An oxymoron

Vernacular architecture or vernacular construction, by analogy with vernacular language, means traditional practices based on empirical knowledge and local resources, developed over a long time by many people. Such practices may have standards and codes, but they are never fixed or formalised, nor are they transmitted through formal education. Vernacular builders learn from and teach each other by doing and, occasionally, by talking about what they do. Since production is motivated by use value, there is no social division of labour, that is, no hierarchical split between material and intellectual activities, though there is a functional division of the construction work. Historically, vernacular building practices used to be the mainstay of the production of housing in every part of the world until the 20th century, and in many places this has not changed.

On the other hand, the term metropolitan in the context of construction refers to methods considered “modern” and “rational,” and mainly determined by a global market of resources, techniques and information. Such construction methods are based on science and codified representations, legitimised by technical standards and institutions, planned and approved by professionals. Their efficiency is motivated by exchange value, implying that labour and means of production are usually not provided by the same people, and that a hierarchical division between intellectual activities, qualified material work and unqualified material labour prevails. Historically, such methods were conceived against vernacular building practices, so that not only extra-ordinary constructions but also ordinary housing and urban environments could become profitable commodities.

That being said, the expression metropolitan vernacular seems just an oxymoron. However, it is precisely this conjunction of popular informal practices and formal construction technologies that characterises huge urban areas in developing-country cities, including Belo Horizonte, a five million metropolitan region in Brazil where our research is based. Just like any vernacular, the “metropolitan” is based on learning by doing, imitation and resources at hand. However, the practices to be imitated and the resources at hand are not found immediately in nature but in an urban context, mostly dominated by a heteronomous construction industry. The metropolitan vernacular is like a bricolage from fragments of industrialised materials and techno-scientific knowledge.

Such construction practices are best known internationally through the images of slums or favelas, that is, areas that have been occupied without legal permission, land registries and urban structure. Although we, too, will focus on these in this paper, it should be mentioned that the same practices prevail in most Brazilian suburbs, being responsible for estimated 70% of the dwelling space (Ministério das Cidades 2009, 163). The difference is that, in favelas, both buildings and urban structure are self-produced by the inhabitants, while in other parts of the city at least street layout and plots are defined prior to building.

Many urban inhabitants self-produce their homes and other everyday spaces, because the very economic system that employs their work force is
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not able to cope with their demands. A provision that would meet these demands [beyond the mass production of boxes to store people] is not profitable enough for private capital and not urgent enough for a State that has seldom been threatened by the urban poor. The oxymoron of a “metropolitan vernacular” thus expresses actual social contradictions.

Why does this history matter?

According to a developmental view of history, such building practices are usually interpreted as a mere delay: self-production persisted as long as modernisation [industry, bureaucracy, education, markets, etc.] were not fully implemented. In this case, the asymmetry between demand and formal supply appears as a contingency to be overcome sooner or later. A history of self-produced construction would be no more than an interesting record of the last gasp of a popular tradition.

But what has actually happened since the 1960s is an enormous increase in “metropolitan vernacular” practices, that is, an increase in spontaneous urban settlements, self-production and informal economy all over the world. Davis (2004; 2006) has discussed this phenomenon, taking data from various national and international sources, and concluding that: “There is a base consensus… that the 1980s crisis inverted the relative structural positions of the formal and informal sectors: promoting informal survivalism as the new primary mode of livelihood in a majority of Third World cities” (Davis 2004, 24).

Self-production of space in modern metropolis is not just a local issue, but ensues from a global politico-economical dynamic. Like informality in general, it is neither a marginal nor a simple phenomenon. On the one hand, there is an unprecedented number of people who lack even the most basic dispositions [discipline, self-control, prospection] to access a globalised labour market and have no choice but to improvise their subsistence, including their shelter. The sociologist Jesse Souza (2009) has coordinated striking studies on this social class in Brazil, provocatively calling it “the structural rabble,” because the structure of peripheral capitalism is based on its poverty. On the other hand, self-production is equally common among a working class that Souza (2010) calls “the battlers.” They have acquired those basic dispositions, and have access to the lower level of formal labour-markets or to micro-enterprises, but not to formal housing markets. Like the structural rabble, they constitute a “structurally” cheap workforce, whose wages have never included the costs of formal housing, although they have managed to achieve some micro-accumulation. Self-production of space in Brazilian metropolis thus ranges from extremely precarious situations to homes and neighbourhoods that over time have become much better than public housing or formal real estate.

