

## **Pindar's Honey-Sweet Calm: Intentional Localism, or (with apologies to Douglas Adams and the number 42) the 400 Metre Imperative as the Meaning of Life**

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Pindar (ca. 522–443 BC), a lyric poet from Thebes, and the Red Smith<sup>i</sup> of his era, was a Grecian with a sporting sensibility and a gift for words that have survived for 2500 years. Of Olympic Games champions, in the every four year gathering of city-states at Olympia, he wrote “For the rest of his life the victor enjoys *a honey-sweet calm.*”

No event would have held Pindar's attention more, and deserved such honey-sweet calm reward, as the two-stade race. Equivalent to a 400 metre distance it tested an athlete's ability to run all-out without benefit of the strategic pacing of a longer race. It was of sufficient length however to engage the spectator's interest in an unfolding drama, unlike the shorter sprints.

Today's poetry majors enjoy fewer opportunities, not only for celebrating such moments of glory, but appreciating the meaning of this 400 metre distance. They are part of a new American underclass - at least according to a 2012 New York Times magazine article. The new divide in America is between a smaller mobile class and one that can't quite pack up and go. Lacking specialized skills, the latter group, including poetry and history majors, “...are already competing with their neighbors for the same sorts of mediocre, poorer-paying local jobs like low-level management or big-box retail sales.”<sup>ii</sup> The grim tale, Adam Davidson relates, is a function of a long standing decline since the early 1960s, with periodic small reversals, in the percentage of people re-locating for work to a different state in one year. They are condemned as well to the limitations of many contemporary places in which not much happens, or ever will, within a radius of 400, or even 800, metres of where they live.

Is this dreary picture the permanent fate of many? Or are there prospects, opportunities and forces accruing which might challenge such bleak assessments?

Stepping back for a moment, human history is acknowledged to be a long narrative of people searching for new economic and social opportunity, escaping oppression, and sometimes simply seeking the joy of the open road. So entrenched is this story that one wonders how cities, towns, and villages could have developed, and remained the keystones of most lives for good and ill,<sup>iii</sup> and increasingly so in the last 200 years.

The movers however are more likely to have been the exceptions while the rule remains that until fairly recently, the horizon of living for most people was the distance they might comfortably walk from home, and from which they might safely return, in a day.

Why would this have been the case?

Let's consider a hunting and gathering tribe of about 100 early humans having set up in an area, for discussion purposes, of approximately 16 square kilometers<sup>iv</sup> or four by four kilometers. Of course it

would not have been square, but a rag-tag geography subject to the peculiarities of terrain and tribal needs (however for arguments sake consider the square to be the general shape). Their foraging would have been subject to limitations imposed by distances, a need for mutual protection (for those left behind as the hunters foraged), possible cultural factors<sup>v</sup>, and the bio-diversity of animal, plant life, and water available to them. Sooner or later however they would have exhausted, or polluted, this resource base and so been compelled to move on to an equivalent sized new territory.

Only when they discovered the advantages of an agricultural economy was it possible to set up shop in the same area in a comparable space of about 16 square kilometres, and stay there almost indefinitely. As a result the merits of cleaning up their mess would become more urgent.

While our ancestors would not have had the measurement tools with which we are familiar, their common sense and native talent for determining time and space, based on seasonal variations, position of the sun, and condition of the land would have provided them with different means for interpreting their world .

For us 16 square kilometres is composed of foundational measurements for which we have an intellectual as well as a physical sense. Four kilometres is close to the old imperial measure of 2.5 miles, while a kilometer consists of 1000 metres or about 3/5ths of a mile. As a general rule of thumb from time immemorial most people can cover the former distance, at a reasonable walking speed, in approximately an hour.<sup>vi</sup> So a 2000 metre or 1.25 mile walk out from a settlement's either temporary or permanent location within the centre of a 16 square kilometer territory, and a 2000 metre, or 1.25 mile return walk, would have been consistent with limitations described above.

No wonder then that from the time in which hunter gatherers stalked their survival needs, to the agricultural villager's outward bound passage from the diminishing chimes of the village's church bell or similar religious soundscape, this was a generally universal daily limitation of travel and boundary of their known territory.

Breaking down the 4000 metre, (4 kilometre) diameter of one's familiar territory, and its walking threshold, into smaller more intimate urban measures makes it easier to understand the prevalence of the 400 metre distance as a signature piece of urban design, which can be walked in about five or six minutes (one's pace depending on how far one is going). From the era of Greek City-States and even earlier, settlements have been complete entities of about 800 metres diameter, or a 400 metre distance from their centre, within a 64 hectare space (160 acres). As urban places grew beyond that size and distance, a new settlement-type environment of similar size and function would grow alongside the old one. Dr. Matthew Hardy notes:

*The boundaries of neighbourhoods are not usually physically defined, but their centres – typically comprising a parish church, town hall, market, school and other public buildings – are usually found to be around 800 metres apart. This seems a relatively constant factor of human urbanism, defined by the limits of the body itself.*<sup>vii</sup>

The 400 metre distance is at best an average but one with powerful meaning and is a functional correlate of most things we consider building blocks of good neighbourhood design from the near-by-ness of schools and public transit, the limiting distance people are prepared to walk for necessities, to the space within which children are permitted to wander<sup>viii</sup>, and even as a measure of personal health. These considerations however bump up against the challenges imposed by conditions of modern living dependent on the private automobile, which has become the most powerful urban planning determinant surpassing public health, respect for different aged persons, and great design.

