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>> Reading the city in a global digital age: between topographic representation and spatialized power projects (note1)

Examining a city or a metropolitan region in terms of its built topography is, perhaps, increasingly inadequate in a global digital era. On the one hand, topography does not engage what are today the dominant accounts about globalization and digitization, accounts which evict place and materiality and hence what we might call the topographic moment. Yet, as I will argue below, the digital and the global are deeply imbricated with the material and the local in the case of global cities. Topographic representations of such cities fail to capture the fact that components of their topography might be spatializations of global power projects and/or may be located on global circuits, thereby destabilizing the meaning of the local or the sited, and thereby the topographic representation of these cities.

My concern in this brief essay is to distinguish between the topographic representation of key aspects of the city and an interpretation of these same aspects in terms of spatialized economic, political, and cultural dynamics (note2). This is one analytic path into questions about cities in a global digital age. This brings a particular type of twist to the discussion on urban topography and spatialization since both are associated with dispersal and mobility. Topographic representations fail to capture the fact that cities continue to be key sites for the spatialization of power projects even in a global digital era. Nor do topographic representations allow one to capture the fact that cities are also key sites for the spatializing of a different type of power project, perhaps better thought of as contestatory. Here my argument is that global cities make possible the emergence of new types of political subjects arising out of conditions of often acute disadvantage. A topographic representation of poor areas of a city would simply capture the physical conditions of disadvantage: the poor housing, the bad transport infrastructure, the decaying schools.

Spatialized Power Projects

Cities have long been key sites for the spatialization of power projects --whether political, religious, or economic. There are multiple instances that capture this. We can find it in the structures and infrastructures for control and management functions of past colonial empires and of current global firms and markets; we can also find it in the segregation of population groups that can consequently be more easily produced as either cheap labor or surplus people; in the choice of particular built forms used for representing and symbolic cleansing of economic power, as in the preference for "greek temples" to house stock markets; in what we refer today as high-income residential and commercial gentrification to accommodate the expanding elite professional classes, with the inevitable displacement of lower income households and firms; and we can see it in the large-scale destruction of natural environments to implant particular forms of urbanization marked by spread rather than density and linked to specific real estate development interests, such as the uncontrolled strip-development and suburbanization we see in the Los Angeles region.

Yet the particular dynamics and capacities captured by the terms globalization and digitization signal the possibility of a major transformation in this dynamic of spatialization. The dominant interpretation posits that digitization entails an absolute disembedding from the material world. Key concepts in the dominant account about the global economy -- globalization, information economy, and telematics -- all suggest that place no longer matters. And they suggest that the type of place represented by major cities may have become obsolete from the perspective of the economy, particularly for the leading industries as these have the best access to, and are the most advanced users of, telematics.

These are accounts that privilege the fact of instantaneous global transmission over the concentrations of built infrastructure that make transmission possible; that privilege information outputs over the work of producing those outputs, from specialists to secretaries; and that privilege the new transnational corporate culture over the multiplicity of cultural environments, including re-territorialized immigrant cultures, within which many of the "other" jobs of the global information economy take place (note3).

One consequence of such a representation of the global information economy as place-less, would be that there is no longer a spatialization of this type of power today: it has supposedly dispersed geographically and gone partly digital. It is this proposition that I have contested in much of my work, arguing that this dispersal is only part of the story and that we see in fact new types of spatializations of power (note4).

Mine is a particular kind of reading of digitization and globalization. It seeks to detect the imbrications of the digital and non-digital domains and thereby to insert the city in mappings of the digital, both actual and rhetorical --mappings from which the city is easily excluded. And it is a reading that seeks to detect when and under what conditions the global economy hits the ground and localizes in concrete built environments. The risk in this type of effort, it seems to me, lies in generalizing, using metaphors and figurative language --in brief, to hover above it all. We need to go digging (note5).

How do we reintroduce place in economic analysis? And secondly, how do we construct a new narrative about economic globalization, one which includes rather than evict all the spatial, economic and cultural elements that are part of the global economy as it is constituted in cities. A topographic reading would introduce place yet, in the end, not do much better than these dominant accounts about globalization and digitization. It would fail to capture the fact that global dynamics might inhabit localized built environments.

