel Foucault, Bruno Latour attempts to understand how the metropolis is organized in its relationship with the spatial, and not with any sense of history, or awareness of aesthetics: "Perhaps we have actually flirted too long with history and "series of successions". It remains for us to try out space and the "series of simultaneities (9)". Considering each and every urban operator, in order to understand their machinations on, through and for space, points to the way they examine things. "Field work will reveal the presence of local situations which will turn into so many asterisk-like connection networks (10)". The author, who describes his own theory as a "sociology of the actor-network" records the presence, between these networks, of "plasma" (11)", which, because it is "not yet formatted, not yet measured, not yet socialized, not yet involved in metrological sequences, not yet covered, watched, mobilized or subjectivized (12)", offers an opportunity for political action. It is in this lineage, and with the aim of making the city visible to itself, that the novel proposition made by HeHe (Helen Evans and Heiko Hansen, cat. p. 282) is advanced. Since 2002, the collective has been building a global project, stage by stage, with the name of *Pollstream*. This project makes the climatic environment the basis of an interactive device that enlarges reality. For example, the *Green Cloud* fluorescent laser, in Helsinki, delimits and colours the plume of smoke released from the chimney of an incinerator. The cloud's colour even varies from green to red in accordance with statistics compiled in real time by the factory, with a focus on sorting quality, the mass of waste to be treated, and so on. The installation titled *Ozone Fields*, specially devised for the "Paris Airs" exhibition, has been produced in cooperation with Airparif. This independent organization issues daily information bulletins on the quality of the capital's air. Paris is said to have reduced by 9% the level of nitrogen dioxide emissions between 2002 and 2007. This year, however, the city has been unable to comply with the air quality standards set by the European Union (40 micrograms.cu.m). This goal will have to be reached by 2010 (13). HeHe links the data supplied by different pollution sensors to analytical and processing software which reproduces them as sounds and colours by way of a multimedia screen. The colour spectrum ranges from blue,

corresponding to the least polluted air, to bright red, for the most polluted. HeHe's appropriation of the most sophisticated environmental analysis here serves a twofold purpose: on the one hand, to make use of resources on a territorial scale, and, on the other, to challenge epistemological paradigms. Designers here become involved in a function-oriented meta-discourse which also brings into play certain "metadesign" resources. Metadesign, which appeared in the 1980s as a theoretical challenge and an operational methodology alike, takes process design into consideration, as constructed in given situations (14). Even if the collective does not here borrow the participatory component (joint development, joint creation) inherent to metadesign, by using the example of the Belgian architects LAB(au), it nevertheless holds that the formulation of interfaces does not mean considering information as a content, but much more as an environment, in which cognitive and perceptive capacities can be increased (15). If the urban climate and the effects of atmospheric pollution are new research themes, other studies, in tandem, point to advances in environmental awareness. One of these themes, announced as being the first ever carried out in a European capital (16), focuses on biodiversity. Fauna and flora also come into the geographical issue in the way they connect with people and societies, as is illustrated by the urban beekeeping practised by Olivier Darné (cat. p. 286). His hives, installed at Saint-Denis, are considerably more productive than rural beehives, because of the excessive use, in the countryside, of plant-care products. In built-up areas, bees gather more than 350 different types of pollen. As insect bio-indicators, they can filter toxic substances like carbon monoxide and other hydrocarbon dust. Olivier Darné, who describes himself as a "*graphiculteur*" or "graph-keeper/grower", works on urban pollenization using a performance-related method. He wittily talks about the urban "sensitive zones" (Fr. "*zone sensible*" is a euphemism for "poor" and/or "problem" neighbourhood. Trans.), in which "urban pollinators" move about to the taste of the "concrete honey" produced therein. The many different activities he organizes, like, for example, the invitation to collect honey (or "booty-share") may correspond to the aim of encouraging social interaction, but they stem even more globally from the contemporary process of redefining nature and its incorporation in society.