Given these differences, any overall “solution” would be a mistake. Romanticising self-production, as John F.C. Turner (1977) did to some extent in the 1970s, has opened the way for the withdrawal of public fundings and state responsibility (Davis 2006). Praising self-produced space, like Hernando de Soto (2000), as “dead capital” just waiting for legalisation to develop into a prosperous urban economy of millions of small capitalists, completely ignores that poverty entails many social constraints beyond the absence of money and legal property (Fernandes 2002; Souza 2009). But, conversely, upgrading informal spaces through public programs and formal technical procedures usually means ignoring the other side, i.e., the efforts, ingenuity and resources invested over time, which corollary is the potential for “collective autonomy” (Lopes de Souza 2001). Inhabitants of a favela take much more responsibility for their everyday spaces than the average consumer of a formal construction-commodity does. And when they are building for their own use or for their neighbours [in free cooperation or hired by them], they do not just follow orders as subordinated peons on formal construction sites, but engage as individuals able to imagine, discuss, decide and act. Therefore, paternalistic approaches are as mistaken as euphemistic ones.

Our research on self-production of everyday space, ongoing since 2004,' has strengthened the assumption that any coherent approach has to be built on the self-producers’ potential for collective autonomy, using public funds and technical support whenever necessary, but not imposing formal urbanisation and building standards. With proper...
access to information, expertise and money, the long history of self-building and self-management could rise far beyond heteronomous standards, and even beyond heteronomous production of space in general, which had devastating consequences on Brazilian cities in the last decades (Maricato 2011).

Unfortunately, this is just the opposite of what the municipal department of Belo Horizonte responsible for the improvement of favelas [Urbel] has done since 2005, when it started its huge urbanisation programs. Its interventions, even if well-intended, are determined more by political power, bureaucracy, abstract technical standards, pressures of the formal real estate market, convenience for construction companies and needs of the surrounding areas, than by local qualities and potentials. And the fact that all this has happened under the banner of popular participation does not affect the heteronomous structure. As we have extensively discussed elsewhere (Kapp and Baltazar 2012), institutionalised participation is much more effective in legitimising heteronomy than in empowering participants.

A few groups have resisted Urbel’s interventions, protesting against eviction or calling for better indemnities. Nevertheless, they are motivated by and always remain in a defensive position, without valuing their achievements to the point of being able to counter heteronomy with their own collective prospects. Forging the history of self-production may be an important element to foster autonomy against these tendencies. The media, public authorities, and many urban planners and architects constantly dismiss self-produced spaces on the base of abstract criteria, reinforcing prejudice to the point that even the very residents of favelas take it for granted.

Perhaps, this would be different if self-producers were aware of and valued their own history, contrasting it with the one they usually have access to, told by architectural and urban historiography. Obviously such a history could not be forged by middle-class scholars, as we are. We have been working in partnership with a group of residents of Vila das Antenas, who gave our collective project a very proper name: História em Construção – History under/of Construction [there is this double meaning in Portuguese]. We are trying to join their lived knowledge and interpretations with our access to documentary sources, technical knowledge and broader interpretations of sociospatial processes. What is reported here thus should be understood as only one version of the resulting mixture; a version that, despite having gone through a dialectical process with its non-academic counterpart, is still written just from an academic perspective, certainly not presenting the “whole story.” It should also be emphasised that this is a history of processes, not of past products, and certainly not intended as a guidance for future ones. Any attempt to better understand peoples’ needs, just to offer them more predefined housing-commodities, would be pointless.