Analytic Borderlands

For me as a political economist, addressing these issues has meant working in several systems of representation and constructing spaces of intersection. There are analytic moments when two systems of representation intersect. Such analytic moments are easily experienced as spaces of silence, of absence. One challenge is to see what happens in those spaces, what operations (analytic, of power, of meaning) take place there.

One version of these spaces of intersection is what I have called analytic borderlands. Why borderlands? Because they are spaces that are constituted in terms of discontinuities and usually conceived of as mutually exclusive. In constituting them as analytic borderlands, discontinuities are given a terrain rather than reduced to a dividing line. Much of my work on economic globalization and cities has focused on these discontinuities and has sought to reconstitute their articulation analytically as borderlands rather than as dividing lines (note6).

Methodologically, the construction of these analytic borderlands pivots on what I call circuits for the distribution and installation of economic operations; I focus on circuits that cut across what is generally seen as two or more discontinuous "systems," or institutional orders, or dynamics. These circuits may be internal to a city's economy or be, perhaps at the other extreme, global; in the latter case, a given city is but one site on a circuit that may contain a few or many other such cities.

Internal circuits allow me to follow economic activities into terrains that escape the increasingly narrow borders of mainstream representations of "the" urban economy and to negotiate the crossing of discontinuous spaces. For instance, it allows me to locate various components of the informal economy (whether in New York or Paris or Bombay) on circuits that connect it to what are considered advanced industries such as finance, design or fashion. A topographic representation would capture the enormous discontinuity between the places and built environments of the informal economy and the financial or design district in a city, and fail to capture their complex economic interactions and dependencies.

International and transnational circuits allow me to detect the particular networks that connect specific activities in one city with specific activities in cities in other countries. In my research I unpack the global economy into a variety of often highly specialized cross-border circuits. For instance, if one focuses on futures markets, cities such as London and Frankfurt are joined by Sao Paulo and Kuala Lumpur; if one looks at the gold market, all except London drop out, and Zurich, Johannesburg and Sydney appear (note7). Continuing along these lines, Los Angeles, for example, would appear as located on a variety of global circuits (including bi-national circuits with Mexico) which would be quite different from those of New York or Chicago. This brings to the fore a second important issue: we can think of these cities or urban regions as criss-crossed by these circuits and as partial (only partial!) amalgamations of these various circuits. Topographic representations would fail to capture much of this spatialization of global economic circuits, except, perhaps, for certain aspects of the distribution/transport routes.

Sited Materialities and Global Span

It seems to me that the difficulty analysts and commentators have had specifying/understanding the impact of digitization on cities --indeed, on multiple configurations-- essentially results from two analytic flaws. One of these (especially evident in the U.S.) confines interpretation to a technological reading of the technical capabilities of digital technology. This is fine for engineers. But when one is trying to understand the impacts of a technology, such a reading becomes problematic. A purely technological reading of technical capabilities of digital technology inevitably leads one to a place that is a non-place, where we can announce with certainty the neutralizing of many of the configurations marked by physicality and place-boundedness, including the urban (note8).

The second flaw, I would argue, is a continuing reliance on analytical categorisations that were developed under other spatial and historical conditions, that is, conditions preceding the current digital era. Thus the tendency is to conceive of the digital as simply and exclusively digital and the non-digital (whether represented in terms of the physical/material or the actual, all problematic though common conceptions) as simply and exclusively that, non-digital. These either/or categorizations filter out the possibility of mediating conditions, thereby precluding a more complex reading of the impact of digitization on material and place-bound conditions.

One such alternative categorisation captures imbrications. Let me illustrate this using the case of finance. Finance is certainly a highly digitized activity; yet it cannot simply be thought of as exclusively digital. To have electronic financial markets and digitized financial instruments requires enormous amounts of material, not to mention human talent (which has its own type of physicality). This material includes conventional infrastructure, buildings, airports, and so on. Much of this material is, then, inflected by the digital. Obversely, much of what takes place in cyberspace is deeply inflected by the cultures, the material practices, the imaginaries, that take place outside cyberspace. Much, though not all, of what we think of when it comes to cyberspace would lack any meaning or referents if we were to exclude the world outside cyberspace. In brief, digital space and digitization are not exclusive conditions that stand outside the non-digital. Digital space is embedded in the larger societal, cultural, subjective, economic, imaginary structurations of lived experience and the systems within which we exist and operate (note9).

