

Urban
Design
Studies
Unit

PLOT-BASED URBANISM: TOWARDS TIME-CONSCIOUSNESS IN PLACE-MAKING

A position paper that advocates a different practice of Urban Design based on SMALL PLOTS, STREET CENTRALITY and DISJOINTED DEVELOPMENT conducive to a higher level of democracy by means of broader INFORMAL PARTICIPATION

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"This quality in buildings and in towns cannot be made, but only generated, indirectly, by the ordinary actions of the people, just as a flower cannot be made, but only generated from the seed."

Christopher Alexander, 1980

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1. INTRODUCTION: ON GIANTS' SHOULDERS

For those interested in Urban Design and planning these are exciting days. A whole new story is beginning in Scotland where at many levels the promise of a better world is raising from new forms of synergy between the agenda of Sustainability for policy makers and that of Place Making for architects and urban scholars in general.

It took a while to reach this point. More than 10 years ago, influential documents like *Towards an Urban Renaissance* (The Urban Task Force, 1999) and *The Urban Design Compendium* (English Partnership and Housing Corporation, 2000) inaugurated this new page by summarizing in form of guidelines a wealth of literature from the late Eighties which included works by Peter Newman and Jeff Kenworthy in Australia (Newman & Kenworthy, 1999), Peter Calthorpe (Calthorpe & Fulton, 2001) and Andres Duany (Krieger & Lennerz, 1991) in the USA, Ian Bentley (McGlynn, Smith, Alcock, Murrain, & Bentley, 1985), Mike Jenks (Jenks & Burgess, 2000) and Hidebrand Frey (Frey, 1999) in the UK, and many others.

To be true, this new wave of urbanism, which took the names of New Urbanism in the USA and Place Making in the UK, proceeded on the shoulders of giants like Jane Jacobs (Jacobs, 1961), Christopher Alexander (Alexander, 1965), Gordon Cullen (Cullen, 1965), Kevin Lynch (Lynch, 1960), Oscar Newman (Newman O. , 1973), Donald Appleyard and Allan Jacobs (Appleyard, 1982) (Jacobs & Appleyard, 1987). These were protagonists of the first sharp criticism to the many facets of conventional urbanism in the early Sixties, still shrunk between endless *sprawl* and senseless *towers-in-the-park*. Such two models of conventional urbanism stemmed directly from the theories of those masters of thought, like Ebenezer Howard (Howard, 1902) and Le Corbusier (Corbusier, 1923), who shaped the new discipline of urban planning and design at the very dawn of the XXth century.

However, contemporary challenges are such – in terms of scale, type and urgency – that a much deeper shift is needed in urban disciplines just to start dealing with them (fig. 1). Some of us have recently argued that what we still miss is the serious consideration of the factor of *time* in urbanism, or, in other words, a deeper “time-conscious” approach (Thwaites, Porta, Romice, & Greaves, 2008). Inevitably, that means focusing on *change* as the essential dynamic of evolution in the built environment, which in turn leads to re-addressing concepts like control, self-organization and community participation. After *time* and *change* have been finally firmly placed at the centre stage, the whole discipline of urban planning and design, its conceptual equipment as well as its operational toolbox, reveals its weaknesses under a new light and calls for the construction of a *different* scenario.

This paper poses the problem of this scenario in disciplinary terms, it argues about its premises and outlines its essential features. The scope of this paper is not to deliver a comprehensive model for a new approach to urban planning and design, but to set the right framework and rise the right questions so that we can start thinking of issues such as urban regeneration, informal settlements and massive urbanization, community participation and representation, beauty and humanity in space, in a different way.

This doesn't necessarily means starting from scratch. We should not be obsessed by the quest for a *new* approach – like too often happened in the past; we should, instead, restlessly search for a *right* approach. Our reflection leads to concepts like "Urban Seeding" and "Plot-Based Urbanism" that are inherently based on evidence coming from what we see on the ground *as a manifestation of evolution through time*: change embeds levels of permanency as well as of innovation, universality as well as specificity. Distinguishing between these levels is all-important if change has to be finally understood and inform our action on the ground.

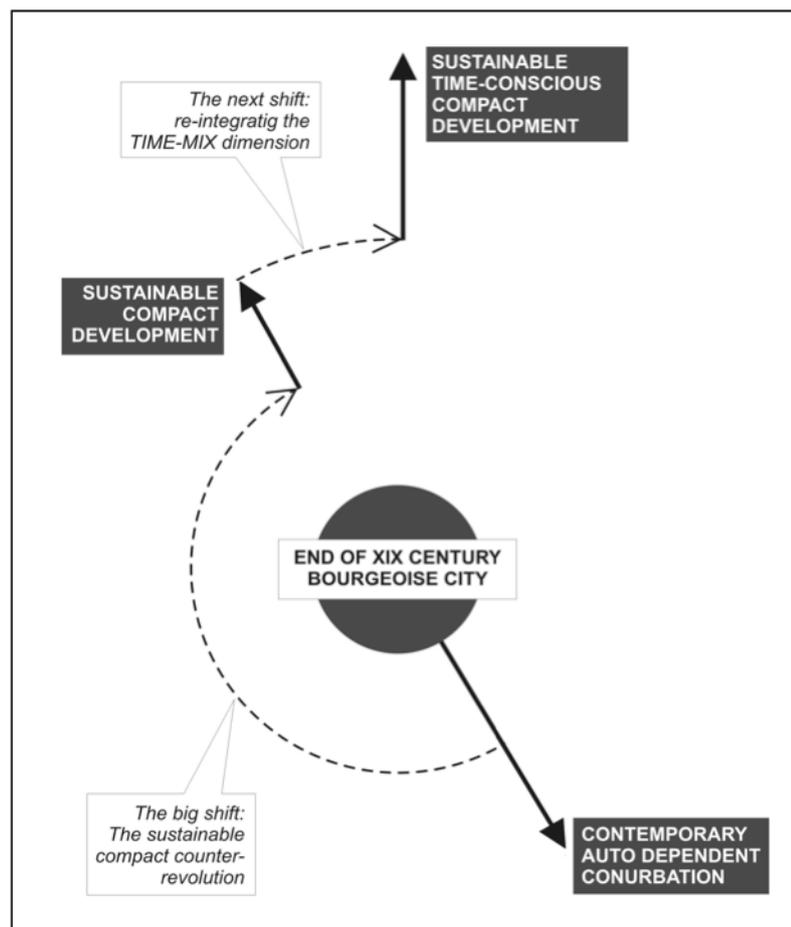


Figure 1.

The "big shift" from conventional urbanism to the current Place Making/New Urbanism approach (the 'Sustainable compact counter-revolution'), and the need for a deeper shift towards a more time-conscious approach, (Thwaites, Porta, Romice, & Greaves, 2008, p. 24).

This paper is the result of passionate discussions among a group of people that includes, but is not limited to, the authors. Concepts and ideas have been shared and confronted by email and in person on many occasions and tested with students. In particular we want to thank Diarmaid Lawlor, who has animated the debate and set the opportunity to write this paper, as well as John Habraken, Michael Mehaffy, Kevin Thwaites, Yodan Rofe', Nikos Salingaros, Robert Adam, Sjoerd Soeters and Gian Luigi Maffei, who have directly contributed to the formation of these ideas in many ways.

Also, we want to mention the endless discussions that we all within our unit of research at University of Strathclyde, the Urban Design Studies Unit (UDSU), have undertaken in the last three years about evolution in biology and urbanism, with special thanks to Emanuele Strano, Andrea Cardini and Eugenio Morello for their invaluable insight and support.

2. URBAN SEEDING: THE CASE FOR A DIFFERENT DISCIPLINE

2.1. SPRAWL AND TOWERS-IN-THE-PARK: OVERCOMING THE CULTURAL PROBLEM

It is a long story indeed. A story dense of intellectual challenges and adventurous human trajectories that sometimes resulted in sharp conflicts with each other. It was also a story of major failures. The whole culture of Place Making that we are here interpreting for the best future of Scotland can be reduced to a long and difficult recovery from two models, the Garden City and the Radiant City, and the countless Levittowns and Pruitt-Igoes¹ that derived from them. Those two models have permeated our urban culture and shaped both our industrial cities and our discipline *since their very origins*. After so much time and so many realizations, after the environmental challenges posed by global warming and the immense social challenges posed by global urbanization, the shortcomings of such two models are in front of our eyes: they are simply not sustainable anymore. We should retrofit Suburbia². We should regenerate Futurama³. And we should do it now.

¹ Levittown is a suburban low-density development realized in 1948 by the developer William Levitt in New York, USA. The development became the model for many such realizations that Mr Levitt and his Company, Levitt & Sons Inc., realized across the United States after WWII. The model ultimately was popularly taken to epitomize the kind of single-family, residential commercial developments for the lower middle class that we call now “sprawl”. Pruitt-Igoe was an award-winning social housing project designed by architect Minoru Yamasaky and realized in Saint Louis, Missouri, USA, in 1955. The project followed the Le Corbusier principles of the Radian City being constituted by 33 apartment buildings of 11 storeys of height located in a vast “green” open area. In order to create “vertical neighbourhoods” buildings embedded a “service street” at any “anchor floor”, the floor – one every three – where the lift stopped. Eventually the development, notwithstanding the high-rise building typology, did not go beyond a gross territorial density of 50 units per acre. Pruitt-Igoe started since its very completion to be stage for social problems of all sorts, ending up in a complete demolition which took place in 1972. The demolition event, broadcasted live in the whole USA, generated a large debate about the role that the spatial setting plays in shaping social behaviours and a first popular awareness of the shortcomings of the modern city. Pruitt-Igoe is still now taken as a symbol of the failures of modern city planning as applied by celebrated masters of architectural theory and profession.

² The popular meaning of “suburbia” refers to a mainly automobile-dependent, low-density low-rise residential development located at commuting distance from any urban centre. This “sprawled” model of urbanization has been typically constituting the most of urbanization processes in the western world across the XXth century. Recent studies have emphasized changes in the role and structure of Suburbia after the passage to a post-industrial age (Garreau, 1991), or its morphological character as related to that of urban centres (see especially the Urban Morphology Research Group, University of Birmingham, <http://www.gees.bham.ac.uk/research/clusters/urbanmorphology/index.shtml>).

³ Futurama was the largest architectural model ever constructed, spanning over 35,000 sq. feet, presented at New York World’s Fair of 1939 and 1940. The model was produced and shown at the General Motors Pavilion, and represented the “city of the future” incarnating the principles of what we now would call an automobile-dependent out-of-scale techno-nightmare of International Style architecture, with plenty of glass-and-chromium gigantic high-rise buildings connected by endless streams of vehicles in motion on sky-passages. The whole World Exhibition was intended to be a 1:1 illustration of the magnificent future world in the motor-age, clearly influenced by the visions of modern architects such as Le Corbusier and Mies Van Der Rohe. Its impact on collective imaginary was profound and lasting, which evidently contributed driving the real development of cities during the boom after WWII.

There are obstacles in front of us. One may think that such obstacles are very hard to overcome because they are enrooted in complex financial or political problems, but that is not the case. The problem is mainly *cultural*. And the first thing we can do to move our civilization forward towards better places is to acknowledge that there has been a deep cultural problem, it has mattered a lot, it is still here and it is not going to be removed without effort.

Look around the new “urban jewels”; give a glance to glamorous architectural journals; listen to what is taught in the best schools of architecture. Generations after generations, we architects still perpetuate the gospel of conventional urbanism in a surreal childish game, where the higher the failure, the greater the honour. Our idea of designing cities is that you should do the job pretty much as if you were designing a building, but just a bit larger. Urban Design is still based on the scaling out of our architectural visions. Architects are very young professional figures: in past they were *master builders*, serving the community by doing the right thing as it had always been done before, which resulted in adopting, preserving and respecting the overall structure of spaces. Even when a different professional figure emerged in the Renaissance and got established in the XVIIIth century, that of the architect scientist, builder and historian who responded to the new needs associated with major specialist buildings, those prominent constructions were conceived as part of the broader urban fabric with which maintained and reinforced the spatial links.