The modern landscape however is a product of measurement processes within which a 400 metre imperative fits neatly. Early surveyors in the New World relied on its imperial forerunner, the chain measuring 66 feet (or about 20 metres) which in turn derived from the old Roman rod of 16.5 feet (the width of Roman streets) multiplied by four. The 100 chain distance (6,600 feet, or 1.25 miles, or, serendipitously, nearly two kilometres, or 2000 metres) became the distance between concession roads in old Ontario. It survives to this day in the distance between major streets in Toronto's grid structure. Right angled to these concessions were a series of roads each 40 chains distant from each other and within which were two classic Ontario farm lots of 200 acres (80 hectares, or slightly larger than the traditional urban community of 64 hectares, and, in their longitudinal form, not conducive for immediate adaptation to urban neighbourhood purposes) were situated.

In the United States a common landscape feature in the mid-west was the one-mile square land "section" system (or 80 chains by 80 chains) accounting for 640 acres<sup>ix</sup> broken down in time into more easily adaptable quarter section neighbourhoods of 160 acres, or 64 hectares. This grid, as described in Ontario and the American mid west, was significantly more formal than the European structure which had evolved over centuries in a less rational fashion. The old parameters of distance with their time-honoured roots were naturally transferred to a New World still dependent on walking, the cornerstone of the 400 metre building block.

The bicycle was a briefly populist means of travel available by the late 19<sup>th</sup> century to a broad based distribution of the population. It fit well within the grid system. It broke down the old restrictions imposed on men and women who could neither afford a horse, or other means of transportation to escape their village life, but it was quickly surpassed by the automobile whose nature and use rejected considerations of walkability and conflicting human presence.

The crowded, mean streets, of inner city life in which residents had lived alongside pollution-belching factories and in which disease was more easily spread, had provided for most human needs within a 400 to 800 metre radius of one's living place. They were often abandoned however for the cleaner, safer confines of the low density single-use residential suburban development which fit neatly into the old grid structure, accommodating the car by turning the major roads dividing neighbourhoods into car-dominated speed zones anathema to pedestrian comfort. The internal communities of these developments were in turn designed as dead-end cul de sacs limiting automotive access but also the ease of pedestrian movement from one place to another.

About the only remnant in these new suburbs of the old 400 metre measure of acceptable walking distance was a local school which became an integral part of the “neighbourhood unit”<sup>x</sup> design developed in the 1920s and still favoured by planners and developers despite its increasing irrelevance. It has been compromised by today’s multiplicity of school types for different denominations, language-training options, or special purpose instruction including, ironically, home schooling. Even though some schools retain their neighbourhood function there has been a decline in general of children walking or biking to school<sup>xi</sup> from 66 to 13 % in the period from 1974 to 2000. Parental concerns for their children’s safety, given an absence of eyes on the street to watch out for them, as well as the preponderance of cars dropping off children at the school, has made such destinations less safe for the remaining few who walk.

Only recently have we started to take account of the meaning of these statistics, in the on-set at younger ages of diseases, once the province of the old, such as Type 2 diabetes, fatty livers and heart disease; the sheer banality of such places and hence the flight of those old enough to get out and never return; and the impossibility of such places meeting the needs of the 1/3<sup>rd</sup> of the population who don’t drive, particularly children and many old people.

Our consumptive spread across the landscape as well has degraded the essential bio-diversity of eco-system services on which life depends. For instance as we cover over more than 10% of land for roads, dwelling places, parking lots etc., a Pew Oceans Commission study identified the negative impact on watersheds.<sup>xii</sup> Living closer to each other on the other hand in dense and diverse urban settings provides a more efficient use of resources<sup>xiii</sup> and many environmental benefits such as greater use of multiple modes of mobility.<sup>xiv</sup>

World population may grow by mid century to perhaps 10 billion people and so the search for means of living more effectively with existing resources (from clean air and water to fertile soil and rare earths), while reducing the sinks in which our waste is stored, from carbon emissions to roadside detritus, becomes more urgent. Alongside this is a need to find places in which essential eco-system services can be regenerated. Our attention therefore turns back to the features of traditional urbanism and the primacy of the 400 metre distance, and the ways it conforms to human activity, behaviour, and needs in tackling the above challenges.