The complex imbrications between the digital (as well as the global) and the non-digital brings with it a destabilizing of older hierarchies of scale and often dramatic re-scalings. As the national scale loses significance along with the loss of key components of the national state's formal authority over the national scale, other scales gain strategic importance. Most especially among these are sub-national scales such as the global city, and supranational scales such as global markets or regional trading zones (note10). (Schiffer Ramos, Sueli. 2002. "Sao Paulo: Articulating a cross-border regional economy.")

Older hierarchies of scale (emerging in the historical context of the ascendance of the nation-state), which continue to operate, are typically organized in terms of institutional size: from the international, down to the national, the regional, the urban, down to the local. Today's re-scaling cuts across institutional size and, through policies such as deregulation and privatisation, cuts across the institutional encasements of territory produced by the formation of national states. This does not mean that the old hierarchies disappear, but rather that rescalings emerge alongside the old ones, and that they can often trump the latter.

These transformations which continue to entail complex imbrications of the digital and non-digital and between the global and the non-global, can be captured in a variety of instances. For example, much of what we might still experience as the "local" (an office building or a house or an institution right there in our neighborhood or downtown) actually is something I would rather think of as a "microenvironment with global span" insofar as it is deeply internetworked. Such a microenvironment is in many senses a localized entity, something that can be experienced as local, immediate, proximate and hence captured in topographic representations. It is a sited materiality.

But it is also part of global digital networks which give it immediate far-flung span. To continue to think of this as simply local is not very useful or adequate. More importantly, the juxtaposition between the condition of being a sited materiality and having global span, captures the imbrication of the digital and the non-digital and illustrates the inadequacy of a purely technological reading of the technical capacities of digitization which would lead us to posit the neutralization of the place-boundedness of that which precisely makes possible the condition of being an entity with global span. And it illustrates the inadequacy of a purely topographical reading.

A second example is the bundle of conditions and dynamics that marks the model of the global city. Just to single out one key dynamic: the more globalized and digitized the operations of firms and markets, the more their central management and coordination functions (and the requisite material structures) become strategic. It is precisely because of digitization that simultaneous worldwide dispersal of operations (whether factories, offices, or service outlets) and system integration can be achieved. And it is precisely this combination which raises the importance of central functions. Global cities are strategic sites for the combination of resources necessary for the production of these central functions (note11).

Much of what is liquified and circulates in digital networks and is marked by hypermobility, remains physical in some of its components. Take, for example, the case of real estate. Financial services firms have invented instruments that liquify real estate, thereby facilitating investment and circulation of these instruments in global markets. Yet, part of what constitutes real estate remains very physical. At the same time, however, that which remains physical has been transformed by the fact that it is represented by highly liquid instruments that can circulate in global markets. It may look the same, it may involve the same bricks and mortar, it may be new or old, but it is a transformed entity.

We have difficulty capturing this multi-valence through our conventional categories: if it is physical, it is physical; and if it is digital, it is digital. In fact, the partial representation of real estate through liquid financial instruments produces a complex imbrication of the material and the de-materialized moments of that which we continue to call real estate. And it is precisely because of the digital capabilities of the economic sectors represented in global cities that the massive concentrations of material resources in these cities exist and keep expanding.

Hypermobility or de-materialization are usually seen as mere functions of the new technologies. This understanding erases the fact that it takes multiple material conditions to achieve this outcome and that it takes social networks not only digital ones (note12). Once we recognize that the hypermobility of the instrument, or the de-materialization of the actual piece of real estate, had to be produced, we introduce the imbrication of the material and the non-material. It takes capital fixity to produce capital mobility, that is to say, state of the art built-environments, conventional infrastructure --from highways to airports and railways-- and well-housed talent. These are all, at least partly place-bound conditions, even though the nature of their place-boundedness is going to be different from what it was 100 years ago, when place-boundedness was much closer to pure immobility. Today it is a place-boundedness that is inflected, inscribed, by the hypermobility of some of its components/products/outcomes. Both capital fixity and mobility are located in a temporal frame where speed is ascendant and consequential. This type of capital fixity cannot be fully captured in a description of its material and locational features, i.e. in a topographical reading.

Conceptualizing digitization and globalization along these lines creates operational and rhetorical openings for recognizing the ongoing importance of the material world even in the case of some of the most de-materialized activities.