Then, architecture was entirely reconfigured, in a different and even opposite way. We should pay a lot of attention to this passage. This passage, at the beginning of the XXth century, is crucial, because architecture changed its status from being a *practical art and an experimental science*, in the age of the master-builders as much as in Palladio’s age, to being just a *branch of the visual arts* in the age of the avant-guards or, as Habraken calls it, the age of “Palladio’s children” (Habraken, 2005). It is at this point that the dimension of the extraordinary prevailed on the ordinary, which has always been by far the largest portion of our cities, without even the slightest awareness of that, and architects started doing a different job. But the problem is that, in John Habraken’s words, “*the demands of the everyday environment are vastly different from what is required to create the extraordinary. Nevertheless, the profession’s self image, publications and ways of working still cling to its roots in monumental architecture*” (Habraken, 2005, p. IX).

The attitude to deal with the ordinary environments of our cities as if they were extraordinary exceptions is the cultural problem of architects-urbanists. This trap has substantially contributed during the XXth century to subvert the very fundamental “permanent” structures that have been driving the creation and development of our cities throughout time and space, i.e. across history and geography. In parallel, the observation and study of ordinary spaces, i.e. measuring and understanding the form of everyday urban fabrics, developed as a separate discipline named “urban morphology” that is still today a specialism to a great extent detached from the mainstream of practice (Samuels, 1990).

Box 1.

Notes on step-by-step adaptation as a scientific problem in our cultures.

Here we can see that, as part of the broader cultural problem, there is a major scientific problem that must be addressed. We cannot find better words to define it than Christopher Alexander's:

"In many real world systems, both in purely natural systems, and in those places where people form communities with animals, plants, and other people, the central observable is a close-knit adaptation of the system elements, usually arising over time, and expressed in the intricate geometry of the system.

This close-knit geometric adaptation has not been a major focus of scientific study, because it eludes simple algorithmic formulations. Studies of co-evolution and ecological evolution have moved in this direction, but they rarely concentrate on the geometry of the evolving system. That is not because this adaptation is too complex to be modelled, but rather because the elements of such are so simple, and so rooted in common sense, that they nearly elude the algorithmic and algebraic formulations that we view, wrongly, as more sophisticated.

For example, if a farmer places a row of fence posts, then runs a top rail, braces it here and there where it seems needed, allows it to relate in natural ways to declivities in the ground, or to nearby trees, this is supremely ordinary; it is characterized entirely by common sense, and by the farmer's ability to pay attention to the situation of each post, each rock, each bit of soil, each slope – and do it right. This oh-so-simple process eludes algorithmic formulation, because algorithmic formulation is not well tailored to this task, and at best only partially helpful in allowing us to grasp what is really going on.

That is not to say that a sensitive fence-building process is trivial or unimportant. On the contrary, the character of this minute, step-by-step adaptation is vitally important in the world, and we have been ignoring it, in recent decades, at our peril. But we do not have a theoretical model that emulates this process. As a result, the ability to perform adaptations in the real world according to such a process has been worn away and destroyed by other processes that are largely bureaucratic – often too bureaucratic – and, in their essence, algorithmic. The planners, building officials, construction companies, and engineers who have redefined everyday processes during the last 100 years, working in a broad context of algorithmic thinking, have, without explicitly intending to, destroyed a far more subtle process. Until that subtle process is acknowledged, and then redefined in modern terms, it will not have the status it requires to play an effective role. The deep adaptation that nourishes the physical world requires this kind of adaptation. We can think of this adaptation process as a highly sophisticated computation, performed on real sticks and stones, producing deep and subtle results (...). All this is hardly more than common sense. Yet the fact remains that this kind of adaptive process does not currently have an acknowledged part in theories of algorithms, in developmental biology, in architecture, or even in system theory. It is not part of the mental models in our current toolkit." (Alexander, In print).

Rediscovering the essential properties, the permanent structures of places, to be able again to design the contemporary ordinary city: that is at the heart of the challenge. This approach is evidence-based and challenges our mother-discipline of architecture to the heart, questioning its very foundations. Apparently, it is a leap into an entirely different scientific domain and begins to delineate the foundations of a different discipline.

2.2. THE OXYMORON IN PRACTICE: PLANNING, ANTI-PLANNING AND DIFFERENT FORMS OF PARTICIPATION

One major characteristic of the different discipline is a *focus on self-organization in the formation of urban space*. This focus means conceiving the city as the stratification of billions of projects and plans, some large and some small, some collective and some individual, in endless mutual interaction in time. It means seeing what has been negated for too long: that self-organization has nothing to do with chaos, it is in fact a higher level of order. And that most if not all the most lively and successful parts of our cities are in fact those *less planned*, which means – by definition – *more complex*. And that the secret of all good cities has always been one specific feature, with which a city can be good or bad depending on many other factors, but it is alive and

kicking, and without which a city can just be bad, because it is dead: *adaptability*. Adaptability, or *the structural disposition of spaces to change by welcoming changing needs in time*: that is key.

But if we bring the idea of self-organization from the domains of nature and society, where it has been firstly investigated, to the specific field of urbanism, we find one particular and very profound feature that, if missed, will render our approach too general and eventually blind: *self-organization in cities has never been alternative to planning*. Quite on the contrary, self-organization in cities has always been *the effect of planning*: “*building the city today could mean the wish to find again, perhaps with different forms, the qualities of proximity, mixture and the unexpected, i.e. a public space accessible to all, a variety of mixed activities, a built-up area that keeps adapting and transforming itself in unplanned neighbourhoods.*” (Samuels, Panerai, Castex, & Depaule, 2004, p. 159). Unplanned neighborhoods are the result of adaptations and transformations of formerly planned structures. All major historical centres that we love today and that to our eyes epitomize organic and possibly “spontaneous” growth are in fact the result of transformation layered in time over structures that had largely been subdivided according to a plan since their very first origin, transformations that – in turn – had often been constituted by the addition and overlapping of single planned developments. It is in fact that *kind of planning practice*, heavily based on the work of surveyors acting under the commission of land holders (Slater, 1988) (Conzen, 1988), that made it possible for those transformations to occur and keep happening that reshaped a planned fabric into a rich, diverse and seemingly “natural” built environment.

This is to say that we should escape the flat juxtaposition of planning and self-organization that has so heavily broken our capacity of innovation in even the most progressive theories of urbanism in last decades. No one has ever built a significant piece of city in history only by “spontaneously” adding buildings after buildings without previously parcelling land, setting space for streets and establishing common rules and rights. Admittedly, it was a very fundamental, basic level of planning, but nevertheless it was about setting limits and shaping norms which normally were exactly the *right* limits and norms, and nothing more than that. So the point, if we are to govern again the realization of human and lively ordinary spaces in our cities, is not necessarily to explore hypothesis of no-planning or radically alternative anti-planning systems: the point is to learn *what planning is best fit to set the right spatial structure for future change and adaptation*. That is even more true in our times, when we need to achieve by virtue of a conscious and organized effort what once was shared and even unconscious knowledge, i.e. our “*spontaneous consciousness*” (Caniggia & Maffei, 2001, p.43).

One of the forms that the (fundamentally) anti-planning agenda has increasingly taken in recent times to reaffirm the lost link between communities and their environments is that of “participative planning”, meaning the many forms of inclusion of inhabitants or stakeholders in general in a consensus-building decisional process (Innes & Booher, 1999). Strengths of this approach are unquestionable, including especially the formation of social and political capitals and the relevance for decision making of information related with inhabitants’ life-world, which indeed is key and would otherwise be lost. However, weaknesses of these “collaborative” approaches have been many times outlined as well, both at theoretical and practical level.

Box 2.

Notes on some problems that consensus poses in processes of formal participation.

"But Icarus has also a second face which is just proper of the strategies for social inclusion: thinking of being able to manage complexity by governing the decisional processes, through the management of processes that are "negotiative", "interactive", "participatory" and, in any case, "consensual". Because at the end there is always "consensus": it is consensus that legitimates the hyper-realistic tautology (the decision is the right one just because it was taken consensually).

And the problems that consensus in itself poses are not taken adequately into account: problems of democracy (who establishes the criteria for the legitimation of a decision, though consensual? And what if that night, when the "forum" decided, one was at a theatre? Or on vacation? Or in a hospital? Or just felt too tired to get out? Had not the right to feel too tired?); problems of demagogy (who establishes the threshold beyond which facilitators produce invasive behaviours? When, in short, the referee whistles always "in one direction" affecting the final score?); problems of rightness (who guarantees that the shared decision is also the right one? To state that does not imply to deny to the political-technical-cultural elites the possibility to play a socially useful role of vanguard? Is not exactly for that, to put it shortly, that such elites are paid by the society as a whole? Is it not that, following Lyotard (Lyotard, 1979), consensus "brutalizes the heterogeneity of linguistic games"?)

I would like to have an evolutionistic trust so to consider acceptable the idea that "open" urban decision processes will result in better decisions. In a "Darwinism" of that sort, the free competition of arguments struggling for the same resources (credibility, trust, feasibility...) would come out with the survival of the best decision. Unfortunately I believe firstly that the competition is not free, and secondly that what would survive would just be the strongest argument (in the given situation) which not necessarily brings the system as a whole closer to any improvement". (Porta, 2006, p. 113)

What we need to emphasize in the context of this paper is one aspect that is very seldom, if ever, cited: the participative agenda, with all its emphasis on subjects (social actors) that have interests at stake at the moment of creating or regenerating the place, is even more focused than conventional approaches on the design phase, and very rarely takes into account the impacts that designed structures cast on future change. Urban settings do serve generations after generations of human beings in centuries; on the other hand, human needs and values change with people, which means in years and even months. So if the spatial structure is rigid and does not welcome change, it will not accommodate the needs and values of newcomers and therefore will shortly end up in a profoundly anti-human, unsustainable and anti-democratic spatial system, no matter the level of participation that had been originally insufflated into its creation.

That is not to say that processes of participation like "charrettes" are useless: quite on the contrary, such *formal* participation is needed to deal with some scales of urban change and some kinds of problems. For example, with some simplification we can associate formal participation to the dimension of the extraordinary: we evidently cannot rely on expensive (in financial and political terms) participative machines to deal with the everyday business of controlling change in everyone's domain. The best feature of formal participation is its capacity to channel information from inhabitants' life-world into the decisional arena and that is particularly needed whenever that arena is set at some higher level well off the ground of the ordinary inter-personal, inter-organizational or "grass-root" gaming. Moreover, experience suggests that formal participation works better where the capitals of public attention, financial resources and political commitment are concentrated on a few relevant decisional processes, as all of those capitals are increasingly insufficient and hard to be regenerated after expenditure. That is the way formal participation should enter, and indeed *is entering*, the planning system in Scotland.

Our argument is to say that we *also* need to reactivate the circulation of information between inhabitants and powers through *informal* processes of participation based not as much on large formal gatherings and structured processes of inclusion as on the daily and direct control of inhabitants over the ordinary modification of their own individual and collective space, at different scales. And for the reasons discussed above, these very traditional processes of *informal participation through ordinary change* need to be enabled under conditions (including *spatial* conditions) that must be carefully identified, organized and planned. If such informal processes are not equally embedded in a renovated planning system, the link between planning and the space of the ordinary is destined to fail and so the actual content of democracy in planning to be significantly lowered.

What is the nature of informal participation then? Jamel Akbar (Akbar, 1988) helps us in defining this essential problem by focusing on the many forms of *control*, i.e. who is legitimate to change what in the built environment of the everyday.

Box 3.
 "Form of submission" and "party's size":
 elements of informal participation in spatial
 change after Jamel Akbar.

In describing the differences between the traditional and the modern Muslim city, Jamel Akbar (1988) analyses what party uses, controls and owns a space. A "party" is defined as the entity – individual, collective or organizational – that takes decisions.

So every space in a city is definable in terms of the relationships of the parties who own, control and use it. Such relationships, or "forms of submission", are five, as exemplified in the Venn diagrams reported here in fig. 2.

