RETRACING THE EVOLUTION OF FOOD PLANNING TO IMAGINE A RESILIENT FOOD SYSTEM

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Today the division between city and country is becoming increasingly more indefinite and it is not possible anymore to consider the rural landscape apart from the urban one. Observing food system dynamics can be a very useful tool to survey territorial dysfunctions and spatial transformations in their complexity. From the places of production, to the ones of consumption it involves built spaces and infrastructures; it is a complex system of dynamics that changes the surrounding environment in each phase of the chain. In the evolution of European urban design and planning we can recognize several experiences in which food had a role in the formulation of new cities' visions, during the Twentieth Century. These experiences arose from very different premises and brought very different results, both from the theoretical and the practical points of view; but all of them, in different ways, can teach us something in terms of integrating food and productive dynamics inside the urban system. The paper will describe last century experiences from the food system point of view, to understand how those stories anticipated some ideas related to urban metabolism and some approaches towards a more efficient and resilient territory.

Keywords
food system, food planning, urban design

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INTRODUCTION

In 2000, two American planners, Potukuchi and Kaufman, in their article "The Food System: A stranger to planning field", highlight the absence of food issues inside the field of planning, both at theoretical and at the professional level[1]. One of the main reasons, say the planners, is the historical contraposition between urban and rural environment. This strong separation, physically defined through centuries, is not visible anymore, in the contemporary territories: the limit between the two contexts has almost disappeared today and we should consider the territory as a complex environment in which human activities and settlements, built up and open spaces, natural and anthropic landscapes coexist. In this sense the food issue is crucial in new planning approaches: food is something vital for communities, it crosses the entire territory, it has be considered as a system that should be planned with the territory itself. Since the article was published, the issue of food arises inside planning and urban design debate, driving the development of a new approach in the field: Food Planning is today a defined theory and it inspires researchers and designers in finding new ways to experiment strategies to plan the food system[2].

This milestone has to be seen inside a wider context that finds its roots in the urban planning field itself - such as the theory of Urban Metabolism - but also in other disciplines such as ecology and sociology, as demonstrated by the appropriation of the term "resilience". The Urban Metabolism theory, emerged in the Sixties and defined in the Seventies by engineers and ecologists, indicates cities as "a parasitic ecosystem in which materials and energy flow through urban space", as Odum says, and that depend on external resources to maintain their functioning[3]. One of the main material flows is food, that is not only a goods flow, but it also involves resources, open spaces, buildings, actors and policies, emerging as a complex system between production and consumption[4]. The concept of Resilience is intended in urban design as a combination between ecology and psychology definition. In ecology the term identifies "the ability of an ecosystem to respond to a perturbation or disturbance by resisting damage and recovering quickly"[5]; in social sciences it means an individual's ability to properly react to a traumatic event reconstructing a state of equilibrium, as described by the American Psychological Association[6]. In urban design and planning the term usually identifies a territory or a city that is planned and developed in order to adapt its conditions to further transformations and possible events that could threaten the system (climate changes, environmental catastrophes, social and economic transformations, etc.)[7]. In terms of food flows this perspective can represent a new approach to face problems related to the existing Food System: iniquities in food access between industrialized and developing countries; global food supply chains, expensive in terms of costs and energy consumption; unfair global markets and producers' dependence from governments subsides; pollution of air, water and soil due to intensive agro-food production; risks coming from the changing climate patterns.

In order to understand the growth of the Food Planning approach in the academic debate, we can look back to historical experiences that offer interesting references to these themes. The first fifty years of the Twentieth Century, in fact, are crossed by visions and projects that consider new ways to see the dualism between city and country, and that imagine a more holistic and integrated approach to plan human settlements, considering the self-sufficiency of territories as a necessary skill to face economic and social contemporary transformations. This paper aims at describing some crucial experiences, in Europe and North-America, that offer an example of how to approach the food issue in an experimental more than a theoretical way. The first part analyses projects from the beginning of the century until the 1930s and refers to a socio-cultural origin; the second part looks at more political and economic experiences, in the period between the two world wars. Then, some conclusions will be assumed, originated by the comparison between these references and the existing situation.

