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To walk as we listen to the city Rachel Thomas - 2005



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TO WALK AS WE LISTEN TO THE CITY¹

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Cities are built around the sense of sight, for those who can see. Since the XIXth century, and still today, this obviousness comes down through many work of literature and urban sociology about the mobility of the pedestrians in town. From Siegfried Kracauer to Georg Simmel, from Walter Benjamin to Lincoln A. Ryave and James N. Schenken, to walk in the city would almost exclusively request the visual attention of the pedestrian. But in all our towns and cities there are men and women, deprived of the sense of sight, going about their daily lives. How do people with impaired sight operate? What can we learn from them about the role of the senses in our cities and the process of getting about?

The aim of this article is not to focus on sight impediments. Experimental and cognitive psychology has been working on the subject for a long time. Rather we want to address the following question: how do the perceptible features of urban space (sound, sight, touch, hot and cold, etc.) contribute to the way we orientate ourself and we walk in the city ? Work on the mobility of the sight impaired has provided some answers to this question. On the one hand it reveals the perceptive skills (sound, visual, tactile, kinesthetic...) of pedestrians, notably the "affordances" (Gibson, 1986) of the perceptible urban environment. From this point of view movement around a town is initially considered as a process of adjustment between the skills of the pedestrian and the sensory features of the surround space. It is then defines as a process of anchoring of the pedestrian in urban public space : walk, in all its forms (to walk, run, stroll, cross...), indeed engages the pedestrian with the perceptible urban environment. In Return, this « anchoring » of the pedestrian takes part of the construction of the place, of the ambiance and of the city. The objective of this paper is to argue this position and notably to point out a relation of co-determination between the perceptible urban environment and the walk. So, the present paper is divided into three main parts : a presentation of an empirical method for gathering data on pedestrians' non-visual perception; a presentation of tactics for deciphering urban morphology; and lastly a consideration of the tactics adopted by the sight impaired to avoid obstacles. To conclude we shall consider the issue of the intersensory nature of the walk in the city and the merits of sense-oriented thinking in architecture.

¹ This paper is derived from: THOMAS, Rachel (1996). *Les conduites piétonnières des non-voyants en ville*. Mémoire pour le DEA "Ambiances architecturales et urbaines", Grenoble, Cresson, 203 p ; THOMAS, Rachel (2005). *Les trajectoires de l'accessibilité*. Bernin, A la Croisée, Collection Ambiances, Ambiance, 183 p.

1. Gathering pedestrians' non-visual perception in cities *in situ*

The primacy granted to the visual experience in our contemporary societies makes us forget that the daily experience of the city engages the whole of our senses and the perceptible features of urban space. If the acoustic component of the urban environment causes a pollution which it is appropriate to understand, it must be studied like a component of the landscape of our cities and like an element determining of the walk of the pedestrian. The remark is true for the whole of the perceptible features of urban space. It arises methodological problems. How are we to gain access to the various sensory features of the urban space and the ways they are perceived *in situ*? How are we to observe and describe the process of adjustment between pedestrians' tactics and the perceptible environment?

Our method is based on an adaptation of the "commented route" method (Thibaud, 1999). Its aim is to "obtain reports on perception in movement, combining all perceptible features. With the commented route method we ask passers-by, regardless of whether they are regular users of the place or not, to travel a particular route in an urban environment and describe, as accurately as possible, what they perceive and feel as they proceed. Their comments, which are recorded then explored briefly in semi-directive interviews, are analysed to identify phenomena belonging to a shared experience. It is the redundancy and recurrence of similar descriptions made by different observers that demonstrates a community of perception for a given site" (Thibaud, 1999). In view of the specific target group with which we are working we made several adjustments to the survey protocol:

- Sight-impaired pedestrians need to memorise places and various points on which they take their bearings on routes used daily. The places along routes taken by the blind and sight impaired were necessarily selected from among other familiar routes,
- Their perception of the various spaces and the perceptible environment, much as their motive capacity, varies from one person to the next depending on their disability. Our analysis of the results of the survey makes allowance for individual disabilities, notably partly or completely impaired vision².

Lastly we proposed four route protocols to the sight impaired taking part in our study: one person following a customary route; two people following a route familiar to one but not to the other; taking pedestrians on an unknown route selected by the person conducting the survey; and guiding the investigator, temporarily sight impaired, along a route taken daily. Each person was asked to provide a detailed description of the spatial elements they perceived and any actions undertaken along the route. The aim of the four protocols was to increase pedestrians' ability to express their experience in words, in particular to describe the various perceptible elements of the environment enabling them to progress, find their bearings, decipher the urban morphology, avoid obstacles and cross roads. We identified a total of 15 routes in Grenoble, from day, in estival period. On each occasion participants were provided with a dictaphone to record their descriptions and comments. The investigator or a third party accompanied them and, if necessary, prompted more descriptive input. At the end of each walk we carried out a 30-minute semi-directive interview at a place along the route. The aim of this discussion was to gain a clearer picture of the various skills involved in walking the route, the obstacles and help afforded by the space and the manner in which each place was perceived.