Now, what turns out is that the form of submission deeply affects crucial dynamics in the formation, maintenance and change of the built environment. For example, when a space is owned, controlled and used by one single party

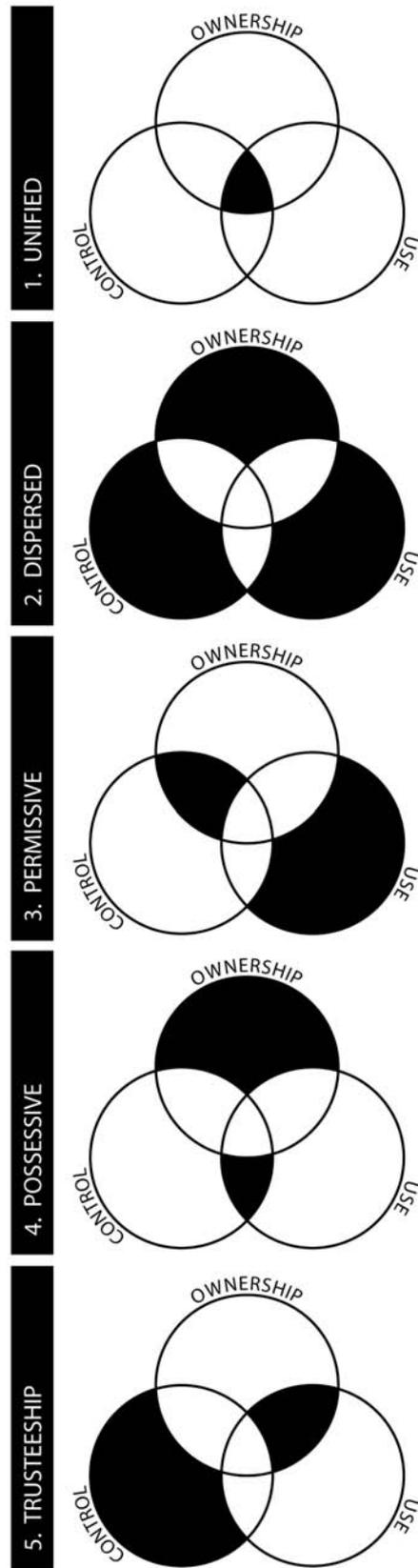


Figure 2.
 The five Forms of Submission derived by the various combinations of Ownership, Control and Use of spaces by involved Parties, redrawn from Akbar (1988), p.19.

like in the case of a family living in its owned house (“unified” form of submission), maintenance is generally very good, change is gradual and piecemeal and corresponds with the user needs, and the overall environment is socially responsive at the most basic level of society; that was the form of submission that prevailed in the ordinary urban fabric of traditional Muslim cities, but the same applies as a very universal pattern to all traditional cities.

At the other extreme, see how a social housing project is owned by a party (the State or the City Council), controlled by another (the Housing Authority) and used by a third (the inhabitants). In this case (“dispersed” form of submission) the environment is very likely to downgrade in terms of maintenance, as inhabitants cannot do repairs or changes without permission and after all they do not have any interest in doing that.

In addition to the form of submission, the other important factor is that parties are different in size: a property may be used, controlled or owned by one person or many thousands or even millions, or by an organization such as a company or the State, each still constituting one single party. Distance between parties increases with their size and difficulties in managing change increases accordingly: for example one house which is owned and controlled by a single landlord but used by a tenant or one that is owned and controlled by a company and used by a tenant are both in the “permissive” form of submission, but the former case has less “distance” because of the lower size of one of the parties involved (the single landlord as opposed to the company). In conclusion, the overall rigidity of the system is heavily a function of the size of involved parties and their mutual form of submission.

Jamel Akbar’s model, that builds on lessons from John Habraken (Habraken, 2000), powerfully enlightens the deep nature of processes of change in the space of the ordinary and tells a lot about how we can encourage informal participation in them by orienting the planning process towards one or the other of the various “forms of submission” and by managing the size of “parties” involved, which in turn is relevant in understanding what we should borrow from traditional cities in a contemporary version of Plot-Based Urbanism. It is important to understand in fact that the space of self-organization so typically supported by pre-modern urban fabrics will never come back on its own under present day’s conditions, which in fact typically inhibit it or, in other words, “kill it in the cradle”. If we want self-organization to start up and take on in cities, we must plan them in a specific manner with that objective in mind.

And here we see the programme of the different discipline: we must *explore the spatial, social, financial and political structures that will enable and feed once again processes of self-organization and informal participation in contemporary cities.*

We should not underestimate the magnitude of the challenge: it is that “*far more subtle process*” (see above Box 1) that we should reinforce and reanimate in a new contemporary – but timeless in nature – form of city planning. Therefore, to be true, we are not speaking of Urban Design or planning anymore: we are speaking of this different discipline, under a different name, that of *Urban Seeding*. This term resounds again Christopher Alexander’s words: “*This quality in buildings and in towns cannot be made, but only generated, indirectly, by the ordinary actions of the people, just as a flower cannot be made, but only generated from the seed*” (Alexander, 1980). However, we should not, equally, overestimate this challenge. The relevant part of change, the heart of the magic of cities, is the one that takes place *after* the initial conception and construction of spaces, informally, through time, spanning across generations, and that never ends. This is the part that the new discipline should study, understand, enable and preserve under present conditions. So the process that the new discipline must manage differently is as much the process of spaces’ *creation*, as that of spaces’ *control and change after the creation phase*. Provided that the ‘right’ structuring principles are in place, a street or a neighbourhood can well be created throughout processes of many different kinds, including several very conventional top-down ones, and still initiate a local history of success that is informally democratic for

future generations of inhabitants and users. Conversely, if the right principles are forgotten and left behind, even the most radically community-oriented and inclusive processes of design may end up in schemes informed by the highest rigidity which therefore are inherently non-democratic, in that they do not allow future generations to control and change their spaces (and indeed we have plenty of examples of that). So what is really important for the different discipline is, much more than devising and implementing the right process, devising *the right principles* and understanding how these can inform a variegated set of processes.

Box 4.
Notes on Christopher Alexander's "A new Theory of Urban Design".

The idea in "A new theory of Urban Design" (Alexander, Neis, Anninou, & King, 1988) is that city planning as a process should be entirely subverted and substituted by another process which would deal with the same problems in an entirely different way. This in itself is not an evolutionary, but rather a revolutionary idea. Moreover, it relies on the assumption that the problem of creating complexity can be sorted by means of setting the right process (whether it is the right participative design or the right set of linguistic norms/patterns).

However, we often forget that marvellous cities have been growing throughout processes of planning that did not primarily involve formal participation by inhabitants or 'stakeholders' in general, nor particularly complex processes of any sort. From the foundation of colonies in ancient Greek cities to that of military camps in the classic Roman age, from territory subdivision for agricultural purposes and successive densification at prominent intersections in pre-medieval agglomerates to the expansions of medieval towns through the formation of "fringe belts" in successive steps leapfrogging "fixation lines" such as city walls (Conzen, 1960), from the new construction of 'ideal' cities to the expansion of pre-existent cities in the Renaissance to the Baroque regeneration of entire quarters, ending up with the explosion of the industrial city in the XIXth Century, unbelievably diverse, adaptable and lively urban spaces have been generated out of very top-down planning processes that were actually based on something like the design of a 'final' state. In all these cases, there was an authority in charge setting the rules and defining the basic principles, including the spatial rules and principles.

Those authorities, either they were medieval guilds or free municipalities, the Pope, or the Prefect of Seine under the Emperor of France, did not define an open process: they designed streets and plots, they decided what spaces had to be saved for specialist buildings of public interest or for parks, and they arranged how public infrastructure such as water and sewage would be accommodated into the whole picture. Was that, in itself, an authoritative, non-democratic mechanism? No, it wasn't. It was profoundly non democratic when the model of power was profoundly non democratic, and it was democratic when the model of power was democratic. The extent to which a planning process is democratic or not is not a matter of the planning process itself, it is in fact a matter of the political context within which the planning process takes place: if the authority which delivers the process is democratically constituted, then the planning process is democratic by definition.

But more than that, it is important to acknowledge that there is a second level of democracy that does not belong to the formal arena through which power is represented and managed, being it in a top-down or a bottom-up fashion: that is the informal way through which ordinary citizens, organizations and institutions change the built environment in search of the configuration that fits best their needs. We should acknowledge that well beyond the moment when plans are formed or processes are undertaken and finalized, it is this continuous, silent, and competitive adaptation that constitutes the essence of what a city is and embeds its most profound and durable content of democracy. It is only through this restless, collective and uncoordinated adaptation that anything like the identity of places is shaped and continuously refined and redefined. Finally, we should recognize that it is only this endless adaptation that turns plans into, at worst, human environment responsive to societal fluctuations and, at best, miracles of lively beauty that consistently inspire our highest potentials for centuries and even millennia.

Once the fundamental relevance of this informal process is definitely acknowledged, we cannot but re-tune the scope of our work as city planners and designers. Our mission should neither be to *create* identity, or beauty, or to determine (social, economic) success 'by design', nor to shape the process that by itself will "inject" beauty or democracy in our plans, being them finalized to a fixed state like in conventional or participative plans or to a continuously operating set of norms like in more suggestive "generative" approaches. *Our mission as Urban Designers is, in fact, to ensure the minimal spatial conditions ('right principles') for informal adaptation to start, expand and continue in time.* Understanding which are those conditions, and which form they may conveniently take in practice under local financial and legal burdens, should be clearly set as our professional duty as scientists, scholars and practitioners.

Driven by this mission, and within this new framework, what we should do in practice is clear and, to some extent, relatively easily to approach, as it no longer implies penetrating into an unknown societal, political and disciplinary territory. We should look back to our planning tradition with a new question in mind: *what is the technical content of those plans that have demonstrated the capacity to accommodate, enhance, and maintain in time a sufficient level of informal participation?* and in particular, what was designed and what was left undefined? And finally: what can we learn from them that can be successfully applied under present conditions for the regeneration of today's cities? In other words, we should de-emphasize the importance of a planning intervention as a specific act of creation, and stress it being the *starting point* of a local history whose success is greater where the change is not dictated by the plan itself but achieved through time. The different discipline starts with *a focus on all processes of post-design*, in explicit contrast to the contemporary obsession with the design phase that permeates architecture and Urban Design alike.

We do not know what this different discipline, which we provisionally name "Urban Seeding", is going to be in detail. If its construction is going to happen, it will not happen as a genial revelation from one person or group but as a gradual collective construction led by an increasing level of consciousness. We know, however, several of its key aspects that we are searching for. Whatever this new discipline will be, it will have to do with:

- *Evidence-based solutions*, as opposed to design-based solutions.
- An emphasis on the *dimension of the ordinary* and *a science of the common sense*, as opposed to the dimension of the extraordinary and a rhetoric of the stunning.
- A major interest in post-design, i.e. in *spatial change and evolution*, as opposed to a notion of the intangibility of the work-of-art.
- A priority interest in processes of *informal participation*, as complementary to formal processes of collaborative planning.
- A *structural approach* that emphasises what is recurrent in space and time (within certain spatial and temporal domains), as opposed to the analytical approach that privileges what is different in space and time.
- A *stylistic neutral* attitude, as opposed to style-led urbanism.

3. PLOT-BASED URBANISM

Plot-Based Urbanism is the set of spatial principles conducive to urban spaces that are adaptable over time and therefore fit the agenda of Urban Seeding. These principles are spatial in nature, which means that they are not necessarily related with any particular kind of planning *process*: on the contrary, every process that embeds these principles is conducive to adaptable spaces.

Plot-Based Urbanism owes its denomination to the acknowledgment of the fundamental importance of the plot in the spatial structure of ordinary urban fabrics. How the plot is shaped, its size and geometry, its relationship with the street and the street hierarchy, how it forms up street fronts and eventually urban blocks, how all this informs human activities and urban functions, and finally how the plot finds a correspondence with property, usage and control, all that is fundamentally the matter of Plot-Based Urbanism. However, Plot-Based Urbanism doesn't mean that everything that is made of plots is fine. Plot-Based Urbanism is a specific kind of spatial structure made of a *certain* kind of plots, juxtaposed and mixed in a *certain* way, establishing a *certain* kind of relationship with the streets they front, etc. Eventually, issues of density and compactness are inherently part of the question.

Ultimately, *Plot-Based Urbanism is place making made time-conscious.*

Box 5. Components of Plot-Based Urbanism: PLOT, STREET, CENTRALITY, STREET FRONT, BLOCK.