Once again Dr. Hardy, in what *“The Second International Council for European Urbanism (9-10 November 2006)”* describes as, a slightly apocalyptic vision, argues for walkable compact space in his description of “extreme sustainability”.<sup>xv</sup>

*“He suggested there were four questions we would need to be able answer in future. Where does food come from? How do you stay warm in winter? How far can you walk and what can you get in that radius? And how can you fix your house with stuff from within 400 metres?”*

Recognition of the primacy of this 400 metre imperative is part of a slowly changing paradigm of urban design in which the anomalies<sup>xvi</sup> arising from a car defined, single use space are being replaced by a more robust idea of how and where people want to live. The LEED (Leadership in Energy and Environmental Design) system for Neighborhood Development<sup>xvii</sup>, and its proponents within

organizations like the Green Building Council and the Congress for New Urbanism, pointedly declare that projects should be located, "...near existing or planned adequate transit service so that at least 50% of dwelling units and business entrances within the project are within ¼ mile walk distance of bus or streetcar stops or within ½ mile walk distance of bus rapid transit stops, light or heavy passenger rail stations, ferry terminals, or tram terminals."

It further states, "Locate the project near existing neighborhood shops, services, and facilities, so that the project boundary is within ¼ mile walk distance of at least five, or within ½ mile walk distance of at least seven, ... diverse uses."

These ideas are penetrating most informed commentary on urban design. McMaster University's civil engineering program for instance produced a neighbourhood structure model which stated, "The neighbourhood size should be one-quarter mile [essentially 400 metres] from its centre to its edge. This size allows its residents to be within a five minute walk of many basic needs and services."<sup>xviii</sup>

In their *Operational Definitions of Walkable Neighbourhoods: Theoretical and Empirical Insights*, Moudon et al, describe threshold distances for eating/drinking establishments and grocery stores were 860 and 1445 feet [or between 260 and 437 metres].<sup>xix</sup>

Urban Ecology Australia describes a neighbourhood as "typically defined as a 400-450 metre radius circle (5-minute walking distance) with a shop supplying daily needs, or another type of community focus, at its centre", and "As a measure of efficiency, at least 60% of the dwellings in a neighbourhood should be within a 400-450 metre walk of a neighbourhood centre or bus stop, or 800 metres of a rail station".

The University of Notre Dame London Summer Program of 2001, in their design parameters to students, stated "All dwellings are designed to be within a ten minute [ed. comment - this seems too much!] walk (400 metres) of a neighbourhood centre containing all facilities necessary for essential needs."<sup>xx</sup>

In their *Effects on Urban Cycling and Walking*, Krizek and Johnson, state, "Be aware that the likelihood for individuals to cycle may increase if they live close to bicycle facilities (within 400 metres)" [by Facilities they mean designated lanes], and "Be aware that the likelihood for individuals to walk may increase if they live very close to neighborhood retail (200 metres)."<sup>xxi</sup>

James Masini said a walkable neighbourhood has been defined as one in which there is a 10 minute walk or 800 metre radius based on the average person's walk speed of five kilometers an hour. However, he notes, "...responses to previous consultation for the *Core Strategy and North Kensington Plan* have suggested that due to the higher density of the borough, a 5-minute walking time (and a 400 metre radius) would be more appropriate," and that the "400 metre/5 minute walk target is more desirable means of measuring deficiency of facilities."<sup>xxii</sup>

Finally a common standard for bus access across Europe has been set at 400 metres. Beyond that distance the willingness to walk not only declines but the use of a car increases. The 400 metre criterion

however is based on the actual distance people would have to walk rather than that defined by a straight line measure.

Those with the means who once fled the inner city and in so doing traded one type of public health disorder for another, are now increasingly returning to this once forsaken territory, and it's because so much of what they need and want is within a 400 to 800 metre radius of where they live, including regular public transit to take them to places farther away!

Like any heuristic it has limitations. Cell towers and wind farms for instance are facilities for which some evidence exists that proximity within a 400 metre radius may have some harmful effects, though there is little that is absolutely conclusive. Too often as well those few conveniences within reasonable walking distance are, by the absence of other options, deadly. A 2006-2007 study of New York City locations found that "92.9% of students had a small grocery store within 400 metres of their school; these schools typically carry few healthy food options than larger grocery stores. In addition 76% had a pizzeria within 400 metres, 48.9% were that close to a convenience store, 43.2% were within 400 metres of a national chain fast-food restaurant, such as McDonald's or Burger King, and 33.9% were with within 400 metres of a local fast-food restaurant."<sup>xxiii</sup>

Yet it may not be too farfetched to see in the 400 metre distance an imperative with deep seated meaning for life – literally! A study in the *Journal of the American Geriatrics Society*<sup>xxiv</sup> indicated amongst those who predicted their inability to complete a 400 metre walk there was a 91% likelihood (with a sensitivity of 46% and a specificity of 97%) that they were in fact unable to walk 400 metres. A report from the University of Pittsburgh published in the *Journal of the American Medical Association*, indicated moreover that the inability to complete this 400 metre walk was a significant predictor of death and poor health in the elderly.<sup>xxv</sup>

Robert Roy Britt, LiveScience Managing Editor was blunt in his conclusion, "**Walk a Quarter-Mile [400 metres] or Die**",<sup>xxvi</sup> and that for men and women aged 70 to 79, "If you can walk a quarter-mile [400 metres], odds are you have at least six years of life left in you....and the faster you can do it, the longer you might live." Failure to do so, other studies suggest, limits one's life span to three years or less.