The double installation set up by the horticultural

engineer Gilles Clément, author of the *Manifesto of the Third Landscape*, and the botanist Patrick Blanc, inventor of the “plant wall”, brings nature, once again, to the foreground of the urban context (17). The former develops, in greater depth and by stages, a global political geophilosophy correlating the “Third Landscape”, made up of abandoned territories, and the extension of biodiversity. Working on a temporary fallow plot situated behind the Grande Arche or Great Arch, in the district of Nanterre, Gilles Clément borrows from the geographical discourse “an omnipresent figure: the figure of the inventory, or catalogue. And this type of inventory factors in the threefold register of survey, measurement and examination (18)” (cat. p. 300). The project statement must be linked to its initial prospect, namely the discovery of photographs of the Earth taken from space, which Jacques Leenhardt comments upon as follows: “Clément started out from a personal experience, but one that was also the experience of a whole generation, in which he sees appearing nothing less than an epistemological cut in the representation of the world: Earth seen from the moon. This planet, on which men set foot and whose spatial organization has, up until the 1960s, been determined essentially by a viewpoint rooted in a local feeling of belonging, was perceived, from one day to the next, as a whole entity whose horizon was thenceforth the entire universe (19)”. Otherwise put, going beyond the exploratory horizon sent back by the image of Earth, sketching a relationship of “triangulation that connects man to man no longer in a direct way, but from the world’s heights”, also gets the individual to “see himself in the world” and no longer “to see the world based on himself (20)”. This kind of epistemological and theoretical break certainly lends a quite different scope to the analysis of nature in geography. A real significance is here conferred upon the movement “which *engrams* the physical and the biological in the form of the natural within society, a movement which comes across in and through space, and is expressed therein, too (21)”. For two similar arrangements presented in the exhibition, its capture proceeds from a collection that is at once random and selective. As much in the streets of Paris, where the English designer Jasper Morrison strolls, a sharp eye alert to the expressive intelligence of the familiar and commonplace (22), as in the fallow land of Nanterre, where Gilles Clément is at work, the circuits and itineraries

display specific floating lines, somewhere between observation and chance, which relate them to “serendipity”. The word was coined in 1754 by the English writer Horace Walpole, author of a collection of fables tracing the lives of the princes of Serendip (present-day Sri Lanka). The geographer Jacques Lévy is of the opinion that “serendipity is part and parcel of what we can call the world of virtualities in a city, the possibility of unforeseen interactions, specifically those made possible by multi-sensorial contact in public places, [which] give access to unexpected finds, when the potential is realized (23)”. Later on in this catalogue, the city planner François Ascher interprets the potential of all this, especially in the urban context (cat. p. 269). Lastly, the boldest architectural representation of forms of urban mobility, in their time-frames and at their differing speeds, is presented in the “Paris Airs” exhibition by the architect Zaha Hadid. The multi-modal infrastructure of Hoenheim, north of Strasbourg (cat. p. 272) here makes reference to a kind of so-called “seamless” (24) urban itinerantness, providing continuity of movement (walking, cycling, driving, taking trams and trains). Space introduces “a topological line of thought (25)” about which the architect and philosopher Greg Lynn has this to say: “The introduction of the tempo and techniques of movement into architecture is not merely a visual phenomenon [...]. Another obvious aesthetic repercussion of these spatial models is the predominance of techniques of deformation and transformation applied in a temporal system of flexible topological surfaces (26)”. The modelling of vectorial dynamics here brings in concepts developed by mathematics, such as notions of junction, orientation, connectivity, compactness, (27), and so on.

### Intermezzo (or: The Growth of Horizons)

Three set-ups or projects on view in the “Paris Airs” show – to wit, the urban environment video game *Share the Ride*, developed by Virtools/Dassault Systems (cat. p. 276), the suborbital flight offered by the European Astronaut Club (cat. p. 336), and undersea exploration in Jacques Rougerie’s observation vehicle (cat. p. 334) – confront the body with the most diverse of space experiences. The sensations felt and risks run, be they virtual or real, are extreme. In game and journey alike, the de-