A few key concepts ought to be introduced at this point: PLOT, STREET, CENTRALITY, STREET FRONT and BLOCK as well as their changed fortune in history as elements constituting the fabric of our places. These definitions and reflections come from studies in *urban morphology*, and by empirical research conducted by UDSU and colleagues over the past years.

PLOT. A PLOT is a fenced portion of land that is entirely accessible from the public space. Though PLOT and property may coincide, and very often do, what defines a PLOT is accessibility, not property. A result of this definition is that large properties may be split into small PLOTS without necessarily subdividing the property of the land. In all such cases, PLOTS are to be interpreted as the ultimate units of development.

STREET. A STREET is a mostly open space that is publicly accessed and establishes a functional, visual and spatial link with private domains, i.e. PLOTS, by which it is defined. Cities exist and evolve across centuries, through endless changes of different magnitude happening *at different pace*. STREETS tend to be the most permanent elements of all, imposing conditions to the fabric that sits on them. STREETS are highly loaded with character and changing in type, meaning and value whilst penetrating the city. When allowed, they establish a functional and formal relationship with such fabric in terms of fundamental factors like density, land-use, size and geometry and accessibility of PLOTS. Such relationships are mainly the product of the evolution of the fabric in time, being selected according to local conditions including environmental, cultural, technical and financial. The key-factor that constitutes the link between STREET and PLOTS is CENTRALITY.

CENTRALITY. CENTRALITY is here intended as a particular character attached to streets by their *geometry* (i.e. length) and *topology* (i.e. the way they are connected to each other). Work conducted in UDSU (Porta, Crucitti, & Latora, 2006) (Porta, Latora, Wang, & Scellato, 2009) as well as elsewhere (Hillier & Hanson, 1984) (Hillier, 1996) has led to mapping and modelling street CENTRALITY in a reliable and scientifically grounded way. Subsequent work is studying the formal relationships between streets and frontages to understand patterns of change of the latter in

This point, which might seem somehow not essential, is in fact one of the most profound features of traditional urbanism. If taken seriously, it makes the difference between contemporary pseudo-traditionalism, a widely practiced character even in the most fashionable place-making realizations of our days, and a different plot-based discipline: *“Nevertheless the fact of having brought the block to the foreground has had some perverse effects. It has brought the careless reader or the hurried designer to transform the issue into a caricature: city=block or modernity=single building. The new neighbourhoods of the new towns or modest urban renovation were thus filled with pseudo-blocks, which are but the urbanistic rendering of a valueless postmodern formalism. This has brought us to develop the initial conclusion insisting on the importance of the subdivision of plots and of the status of spaces and of developing a reflective attitude towards the projects”* (Samuels, Panerai, Castex, & Depaule, 2004, p.X).

Interesting enough, the same happened in the early years of the planning profession too, in an age when still the traditional formation of cities was “unconsciously” part of the planners’ mindset. We bring here (fig. 3) the example of development in Amsterdam after the second version of the Zuid Plan elaborated by Hans Peter Berlage in 1917. In this case the municipality commissioned to the same architect both fronts of one street, rather than the four fronts of one block. The result is the emergence of an overall consistency of building materials and language still in presence of a great variety of specific solutions where the same block was ultimately designed by different architects.

Research on 20 small Scottish towns has shown the evolution of urban blocks through transitions from traditional to modern and from modern to post-modern (Hart, Hooi, Romice, & Porta, 2010). In the first transition, for many well documented reasons (the car being the most consequential), blocks expanded in size, decreased in functional complexity, lost front definition and became fairly homogeneous in structure, a pattern that is certainly not limited to Scotland but in fact is very general across at least the western world (Samuels, Panerai, Castex, & Depaule, 2004). The consequences of this change have been immense: block size impacted on access and movement, uniformity of functions and zoning, while lack of front definition largely affected the character of places. Moreover, the overall *drop in density* had been of sufficient magnitude to change forever the destiny of our cities. These structural changes had severe social repercussions: the separation of users and uses as well as the death of the street as a place for public life. In the second transition (modern to post-modern which has then led to the now widely practice of “place-making”), a lot changed to address the consequences of this block expansion on the form and performance of the city; nevertheless the size of blocks themselves remains fairly unchanged. The street is correctly perceived as the generator of life, and street layouts are amended, designed and implemented to encourage activity to take place. Architecture is scaled down to the people but, crucially, *the block is still perceived as the design unit* of the urban realm, like for example in the IBA experience in Berlin 1987 (Kleihues, 1987).

At the heart of Plot-Based Urbanism is the understanding that streets and street fronts require diversity and adaptability to support urban life; in design terms this implies, very simply, *smaller units*. The modernist/place-making block is still unitary in its overall conception and execution because it is conceived as the unit. The traditional city block was smaller and made of aggregations of smaller units, the plots. Plots have a direct relation to the street, with a profound impact on diversity and character, but also to the number of entrances to the block, with impact on activity within the block. Moreover, plots are independent, with impact on the diversity of the block, and guarantee that such diversity reflects the streets on which the block sits, impacting on its responsiveness to city life.

Because a more definitive and clear definition of what Plot-Based Urbanism is in practice is matter of ongoing research, some past and current examples might help tracing the way forward.

3.1. CASES

*Case 1,
Middle Age,
Firenze, IT: Planning the Urban Expansion, 1250-1350*

Author: Gian Luigi Maffei

Between 1250 and 1350 the significant growth in population before the Great Plague (1348) brought the number of residents in Florence to about 100,000 people. The urban developments that sheltered this additional population were built in two successive phases, first at Oltrarno in 1259 and then in general in 1280/1333; these were then surrounded by a new urban wall erected outside the earlier one (constructed in 1173/1175).

These areas were owned by Conventual Orders, Hospitals and Arts and Crafts Guilds, which therefore became the promoters of allotments which constituted the new urban developments. Allotments, like the San Frediano estate which is reported below in fig. 4, were usually designed along existing streets and property lines: the “matrix routes” were pre-existent routes which were built up in the first pace, then orthogonal streets were built and finally the urban block was closed by a fourth path. The link between path and plot is still clearly legible looking at the “pertinent fringe areas” of each front.



*Figure 4.
The San Frediano estate,
located southwest of the
Arno River. The estate was
planned as an urban
development between mid
XIIIth and mid XIVth
centuries by the monastic
Order of Camaldoli that
was settled in the adjacent
Carmine Monastery. In this
cadastral drawing houses
are numbered that were
owned by the Order still in
the XVIIth century.*

Patterns of a different kind were always due to cadastral constraints.

The evolution of the housing type took the form of a passage from single to multi family buildings and then, with the successive merging of three to four adjacent plots to realize buildings with two flats per storey. These transformations and the higher or lower density of medieval urban fabrics are a consequence of the different nodal quality of local places, either original or induced by the evolution of fabric itself in time. Plots were generally sized with fronts of 8/9 Florentine Arms (the Florentine Arm was equal to 0.58 cm) and depths of 30/40/50 arms depending on the degree of centrality of the plot's location. Such plots corresponded to the inner needs of the most popular building type of the times, the row house. Plots were rented under condition that the construction of the building was started by a certain agreed deadline and upon the payment of an annual rent. It often happened that the tenant could not pay the rent and the building returned to the landlord: as a result, subjects that initially played as just landlords became rapidly relevant real-estate operators.

*Case 2,
Baroque Age,
Noto, IT: Planning the New City After the 1693 Earthquake*

Author: Peter Russell

In 1693 the Sicilian town of Noto was destroyed by *"an earthquake so horrible and ghastly that the soil undulated like the waves of a stormy sea, and the mountains danced as if drunk, and the city collapsed in one miserable moment killing more than a thousand people."*(Torbiner, 1982). The destroyed town was abandoned, left to become a city of ruins, Noto Antica (old Noto). The new town of Noto was settled 7 kilometres away on the summit of the Meti, a small mountain near the coast. From 1693 to 1702 the success of the move from the site of Noto Antica to that of Noto Nuova (new Noto) was not certain.

In an effort to ensure the settlement of the new city on the Meti summit, the nobility deeded land to *"anyone who needed it"* (idem, 1982 p.46). Where a vacant building plot existed in the city the nobility would give the land to a suitable settler, who would lose ownership of the plot if they failed to build and develop the plot. Building plots were given to the clergy and aristocracy, those who could afford to invest in building. The selection of the building site for Noto served their interests and desires for the opportunity to build a new provincial centre in the XVIIth and XVIIIth century aesthetic, as much as any practical function. In the mid XVIIIth century Noto was recovering slowly, with a population half that of the pre-earthquake Noto Antica.

The city developed both on the summit and the slope of the Meti, and had two resulting non-aligned street grids. The building plots also developed in a duplicitous manner, with buildings fronting main roads and the sloping grid having a very regular pattern following the street, and buildings on the interior of the block and at the city periphery having a seemingly random pattern. The heavily coordinated and patterned portions of the city were deeded to and developed by the aristocracy and the clergy, producing an urban landscape in the aesthetic they desired when they elected to relocate the city. The wide streets and defined piazzas were lost entirely at the city's perimeter, where the peasant class developed the land in a more ad hoc manner responding to the topography and ultimately developing a more medieval pattern. The city divided, presents itself as both a Baroque city in its centre and a medieval city at the fringe.

Building plots of Noto are carefully measured around the central part of the city, and in both the grid of the summit and that of the slope. Plots and block interiors of the urban periphery are more random and organic, emerging more gradually, necessitating winding, narrow alleys. Exterior plots developed first, subsidised by the aristocracy and clergy, interior plots developed slowly, as a requirement of increasing population. Blocks that were laid out for dwellings were planned and built as perimeter blocks with gardens and a small lane traversing the block. A growing population led to these gardens being developed into residential units, and smaller dwellings, blocking the through lane forming an interior courtyard, and a network of smaller lanes.

This pattern of development results in Noto exhibiting a fractured urban form. The two misaligned grids of the city are composed of perimeter blocks, which in all but the most sacred locations were long ago subdivided into smaller plots and infilled with smaller buildings. Outer parts of the city exhibit an even higher level of density resulting in smaller plots, which completely cover blocks that all but disregard the grid pattern, traversed several times by narrow alleys and lanes in the style of Noto Antica.

The subdivision of plots and the breakdown of the Baroque grid (on the block interiors) furthered the medieval nature of Noto. The plot structure in Noto has shown little physical evolution in over 250 years since the infill of its original perimeter blocks. This demonstrates the exceptional degree of adaptability embedded in the plots and blocks comprising the urban structure of Noto. The functional evolution of Noto's plots further demonstrates the adaptable nature of the urban framework. Monumental buildings in the centre of Noto have evolved as users demands evolved from ecclesiastical to civic to educational uses. The evolution and adaptability of the plots and architecture and their interaction with the Baroque era grid and medieval style framework of lanes has allowed Noto to escape the modernisation effects so apparent in other eighteenth century cities.