Beginnings

Belo Horizonte was planned and built in the last decade of the 19th century as the new republican capital of the state of Minas Gerais, substituting Ouro Preto and its strongly monarchistic symbolism. Given that the urban plan did not provide housing areas for the building workers, two years before the inauguration in 1897, there were already 3,000 squatters. As more areas of the original plan were developed, sold and legally occupied, these favelas underwent repeated evictions and were pushed again and again into areas without infrastructure or hard to occupy. Some groups were removed three times in the course of 20 (Guimarães 1991).

Following the research of Guimarães (1991), it seems reasonable to say that such early informal constructions did not constitute a “metropolitan vernacular.” In fact, there was hardly a boundary between formal and informal construc-
tion activities, except for public buildings and civil servants’ houses [which had to follow a pre-defined model]. The production of other everyday spaces was based on popular traditions, not formalised or organised for a capitalist economy, but carried out by small groups of more or less skilled workers whose internal hierarchy used to follow a master-apprentice logic [the highest ranks were attainable by those who had previously occupied a subordinate position]. The persistence of rural building traditions in Belo Horizonte was also encouraged by a distinction between urban and suburban zones in the original plan. Whereas the urban zone was defined by a Hippodamian plan and a set of strict rules, the suburban street layout was much more adapted to the natural relief, and suburban plots could be freely occupied, also by small farming areas. This part of the city was many peoples’ first choice, and remained for a long time more densely populated than the urban zone. There must have been a visible difference between poorer and wealthier residents, but hardly between legal and illegal ones.

The construction procedures that we call metropolitan vernacular really begins in Brazil after 1930, with President Vargas’ policy of import-substituting industrialisation to parry the international economic crisis. Associated with an agrarian policy favouring monoculture and large-scale landed property, it uprooted small peasants causing a new migration wave to urban areas. At the same time, it gave support to a formal construction industry based on the use of Portland cement and ferroconcrete. Precisely because this emerging construction industry was still based on manual skills, it had to establish an institutional apparatus of technical, urban and professional regulations that would be unattainable for any self-builder, master-builder or craftsman, making traditional procedures illegal in the first place. This logic gradually consolidated through further industrialisation advances, based on international capital after WW2, on the Banco Nacional de Habitação in the 1970s, and on neoliberal policies in the last decades.

One early aspect of this process was the prohibition of constructions of adobe and wattle-and-daub in urban areas, supposedly intending to protect public health. Established self-building methods could no longer be used, at least in theory. In practice, this meant that self-builders had to fear another legal restriction, beyond the question of land-property, so that they would prefer concrete and brick construction to increase their security of tenure. Even today, the volume of concrete used in a building is a criterion to define the indemnity value for its removal (Fig. 1).

Another important aspect of the formalisation process launched by the construction industry was the change of power relations on building sites. Traditional masonry and carpentry were dismissed in favour of modern technologies, with their mythical need for abstract calculations and graphical representation. A worker in a subordinated position could no longer ascend to the top of the hierarchy, because this would presuppose academic education or at least a spread of academic knowledge in which the new masters [architects and engineers] had no interest at all. What had actually spread among the workers was the concealing and competing attitude, which characterises any highly hierarchical organisation (Farah 1996; Ferro 2006; Ribeiro 2008).

In short, the new construction industry weakened and finally interrupted two distinct non-academic circuits of knowledge sharing: the popular circuit of self-building methods and the professional circuit of craftsmanship. The first one was interdicted by law; the second one, by new technologies and new power relations. Together, they constituted the precondition for a “metropolitan

Fig. 1: Demolition of houses, Vila das Antenas, Belo Horizonte. In this case, not even the concrete and brick constructions were enough to guarantee their security of tenure. A group from this Vila resisted Urbel’s intervention fighting against unfair demolitions and for fair indemnities (MOM/LOW 2009).
vernacular” and for the contradictions it entails as an informal and often uninformed appropriation of formalised knowledge.