Organizations for senior citizens catering to their members' self-fulfilling sense about an inability to walk 400 metres, and so providing excessive nearby parking and no challenge in the minimal act of walking from a short distance away over a variety of surfaces and gradients, might be contributing to the shortening of their members' lives.

If the 400 metre distance is a means for measuring one's longevity, and its completion by a relatively healthy adult can be undertaken in five minutes (though somewhat more time would be required by children and the marginally infirm), it is a damning indictment that we have and continue to build places with so little diversity, not only within that range, but far beyond it. Walking in such places can be a dreary experience of sameness and generally pointless given the absence of anything other than residences of varying densities.

What features would promote a resurgence of a 400 metre building block for urban design in opposition to one that is biased in favour of a car-dominated prescription? What models already exist for this? What economic, civic, and environmental opportunities are already available, or contemplated? How might this explain why the poets and history majors, referenced above, like where they are, are comfortable in their surroundings, see its potential despite current shortcomings, and so choose to remain closer to home? Why is the honey-sweet calm of a 400 metre imperative a tool not only for a better life, but for a new meaning of life?

There is a minority consensus emerging that in the future, regardless of personal wants, we will all be doing more things closer to home. It may be a function of continually rising gas prices, and either its unavailability for lifestyles requiring multiple cars for residents to get to work, school, shopping, places of worship and all manner of recreation, or because it needs to be more rationally allocated for essentials like home heating.<sup>xxvii</sup> Many people, it should be stressed, however still believe in a future no different, and perhaps even more spendthrift than the present. Their push back in the form of accusations that energy efficiency and an end to urban sprawl are part of a conspiracy by United Nations-led puppets to force people to live in cities betrays the bankruptcy of their position.<sup>xxviii</sup>

It's just as likely that a movement towards a "closer to home" lifestyle will have less to do with an imposed necessity, and more with an emerging preference. Richard Florida's commentary on the Creative Class<sup>xxix</sup>, posits some positive reasons why this might be so, while the negative consequences of commuter lifestyles documented in Robert Putnam's **Bowling Alone**,<sup>xxx</sup> suggest that what we might be seeing is the emergence of an *intentional localism* based on a 400 metre imperative benefitting all classes - poetry and history majors included.

Intentionality describes our ability to act deliberately and purposefully. In that regard it shouldn't be confused with "intent" which may, or may not, be a fully formed desire to do something and for which there may or may not be an action. In alliance with localism, intentionality describes the fulfilling character of ideas carried into actions which have as their goal a restored urbanism. It is deliberately and purposefully sought after rather than a future that is imposed upon, or the outcome of events over which, humans have little or no control. Intentionality thus is directed towards a realized state though its success is subject to interpretation.

What is immediately local holds within it the future of a mature civilization in which we no longer have to leave the neighbourhood but can build within it a complete world of creative unpredictability, serendipitous opportunity, economic plenitude and enhanced public health. Intentional localism is about the desirability of place and the free choice people make to live within a walkable area defined spatially by the 400 metre building block of urban design, but beyond which they have the freedom and ability to venture as the spirit moves.

Such places contain a number of performance features of which resources such as *walkscore.com* provide a preliminary snapshot of the diversity of uses currently near most addresses. Though it doesn't account for the quality or safety of the walking experience, it is a beginning point for constructing a more robust localism.

No performance feature is more important than the concept of a “Lifetime Neighbourhood”. A discussion paper<sup>xxx</sup> on this idea released by the Department for Communities and Local Government in the United Kingdom reflected a public interest in addressing the needs of an ageing population. The underlying notion however, not explicitly stated but implied, is that one could freely choose, if other aspects of life supported such a choice, to reside for their entire life in one place.

What would such a place look like? Firstly it would respect the new urbanist “popsicle test” so that within the generally accepted 300 metre radius young children are permitted to roam, they could safely go to a local store for a popsicle. Many eyes on the street<sup>xxxii</sup> would keep them within public view, roadways would be designed to allow them to safely navigate street corners, and parents could be confident in extending this small act of independence to their children.

Living places would be of multiple sizes, and purposes, so that leasing options, small houses, one storey residences, monster or heritage homes, group homes, and a range of other residential possibilities would be available to accommodate one’s needs at any stage of life. From a design perspective the idea of graduated density would provide for a more pleasing setting than the often stark “cheek-by-jowlness” of high rise apartments next to low density residences.

Public transit availability within the appropriate 400 metre building block structure, while respecting the limitations of public resources, would be as robust as the density of residence permitted. Likewise schools, retail, medical support, and workplaces, would be permitted, even encouraged, uses as part of a performance obligation.