The spatialities of the center

Information technologies have not eliminated the importance of massive concentrations of material resources but have, rather, reconfigured the interaction of capital fixity and hypermobility. The complex management of this interaction has given some cities a new competitive advantage. The vast new economic topography that is being implemented through electronic space is one moment, one fragment, of an even vaster economic chain that is in good part embedded in non-electronic spaces. There is today no fully virtualized firm or economic sector. Even finance, the most digitized, dematerialized and globalized of all activities has a topography that weaves back and forth between actual and digital space. To different extents in different types of sectors and different types of firms, a firm's tasks now are distributed across these two kinds of spaces; further, the actual configurations are subject to considerable transformation as tasks are computerized or standardized, markets are further globalized, and so on.

The combination of the new capabilities for mobility along with patterns of concentration and operational features of the cutting edge sectors of advanced economies suggests that spatial concentration remains as a key feature of these sectors. But it is not simply a continuation of older patterns of spatial concentration. Today there is no longer a simple straightforward relation between centrality and such geographic entities as the downtown, or the central business district. In the past, and up to quite recently in fact, centrality was synonymous with the downtown or the CBD. The new technologies and organizational forms have altered the spatial correlates of centrality (note13).

Given the differential impacts of the capabilities of the new information technologies on specific types of firms and of sectors of the economy, the spatial correlates of the "center" can assume several geographic forms, likely to be operating simultaneously at the macrolevel. Thus the center can be the CBD, as it still is largely for some of the leading sectors, notably finance, or an alternative form of CBD, such as Silicon Valley. Yet even as the CBD in major international business centers remains a strategic site for the leading industries, it is one profoundly reconfigured by technological and economic change (note14).

Further, there are often sharp differences in the patterns assumed by this reconfiguring of the central city in different parts of the world (note15).

Second, the center can extend into a metropolitan area in the form of a grid of nodes of intense business activity. One might ask whether a spatial organization characterized by dense strategic nodes spread over a broader region does in fact constitute a new form of organizing the territory of the "center," rather than, as in the more conventional view, an instance of suburbanization or geographic dispersal. Insofar as these various nodes are articulated through digital networks, they represent a new geographic correlate of the most advanced type of "center." This is a partly deterritorialized space of centrality (note16).

Third, we are seeing the formation of a transterritorial "center" constituted via intense economic transactions in the network of global cities. These transactions take place partly in digital space and partly through conventional transport and travel. The result is a multiplication of often highly specialized circuits connecting sets of cities (note17). These networks of major international business centers constitute new geographies of centrality. The most powerful of these new geographies of centrality at the global level binds the major international financial and business centers: New York, London, Tokyo, Paris, Frankfurt, Zurich, Amsterdam, Los Angeles, Sydney, Hong Kong, among others. But this geography now also includes cities such as Bangkok, Seoul, Taipei, Sao Paulo, Mexico City. In the case of a complex landscape such as Europe's we see in fact several geographies of centrality, one global, others continental and regional.

Fourth, new forms of centrality are being constituted in electronically generated spaces. For instance, strategic components of the financial industry operate in such spaces. The relation between digital and actual space is complex and varies among different types of economic sectors.

What does contextuality mean in this setting

These networked sub-economies operating partly in actual space and partly in globe-spanning digital space cannot easily be contextualized in terms of their surroundings. Nor can the individual firms and markets. The orientation of this type of sub-economy is simultaneously towards itself and towards the global. The intensity of internal transactions in such a sub-economy (whether global finance or cutting edge high-tech sectors) is such that it overrides all considerations of the broader locality or urban area within which it exists.

On another, larger scale, in my research on global cities I found rather clearly that these subeconomies develop a stronger orientation towards the global markets than to their hinterlands. Thereby they override a key proposition in the urban systems literature, to wit, that cities and urban systems integrate and articulate national territory. This may have been the case during the period when mass manufacturing and mass consumption were the dominant growth machines in developed economies and thrived on national scalings of economic processes. Today, the ascendance of digitized, globalized, dematerialized sectors such as finance, has diluted that articulation with the larger national economy and the immediate hinterland.

The articulation of these sub-economies with other zones and sectors in their immediate socio-spatial surroundings are of a special sort. There are the various highly priced services that cater to the workforce, from up-scale restaurants and hotels to luxury shops and cultural institutions, typically part of the socio-spatial order of these new sub-economies. But there are also various low-priced services that cater to the firms and to the households of the workers and which rarely "look" like they are part of the advanced corporate economy. The demand by firms and households for these services actually links two worlds that we think of as radically distinct. It is particularly a third instance that concerns me here, the large portions of the urban surrounding that have little connection to these world-market oriented sub-economies, even though physically proximate. It is these that engender a question about context and its meaning when it comes to these sub-economies.

