Some remarks on the founding and development of Louvain-la-Neuve, the only new town of Belgium

Dr, Dr h.c. Pierre LACONTE
Co-author of the Louvain-la-Neuve development plan
President, Foundation for the Urban Environment

Abstract
The case history of the new university town of Louvain suggests how – under severe economic constraints – a new town could be developed according to sound ecological principles. It has been developed by the University of Louvain on a previously agricultural and forested site of 920 ha, according to a master plan approved in 1970 and implemented from 1972. The functional and environmental lessons of this experience have been analysed in a 2009 book that includes contributions from the main players in this experiment. The present contribution summarises some of its features:

- Fully pedestrian local transport, entailing less road investment in the first phases of development.
- Energy savings achieved through high density–low rise buildings and compact urban development along a central development spine, which also reduced land-take.
- Permanent preservation of forest land (200 ha) as an ecological reserve.
- Overall landscaping aimed at maximising bio-diversity.
- Dual water collection system: storm-water collecting reservoir treated as a lake.

1. Location and land acquisition
Central Belgium is a highly urbanised area, Brussels being the centre of a metropolitan region including the cities of Antwerp, Ghent Bruges and Louvain to its north and the cities of Charleroi, Nivelles, Ottignies and Wavre to its south. Most of them are within commuting distance of each other (LACONTE 2007).
Within central Belgium, the historic town of Louvain is the ancestral seat of the university, one of Europe’s oldest (1425). The languages used in teaching included French and Dutch until 1968. In that year the French-speaking university had to leave the city because it was located in the Dutch-speaking part of the country, and to find a new location in the French-speaking part, in a rural area 27 km south-east of Brussels. The university board, led by Prof. M. Woitrin, decided to embrace the model of traditional university towns, rather than building an isolated campus, making use of the university’s annual grants as equity.

For this purpose the university bought ca 920 ha of agricultural and forest land in a rural area close to the Brussels-Namur road (N4), sited on the edge of the municipality of Ottignies, with the strong support of its mayor Y. du Monceau de Bergendal and its municipal council. The central part of the site was set aside for urban development, and the forest land to the north was preserved. The overall master plan and architectural coordination was entrusted by the university to the Groupe Urbanisme-architecture, comprised of R. Lemaire, J-P. Blondel and P. Laconte (LACONTE 2009).

![Figure 1: The 920 ha of land acquired by the university in 1969 (Domaine de l’université). The arrow shows the anchoring of the new town on the existing N4 road infrastructure (the E411 motorway did not exist at that time). Urban development (Aire urbaine) was restricted to the area in grey. The Northern area in green (Bois de Lauzelle) was reserved for forestry. Part of the area south of the urban development became a research and development park.](image)

### Planning features

#### 2.1. Planning for uncertainty (resilience)

A central linear pedestrian spine – a concept implemented by the University of Lancaster among others (EPSTEIN 2009) – allows a step-by-step development, with automobile access to buildings and parking placed outside the spine, with occasional underpasses. Each phase of development included a mix of urban functions, allowing them to function immediately, unhindered by works on extensions.
Figure 2: Linear development, along a pedestrian spine, allows the most flexible form of urban development ("stop and go"). In the case of Louvain the initial development started from the existing N4 and extended along the spine from east to west, an adaptation of the linear development diagrammed by G. Epstein in 1964 for the University of Lancaster (EPSTEIN 2009).

2.2. Planning for pedestrian places and saving infrastructure investment.
The pedestrian option permitted savings to be made in land take and the cost of initial infrastructure investment. The diagram shows the multiplier of land consumption which is generated by automobile transport and related parking.

Figure 3: Land consumption according to transport mode.

The concept of a main central pedestrian spine was translated into the actual urban design as a string of public spaces, starting from the existing road to the east of the site. It came into operation in 1972 (in the eastern part of the picture), and was later extended to the railway station opened in 1976 (in the west), to the future centre of the city, and to its extension towards the western part of the site. This string of spaces was compared with the old Florence string of piazzas by Piet Lombaerde (LOMBAERDE 1977 & 1978).

The railway station provides a direct rail link to central Brussels in 35 minutes, and will be expanded as part of Brussels’ new fast commuter rail network (LACONTE 2014). Car access to buildings and parking is placed outside the spine, with some underpasses. The property development of the entire university-owned site (920 ha) is achieved through long term leases (75 to 99 years). This continuity of ownership aims at ensuring that the land owner is able to preserve its initial planning objectives in the long term (LACONTE 2013).
The centre of the first phase was the Science Library, an iconic concrete building seen as the cathedral of a university town, with its public square built above one of the automobile underpasses. It is a place for social gatherings, with university buildings, shops and restaurants conceived by the architect A. Jacqmain (JACQMAIN 2009).