A second aspect of an intentional localism founded on the building block of 400 metres is “walkable urbanity”. Garry Peterson describes the integrated character of green cities and walking as follows:

*“You can’t advocate for car-free or car-sharing lives if people need cars to get around, and the enticement to walk is key to making density wonderful, to providing realistic transit options, to making smaller greener homes compelling....The big thing I think falls out of most walkability formulas is a quality critical to the actual experience of walkability, and that’s the extent to which the place in which you live is connected (by walking routes and easy transit) to other places worth walking to....The true test of walkability I think is this: can you spend a pleasant half hour walking or on transit and end up at a variety of great places? The quality of having a feast of options available when you walk out your front door is what I am starting to think of as ‘deep walkability’.”<sup>xxxiii</sup>*

Dom Nozzi<sup>xxxiv</sup> expanded this idea to all the advantages of walkable urbanity including health, the serendipitous experience of meeting others in the neighbourhood (what Dan Burden describes as the benefits of “Bump Into’s Per Square Minute” – BIPSM), as well as reductions in noise, air pollution, and impermeable surfaces. Decrease in the latter would have a notable knock-on effect of mitigating heat island problems, and reducing the infiltration of excessive storm water into sewers and which, in its untreated form, often ends up in the very water bodies from which drinking water is drawn. “Walkability,” he says “exists when there is convenient access. The home is so close to a park, a grocery store, a movie theatre, places of work, nightlife and civic institutions that it is an easy, short walk to nearly all of life’s daily destinations. Car ownership must be optional if a walkable lifestyle is to exist.”



A third performance feature is “human scale”, the ways in which the built and natural environment meshes with our personal sense of safety, comfort and joy. Kirkpatrick Sale<sup>xxxv</sup> has described the relational size of buildings relative to the street (front yard, sidewalk, verge and roadway) and whether the humans walking within this setting experience either personal satisfaction, or feel so uncomfortable, that given a free choice, they would not return.

Less easy to define are additional characteristics of an intentional localism such as sustainability - a place’s resilience in the face of unexpected climactic or economic eruptions far removed from local control; a place’s conviviality - its hard to define charm, occasional mystery, and its amazing distinction<sup>xxxvi</sup>; a place’s ability to grow old with architectural dignity - encouraging users to support its regeneration; and finally its accommodation of a variety of unexpected, unusual, and necessary features once deemed unacceptable by local zoning by-laws but now encouraged within a broader performance criteria.

A 400 metre distance or radius was once a starting point for discouraging or preventing local activities beyond a narrowly prescribed allowance, reflecting a wish not to repeat a late 19<sup>th</sup> century urbanity mixing homes and factories. Now it is the starting point for a renewed urbanism as much because the nature of work, along with a declining industrial economy, has changed how we think about living places. With this is a willingness to experiment with a broader definition of neighbourhood amenities like the initiative described in Australia’s Sydney Morning Herald, that until such time as a local shopping centre could be built,

*“Shops can be set up in ordinary detached houses but must trade mainly in groceries, small goods, and convenience items and primarily serve the surrounding area. They must be at least 500 metres from shops and have a floor space of no more than 75 square metres.”<sup>xxxvii</sup>*

Associated with developments such as this is the promise of a new kind of locally-based economy, of which its fully realized form can only be dimly anticipated. Craft businesses ranging from small-scale technical designs to local foods, from pickles<sup>xxxviii</sup> to beer-making, are one such characteristic. So too is a move away from centralized, far away infrastructure solutions to a local delivery/treatment of waste, water and energy,<sup>xxxix</sup> with opportunities not only for local work but neighbourhood entrepreneurship. Just as new platforms of information technology and digital communication are already revolutionizing many aspects of business, they are starting to change how we think about and provide all kinds of services from medical to schooling, and energy to water.

The civic dimension of a move towards a 400 metre building block of urban design would be the opportunity to re-envision how local services are provided and the ways appropriately sized levels of local government could operate within an urban dominated world.

All of this permits a different kind of environmental response to the continuing increase in sinks and decrease in sources,<sup>xl</sup> founded on replenishing bio-diversity by lowering and even reversing impact at its source (in urban areas) and allowing threatened lands from forests to meadows, and woodlots to wetlands, to perform their eco-system service role more effectively.

What prevents any of this? It's often a sense of entitlement that, somewhat in the words of Oliver Twist, goes "Please, sir, I want some more", only in this case the demand is driven by profligacy not poverty; a belief that we have no obligation to meet the needs of others so "Not in My Backyard" is a reasonable response to change; and a preference for the soul-destroying character of single-use living environments in which there are few reasons to walk, and from which, as people age, they will have to leave just as they are becoming comfortable with the place.

With luck, market driven entrepreneurship, and appropriate policy we might create a world in which today's Pindars not only don't have to re-locate but would flourish within the honey-sweet calm of the 400 metre walk from their living place.

## Endnotes

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<sup>i</sup> Walter Wellesley "Red" Smith (1905 – 1982) was one of America's most widely read sports columnists.

<sup>ii</sup> 14, Davidson, A., *Stuck in the Loop*, New York Times Magazine, 22 January 2012

<sup>iii</sup> Saunders, D., **Arrival City** (Knopf: Toronto) 2010; Davis, M., **Planet of Slums** (Verso: London) 2006; Glaeser, E. **Triumph of the City** (Penguin: New York) 2011; Rae, Douglas (2003), **City: Urbanism and Its End** (Yale University Press: New Haven) 2003.