What then is the "context," the local, here? The new networked subeconomy occupies a strategic geography, partly deterritorialized, that cuts across borders and connects a variety of points on

the globe. It occupies only a fraction of its "local" setting, its boundaries are not those of the city where it is partly located, nor those of the "neighborhood." This subeconomy interfaces the intensity of the vast concentration of very material resources it needs when it hits the ground and the fact of its global span or cross-border geography. Its interlocutor is not the surrounding, the context, but the fact of the global.

I am not sure what this tearing away of the context and its replacement with the fact of the global could mean for urban practice and theory. The strategic operation is not the search for a connection with the "surroundings," the context. It is, rather, installation in a strategic cross-border geography constituted through multiple "locals." In the case of the economy I see a re-scaling: old hierarchies --local, regional, national, global-- do not hold. Going to the next scale in terms of size is no longer how integration is achieved. The local now transacts directly with the global --the global installs itself in locals and the global is itself constituted through a multiplicity of locals.

New Frontier Zones: The formation of new political actors

The other side of the global city is that it is a sort of new frontier zone where an enormous mix of people converge. Those who lack power, those who are disadvantaged, outsiders, discriminated minorities, can gain presence in global cities, presence vis a vis power and presence vis a vis each other. This signals, for me, the possibility of a new type of politics centered in new types of political actors. It is not simply a matter of having or not having power. There are new hybrid bases from which to act. By using the term presence I try to capture some of this.

Here the interaction between topographic representations of fragments and the existence of underlying interconnections assumes a very different form: what presents itself as segregated or excluded from the mainstram core of a city is actually in increasingly complex interactions with other similarly segregated sectors in other cities. There is here, in my reading, an interesting dynamic where top sectors (the new transnational professional class) and bottom sectors (e.g. immigrant communities or activists in environmental or anti-globalization struggles) inhabit a cross-border space that connects multiple cities.

The space of the city is a far more concrete space for politics than that of the nation. It becomes a place where non-formal political actors can be part of the political scene in a way that is much more difficult at the national level. Nationally politics needs to run through existing formal systems: whether the electoral political system or the judiciary (taking state agencies to court). Non-formal political actors are rendered invisible in the space of national politics. The space of the city accommodates a broad range of political activities --squatting, demonstrations against police brutality, fighting for the rights of immigrants and the homeless, the politics of culture and identity, gay and lesbian and queer politics. Much of this becomes visible on the street. Much of urban politics is concrete, enacted by people rather than dependent on massive media technologies. Street level politics makes possible the formation of new types of political subjects that do not have to go through the formal political system.

Through the Internet local initiatives become part of a global network of activism without losing the focus on specific local struggles (note18).

It enables a new type of cross-border political activism, one centered in multiple localities yet intensely connected digitally. This is in my view one of the key forms of critical politics that the Internet can make possible: A politics of the local with a big difference--these are localities that are connected with each other across a region, a country or the world. Because the network is global does not mean that it all has to happen at the global level (note19).

The large city of today, especially the global city, emerges as a strategic site for these new types of operations (note20). It is a strategic site for global corporate capital. But it is also one of the sites where the formation of new claims by informal political actors materializes and assumes concrete forms. The loss of power at the national level produces the possibility for new forms of power and politics at the subnational level (note21). The national as container of social process and power is cracked. This cracked casing opens up possibilities for a geography of politics that links subnational spaces and allows non-formal political actors to engage strategic components of global capital (note22).

Digital networks are contributing to the production of new kinds of interconnections underlying what appear as fragmented topographies, whether at the global or at the local level. Political activists can use digital networks for global or non-local transactions and they can use them for strengthening local communications and transactions inside a city or rural community (note23). Recovering how the new digital technology can serve to support local initiatives and alliances across a city's neighborhoods is

extremely important in an age where the notion of the local is often seen as losing ground to global dynamics and actors and the digital networks are typically thought of as global. What may appear as separate segregated sectors of a city may well have increasingly strong interconnections through particular (and inevitably perhaps particularistic) networks of individuals and organizations with shared interests (note24).