² Blindness (cecily) is defined as the condition of any person whose central sight with their best eye, after correction, is less than or equal to 1/20 of normal sight. Impaired vision (amblyopia) corresponds to a value of 4/10 for the best eye.

2. Tactics used by the blind or sight impaired to decipher urban morphology

After analysis of the resulting corpus of data we can suggest several clearly established findings regarding the way in which people with sight disabilities decipher the urban morphology. In practical terms the form and topography of places are registered on the basis of the sensory data they provide for listening, seeing, feeling and sometimes touching. More specifically, if the route taken by pedestrians with no disabilities conforms to a logic of representation (Lynch, 1976), the route taken by partly or completely sight impaired pedestrians conforms to a logic of effectuation (or accomplishment). It is based on the body and senses reading the urban space.

Let us take an example: how do sight-impaired pedestrians distinguish between a large urban highway, with several lanes of traffic, and a busy street in the centre open to motor vehicles. The spontaneous response is to suppose that they have particularly good hearing enabling them to distinguish clearly between the noise of road traffic and the conversation of passers-by. There is certainly no doubt about the auditory capacities of the sight impaired but they also know how to configure space. More specifically pedestrians select perceptible data from the environment mobilising their senses then organize them before acting. The work of configuration is done as part of the spatio-temporal dynamic of movement. It reflects the ability of sight impaired pedestrians to overcome the obstacles related to their disability by using sensory data from the environment.

Perception of the urban highway, and its recognition as such, is not just a question of hearing the noise of the vehicles. This perception is certainly of an auditory nature in the sight impaired, but it is discriminatory too. The urban highway is primarily characterised by a *dilatation effect*³: sounds (beat of steps and repeated tapping of the stick on the ground) produced by the sight impaired as they enter the site are reflected indirectly by the walls of buildings. Pedestrians realise that they carry further and that they can be clearly identified. Picking up the dilatation effect provides the sight impaired with an indication of the propagation area across which they are moving. It gives them an idea of the built-up dimensions of the site, enabling them to distinguish between urban highways and busy city streets. Furthermore the dilatation effect facilitates the sight impaired's work of sound marking and helps to keep them on a straight course. The dilatation effect combines with a *wave effect*. Once they are immersed in a place the sight impaired perceive road traffic as following a curve of intensity, with a similar shape to a wave and its ebb (crescendo, peak, break in the rapid or gradual sound, decrescendo). These sound cycles, interspersed with intervals of several seconds, correspond to vehicles stopping and starting at traffic lights. Most pedestrians treat this sound as an additional nuisance, but for the sight impaired hearing a wave effect not enables them to work out what is going on in a particular place but also to find their way through it. Those with partly impaired sight proceed differently. Given their cognitive and auditory abilities they pick up the wave effect but can also decipher the

³ The notion of a "sound effect" is a theoretical tool developed by JF.Augoyard at Cresson in 1995. Its purpose is to characterise the many ways in which citizens reorganise everyday physical sound data, depending on the context and local situation. More specifically it defines "interaction between the physical sound environment, the sound environment of a socio-cultural community and each individual's inner soundscape" (Augoyard and Torgue, 1995).

form and dimensions of the surrounding space thanks to their visual memory. Recalling previous experience provides guidance on how to read a particular place.

Identifying a busy city street, not part of a pedestrian precinct, is a further indication of the hearing skills of the sight impaired. For the purposes of the survey most of the streets selected were located in the old town centre of Grenoble. They display various specific physical characteristics: symmetry and laterality of façades, narrowness and length of streets. On entering the site, the laterality and symmetry of the streets are perceived by picking up a *reverberation effect*. This effect takes the form of sound propagation of varying length once the source has stopped. As a result, in addition to the sound itself pedestrians hear the sound bouncing back from surfaces making up the surrounding space. The dimensions of the place are identified through the dull tonality of reverberated sound. Busy streets result in a *narrowing effect*. This sound effect is translated in a feeling of coming closer to the edge of a given space as pedestrians listen to the echo of the sound they themselves are making. The narrowing effect is the opposite of the dilatation effect.

On each occasion the sight impaired pedestrian "acts" on their perception of spatial morphology by becoming a producer of sounds (beat of steps and repeated tapping of the stick on the ground, whistling...) and by taking advantage of the sound qualities of a given place. Pedestrians without disabilities behave in the same way but have greater difficulty expressing their experience in words (Thomas, 2005). The reason for this silence is probably to be found in Western culture and once again the primacy it accords to the sense of sight. It is nevertheless fair to say that any movement depends on a process that gives shape to the perceptible public urban space. This configuration activity proceeds in three times : selection of perceptible qualities necessary to orientate and to walk, combination of these qualities to give them an operational character, finally incorporation of these perceptible qualities in the movement. This last phase of the activity of configuration is observed from a certain number of "behavioural indices" (Thomas, 2005) as modification of the trajectories, variations speeds of walk or adjustment of the body language. From this point of view, this configuration activity involves at one and the same time the physical and sensory qualities of a place, a pedestrian's steps, their body and their perceptive attention.