<sup>iv</sup> There is an acknowledged arbitrariness to this measure and a tribe's territory may best be described as a series of ranges within which hunters traversed and so might have been considerably larger than this formulation. It is worth noting however, in a Guest Blog to *Scientific American* by Tim De Chant on 16 August 2011, a tendency, as tribes grow in size, towards greater spatial density of occupation. A chart produced by anthropologists Marcus Hamilton, Bruce Milne and Robert Walker and ecologist Jim Brown shows 10 hunter-gatherers occupying a range of 5.6 square kilometres, 50 occupying a range of 10.8 square kilometres, and 100 occupying a range of 31.6 square kilometres. While such ranges would actually contradict the case for an increasing occupant spatial density per square kilometer, the exponent of 0.75 they use, would, if applied to the territory occupied by a tribe growing from 50 to 100 members, round out closer to 19 square kilometres. Each hunter gatherer tribe has different territory sizes as the researchers conclude, "Some hunt more, some gather more." Source: <http://blogs.scientificamerican.com/guest-blog/2011/08/16/hunter-gatherers-show-human-populations-are-hardwired-for-density/>

<sup>v</sup> c3, Bouton, K., *If Cave Men Told Jokes, Would Humans Laugh?*, New York Times, 28 December 2011. In her review of **How to Think Like a Neandertal** by Wynn and Coolidge (Oxford University Press, 2011), Katherine Bouton says of Neanderthals, that "...they were xenophobic, occupying a small territory from which they rarely strayed." In referencing Wynn and Coolidge's book she notes the likelihood that "...between one per cent and four percent of the genome of non-African humans is derived from Neanderthals. And distant matings may have played a role in human culture."

<sup>vi</sup> For the purposes of this discussion I am assuming about five minutes to walk 400 metres if that was the limit of one's walk, but that in a walk of 4000 metres the person's pace would adjust to the longer distance by moving at a rate of six minutes for each of the component 400 metres

<sup>vii</sup> "This is to be a feature of all human urbanism, defined by the distance people are prepared to walk on a regular basis, about 400 metres or a five minute walk. Traditional cities tend to develop as a series of neighbourhoods or "urban quarters" of around 800 metres, in diameter, or about 64 hectares. Studies of traditional cities around the world demonstrate the ubiquity of this pattern." From Hardy, M., *Renaissance of the traditional city*, retrieved online 4/5/2004 from [www.axess.se](http://www.axess.se)

<sup>viii</sup> 42, Pollowy, A.M., **Children in the Residential Setting** (Universite de Montreal, Centre de Recherches et d'Innovation Urbaines: Montreal) 1973

<sup>ix</sup> 10 square chains forming an acre, and 2.5 acres roughly equivalent to one hectare.

<sup>x</sup> The modern neighbourhood unit was conceived in the late 19<sup>th</sup> century for Ebenezer Howard's Garden City ideal neighbourhood and then developed in formal terms by Clarence Perry in 1923. He expanded on the idea in his

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work for the Regional Plan of New York in 1929. Further details were found in his 1939 book, **Housing for the Machine Age**. His neighbourhood unit of the 1920s contained about 5,000 people but by 1975 declining suburban densities had adjusted the unit population to 3,000 to 4,000 persons reflecting as well current elementary school size standards and smaller household sizes. The neighbourhood unit's traditional population of 5,000 conformed to most historic urban places. It was the size recommended by Aristotle, and was the standard for urban places throughout the Middle Ages. In its historic form it featured a diversity of economic life from markets to shops and practising craft specialists. Expanding small villages often stopped growing when they reached this size because it was the appropriate limit for supporting sustainable economic harmony with the surrounding countryside. Its continuing form is found in many small towns whose dependence on a rural hinterland remains. The neighbourhood unit was a deliberately sized planning structure. With the development of large cities in the last 200 years the neighbourhood unit size was a key building block of residential plans. Its population ranges from 3,000 to 10,000, but its ideal size was around 5,000 to 6,000. It was on a land mass generally less than 200 acres (80 hectares). Sources include: De Chiara, J., et al, **Urban Planning and Design Criteria** (second edition), (Van Nostrand Reinhold: New York) 1975; Copperman, A., Solow, A., **Planning the Neighborhood** (Public Administrative Service: Chicago) 1948.

xi Brody, J., *Communities Learn the Good Life Can Be a Killer*, New York Times, 30 January 2012

xii Beach, D., **Coastal Sprawl: The Effects of Urban Design on Aquatic Ecosystems in the United States**, Pew Oceans Commission, 2002, "When impervious coverage in the watershed reaches ten percent, water quality also suffers."

xiii Frum, D., *The best way for government to reduce oil dependence? Do nothing*, National Post, 25 February 2012. "We don't need to imagine anything heroic, like Los Angeles shifting from cars to subways — just an accumulation of small incremental changes: a consumer shift to hybrid cars or to smaller homes located closer to work. Not all the changes are obviously energy-related. Americans move away from central cities in part to find better schools. Improve schools nearer to where Americans now live, and fewer Americans will feel pushed to move to more distant exurbs to pursue something better. Build condo towers atop shopping and entertainment areas, and more people will choose to enjoy a lifestyle where they can walk to their fun instead of driving. If, however, people are told that today's prices are an outrage, that oil can be made cheaper again — well then they won't make the changes and investments needed to move to a post-oil future. They'll just cut back their spending on other things, and tough out today's prices."