![Figure 5: The library piazza. This concrete and wood library piazza is the main gathering place in the first phase. It includes access to an underpass and underground parking.](image)

**Figure 4:** The first phase pedestrian spine. Arrows indicate the starting point at the existing N4 road, the string of public spaces, the location of building extensions and parking lots, the underpass and the railway station.
Figure 6: Parking treated as a public garden. All outdoor parking spaces are planted with different tree species in order to attract different kinds of birds, as a tribute to biodiversity (landscape architect J.-N. Capart). They have become an ornithological reserve.

A new station was built by the national railway company SNCB/NMBS in 1976. It is entirely below ground, in order that it can be covered at a later stage. The full development of the spine includes a central slab covering the lower part of the site. Besides the railway tracks it hosts access by car, underground public parking, delivery services and storage.

2.3. The central slab

The principle diagram shows how the slab uses the lowest part of the dry valley (ca 10 ha, i.e. ca 1 % of the site). The ground remains the property of the university, while the infrastructure and buildings are leased for up to 99 years.

Figure 7: Diagram of the slab (principle). The slab is covered by offices and apartments, with shops on the ground floor, surrounding a market place and a commercial streets network that can be considered as “architectura minor”, in contrast to the iconic buildings (such as the rail station) which are considered as “architectura major”. The underground slab was financed by its users (the rail and parking operators), by renting storage space, and by leases on the space above it. No speculative high rise was included in the master plan.
Streets are narrow and mostly canopied to save space and reduce infrastructure costs, as well as to protect pedestrians from rain and sun. Plots are kept small whenever possible to allow architectural diversity and to facilitate access by small contractors.

Courtyards are open passages, whenever justified, for easier access to university or public buildings. High-density low-rise buildings with interlocking courts and piazzas replicate the gathering places and colleges of traditional university towns (LACONTE 2009).

The slab hosts numerous public spaces, large and small, planted with trees. Shops, cafés and restaurants adjoin pedestrian spaces while automobile access, deliveries and parking are underground.

2.4. Residential and service development in neighbourhoods along the main spine

On each side of the pedestrian spine and of the central slab, residential neighbourhoods have been built by a range of private investors, in line with the ecological principles of the 1970 master plan. Among other things, this required the predominance of small plots (100 to 200 m2, including a terrace house and small garden) and small apartment buildings. These have proved very popular (MASBOUNGI 2012) and have attracted a diverse population. This is increasingly composed of people attracted by the environmental variety and the cultural activities generated by the university, rather than university employees or resident students. Today the majority of the town’s 11,000 permanent residents are not connected with the university.

2.5. Water management

A key feature of the planning of Louvain planning is the conservation of the Ottignies plateau’s water resources. A dual water collection system has been installed in all buildings. Only waste water goes to the water treatment plant. All storm water is transferred to an artificial lake that serves both as a reservoir and an amenity.

The water level varies according to the amount of rain.

Pre-monitoring of water entering the lake and oxygen provision allows the fishing water quality to be checked (de BACKER 2009).

This has become more pertinent than ever, at a time of increased resource awareness.
An aerial view of the city, taken in 2003, shows the high-density low-rise style of development. Further extensions close to the lake are under construction (2014).

![Image](image.jpg)

**Figure 9:** View of the lake (photo credit: Wilhelm & Co).

3. **Learning from the Louvain case**

3.1. **A historic switch of perspective from the 1960s’ functionalist paradigm**

Having decided to build a new town, the university board decided in 1969 to hire an established international planning firm (Victor Gruen Associates, Los Angeles) to draw up its master plan.

The Gruen master plan, which was based on functional considerations, included a large central air-conditioned mall surmounted by high-rise buildings, in a fashion that was current in the sixties. All infrastructure had to be built before any part of the plan could be brought into effect service, entailing a large up-front investment cost.

A similar approach had been tried on many post-war university campuses (such as the University of Essex in the UK) and in new towns all over Europe, e.g. Cumbernauld (UK).

Fifty years after its inauguration, the University of Essex campus inspired this comment: “An expansion of universities has not led to much enlightened architectural patronage. Rather the opposite, in fact. The (Essex) university visual trope remains those dogged dreaming spires” (BAILEY 2014).