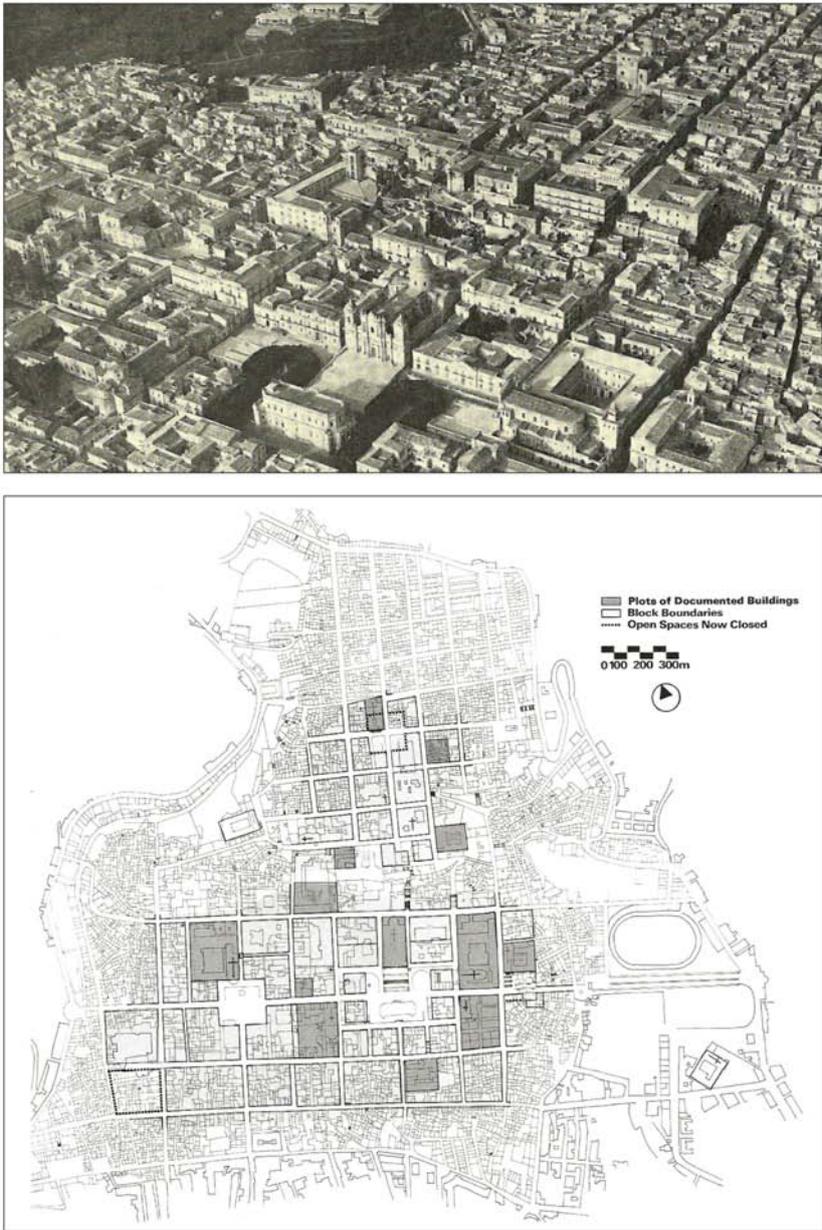


Figure 5. Top: view of Noto from the South. Bottom: plan of Noto in 1712.

*Case 3a,
Industrial Age,
Edinburgh, UK: the First New Town, 1767-1807*

Authors: David Howell, Gillian Black

Edinburgh's Town Council, in the mid-1700s, demonstrated a grand, civic example of historical plot-based development which many lessons can still be learned from today. In acquiring land to the north of the existing town core, a substantially-scaled expansion was initiated with the separating valley (contained the Nor Loch) drained and bridged, a process that took over a decade, before the decision was made to prepare a plan for the development of the "New Town". The intention was that this expansion should be an aristocratic classically-designed residential area to house the town's upper classes whilst the grand streets were also to contain smaller spaces for the serving classes.

A competition was set in 1766 to produce a plan for the laying out of this prestigious new development, which was subsequently won by the 21 year-old James Craig, who created a classically inspired plan to support social hierarchy and civic grandeur through its combination of grand streets, mews lanes and axial linking of squares, churches and views (see fig. 6). Craig developed the detailed feu plan along with a sewer plan which provided comfort to potential purchasers of plots that the land would be serviced properly.

The rectangular, gridiron plan centred on George Street, which ran along the topographical ridge, with the two main squares (and associated civic building plots) at either end and was bound by Queen Street to the north and Princes Street to the south. The feu plan (see fig. 7) divided the eight main "perimeter and mews" blocks into plots with dimensions reflecting their position in the street (and associated social) hierarchy - the detail of the building footprints and private gardens were clearly detailed alongside letters denoting feu values. The values against the plots were driven by their street hierarchy position, the building height limit (4 storey on main streets

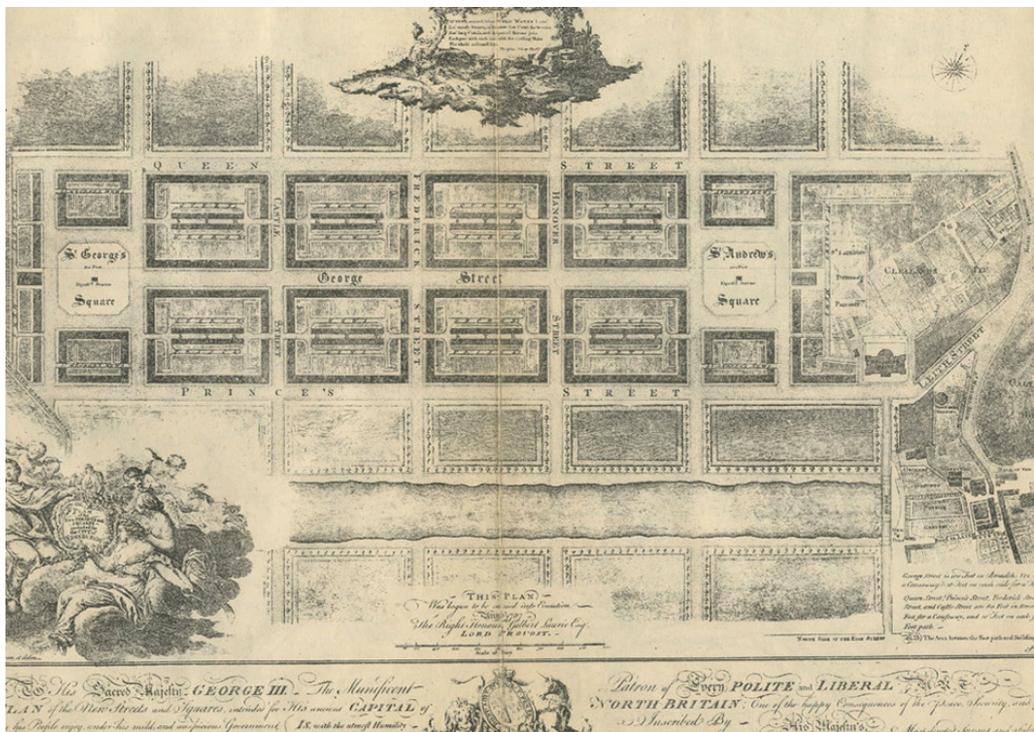


Figure 6. James Craig's original plan of Edinburgh's New Town, 1767.

and 2 storey in mews lanes) as well as their views - whether south towards the rocky outcrop of the mediaeval town core, or north towards the uninterrupted views towards Fife (fig. 8 shows the contrast in plot and street arrangement between old and new towns).

The strong design was of course achievable due to the land ownership control of the Town Council whilst the ability to fund the substantial infrastructure works was due to a period of wealthy prosperity based on Edinburgh's financial industry. This civic strength allowed for such an ambitious plan and the wealth of the individuals purchasing plots in the New Town and their feu duty payments to the Town also supported this growth.

The development of the plots themselves (over a period of forty years from 1767) was undertaken by a range of builders and wealthy individuals who utilised their architects to meet the standards and design required of the feu plan - a plan which was amended over time to allow for a wider range of plots to accommodate professionals and institutions as well as the aristocracy.

The streets were feued in phases to ensure completion of blocks and in the Robert Adam-designed Charlotte Square, a payment incentive was made to the first "feuar" to roof their house first, thus ensuring swift plot completions. Over time, the plots accommodated a greater extent of commercial uses and the in-built adaptability of the New Town design and its ability to sustain change has been demonstrated by its two hundred year successful transition from upper-class residential suburb to mixed-use civic core.

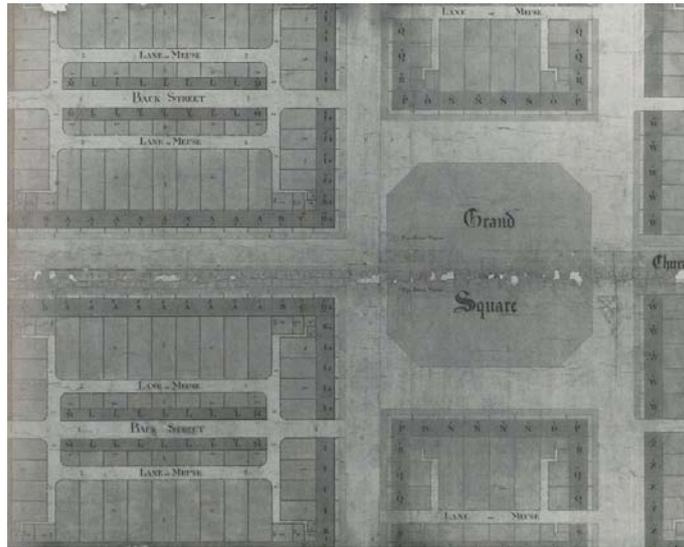


Figure 7. Excerpt from James Craig's feu plan, 1767.



Figure 8. Ainslie's map of Edinburgh, 1804.

*Case 3b,
Industrial Age,
Glasgow, UK: Suburbanization at Hyndland, 1897-1910*

**Authors: Wolfgang Sonne,
David Howell, Gillian Black**

The case of Glasgow, "the tenement city" par excellence (Reed, 1993) (Cockburn, 1925), can be used to highlight the fact that the perimeter block, subdivided into house units, was firmly rooted in enlightened Urban Design of the XIXth Century. Glasgow's first new town plan from 1782 by James Barry showed a pattern of large residential perimeter blocks around George Square, which was then repeated within the Blythswood new town (Arneil-Walker, 1993). During the XIXth Century, the pattern of rectangular tenement blocks, usually four storeys high and containing shops on the ground floor towards major streets, was used for both middle-class and workers' dwellings (Worsdall, 1979). As legislation did not allow for internal wings, all of these blocks were characterised by large internal courtyards which in most cases had been planted. In the working class neighbourhoods, these blocks were designed as units enclosed on all sides, the most uniform areas being Hutchesontown, Govanhill and Dennistoun, all developed during the 1870s and 1880s. In the middle-class neighbourhoods, the block was often subdivided by a lane, thus combining the socially higher model of the terrace with the lower model of the tenement block. Exemplary areas include Woodlands and Hyndland, with the latter being built according to James Barr's plan between 1897 and 1910 as a wealthy Edwardian tenement quarter with most of the buildings by John Campbell McKellar, including a central green square, tree lined streets and green courts (Laird, 1997). Even if all these blocks had been planned as area developments, each block had been structured by town house units, each having its own entrance. Theoretically, each block could thus be subdivided into plots and sold off to different owners. However, originally these structures had been let, and if in the later XXth century the built structure had been sold, then usually it had not been sold as house units, but as single flats. Thus in Glasgow the tenement block with a large courtyard followed a long-lasting tradition and helped to create a city with dwelling quarters which were both extremely urban and pleasant, allowing for a variety of dwellers and uses and nevertheless creating a unique urban harmony.

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The Hyndland Estate in Glasgow's West End was developed by several builders and a variety of architects, largely between 1897 and 1910. The land was situated on the western periphery of the city, adjacent the estates of Dowanhill, Kelvinside and Partickhill, which had been subject of speculative development, mainly in the form of grand terraces and villas to house the growing middle classes on the back of Glasgow's industrial growth (fig. 9). The Hyndland land had been acquired in 1876 but development was delayed by an economic recession and it was not until the mid 1890's that plans were revisited, supported by public transit improvements in the form of horse-drawn trams (developing into electric trams by 1907) and a passenger rail service to the area (introduced via a new spur from the main line in 1886 when very few buildings existed in the area). The landowner instigated a feu plan for the area, completed by James Barr in 1897 (fig. 10), which was based on prevailing market conditions to provide middle-class apartments as a more affordable alternative to the terraces of Great Western Road to the north. The plan divided the land (west of Hyndland Road) into a grid with regular blocks bound by one long perimeter block to the west and north (acting as barrier to the rail lines) with dividing streets containing 'pleasure gardens'.

The symmetrical layout design was based on the tenement footprint and adjustments to the plan allowed for a variety of supporting amenities such as small parks, a bowling green (acting as a visual focus within the fairly rigid block structure), two rows of single-storey shop units on main roads along with plots for schools, churches and community buildings.