synchronized individual is swiftly overtaken by euphoria. The speed of movement combined with the intensity of the media event play with excess, the better to theatricalize existential challenges. In this respect, the American economics expert Jeremy Rifkin prognosticates a new consumer boom, not in products this time around, but in ephemeral psycho-sensorial experiences which up the heartbeat and, *a posteriori*, enhance the magical “memory” (28). This industry, which now holds “a dominant position in the new globalized economy”, is developing experiential scenarios whose dramatic configuration complies with the formula: Every business is show business (29). Journeys such as this reactivate already thirty-year-old projects to do with the conquest and colonization of submarine and cosmic spaces (30). Back in 2002, replying to an invitation from the visual artist Melik Ohanian for the exhibition “Traversées/Traverses”, the astronaut William J. Clancey said what he thought about the contemporary development of the exploration of Mars in the following terms: “We are already going to Mars with cameras and robots. We are surrounding Mars with satellites [...]. We are beginning to see Mars as a destination [...]. We are planning the installation of housing units and glasshouses, tomorrow colonies (31)”. Furthermore, in the shorter term, in late 2008/early 2009, suborbital flights at altitudes of about 100 kilometres (65 miles) will take “tourists” up into space, “promoting” them to the rank of astronaut for the occasion. Turn by turn they will experience extreme speed (3500 kph/2200 mph), intense acceleration (from four to five G), and weightlessness (for a few minutes). The “aquanuts” on board Jacques Rougerie’s *Sea Orbiter* will be scientists, biologists, oceanographers and other experts of the marine world, on a six-month mission. But the prospect of tourist applications is nevertheless not ruled out. These different projects are being developed, using the American example, by private companies and not by government agencies; and they are leading to the formulation of many different scenarios with their focus as much on the technological and scientific aspects of the missions involved as on the behavioural patterns of the people taking part in the adventure. Nevertheless, the semantic space which they develop in the “Paris Airs” exhibition is not reduced to just the conditions of their conception, or just to their applications. Geographical imagination has a

powerful influence on the ways in which “societies both see themselves and represent themselves, and also see and represent their world (32)”. Michel Foucault has thus written that such a “floating piece of space, a placeless place, which lives through itself, is closed in upon itself and given over to infinity”, formed “the largest reserve of imagination (33)”. This space – which he calls “heterotopia” – has a twofold function, “between the extreme poles” of illusion, on the one hand, and compensation, on the other. The first “denounces as even more illusory the whole of real space, and all the locations and positions within which life is compartmentalized”. The second is another real space, as perfect, meticulous, and well arranged as ours is disorderly, badly arranged and messy (34). The present-day intensification of the human experience of space, which architects, designers, astronauts, engineers, industrialists, and investors all transmit within an agreed time-frame of two to five years, is concomitant with an inflation of images of the object “Earth”. “The undertaking consisting in visualizing the Earth” cannot deny its “semi-metaphysical quality (35)”, as emphasized by the philosopher Peter Sloterdijk. Geographical information and data websites like Google Earth and Google Maps, MSN Virtual Earth, and the IGN’s geoportal [France’s National Geographic Institute] have recently rendered satellite viewing, global and local alike, available to one and all, so to speak. In Dubai, the 300 man-made islands under construction are arrayed as if on a planisphere, with a flat projection. “More than any other social science, geography thinks in images, and subjects part of its discourse to the production and mobilization of images [...] as if to introduce territories and forms of imagined territoriality (36)”, as if to ward off environmental damage and disasters, in increasing numbers, as well as the irreversible process of squeezing ever-growing populaces into built-up urban areas, with all the consequences that that implies (37).

### Geography and Narratives

Visitors to the “Paris Airs” show are thus invited to survey, turn by turn, an “invisible city”, an “abandoned” plot of land, and a tram station car-park, and here find themselves facing a humdrum environment with no positive features, the environment of familiar reality. Conversely, inclusion outside the humdrum links outstanding experiences in extreme spaces. The switch of scale