xiv David Owen succinctly captured this idea in his article *Green Manhattan*, from the New Yorker magazine, 18 October 2004. With tongue planted firmly in cheek, but nevertheless reflecting an essential truth, he called New York City "...a utopian environmentalist community in New York State. For seven years, we lived, quite contentedly, in circumstances that would strike most Americans as austere in the extreme: our living space measured just seven hundred square feet, and we didn't have a dishwasher, a garbage disposal, a lawn or a car. We did our grocery shopping on foot, and when we needed to travel longer distances we used public transportation. Because space at home was scarce, we seldom acquired new possessions of significant size. Our electric bills worked out to about a dollar a day."

xv The Second International C.E.U. Congress 9-10 November 2006, Leeds, UK, Council for European Urbanism – Leeds Congress Report, retrieved from, [www.ceunet.org/leeds.html](http://www.ceunet.org/leeds.html), 20 January 2010

xvi Kuhn, T., **The Structure of Scientific Revolutions** (University of Chicago Press: Chicago) 1962

xvii LEED for Neighborhood Development Rating System, 31 October 2008, 1st Public Comment Draft

xviii *Parameters of the New Urbanism*, retrieved from:

[www.eng.mcmaster.ca/civil/sustain/designparam/dparameters1.htm](http://www.eng.mcmaster.ca/civil/sustain/designparam/dparameters1.htm)

xix S99-S117, Moudon, A. et al, *Operational Definitions of Walkable Neighbourhoods: Theoretical and Empirical Insights*, Journal of Physical Activity and Health 2006, 3, Suppl 1,

xx University of Notre Dame London Summer Program 2001 in association with Stiftelsen Byens Fornylse and The Foundation for Urban Renewal, Norway, Press Release 2 August 2011, [www.byen.org](http://www.byen.org)

xxi 33-42, Krizek, K., Johnson, P., *Proximity to Trails and Retail: Effects on Urban Cycling and Walking*, Journal of the American Planning Association, Vol. 72 Issue 1, 2006

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<sup>xxiii</sup> *Disparities in the Food Environments of New York City Public Schools*, American Journal of Preventive Medicine, Vol. 39, Issue 3

<sup>xxiv</sup> Sayers, S. et al, *Use of self-report to predict ability to walk 400 meters in mobility-limited older adults*, Journal of the American Geriatrics Society, 2004, vol. 52, no. 12, pp. 2099-2103

<sup>xxv</sup> Source: *Association of long-distance corridor walk performance with mortality, cardiovascular disease, mobility limitation, and disability*. AB. Newman, EM. Simonsick, BL. Naydeck, et al., JAMA, 2006, vol. 295, pp. 2018--2026

<sup>xxvi</sup> Britt, R.R., *Walk a Quarter-Mile or Die*, LiveScience Managing Editor, posted 02 May 2006, [www.livescience.com](http://www.livescience.com)

<sup>xxvii</sup> Kunstler, J. **The Long Emergency: Surviving the End of Oil, Climate Change, and Other Converging Catastrophes of the Twenty-First Century** (Grove Press; New York) 2005

<sup>xxviii</sup> A1, Kaufman, L., Zernike, K., *Activists Fight Green Projects, Seeing U.N. Plot*, New York Times, 4 February 2012.

<sup>xxix</sup> Florida, R. **The Rise of the Creative Class** (Basic Books: New York) 2002

<sup>xxx</sup> Putnam, R., **Bowling Alone: The Collapse and Revival of American Community** (Simon and Schuster: New York) 2000

<sup>xxxi</sup> **Towards Lifetime Neighbourhoods: Designing sustainable communities for all**, A discussion paper, Department for Communities and Local Government, November 2007, from [www.communities.gov.uk](http://www.communities.gov.uk)

<sup>xxxii</sup> Jacobs, J., **The Death and Life of Great American Cities** (Random House: New York), 1961

<sup>xxxiii</sup> Peterson, G., *Deep Walkability for Sustainable Cities*, 11 January 2010, retrieved 14 January 2010, <http://rs.resalliance.org/2010/01/11/deep-walkability...>

<sup>xxxiv</sup> Nozzi, D., *Measuring Walkable Urbanity*, retrieved 22 September 2009, [www.walkablestreets.com](http://www.walkablestreets.com)

<sup>xxxv</sup> Sale, K., **Human Scale**, (Coward, McCann & Geoghegan: New York) 1980. Sale argues. "...the most successful residential streets, those that satisfy in some indefinite way as you walk or drive along them, are those with houses set back from the street 50 feet or so; farther than that and the buildings tend to get lost in the background, nearer than that and they give a sense of crowding, of looming." (Sale, 172); Burden, D., **Street Design Guidelines for Healthy Neighborhoods** (Local Government Commission: Sacramento) 1999). According to Burden the concept of the enclosed street or outdoor room derives from the time of the Greek Empire. "...traditional street designers have achieved this comfortable sense of enclosure by giving streets a ratio of 2:1 to 3:1 width (from building to building) to building height... People walking along the street like to feel that they can "reach out and talk to someone" sitting on the front porch, which is possible when porches are within 20 feet of the sidewalk." (p. 29)