Common design elements controlled by feu conditions included a 4 storey building limit, use of red sandstone and slate roofs. The feued land was acquired by a builder on the basis of the conditions of the feu plan, who then sold on plots to other builders and associated architects. In

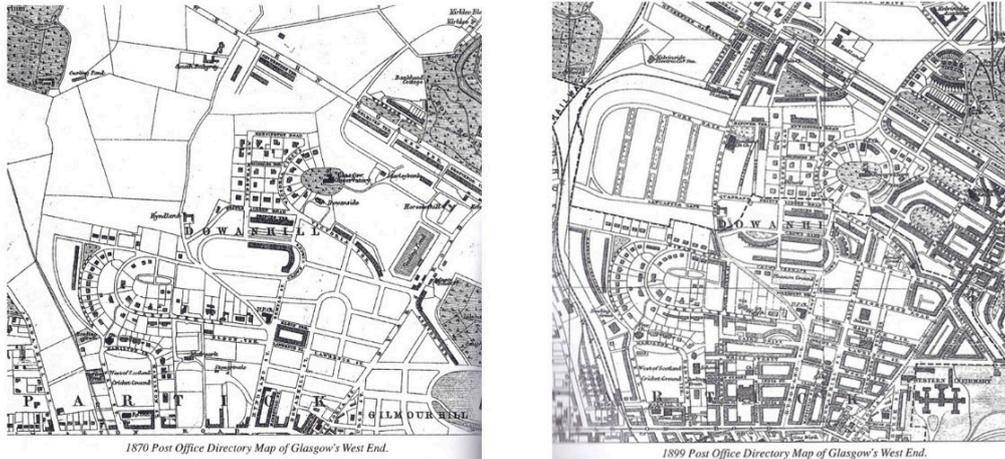


Figure 9. Left and right: Hyndland estate in the context of adjoining estate development and railway infrastructure.

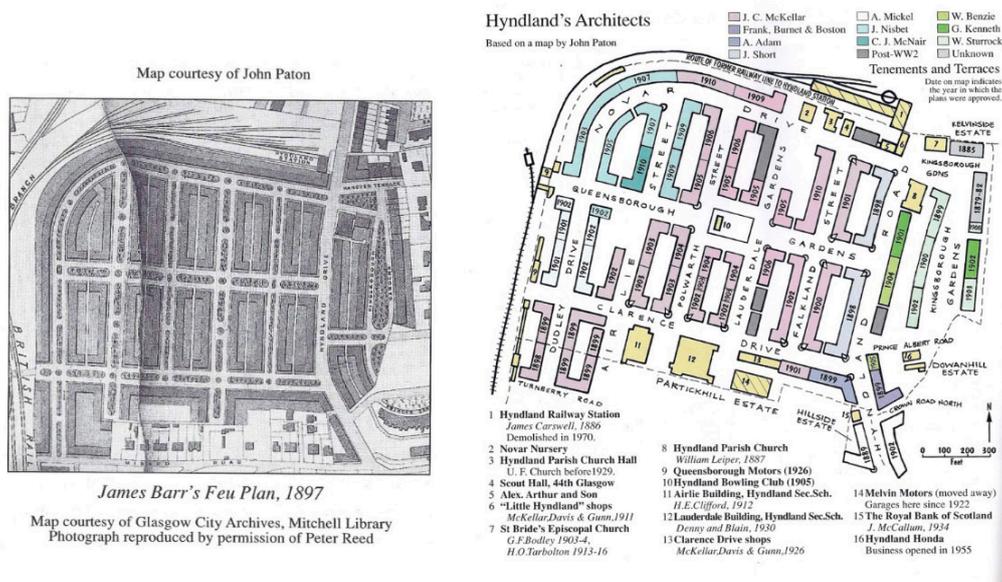


Figure 10. Left: feu plan for Hyndland. Right: architect/builder block variety.

many cases, completed tenements were sold on to a property company whose business focused on renting the individual flats and acting as property factor to recover maintenance fees and rental payments. In other cases flats were let directly by the builders and it was not until after the First World War that sales became the norm.

Land acquisition and development was made possible through investment by shareholders in a new development company, who were willing to take a longer term view through dividends based on a mix of selling completed blocks or individual lets.

The structure and design of Hyndland has largely been retained in the one hundred years since its completion with only a handful of infill developments (fig. 11). The initial plan effectively mirrors a form of transit-oriented, plot-based development which exploited the potential of rail and tram connections in a (then) suburban periphery location. The high-density form of the tenement was utilised to meet a demand for affordable middle-class accommodation with

amenities and services located on primary streets. The long term involvement of the developer through property management and an emphasis on rental not individual ownership ensured the enduring quality of the area, augmented by title conditions which other builders had to conform to which delivered the desired quality of product. Design variety was achieved through a variety of architects and builders and adaptability was achievable in theory through the blocks being divided into plots which each tenement was developed on, although it could equally have been townhouses should the market have desired.

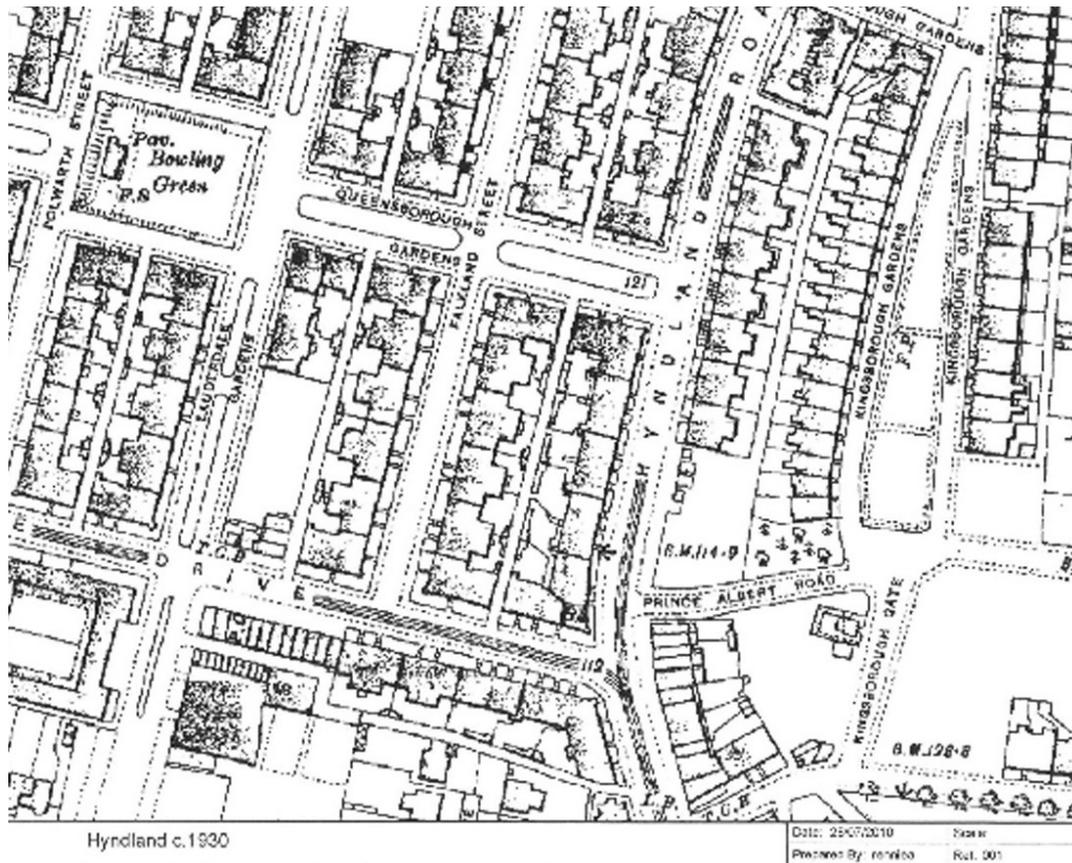


Figure 11. An early OS Plan (ca. 1930) detailing the Hyndland subdivision at the eastern fringe of the development.

*Case 4a,
Post-Industrial Age,
Amsterdam, NL: Regeneration of Java Island, 1991/2000*

Author: Sjoerd Soeters

Java Island is a narrow peninsula (130 metres wide and 1200 metres long) in the Eastern Harbour District that was built in 1900 for the arrival of large ocean-going ships. When the port activities shifted westwards, this harbour became gradually redundant and Amsterdam decided to transform the Eastern Harbour District into a residential area.

The city's planning department formulated in 1990 an overall vision for the entire district and directed the development. Various Urban Designers and supervisors were engaged to work up the schemes for the individual peninsulas.

For Java Island, the city's planning department carried out a preliminary study, formulated the development brief and produced a model plan. This development brief stipulated, among other things, that the development was to be situated parallel to the quays in order to exploit the view over the IJ to the full. Because there was no space on the narrow island for a wide central road, car traffic had to be routed via the north quay. Bicycle traffic was to be routed over a cycle path through the sheltered, less windy central area. Another important part of the development brief was the so-called Woonatlas, the Atlas of Living, produced by the city of Amsterdam, which described concepts of living.



Figure 12. The structure of narrow and deep “gothic” plots, reminiscent of the ancient structure of the Historic city centre, is clearly visible in this shot of the side canals waterfront in Java Island, Amsterdam.

Figure 13.
*An aerial view of the Java
Island in Amsterdam*



Starting point for this atlas was the observation that the combination of building for the housing market and the growing differentiation of locations and life styles needed new concepts of living: different people, different wishes. This resulted in a list of different types of dwellings, in which the focal point was the number of occupants and the degree of collectivity or individuality.

At this point, the city's planning department contracted four developers and housing corporations, who could also take part in the development of the urban plan, under the condition that they contribute towards the costs. They're also asked to give input from their point of view as developers regarding the feasibility of the whole project.

Three architectural offices were then invited to draw up a scheme based on this: Geurst and Schultze, Sjoerd Soeters and Rudy Uytengaak. The scheme by Sjoerd Soeters was chosen to be realized, with additions from Uytengaak and the city's planning department.

The island is partitioned by creating four lateral canals. On these narrow lateral canals are individual canal houses. The apartment buildings along the quays are relatively small and of a size that fits in well with the large dimensions of the island and the water yet keeps the human scale in mind. The buildings are 27 metres wide and divided into five naves of 5.4 metres. Each building contains approx. 20 dwellings and is, based upon the Woonatlas, meant for different target groups: Work/Hobby, Families, Low Budget and Representative. All these different units were then randomly divided over the island and designed by different architects. Within this structure, each building has its own programme of functions, access and design.

In order to realise a large degree of unity and a great deal of variation and alternation within the continuity of the quay buildings, different types of plans were required, as well as a number of architectural rules, in order to prevent a 'design war'. 'The variety of each is dominated by the harmony of the whole' was the slogan with which plasticity in the façades is restored to the thickness of the house front itself. Unity of materials (everything brick) and colour (all frames white) was prescribed and variety in the heights of the windowsills and the buildings was required. The windows had to be designed in series and rhythms, the façades not frontal but in perspective.

The building unit on the quays, buildings that are 27 metres wide, are present on the canals in miniature form: canal houses that differ in height, form, colour and material, but are nonetheless part of a series in which unity is sought. Therefore the overall subdivision of the entire area, which originally was one single very large property, into a number of much smaller units of development or 'plots', each of which then subjected to separate processes involving different stakeholders, is at the heart of the success of the plan.

*Case 4b,
Post-Industrial Age,
Rajkot, IN: the Town Planning Scheme Model*

Author: Bakulesh Rupani

Since 1914 India's planning process is based on a so-called "Town Planning Scheme" (TPS) model, which is successfully implemented and has proven able to achieve the desired built form on plots.

The TPS is principally a self-sustainable partnership project set by landowners of a development area, where the authority plays the role of facilitator. The land, which typically belongs to different owners, is brought in to a pool ("original plot"), redefined in form of Masterplan by the Authority ("final plot") and then redistributed to land-owners with 25 to 30% cutting as a pay-back against infrastructures being made available at door step. The TPS model also provides land for urban poor and public purposes. The authority, initially, pays all the costs for infrastructure and then recovers from the sales of land achieved from cuttings as well as betterment charges levied upon landowners.

TPS is therefore a comprehensive plan of land with plots shaped for different purposes like residential, commercial, institutional etc., which makes provision for all necessary infrastructure and civic amenities. It is a tool to make scarce land in the urban areas available for public purposes. It also facilitates major BOT based projects, generating finance by way of auction of commercial plots.