in any event renews the view of Earth. A night-time reverse shot offered as a complement carries on weaving the geographical metaphor. At a time when the world population is becoming more urban than rural, awareness of environmental developments is bolstered by a widespread sense of loss. This is echoed by the recently introduced step involving nocturnal protection. Since 1992, in fact, the firmament, whose visibility is polluted by city lights, has been included on the world heritage listing (38). The “Paris Air” exhibition in this respect reintroduces the night’s powers of attraction by way of two installations which function like sensitive revealers. By venturing into the environment named *Diurnism*, devised by the Swiss architect Philippe Rahm (cat. p. 308), the visitor experiments with drowsiness, in a perception of orange-yellow night, and dizziness, in listening to John Field’s *Nocturnes* performed the wrong way round. The architect Didier Faustino, for his part, uses a reverse-shot of psycho-dreamlike experiences to be lived through in a cerebral cortex called *ZNS* (“Zentralnervensystem”). A household “black/back-room” explores the relationship of self to self and of self to the other (cat. p. 322). The contrasting forms of writing of these two installations reinstate the processes whereby privacy and intimacy are formed by way of thresholds. Nevertheless, the duration of the exhibition, the area of resonance, and the various medico-psychological data do not lead the private and the intimate towards a fully hardened self-awareness. The two plunges into a saturated monochrome environment (orange-yellow in the case of *Diurnism*, by Philippe Rahm, and black for Didier Faustino’s *ZNS*) rather suggest an eminently contemporary process of physical dissolution. The American author Bruce Benderson masterfully interprets the deepest of these impulses and drives in a unique fictional work, inspired by psychoanalysis, published below (“My body: design and architecture”, p. 318). Consulting his surgeon, the protagonist calls for the most radical kind of plastic surgery to revert to a rotundness without any appendages, i.e., the original sphere. The *ZNS* device, which is echoed in the exhibition, cultivates an appropriate aesthetics of strangeness interacting with a mysterious narrative, of placeless self and selfless place (39)...

The choice of geographical statement adopted for this introduction leads to a further parallel

consideration of two narratives of the contemporary individual within a now worldwide geopolitical context. The goal of the political proposal of the *Campement urbain*. Urban Camp collective is to make the world a category symmetrical with and complementary to the category of citizen. This collective, made up of an architect-cum-city planner, a visual artist, and a sociologist, is well acquainted with Sevrans, a town in the Paris region (cat. p. 288). It imagines confronting the town’s populace, with all of its 67 different nationalities revealed in a recent census, with the process of representing the town hall (the present-day building was built, prefabricated, in the 1970s). Everyone is thus invited to depict for themselves a “World-Town Hall”, whose formulation, incidentally, calls to mind the “World-Society” formulation by Jürgen Habermas, who foresaw, after the collapse of the Nation-State, the advent of a deliberative democracy. Confronting its constituents with the republican edifice in any event re-established political action, and this in a post-colonial context of changes of both scale and nature, affecting identity-related phenomena and perceptions of otherness (40).

Lastly, and especially for this catalogue accompanying the “Paris Airs” exhibition, the architects Laurent Gutierrez and Valérie Portefaix (Map Office) who live and work in Hong Kong, have produced the comic strip which duly winds up the introduction. By being part and parcel of the revival of geopolitical studies, their “strategic study”, to use their own expression, narrates the spatial challenges of contemporary globalization. As it happens, this study echoes the current strategic, political and economic controversies over the installation of French companies in China. “The themes are: tours in Paris, the Pompidou Centre in Shanghai, the Olympic Games and the rivalry between Paris and Beijing, Chinatown, Chinese immigration, environment/energy/infrastructure, and a critique of the nature of the development /image of Paris. [...] In a quirky dialogue [...], these characters might be able to construct a new utopia for Paris”, and also, not without wit, give a very free-wheeling interpretation to the project involving the establishment of a Pompidou Centre in China!