Three stages

To describe the historical process of the metropolitan vernacular we may use an analytical distinction of three stages, which follow a roughly chronological order, but are not mutually exclusive.

The first stage was still defined by traditional rural vernacular practices, just enhanced by a few “urban” ingredients. Several narratives exemplify that, but here we will focus on the remembrance of Dalila (interviewed in 2006), a resident of the favela Vila de Fátima for more than 60 years and one of the first to arrive there. She told us how the early wattle-and-daub constructions in this area were made. They used to have a main structure of nine trunks, cut in the nearby woods, treated with pitch and cooking oil for waterproofing, and then stuck into the ground and fixed with black sand. Horizontal trunks on the top and interwoven branches for the walls completed the structure, bound together with a liana called cipó-de-São-João \([Pyrostegia venusta]\) or with embira, a fiber extracted from tree barks. The structure was filled with a mixture of clay, sand, termite-earth and grass, and finished with a plaster of clay, salt and coloured sand from three different streams. The roof was made of dried and smoked leaves from a shrub called piteira \([Furcraea foetida]\). Plastering and roof had to be renewed every single year. Because of the fire hazard of the leaves, people began to collect metal barrels, opening them and using the sheets as ceilings: “The fire could come. The sheets got hot but didn’t burn.” Dalila’s account, which actually included many more details, shows how much care and information was involved in such building processes. When we asked her how she had learned all this, her simple answer was that “everybody used to know such things… you know, we are from Serro” [a small town in Minas Gerais]. In fact, the building methods used in each favela varied according to the origin of its inhabitants.

The second stage of the metropolitan vernacular is a result of the scarcity of natural building materials relatively to the number of new inhabitants of favelas. As a consequence, self-builders increased the amount of “urban” ingredients in their practices, mostly using construction waste, rubble and other materials they would find in dumps and junkyards (Fig. 2). In Rio de Janeiro, where 170,000 inhabitants lived in favelas already in 1948, this was an early practice: “construction workers used the waste from building sites to build their own shacks” (Valladares 2005, 83). In Belo Horizonte, beside the fact that many inhabitants of favelas also worked on formal building sites and got materials there, some favelas were used as dumping places for construction waste. A truck driver who has lived in Vila das Antenas since the 1970s (interviewed in 2011), has told that he himself used to dispose construction waste there: “When a new load arrived, everyone was running to pick up whatever they could use. Then we used the leftover to fill in the slope.” One of the most useful materials for informal construction was the discarded timber formwork, a by-product of the expanding use of in situ concrete in formal construction. If trunks and branches were the raw material for wattle-and-daub shacks, the pieces of timber formwork constituted the raw material

Fig. 2: Shacks of adobe combined with ceramic roof tiles and pieces of asbesto-cement roofing, favela Pindura Saia, Belo Horizonte (Mazonni, M.C., 1960. Laboratório de Fotodocumentação Sylvio de Vasconcellos).
for the so called *casa-de-lata* [tin-house]. Heloísa, also an inhabitant of Vila das Antenas, showed us how this was done: pieces of wood and nails, which had been carefully extracted from the discarded formwork and straightened, were used to make a cage-like structure [resembling the wattle-and-daub structure]; this was covered with a patchwork of metallic sheets obtained from barrels and cans, which used to be quite easy to find, as there was no recycling industry at that time. Other common components were pieces of cars as, for instance, the windows used together with their mechanisms.

Nevertheless, the scarcity of natural building materials was not the only reason for the abandonment of traditional vernacular practices in the metropolitan environment. As many inhabitants of *favelas* worked in the formal construction sector, their main interest was to learn the building methods applied there and the “secrets” that defined its hierarchy. The younger generation, as for instance Dalila’s sons, would not learn the techniques that “everybody used to know.” Gradually, the elements of formal construction were incorporated into the metropolitan vernacular: first tiles and bricks, then metal and asbestos-cement sheets for roofing, and finally concrete slabs and whole ferroconcrete structures. We may thus define the third stage of the metropolitan vernacular [as already said, these stages do not exclude each other] by the use of “official” building materials, in contrast to the reuse of waste. For the construction materials industry this has meant a significant consumer market.