<sup>xxxvi</sup> Distinction, charm and mystery are part of a hard to define "metaphysics of place" of which only the beginning features can be described but from which a more robust description might be mounted. Kevin Lynch for instance explored the look of cities, its importance and changing quality as something that is seen, remembered and delighted in. From Lynch, K., **The Image of the City** (M.I.T. Press: Cambridge) 1960. Criticisms of Lynch's pioneering work include its class bias in favour of white, middle-class, able-bodied males. Others argue for a consideration of symbolic, historical and cultural meanings of places to enhance an understanding of spatial aspects of city design, including **Cognitive Mapping and Social Change 1**, retrieved 10/5/2004 from [www.surrey.ac.uk](http://www.surrey.ac.uk) and Jackson, J.B., **The Necessity for Ruins** (University of Massachusetts Press: Amherst) 1980, p. 17 "The search for sensory experiences of the world as the most reliable source of self-knowledge is more insistent than ever". Part of this growing recognition of the layers of meaning contained in the experience of the city was displayed by The Canadian Centre for Architecture in its main galleries from 26 October 2005 to 10 September 2006, through a major exhibition, *Sense of the City*, "dedicated to the theme of urban phenomena and perceptions which have traditionally been ignored, repressed, or maligned." The show's intention was to challenge the dominance of the visual in the urban environment, and as such, in the Centre's words (retrieved from its web site January 1, 2006), "the exhibition proposes a re-thinking of latent qualities of the city, offering complex analyses of the comforts, communication systems, and sensory dimensions of urban life—thus advancing a new spectrum of experience and engagement."

"The most banal and ubiquitous phenomena," remarked curator and CCA director designate Mirko Zardini, "like asphalt, the second crust of the earth, cacophonies of everyday sounds and smells, competing light effects, manipulations of temperature and climate, heat and cold, the junk and graffiti that disfigure buildings and streets, as well as the subtle, mostly hidden signs of regeneration in the urban environment, will be presented through artefacts and images that collectively suggest the rich array of urban experiences and behaviours lying just beyond traditional interpretations of the city." The Centre further stated, "The communicative and symbolic character of

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the contemporary city has until now resided primarily in visual phenomena. Smell has been systematically erased from the urban domain in the name of hygiene, the outcome of a process which had begun by the 14th century. A barrage of electronic sounds and ambient noise today pervades the social space once reserved largely for verbal communication, driving pedestrians and motorists to retreat into controlled personal soundscapes. Tactility is largely unexplored as a means of navigating and understanding the city, while continuous efforts are made to neutralize or conquer variations in temperature. *Sense of the City* explores overlooked modes of perception, offering a complex analysis of urban phenomena and proposing a new 'sensorial' approach to urbanism. *Sense of the City* will be presented in five interrelated sections focusing on fundamental sensory conditions and technological interventions in the urban environment: *nocturnal city*, *seasonal city*, *sound of the city*, *surface of the city*, and *air of the city*. The materials exhibited will include drawings, photographs, artefacts, maps, printed ephemera, models, installations, videotapes, projections, recorded sounds, and odours."

The subtlety of this discussion about the experiences associated with place was finely described in a special issue of the British football magazine, *When Saturday Comes*, titled **At the Match Special**, WSC May 2005, p. 4, "While there have been significant and well acknowledged material gains, there are five aspects of the experience of going to the match, less tangible but important none the less, that have been lost: *visual purity*, *physical density*, *individuality*, *unpredictability* and *anonymity*." One of those features profiled was the way fans arrived at the match particularly those who followed the path through old working class neighbourhoods, p.16, "Because walking to the match...is the one link – the only link – between the Saturday afternoons of our leisure-rich, multi-optioned selves and the ones of our flat-capped, rattle-twirling, just-got-out-of-the-factory ancestors, and, for that reason alone, it must be preserved."

xxxvii Urban Ecology Australia, (Neighborhoods), retrieved 24 December 2010, [www.urbanecology.org.au](http://www.urbanecology.org.au), item from Sydney Morning Herald 2002.7.19

xxxviii Davidson, A., *It Ain't Just Pickles*, 19 February 2012., New York Times Magazine

xxxix A Guide to Green Infrastructure for Canadian Municipalities, FCM Centre for Sustainable Community Development, from Moffatt, Sebastian, **Closing the Loop: A Guide to Green Infrastructure for Canadian Municipalities** (Federation of Canadian Municipalities: Ottawa) and the Sheltair Group, 2001

<sup>xi</sup> The rebound effect in which energy and environmental enhancements cause increased environmental harm is described by David Owen in *The Efficiency Dilemma*, New Yorker Magazine, 20 December 2010. "The problem with efficiency gains is that we inevitably reinvest them in additional consumption. Paving roads reduces rolling friction, thereby boosting miles per gallon, but it also makes distant destinations seem closer, thereby enabling people to live in sprawling, energy-gobbling subdivisions far from where they work and shop." Refrigeration, satellite radio, and general energy consumption fall into the same conundrum of modern life.