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## NOTES

1. "Star Trek : Scotty dans l'espace", website : [www.unificationfrance.com/article.php3?id\\_article=1861](http://www.unificationfrance.com/article.php3?id_article=1861).
2. See Olivier Lazzarotti, *Habiter. La Condition géographique*, Paris, Belin, 2006, p. 256-267, and p. 90 : "This is how, nowadays, the terms are set forth for a human condition that amplifies the place, role, scope and significance of geography". It is worth remembering that the first "geographical cafés", designed on the basis of the philosophical café model, appeared in 1998.
3. "Questions à Michel Foucault sur la géographie", by Yves Lacoste, *Hérodote*, n° 1, January-March 1976, republished in M. Foucault, *Dits et écrits. 1954-1988*, vol. III, 1976-1979, Paris, Gallimard, "NRF", 1994, p. 28-40.
4. Jacques Lévy, Michel Lussault, *Dictionnaire de la géographie et de l'espace des sociétés*, Paris, Belin, 2003, article "Histoire de la géographie", p. 464.
5. *Ibid.*, article "Corps", p. 213. The origin of this study is attributed to the feminist trend of English language geography.
6. Georges Perec, *Espèces d'espace*, Paris, Galilée, 1974. The poetic title refers to the analysis of mobility made in particular by Bruno Marzloff, *Mobilités. Trajectoires fluides*, La Tour d'Aigues, L'Aube, 2005, and by the same author, "Du Web à la ville. Les mobilités de l'homme radar", *Urbanisme*, n° 348, May-June 2006, p. 87-92.
7. Cat. p. 265.
8. Plan 52.
9. Bruno Latour and Émilie Hermant (photographer), *Paris. Ville invisible*, Paris, Les Empêcheurs de penser en rond, 1998, p. 150.
10. B. Latour, *Changer de société. Refaire de la sociologie*, Paris, Éditions de La Découverte, 2006, see p. 259 and p.299.
11. Bénédikte Zitouni, "Paris. Ville invisible – un diorama sociologique", [www.ethnographiques.org/2004/zitouni.html](http://www.ethnographiques.org/2004/zitouni.html). See also the article by de Bruno Latour below, p. 260.
12. B. Latour, *Changer de société, op. cit.*, note 10, p. 351-352.
13. Béatrice Jérôme, "La politique de M. Delanoë a permis une baisse de la pollution à Paris", *Le Monde*, 20 December 2006.
14. Elisa Giaccardi, "Metadesign as an emergent design culture", *Leonardo*, 38.2, August 2005. Gerhard Fischer and E. Giaccardi, "Meta-design, a framework for the future of end-user development", in H. Liebermann, F. Paterno, V. Wulf (eds.), *End user development, empowering people to employ flexibility, advanced information and communication technology*, Dordrecht, Kluwer Academic Publishers. See the website [www.lab-au.com](http://www.lab-au.com), and the online interview of Lars Spuybroek (NOX) at [www.vividvormgeving.nl/vormgevingpagina/spuybroeknrc.htm](http://www.vividvormgeving.nl/vormgevingpagina/spuybroeknrc.htm).
15. "Metadesign can be defined as a praxis based on the understanding of the systems of logic inherent to information and communication technologies focusing on the formalisation and transcription of information processes in textual, graphique, spatial and multidimensionnel forms", *L'Arca*, n° 178, February 2003, [www.lab-au.com/files/doc/arca1-fr.htm](http://www.lab-au.com/files/doc/arca1-fr.htm).
16. Corinne Bensimon, "Les sauvages sont dans la ville", *Libération*, 28 October 2006. The census was carried out by the Museum, at the request of the Apur, and published in the form of an *Atlas de la nature à Paris*, Paris, Le Passage, 2006.
17. "De paysage en outre-pays", *Le Débat*, "Au-delà du paysage moderne", Pierre Nora (dir.), n° 65, May-August 1991, p. 4, quotes Augustin Berque : "Landscape is not environment. Environment is the factual side of a setting (milieu) (i.e. of the relation of a society to space and nature), landscape is the perceptible side of this relation".
18. "Questions à Michel Foucault sur la géographie", *op. cit.*
19. See the excerpt from the book by Jacques Leenhardt, sociologist and director of studies at the l'EHESS, "Le jardin planétaire, jardin inconnu. Sur le travail paysagiste de Gilles Clément", forthcoming in Michel Conan (ed.), *Contemporary Garden Art and Aesthetic Experience*, Washington DC, Dumbarton Oaks and Spacemake Press, 2006, quoted by Louisa Jones in *Gilles Clément. Une écologie humaniste*, Paris, La Martinière, Aubanel, 2006, p. 253 and 254. See also, p. 76 et 80, this comment by Louisa Jones : "Clément discovers the Third Landscape when, in 2002, photos of the earth seen from space show him a landscape in the Limoges region divided into managed croplands and forests – two forms of monocultures – interspersed by abandoned land. These fringe areas are valuable reservoirs for the mechanisms of biodiversity, and far more threatened still than in 1985".
20. O. Lazzarotti, *Habiter. La Condition géographique, op. cit.*, p. 120-121.
21. J. Lévy, M. Lussault, *Dictionnaire de la géographie...., op. cit.*, article "Nature", p. 659.
22. Cat. p. 278.
23. Jacques Lévy, "Serendipity", [Espacestems.net](http://Espacestems.net), Mensuelles, 13 01 2004, may be consulted at [www.especestems.net/document519.html](http://www.especestems.net/document519.html).
24. See B. Marzloff, *Mobilités. Trajectoires fluides, op. cit.*, p. 31, as well as note 45, which refers to the research programmes of "seamless multimodal mobility" undertaken by the universities of Eindhoven and Delft. See also : <http://cttrailf.ct.tudelft.nl>.
25. The philosopher Peter Sloterdijk notes "the triumph of topological thinking in the 20th century" in *Le Palais de cristal. À l'intérieur du capitalisme planétaire*, translated from the German by Olivier Mannoni, Paris, Maren Sell Éditeurs, 2006, p. 55.
26. Greg Lynn, *Animate form*, New York, Princeton Architectural Press, 1999, quoted by Mahesh Senagala, "Speed and relativity: toward time-like architecture". See also "Variations calculées", in Frédéric Migayrou (ed.), *Architectures non standard*, Paris, Centre Pompidou, 2003, p. 90-92, and in the same catalogue, Mark Burry, "Demain, la production numérique et architecturale", p. 42-47.
27. J. Lévy and M. Lussault, *Dictionnaire de la géographie...., op. cit.*, articles "Topologie", p. 928-929, and "Géographie et mathématique", p. 594-597.
28. Jeremy Rifkin, *L'Âge de l'accès. La révolution de la nouvelle économie*, translated from the American by Marc Saint-Upéry, Paris, Éditions de La Découverte, 2000, p. 235-237. See also André Gorz, *L'Immatériel. Connaissance, valeur et capital*, Paris, Galilée, 2003, p. 48.
29. J. Rifkin, *op. cit.*, p. 267. See also p. 349-355.
30. The space age was ushered in on 4 October 1957 with the launch of Sputnik, the first Russian satellite, followed by the first man in space (12 April 1961) and man's first steps in the Moon (20 July 1969).