Conclusion

Economic globalization and digitization have contributed to produce a spatiality for the urban which pivots on de-territorialized cross-border networks and territorial locations with massive concentrations of resources. This is not a completely new feature. Over the centuries cities have been at the intersection of processes with supra-urban and even intercontinental scalings. What is different today is the intensity, complexity and global span of these networks, and the extent to which significant portions of economies are now dematerialized and digitized and hence can travel at great speeds through these networks. Also new is the growing use of digital networks by often poor neighborhood organizations to pursue a variety of both intra- and inter-urban political initiatives. All of this has raised the number of cities that are part of cross-border networks operating at often vast geographic scales. Under these conditions, much of what we experience and represent as the local turns out to be a microenvironment with global span.

As cities and urban regions are increasingly traversed by non-local, including notably global circuits, much of what we experience as the local because locally sited, is actually a transformed condition in that it is imbricated with non-local dynamics or is a localization of global processes. One way of thinking about this is in terms of spatializations of various projects --economic, political, cultural. This produces a specific set of interactions in a city's relation to its topography.

The new urban spatiality thus produced is partial in a double sense: it accounts for only part of what happens in cities and what cities are about, and it inhabits only part of what we might think of as the space of the city, whether this be understood in terms as diverse as those of a city's administrative boundaries or in the sense of the multiple public imaginaries that may be present in different sectors of a city's people. If we consider urban space as productive, as enabling new configuration, then these developments signal multiple possibilities.

NOTES

¹This is an expanded version of a paper first presented at a conference inaugurating the exhibit "Flight Patterns" MOCA January 2001. See C.H. Butler "In the Field/On Location." Introduction. Los Angeles: MOCA 2001.

²These are all complex and multifaceted subjects. It is impossible to do full justice to them or to the literatures they have engendered. I have elaborated on both the subjects and the literatures elsewhere. For the pertinent sources in art and architecture related publications, see the series of annual volumes of the ANY project, especially the last few volumes (e.g. Anytime and Anything, edited by Cynthia Davidson and published by MIT Press respectively in 1999 and 2000); "Revisiting the Edge" in Micro Space/Global Time (Edited by Peter Noever for the MAK Center for Art and Architecture, L.A. and MAK, Vienna 2000); "Electronic Space and Power" in Documenta. The Book (1997).

³The eviction of these activities and workers from the dominant representation of the global information economy, has the effect of excluding the variety of cultural contexts within which they exist, a cultural diversity that is as much a presence in processes of globalization as is the new international corporate culture.

⁴See The Global City (New updated edition. Princeton, NJ: Princeton University Press 2001).

⁵A number of scholars have produced important elements for this type of perspective which negotiates different scales. E.g. Taylor, Peter J. 2000. "World cities and territorial states under conditions of contemporary globalization." Political Geography 19 (5): 5-32. Brenner, Neil. 1998. "Global cities, global states: Global city formation and state territorial restructuring in contemporary Europe." Review of International Political Economy.

⁶This produces a terrain within which these discontinuities can be reconstituted in terms of economic operations whose properties are not merely a function of the spaces on each side (i.e., a

reduction to the condition of dividing line) but also, and most centrally, of the discontinuity itself, the argument being that discontinuities are an integral part, a component, of the economic system.

⁷See, e.g. Harvey, Rachel M. In Progress. *Global Cities of Gold*. (Dissertation Research, Department of Sociology, University of Chicago).

⁸Another consequence of this type of reading is to assume that a new technology will ipso facto replace all older technologies that are less efficient, or slower, at executing the tasks the new technology is best at. We know that historically this is not the case. For a variety of critical examinations of the tendency towards technological determinism in much of the social sciences today see Wajcman, Judy. 2002. *Information Technologies and the Social Sciences*. Special Issue of *Current Sociology*. (Summer)

⁹Please see "Digital Networks and Power" M.Featherstone and S. Lash (eds) *Spaces of Culture: City, Nation, World*. (London: Sage 1999), 49-63.

¹⁰Taylor, Peter J. 2000. "World cities and territorial states under conditions of contemporary globalization." *Political Geography* 19 (5): 5-32.