3. Tactics used by the blind or sight impaired to avoid obstacles

The tactics for avoiding obstacles are based on the same rationale. On the other hand they vary depending on the disability and bring into play several sensory features. Three types of obstacle need to be avoided by people with impaired sight when walking through a town : small immobile obstacles (bollards, signposts, flower tubs, etc.), bulky immobile obstacles (bus shelters, telephone boxes, public bench, etc.) and moving obstacles (cyclists, pedestrians, roller-skaters, etc.).

Small immobile obstacles represent a danger and a common source of accidents for people with sight disabilities. The reason is that this type of obstacle can only be detected with a stick, appearing suddenly as they move forward. Avoiding such obstacles affects the linearity of the course taken, the continuity of movement and sometimes the body integrity of the person. To overcome this problem the sight impaired memorize their daily route and the location of street furniture. This brings into a play a cognitive skill. Contrary, the presence of bulky immobile obstacles are more of a bother than a real obstacle for such pedestrians. Their detection requires *intersensory skills*, i. e. which imply two different perceptible feature at least :

- For the sight impaired the key skill is *auditory-tactile*: the perception, at a distance, of this type of street furniture is based on sound. The object's mass changes the acoustics of the environment, creating a filtering effect. The obstacles constitutes a screen to the sound signal sent by sight impaired pedestrians when they tap the ground with their stick. When it is deflected by the object, the spectral envelope of the sound is changed. When the sight impaired pick up this sound it tells them about the physical characteristics of the obstacle. This auditory skill goes hand in hand with a tactile skill. The sight impaired are particularly sensitive to heat and air movements. They can thus detect air flows caused by their own movement and reflected back by objects in the vicinity. They refer to a sense of contact around their forehead, caused by variations in the pressure on their skin as they approach bulky obstacles. Psychologists refer to this skill as "facial perception" or "obstacle sense".
- The partly sight impaired rely more on a *visual-tactile* skill. Poor sight does not alter the perception of contrasting colours and brightness. The partly sight impaired can consequently detect bulky obstacles because of the contrast in colour that it causes in their line of sight. Having identified it, they can find their way round it with their stick.

Lastly, detecting moving obstacles brings into play the auditory skills of the sight impaired. It is the sudden change in the tonality of the sounds they hear or the arrival of a new sound that alerts them to a potential danger. At the time of the investigation, blind people of birth anticipated the trajectory of the urban buses which skirted the way that we borrow by differentiating *de auditu* noise of the buses' engines rolling to the gasoline of those rolling to gas. Once made distinction, it was easy for them to choose the ways which was not borrowed by the bus and so to walk without danger. The tactics of the pedestrian, who anticipates *de auditu* the speed and the trajectory of a vehicle before crossing, corresponds to the same logic : it's the variation of the level and of the tonality of the sounds which alerts him nearest arrival of a moving obstacle and wich authorizes (or not) him to cross.

Contrary to a generally accepted idea, none of these skills come into play in isolation. Each one combines with others to make it easier for pedestrians accurately to register their surroundings and get around town. Such skills are based on the perceptible environment of the public urban space. This perceptible environment is neither neutral, homogenous, nor single-sensed from the point of view of the pedestrian. It has an "effective motor" in the sense that it presents "holds" – for sight, hearing, touch and air displacement – to walk. It is their combination between skills of the pedestrian and the perceptible feature of urban space makes it possible to pass the disabling situations of mobility. But, because for each sense corresponds to a particular form of behaviour and way of apprehending space, these "holds" differently models the action and the perception of the pedestrian.

Conclusion

In the introduction of this article, we affirmed to have recourse to the example of the mobility of the sight impaired to choose how the perceptible feature of urban space contribute to the way we walk. What can we say now ? With which general information can we conclude ?

The first precisely relates to the sensory nature of walk in urban public space. From our point of view, walk is a synesthetic activity which requests senses of the pedestrian and perceptible feature of urban public space. Through the example of mobility of the sight impaired, we show in what walk requests as much the capacity of listening of the pedestrian, its sensibility to heat or to the movements of the air as the sound, tactile or thermal environment. Precisely, walk relies on a process of co-determination between the action of the pedestrian and the perceptible "hods" of the sensory environment. More than a simple translation of people between a point A and a point B or a combination of physical and biological process, walk generates a "carnal reports" between the pedestrian and the city.

The second contribution of our work more directly relates to the field of the design and architecture. Making allowance for the city's practical perceptible dimension changes the way we think about urban design and calls into question the primacy given to the sense of sight. It also upsets the manner in which the topic of accessibility is addressed in design. At present, to make our towns and cities accessible we flatten the ground and eliminate obstacles. This approach to design negates pedestrians' perceptive skills and the perceptible features of urban space. It sometimes produces routes that favour some people but hinder others. Focussing debate and design on the perceptible dimension of the urban experience would undoubtedly enable us to address disabilities in new ways and re-appraise the role played by the environment in the creation and the appropriation of the city (Thomas, 2005).

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