The application of such materials and technologies, which is the prevailing practice today, has to be understood in the context of the aforementioned interruption of the master-apprentice reproduction of knowledge on construction sites. Antônio (interviewed in 2007), a retired mason who came to Belo Horizonte in the 1960s, told us how he began as a peon, doing menial jobs, and later advanced to the highest position attainable for an un schooled worker: the so-called *mestre* [which is still subordinated to engineers and not allowed to take legal responsibility for any construction]. He is very emphatic in attributing his progress only to his “curiosity”: “nobody taught me;” “you couldn’t ask your colleagues;” “I just kept watching and then I tried things out for myself.” By “watching,” Antônio even learned how to read technical drawings, which is rather uncommon and distinguished him from other masons. Usually, people working on formal building sites are familiar with parts of the execution of formal technologies, but not with their codes, their mathematical basis and the principles that would optimise their application. They acquire a kind of semi-knowledge.

Ferroconcrete structures are the most striking examples in this sense (Fig. 3). Metropolitan vernacular builders imitate them, reconstruct them at their own sake, invent new solutions by trial and error, but the new ideas are carried out through analogy. This imposes some strict and unnecessary limits on self-producers: they tend to spend more money than needed, they are constantly insecure about what they are doing, they are divided between their intuition and pieces of technical information picked up here and there. Interviews and participant observations specifically on this topic have shown that intuition and symbolic values often prevail. There is, for instance, the idea that a concrete structure in a *favela* should not only be resistant, but also seem as such, because, as people have experienced many times, this reduces the risk of being appointed for removal by Urbel’s technicians. Another common idea is that a beam filled up with rebars would be “stronger,” ignoring that rebar does not work properly if not com-

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Fig. 3: Typical multi-storey building of bricks and ferroconcrete, *favela* Aglomerado da Serra, Belo Horizonte (MOM/LOW 2011).
pletely enveloped by the concrete and bent and hooked at the ends; or that rebar at the top of a beam could be smaller in diameter than at the bottom. Weaker structures at higher expense are the result.

At the same time, many self-producers are up-to-date with materials, technologies and styles of the formal construction industry. We have found Styrofoam insulation in prefabricated one-way slabs, waffle slabs with brick blocks, cantilevered balconies, post-modern facades etc. Moreover, technical failures in metropolitan vernacular buildings are often due to imitation of formal constructions’ malpractices; raising damp, for instance, is equally common in both formal and informal buildings. As for the latter, people usually have no choice but to tolerate such defects. In the formal sector, however, they lead to further renovations, demolitions, and building-commodities, so that, paradoxically as it may seem, malpractices preserve a solvable demand.

Generally speaking, today’s metropolitan vernacular reflects the loss of a common building culture, that is, a widely shared knowledge about basic requirements and procedures. The necessity of a damp-proof course to isolate walls from foundations, for instance, has long ago ceased to be self-evident, as it still was for Dalila and her fellows. The passive middle-class consumers of building-commodities and their suppliers will hardly contribute to any improvement in this sense. Self-producers, on the other hand, could be the protagonists of a rediscovery and further development of such a building culture, if they were aware of and able to criticise the social circumstances that define their practices. Historical awareness may be a step to value self-production of space, so that its actors could confront top-down interventions, surpass given models and develop autonomous practices.

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Notes
1. The Research Group MOM/LOW [Morar de Outras Maneiras/Living in Other Ways; www.mom.arq.ufmg.br] was created in 2004. Since 2005, we have systematically raised data on building sites in favelas and other informal settlements by means of participant observation and interviews. This was complemented by a research project on the role of building agents in formal low-middle class self-production, coordinated by Priscilla Nogueira, and by a project on the knowledge and practices of ferroconcrete structures in favelas, coordinated by Pedro Arthur Magalhães [which data are used in the last part of this paper].

Reference list