Marta De Marchi

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1900-1935: FROM THE INDUSTRIAL REVOLUTION TO THE NEW DEAL

The Nineteenth Century sees the growth of new socio-economic ideologies such as Liberalism and Marxism, it is the century of the Industrial Revolution, and of the impulse toward the technologic progress, as documented by Giordani[8]. The first thirty years of the Twentieth Century are characterised by the consolidation of the Industrial Revolution consequences in terms of social and economic transformation, as well as in terms of environmental conditions of the industrialised cities. At the beginning of the Twentieth Century the city is seen as a dense, congested, polluted and unequal environment in which human conditions are unsustainable. It is in this context that grows a new stream of utopic literature, moved, as Giordani says[9], by two main necessities: on the one side the politic-economic-social need, characterised by idealistic programmes counteracting the real social injustice; on the other side the technical-design need, generated from a formal interest to experiment and project visions. In these years several experiences arose in Europe, especially in the Anglo-Saxons area, generating a movement that will influence European and American theories until the 1930s. A number of "ideal cities" are proposed, not only described in an theoretical way, but also designed in their physical dimensions and economic impact. Firstly the Garden City of Ebenezer Howard will be presented from the point of view of food production and relation between town and country, and its heritage in the British and American new towns of the late Twenties. Secondly a focus on the peculiar story of Frank Lloyd Wright's Broadacre City will describe the importance of low density and small scale for an efficient food system.

Ebenezer Howard's Garden City is an expression, as Mumford argues[10], of the influence of contemporary thinkers such as Spence, George and Koprotkin, who in different ways declare the necessity of an integration between town and country in order to equilibrate economic and social dynamics. At the beginning of the Twentieth Century, in fact, two aspects of the same question have to be faced: on the one side "the overgrowth and over-congestion of the metropolis"; on the other side "the impoverishment of the countryside, dismissed by city growth" [11]. The Garden City combines small towns with public services and a farmland belt to limit city expansion and to integrate urban activities with food production. The idea moves from two necessities. First, to integrate urban and rural systems in design and planning, because until that moment regional planning has been separated from city development, as mentioned by Mumford[12]. Second, to vitalize both urban life, through the access to open and healthy green spaces, and rural life, giving intellectual and cultural improvement. The new settlements have to guarantee transport infrastructure as well as green networks; a green belt is imagined as a peri-urban ring for dairy farms between town and large farms. As presented in "Garden Cities of To-morrow" [13], the agricultural estate is based on a small scale markets network, supported by local producers, avoiding intermediates and speculators, in a vision that seems to anticipate the actual interest for local farmers' markets inside cities. As declared by Howard himself[14], the advantages of local markets are equal for producers and consumers, that live close by and share common facilities. Moreover, the small distance makes the association not only healthful, but also economic: goods go from the field to the town, waste produced in the town can fertilize the land, in a mutual advantage by closing cycles, a pioneer perspective, if we think that we have to wait until the 1960s to see the development of the Urban Metabolism theory. Some applications of this idea, as Letchworth and Welwyn garden cities, face the difficulty of converting a theoretical project into realty; in fact they do not apply fully Howard's directions; anyway, the low density approach shows how such distribution could be more economic than crowding houses, as demonstrated by Unwin[15], co-planner of Letchworth Garden City (1904). In this case, the green belt works exactly as expected by Howard: it limits town expansion and offers a pleasant productive landscape, in which factory workers and their families can integrate family economy and take advantage of the healthy natural open space. Ten years after, Clarence Stein, American architect co-founder of the Regional Plan Association of America, introduces those first experiences in the United States, elaborating, with colleague Henry Wright, an American version of the Garden City[16]. After the 1929 crisis, inside the new town programme of the New Deal's Resettlement Administration, Stein and the economist Rexford Tugwell designed and realized the city of Greenbelt, in Maryland, characterised by a belt of forest and farmland, and a shopping centre with a food store. The importance of the small scale, again, is the key to creating communities and guaranteeing a certain self-sufficiency[17].