31. William J. Clancey, "Coming soon, Mars film structure", *Traversées*, Paris, Paris-Musées, 2001, unpublished. (exh. Cat. at the Musée d'art moderne de la Ville de Paris, 25 October 2001-6 January 2002). See also the catalogue of the Art Outsiders Festival 2003, *Space Art, Anomalie Digital Arts*, n° 4, Emanuele Quinz, Jean-Luc Soret and Annick Bureaud (eds.), Orléans, Hyx, 2003.
32. J. Lévy, M. Lussault, *Dictionnaire de la géographie...*, *op. cit.*, article "Imaginaire géographique", p. 489-491.
33. Michel Foucault, "Des espaces autres", lecture given at the Cercle d'études architecturales on 14 March 1967, published in *Architecture, Mouvement, Continuité*, n° 5, October 1984, p. 46-49, republished in *Dis et écrits, 1954-1988*, vol. IV, 1980-1988, Paris, Gallimard, "NRF", 1994, p. 761.
34. Ibid.
35. P. Sloterdijk, *Le Palais de cristal*, *op. cit.*, p. 35-36.
36. J. Lévy, M. Lussault, *Dictionnaire de la géographie...*, *op. cit.*, article "Imaginaire géographique", p. 490-491.
37. Voir Gaëlle Dupont, "La fièvre des mégapoles", *Le Monde*, 8-9 October 2006, p. 16 : "The year 2007 will be marked by an unprecedented turning-point in the history of humankind. For the first time, the world's urban population will exceed its rural population" (UN Habitat Programme).
38. Since the International Meeting of Astronomers on the unfavourable impacts of the environment on astronomy, 30 June-2 July 1992, Unesco, Paris.
39. These formulations are inspired from Peter Sloterdijk, *Le Palais de cristal*, *op. cit.*, p. 218.
40. See J. Lévy, M. Lussault, *Dictionnaire de la géographie...*, *op. cit.*, articles "Société-Monde", p. 856, and "Économie-Monde", p. 293.