As for Cumbernauld, its fate is described as follows in Wikipedia (http://en.wikipedia.org/wiki/Cumbernauld_Town_Centre): “The intended core of Cumbernauld remains the Town Centre buildings, all of which is essentially contained within one structure, segmented into "phases", the first of which was completed in 1967 (...). Designed to be a commerce centre, an entertainment and business venue and a luxury accommodation site, it was widely accepted (...). Unfortunately, the town never developed to its planned size, and the town centre has never had the life envisaged. Wealthy occupiers for the centre's penthouses never materialised and some now lie empty and derelict”.

The Gruen master plan was rejected by a large majority of the university community when it was presented in October 1968. At that point the university board decided to entrust the development of the new town to a team recruited in-house. This team, called “Groupe Urbanisme-Architecture” was jointly headed by a well-known specialist on old towns (R. Lemaire), an architect-planner (J-P Blondel) and an economist (P. Laconte).

The new planning team adopted a step-by-step development approach. It took its inspiration from university towns throughout history, from medieval universities such as Cambridge, Heidelberg or Louvain, and from the garden cities developed in the UK in the early 20th century (Letchworth and Welwyn Garden City). It relied on centuries of experience of successful multifunctional cities and
neighbourhoods, rather than on a few decades of functionalism, with its spatial separation of functions generating the need for motorised transportation to linking them.

The lesson from this switch by Louvain University has been the proven possibility of minimising building costs while maximising diversity and quality of life, and saving precious land and water resources for future generations.

Land was considered as a major resource to be used with thrift. Priority was therefore given to pedestrian and bicycle mobility within the town and to public transport for mobility outside it. Water management was handled in the same spirit: all storm water was collected into a reservoir treated as a lake, with variable water level.

3.2 Perspectives of the Louvain new university town after 45 years of development.

Fortunately the small scale and diverse neighbourhoods of new Louvain have developed into a robust urban fabric, in line with the development plan.

The slab proved a successful magnet for private service investment. Unlike the Cumbernauld slab that was built before the indispensable feeder population had appeared, the Louvain slab was supported by the actual users of the station, the staff and students of the university, and the inhabitants of the neighbourhoods. This led in 2005 to a major extension in the form of a large shopping mall directly linked to the railway station. This private shopping and leisure mall now has a patronage of 8 million visitors per year and is preparing to double its size by using the airspace above the rail tracks.

The neighbourhoods developed in line with the university and urban growth, attracting cultural investments (entertainment) and a private museum devoted to Hergé, the creator of the character Tintin, which is also located along the spine, close to the railway station (Arch. Atelier de Portzamparc).

The university’s science faculties have attracted a peripheral science park of 230 ha.

The railway station itself has been designated by the Belgian national railways as the terminus of the south-east line of the new Brussels commuter rail system (“RER”), including a new parking complex. This evolution may be a mixed blessing, as it will generate speculative development and an influx of rail commuters coming by car from surrounding municipalities and not related to the population of the new university town (BARRAS 2013).

3.3 Replicability of the Louvain experiment

Louvain’s 1969 pedestrian concept can be considered as a pioneering experiment which has been replicated in a number of mixed use pedestrian streets all over the world, including China (e.g. pedestrian streets in Beijing, Shanghai, Wuhan, and Chongqing).

The collection of storm water in reservoirs treated as lakes with a variable water level has been adopted in a large number of cities in neighbouring countries, e.g. at Billancourt, near Paris. Its large linear park (Trapeze) is inundated in the rainy season and becomes a lake (BAVA 2014).

In monsoon areas this land-water interface has been successfully applied as a way naturally to absorb heavy rain and avoid floods e.g. in Binshan-Ang Park in Singapore (HAUSER 2014). The celebrated Duijiangyan ecological anti-flood scheme in Sichuan (256 BC) draws upon the same philosophy of ecological wisdom (WEI-NING 2014).

The originality and replicability of Louvain new university town was recognised by its receipt of the Sir Patrick Abercrombie Prize for town-planning or territorial development awarded by the International Union of Architects (UIA).
References

1. (BARRAS 2013), Barras, Ph., « On doit repousser les avances des promoteurs » (developers should be contained), interview in Espace-Vie, September 2013.


3. (BAILEY 2014), Bailey S. « The only way is Essex », The Spectator, 1 November 2014.