Figure 14. A street front in Rajkot, India, built through a Town Planning Scheme process. The plot-based structure coupled with a disjointed development leads to a great variety of architectural solutions that nevertheless still obey to an overall framework; a dynamic similar to that observed in the Java Island case (see fig. 12 above).

TPSs are prepared under The Gujarat Town Planning and Urban Development Act, 1976. TPSs are developed in three stages: (i) Draft Scheme; (ii) Preliminary Scheme; (iii) Final Scheme. The Draft TPS is prepared by the local Authority under the Act. The Government approves and then appoints a Town Planning Officer to finalize the Preliminary and Final TPSs. The Preliminary TPS contains details about the physical part of the scheme while the Final layout contains details about the financial part.

Social infrastructure, commercial activities, garden, open spaces are planned and disposed in a proximity structure in any TPS, which leads to neighbourhood planning. A variety of housing types and a provision of plots for housing which mixes social as well as economic classes leads to well integrated and socially cohesive developments.

The financial burden for development is not passed on to anyone's shoulders. The authority gets land for development and stakeholders get unearned increment for their land that leads to economic sustainability. A hierarchy of roads where commercial and institutional uses are located on main roads while inner roads are for residential and other enhance the logistic efficiency. The option of walking, biking, and using public transit, in addition to driving, reduces traffic congestion and contributes to environmental efficiency. Garden, parks, community hall, school, library, hospital, all available in the vicinity, enhance public participation, and this in turn leads to higher moral values in society.

In conclusion, the "Final Plot" is the end product in any TPS. Regulations are framed regarding features like type of development, access to the plot, abutting road width, size of plot, permissible built up volume, while other are pertaining to the final plot only. Hence a plot is the basic unit and all the plots together define the urban form of the city.

3.2. LEARNING FROM CASES: PRINCIPLES OF ADAPTABLE AND DEMOCRATIC SPACES

The cases presented show how, in different places and in different eras, urban fabric has been planned and then successfully evolved in seemingly "organic" shapes, generating memorable environments inhabited and loved by generations. Whilst not consciously planned for change, they had been planned in such a way that allowed change to happen at many scales without any central coordination, and has continued to happen restlessly up to our days involving individuals, groups and organizations alike in making decisions directly and informally.

Luckily, an increasing number of recent initiatives show the same can happen today, under the most different financial, political and demographic conditions; cases like the Java Island in Amsterdam, The Netherlands, and the TP Schemes in Rajkot, India, for all their differences, illuminate this possibility at least with reference to some of their specific aspects.

Box 6.
Organizing principles of Plot-Based Urbanism:
SMALL PLOTS, PLOT-STREET RELATIONSHIP,
GLOBAL-NODAL STRUCTURE AND DISJOINTED DEVELOPMENT

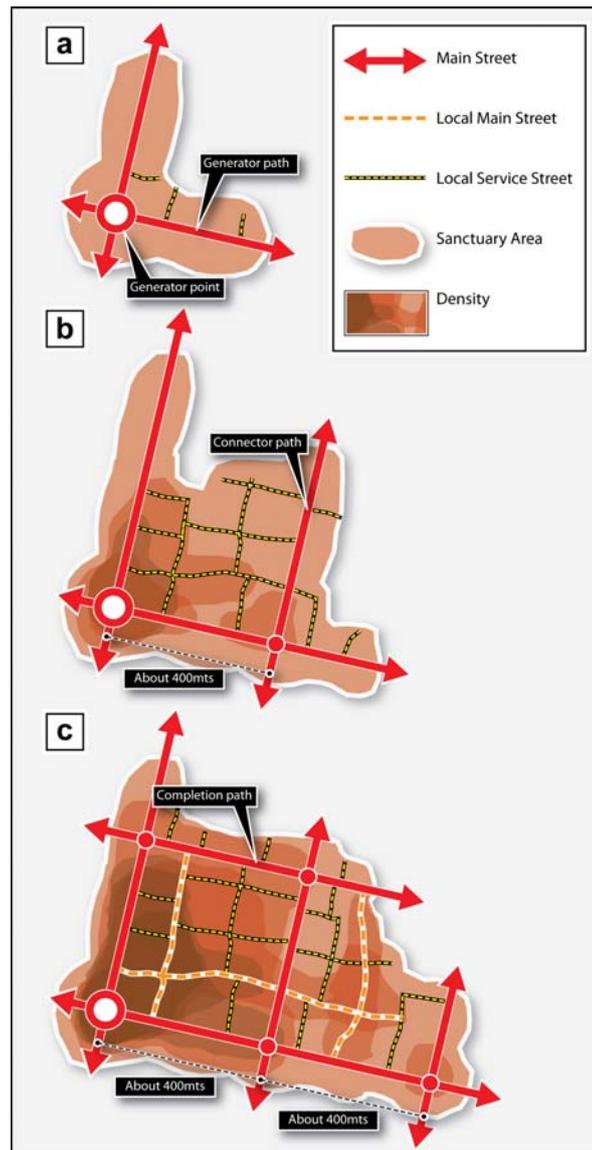
Learning from cases, we can add a few *organizing principles* to the list of components already identified in Box 5 (PLOT, STREET, CENTRALITY, STREET FRONT). We do so by looking at the most evident *similarities* among these cases: because of their permanence across time and space, these principles emerge as key-factors in the formation of plot-based urban fabrics.

SMALL PLOTS. SMALL PLOTS are essential. SMALL PLOTS are ubiquitously present across all cases allowing a vital city to emerge and grow at any time in history. Of course PLOTS can and must vary in size and geometry, but they can't exceed either way beyond a *certain limit*. Too large PLOTS may be fit to host certain special functions in a city (indeed they are really necessary in very few cases) but they are lethal to ordinary urban spaces: because they don't afford change in time, they

are conducive to rigid patterns of use that are inappropriate for ordinary uses. SMALL PLOTS, however, do not necessarily mean small properties (refer to the definition of PLOT in box 5). Large properties can (and should) be subdivided in many SMALL PLOTS in order to favor flexibility of uses, diversity and efficient “forms of submission”, conducive to DISJOINTED DEVELOPMENT.

PLOT-STREET RELATIONSHIP. The essential engine of urban fabric evolution in time is the relationship that links PLOTS and STREETS. In practice this means three fundamental things.

- First: a development should never be designed BLOCK by BLOCK, but rather STREET FRONT by STREET FRONT. As a consequence, guiding parameters (i.e. codes) should be about setting conditions of STREET FRONTS, not of BLOCKS. STREET FRONTS hence should be taken as the coding units of a new generation of form-based codes.
- Second: density, size, geometry and uses of a PLOT are largely dependent on STREET CENTRALITY. Therefore, *understanding and managing STREET CENTRALITY is key*, while planning a city, to drive its informal evolution.
- Third: wherever density grows beyond the minimal threshold, say around 20-30 units per hectare (gross), STREET FRONTS are built directly on STREET without significant setbacks. That leads to the formation in time of perimeter BLOCKS, which are the constituent part of any dense, compact urban fabric. BLOCKS are nevertheless to be intended as functionally and formally linked aggregation of STREET FRONTS. *The character of the link between PLOTS and STREETS is place-specific and must be investigated locally, but the link in itself is essential everywhere.*



400-MTS RULE. The 400-mts rule is an organizational model of evolving cities first presented in 2009 at CNU17 congress in Denver, USA, and then exposed in a detailed position paper the successive year (Mehaffy, Porta, Rofè, & Salingeros, 2010). In that paper we have defined “main streets” as those STREETS that feature a global communication between urban areas, linking local places with their wider spatial, economic and social context. In small villages and towns “main streets” are those that head out of the urban precinct towards adjacent villages and towns and further on to the larger regional space. Within cities, “main streets” are those that connect local places with other local places across significant portions of the city’s fabric. The evolution of cities,

Fig. 15. The ‘400mts rule’ as emerging from the process of evolution of cities during cycles of expansion. Thick red solid lines are Main Streets; dashed orange lines are Local Main streets; thin dotted yellow lines are Local Service streets. Grades of brown express levels of building density. In this model, Main Streets enclose mostly residential urban districts named Sanctuary Areas: such areas are made of blocks which are formed in time by the densification of built fronts along Local Streets. Source: Mehaffy, Porta, Rofè, & Salingeros (2010).

during the phases of growth, has always been about generating less central STREETS from the more central, or "main", followed by the gradual allotment and construction of the new STREET FRONTS on both sides. Major special urban functions like theatres, arenas, hospitals, city halls, libraries etc are preferentially placed at "main streets" crossings; ordinary functions like retail commerce, small offices and services also benefit from those prominent locations, but they may spill-off to residential districts along the more central of their service STREETS, or "local main streets". "Main streets" are always the most central, and their crossings are usually 300-500mts apart, so that we have termed this fundamental feature of traditional urbanism the "400-mts rule". Recent work conducted at UDSU, University of Strathclyde in the form of an Atlas as part of an Urban Design Masters thesis by Vth year students, confirms that the 400-MTS RULE appears to inform all cities – both planned and self-organized – until the emergence of professional theories of Urban Design in late XIXth and early XXth centuries (Baird, Feeley, Russell, & Wong, 2010).

Implications of the 400-MTS RULE for the theory and practice of Urban Design are many. One major implication is that *we should not consider neighborhoods as geographic entities anymore*, and that basing our urban models on circles of 400 mts of radius on the assumption that they represent neighborhoods, a never questioned norm of professional theories of Urban Design since Clarence Perry to the latest New Urbanist schemes, means throwing cities in the hyperspace of a lethal out-of-scale.

DISJOINTED DEVELOPMENT. The potential of SMALL PLOTS to enable change and diversity gets inhibited if these are not controlled by different subjects. It is the diversity of subjects who exert control over SMALL PLOTS that enables change. DISJOINTED DEVELOPMENT is a process of spatial structure creation that subjects SMALL PLOTS to developmental paths that are autonomous from each other, though possibly under a shared agreement on basic principles. That autonomy may be expressed in different terms from case to case, including diversity of developers, owners, renters, and designers. Though DISJOINTED DEVELOPMENT applies to the process of land development or regeneration at the design/creation phase, its consequences are all projected into the phase of post-design, enacting the dynamic of diversity emergence and informal participation that stands at the heart of plot-based, traditional urbanism. In other words, SMALL PLOTS must be coupled with DISJOINTED DEVELOPMENT, i.e. PLOT control assigned plot-by-plot to different subjects, in order for informal change to start and keep happening.

In this sense, DISJOINTED DEVELOPMENT is the reverse of conventional "instant city" dynamics, which are based on making it as big as it can possibly be to take advantage of economies of scale. On the other hand, increasingly research and practice shows that the fragmentation of units of development fits particularly well the risk-sensible environment of the market in times of financial instability and economical downturn. If the basis of evidence on pros and cons of DISJOINTED DEVELOPMENT in financial terms is still to a large extent a matter of research, nevertheless this principle appears to be crucial in terms of urban form and sociability of places.

3.3. PLOT-BASED URBANISM IN HIGHER EDUCATION: TOWARDS LOCAL URBAN CODES

The theory of Urban Seeding and the practice of Plot-Based Urbanism have been the latest backbone of education in Urban Design at the University of Strathclyde, Glasgow, UK. The authors run a Masters in Urban Design course at the Department of Architecture, which is offered at the fifth year level of studies to students of Advanced Architectural Design and to others from a variety of backgrounds related to the disciplines of the built environment, such as planning, engineering, sociology or geography.

While we forward the reader to our website for accessing detailed information and documentation on the course (Porta & Romice, 2010), it is important here to highlight its two main features that are prominently devoted to interpret the evolutionary nature of Plot-Based Urbanism, i.e. *morphometric analysis* and *Local Urban Code*.

Morphometric analysis is a package of two analytical techniques aimed at the measurement of key spatial features of cities, one that focuses on *street networks* and one other that targets the *spatial structure of blocks and street fronts*. The outcomes of

these two applications are set to inform directly the generation of a Form-Based Code, i.e. a set of rules for the further development of urban spaces, that in turn acts as guidance in the design of the final Masterplan.