¹¹These economic global city functions are to be distinguished from political global city functions, which might include the politics of contestation by formal and informal political actors enabled by these economic functions. This particular form of political global city functions is, then, in a dialectical relation (both enabled and in opposition) to the economic functions (see Sassen "New Frontiers Facing Urban Sociology." *British Journal of Sociology*, 51 (1) (January/March 143-159.). Special Millennial Issue; Bartlett, Anne. 2001. *Politics Remade: Modernization and the New Political Culture in England*." (Unpublished thesis. Department of Sociology, University of Chicago).

¹²See e.g.Garcia, Linda. 2002. "The Architecture of Global Networking Technologies." In S. Sassen (ed) *Global Networks/Linked Cities*. London and New York: Routledge.

¹³Several of the organizing hypotheses in the global city model concern the conditions for the continuity of centrality in advanced economic systems in the face of major new organizational forms and technologies that maximize the possibility for geographic dispersal. See new Introduction in the updated edition of *The Global City* (2001). For a variety of perspectives see, e.g. Landrieu, Josee, May, Nicole, Spector, Therese, and Veltz, Pierre (ed). *La Ville Eclatee*. (La Tour d'Aigues: Editions de l'Aube, 1998); Salomon, Ilan. 1996. "Telecommunications, cities and technological opportunism." *The Annals of Regional Science*, 30: 75-90.

¹⁴Cicollela, Pablo and Iliana Mignaqui. 2002. "The spatial reorganization of Buenos Aires." In Sassen (ed.) *Global Networks/Linked Cities*. New York and London: Routledge.

¹⁵E.g. Marcuse, Peter and Ronald van Kempen. 2000. *Globalizing Cities. A New Spatial Order*. Oxford: Blackwell.

¹⁶This regional grid of nodes represents, in my analysis, a reconstitution of the concept of region. Further, it should not be confused with the suburbanization of economic activity. I conceive of it as a space of centrality partly located in older socio-economic geographies, such as that of the suburb or the larger metropolitan region, yet as distinct precisely because it is a space of centrality. Far from neutralizing geography the regional grid is likely to be embedded in conventional forms of communication infrastructure, notably rapid rail and highways connecting to airports. Ironically perhaps, conventional infrastructure is likely to maximize the economic benefits derived from telematics. I think this is an important issue that has been lost somewhat in discussions about the neutralization of geography through telematics. For an exception see Peraldi, Michel and Evelyne Perrin. (eds). 1996. *Reseaux Productifs et Territoires Urbains*. Toulouse: Presses Universitaires du Mirail. / Landrieu, Josee, May, Nicole, Spector, Therese, and Veltz, Pierre (ed). *La Ville Eclatee*. La Tour d'Aigues: Editions de l'Aube, 1998.

¹⁷E.g. Yeung, Yue-man. 2000. *Globalization and Networked Societies*. University of Hawai'i Press.

¹⁸Cleaver, Harry. 1998. "The Zapatista Effect: The Internet and the Rise of an Alternative Political Fabric." *Journal of International Affairs* 51, 2: 621-640.

¹⁹I conceptualize these "alternative" circuits as countergeographies of globalization because they are deeply imbricated with some of the major dynamics constitutive of the global economy yet are not part of the formal apparatus or of the objectives of this apparatus. The formation of global markets, the intensifying of transnational and trans-local business networks, the development of communication technologies which easily escape conventional surveillance practices -- all of these produce infrastructures and architectures that can be used for other purposes, whether money laundering or alternative politics.

²⁰Isin, Engin F. (ed) 2000. *Democracy, Citizenship and the Global City*. London and New York: Routledge.

²¹There, of course, severe limitations on these possibilities, many having to do with the way in which these technologies have come to be deployed. See Sassen 1999; Graham, S. and A. Aurigi. 1997. "Virtual Cities, Social Polarization, and the Crisis in Urban Public Space." *Journal of Urban Technology* 4, 1: 19-52.

²²E.g. Mele, C. 1999. "Cyberspace and Disadvantaged Communities: The Internet as a Tool for Collective Action." Pp. 264-289 in M.A. Smith and P. Kollock (eds.) *Communities in Cyberspace*. London: Routledge.

²³See, e.g. Lovink, Geert and Patrice Riemens. 2002. "Digital City Amsterdam: Local Uses of Global Networks." In Sassen (ed.) *Global Networks/Linked Cities*. New York and London: Routledge.

²⁴E.g. Espinoza, V. 1999. "Social networks among the poor: inequality and integration in a Latin American city." In B. Wellman (ed) *Networks in the global village*. Boulder, Co: Westview Press

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