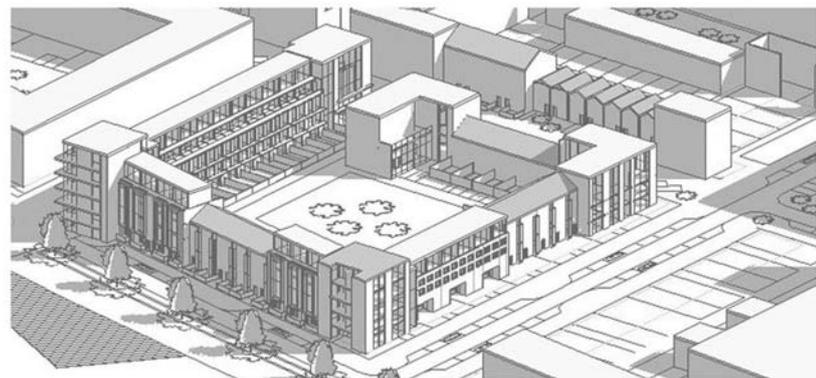
The *street network* of the study area is modelled by means of a Multiple Centrality Assessment (MCA) approach based on Geographic Information System (GIS) and computer aided procedures of centrality calculations. Developed in recent years at UDSU (Porta, Latora, & Strano, 2010), this technique is a plain application of the network analysis of complex systems in nature, society or technology to phenomena characterized by spatial embedding (Boccaletti, Latora, Moreno, Chavez, & Wang, 2006). Building on a previous "Space Syntax" model (Hillier & Hanson, 1984) but exploiting an entirely different computational engine, the package allows mapping centrality in urban streets, i.e. understanding what streets are more central and what are less central, depending only on their geometry and the way they are connected with each other in the system. The outcome of the procedure is a map of streets where streets are colour-coded in a blue-to-red grading expressing lower-to-higher centrality. This captures a profound meaning of the nature of urban streets which is deeply linked with city's formation in history and, especially, with the potential of streets to act today as social "hot-spots", or neighbourhood centres. This potential, for example, heavily contributes to the attractiveness of a street to retail commerce and services, thus determining the level of self-surveillance and sociability of urban places. The analysis is normally conducted on different scenarios of street layout, including the current state and project alternatives, thus allowing students to raise evidence on how choices regarding one street have often unexpected consequences possibly far away from it, a typical behaviour of all kinds of complex systems.

In general terms, centrality correlates with land-use intensity in terms of both population and employment (Wang, Antipova, & Porta, in print), which impacts on real-estate values and, as a consequence, on the form of street fronts. This link is tested on the ground in the course by means of a second analytical technique aimed at *mapping the spatial structure of blocks and street fronts*. Students organized in groups map out existent blocks in the study area and in Glasgow at large picking up cases that appear to represent all the different ways the city had been built in history. "Bad" and "good" cases are therefore investigated, measured and confronted, including for example Victorian tenement houses as much as post-war conventional high-rise tower blocks, or Edwardian suburbs of detached villas or cottages in plot. For each case spatial features are confronted with street centrality reported from the MCA analysis, thus visualizing this fundamental correlation in the specific reality of local districts.

All this analytical effort is not just aimed at increasing our knowledge of city functioning, but is strictly linked with the specific nature of our discipline as urban designers: taking action. This passage is ensured by means of the construction of a Local Urban Code. The Local Urban Code is a set of quantitative norms that are meant to be of reference in developing or regenerating the study area. Values such as percentage of built front, density of entrances, ground floor height, plot front width, plot size, plot compactness and several tens of others, are directly taken from the in-depth analysis of real blocks and street fronts illustrated above, therefore ensuring that decisions are taken with full and realistic awareness of their social and environmental consequences as proved after the examinations of parallel cases on the ground. The factor that drives this passage from existent cases to new designed cases is *density*. Cases in the analytical phase are grouped in categories depending on

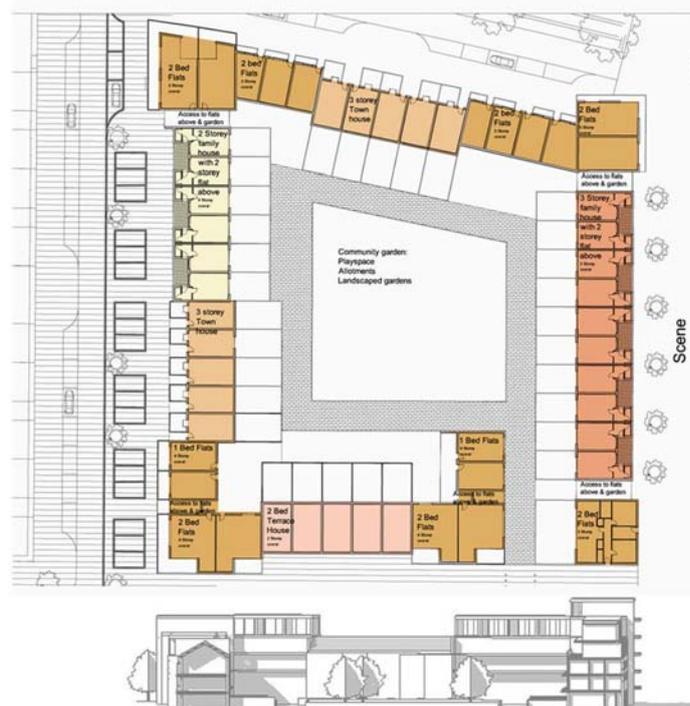
their density, and the same categories of density are used to frame the Local Urban Code that guide the future development or regeneration of the study area.

One thing is of utmost importance: the Local Urban Code does not deal with the architectural design of buildings. It is a specific concept in our course, and a crucial nature of our understanding of Urban Design, that there is a profound difference between the structure and the language of spaces that has to do with what is stable and general and what is changeable and specific, the former being the domain of Urban Design and the latter that of Architecture. To proof this point in practice, at the end of the year students are immersed in a workshop experience where two architects well known for representing different and even opposite linguistic approaches (last year we invited Robert Adam and Gordon Murray) lead them to design single buildings as differently as they possibly can under the same norms set in the Local Urban Code. This difference in design culture expresses a wider difference in the management of autonomously developed small plots that would include developer and ownership “forms of submission”.



Using the LUC

Figure 16.
Student Sarah-Jane Laverick's work on street front design: small plots are clearly defined and different architectural solutions are quickly tested on each plot, all compatible with measures set in the Local Urban Code. Different and possibly opposite approaches to architectural design can and do coexist under the same structural norms stated in the Local Urban Code, which are based on the analysis of case studies selected from existent areas in the city of Glasgow. These norms are non style-specific.



4.

URBAN SUSTAINABILITY: HERE WE COME

Plot-Based Urbanism is here advocated as an appropriate, responsive and sustainable form of development, because it is versatile and capable of minimising and spreading risk in conditions of adverse economies, it is conducive to informal participation, capacity building development of local capital, it has proven to be the most resilient form of urban development in time, and it is respectful to local character.

We argue that Plot-Based Urbanism is an approach that deserves consideration and development, because urban form and land use patterns are primary determinants of urban sustainability(Beatley, 2000). This is paramount now at both local and global scale, for two main reasons:

1. Unprecedented urban growth is taking place especially in the Developing Countries of Asia, Africa, Latin America and Middle East. The urban population of Developing Countries will make up more than the 80% of the urban population on planet Earth by year 2030. The urban population in Africa and Asia is expected to double between 2000 and 2030, with some 1.7 billions new urbanities in the next 20 years expected to be poor. New approaches to guide and support development that are non planning intensive and based on informal practices of traditional urbanism are urgently needed and conventional ones are no longer appropriate.
2. In the Developed part of the world, which was already between 80 and 90 per cent urban at the turn of the Millennium, the real challenge is about regenerating energy-intensive existing neighbourhoods in relation to both their housing stock and the urban model on which they are based. In the UK for example, the average urban density has dropped from 250 units and 1,500 people per hectare in 1900 to 35 units and about 80 people per hectare in 2005(Power, 2006), with the passage to a predominantly automobile dependent urbanization model. Throughout the Western world, ecological footprint consumption is between 3 to 6 times the current available rate of productive land, an unbalance allowed by the under consumption of developing countries (Frey & Yaneske, 2007); appropriate urban development can help re-establish a fairer distribution, consumption and production of resources.

Planning for appropriate urban development is nowadays an imperative that, contrary to the past, can no long afford mistakes; tolerance of aberrations ought to be reduced to a minimum simply because we no longer can afford the social, economic and environmental repercussions which would derive. Hence, urban development needs to be based upon carefully collected and interpreted evidence, no longer be left to ideology or trends. Urban development should be taught and practiced in an evidence-based manner, on the assumption that effects on the environment and its

people can be monitored and modelled; the more precise the observation and evidence collected, the more tailored the outcomes of development. Future professionals must be taught to analyse, derive and design change to maximise environmental performance in terms of its impact on the ecological footprint, carbon-emission, community building and place identity. The evidence-based approach to analysis and design should be at the core of the agenda for Place Making.

Evidence-based Urban Design should not be seen in juxtaposition to collaborative planning and participation of inhabitants in decision making on urban change. Quite on the contrary, it is important to understand that planning – good planning – is the precondition for self-organization and informal participation to emerge and keep happening in time.

On the other hand, informal participation should not be seen in juxtaposition to formal participation approaches like “enquiry by design” or “charrettes”. We need both, as they deal with different and overlapping domains of urban change: the former has to do with post-design phase and the ordinary urban spaces, the latter mainly with the design phase and the extraordinary urban spaces.

Global and local challenges related with urbanism are today of such magnitude and nature that good planning, based on the “lost art of subdivision” must be re-established with urgency and cannot be deferred, with new relevance brought in this perspective to the public sector (Campbell, 2010).

Trends are regarded as a first level global challenge to the environment as well as to the social and economic survival of our civilization: much of the future of our planet depends on how we will manage these challenges in the next three decades. Urban planners and designers cannot expect to deliver the same solutions over and over again and obtain different results: we need a new integrated discipline of urban space, a new *structural approach* that poses change (and therefore time) at the centre stage and acknowledges the complex multilayered, multidisciplinary and inherently self-organized nature of urban phenomena.

In this paper we have named this different culture, recurring to an organic metaphor, Urban Seeding; we have outlined what are the conceptual basis of this culture highlighting the importance of time-consciousness, adaptation and informal participation; we have then outlined several technical aspects of its many disciplinary facets grouping them under the notion of Plot-Based Urbanism and looking at the history of cities to get inspiration and improve our knowledge. Finally, we have illustrated how these different culture and discipline can be taught to students with different backgrounds, including primarily students in architecture.

All this should be seen as a first step towards “good planning” (whose content of “novelty” is here not of interest and consequently not debated), and *therefore* towards more diverse, vibrant, adaptable, democratic and in short human urban spaces. It is our only intent to open the ideas illustrated in this paper to reformulation across the widest possible discussion, in order to walk fast towards human and sustainable cities for our urban future.

It is essential that such different *culture* and *discipline* of urbanism are defined and developed in order to avoid gross mistakes and superficial misunderstandings that are seemingly pervasive in a media-oriented market of fashionable architectural image. The risk that concepts and goals of Plot-Based Urbanism are quickly

translated in very partial ready-made solutions by architects and planners is almost certainly taking over if a wider and deeper awareness does not emerge on its fundamental structural components. We clearly see the signs of such a new wave of pseudo-Plot-Based Urbanism, i.e. just a latest version of a more general “*valueless postmodern formalism*”(Samuels, Panerai, Castex, & Depaule, 2004), beginning to spring out across magazines and academic work (fig. 17).



Figure 17. Masterplan of the Expo Area for Milan World Exhibition 2015. Created by a pool of internationally renowned architects and academics including Jacques Herzog, Ricky Burdett, Stefano Boeri and William McDonough, this “à-la-Java” out-of-scale design shows that plots are now fashionable enough to capture the attention of world-class shape-makers. However, the structure of spaces, their measures and the essential relationships between their components, in shorts all what makes a real city alive and adaptable, is in this proposal fully disregarded. It may work well during the Big Event, but it will never work well as a constituent part of a city in following centuries. Just an up-to-date version of Futurama? Source: Boeri (2010).

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