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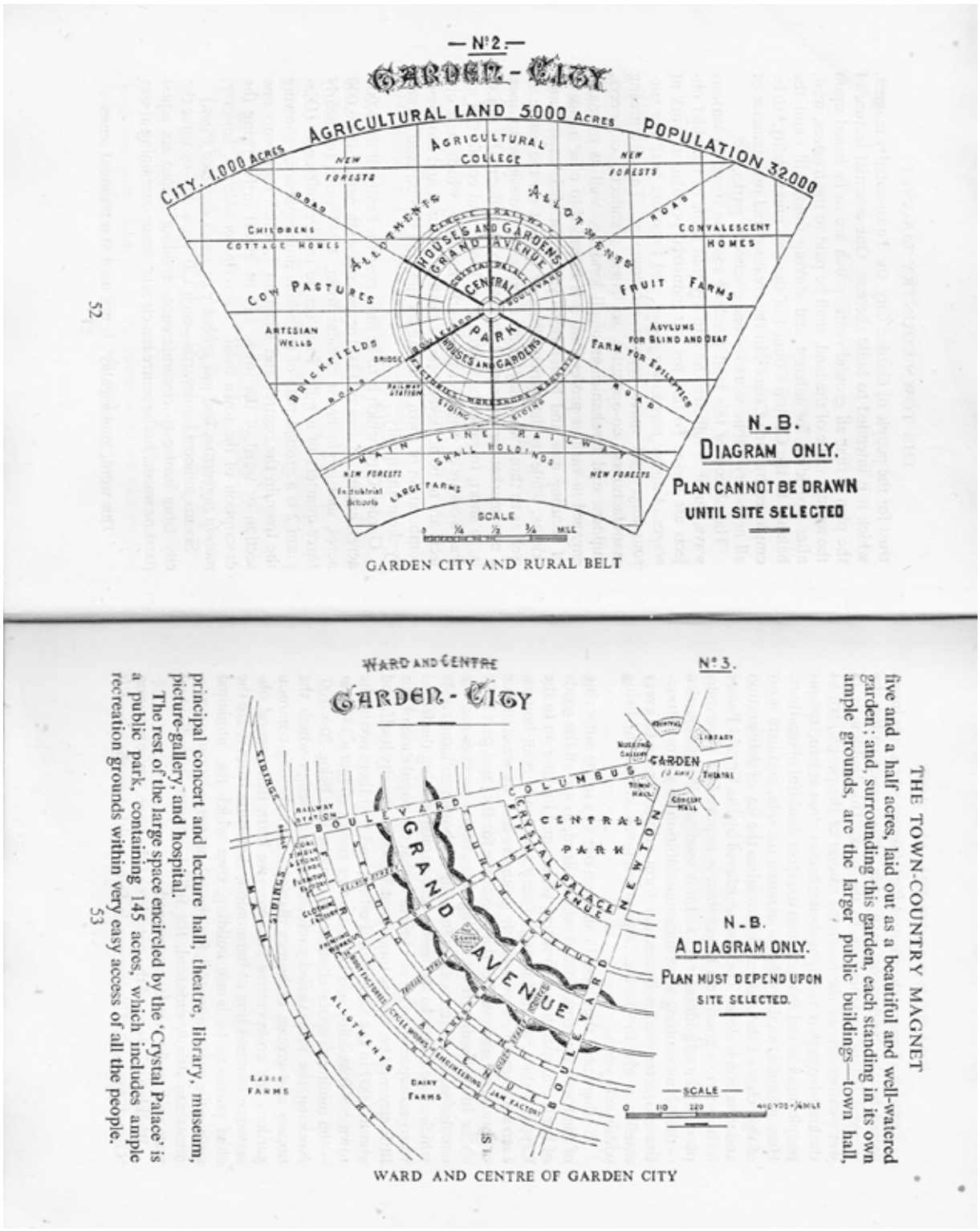

FIGURE 1 Garden City, 1902. In the diagrams small holdings farmland allotments, assigned to factory workers, are located between the town railway circle and the main railway line, that defines the limit of open large farms.

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FIGURE 2 Plan of Letchworth Garden City, 1904. In the map are clearly visible the greenbelt and limit of town area. Industries are located just inside urban tissue, while the greenbelt, constituted by woods and farmlands, is a public facility for workers' houses.

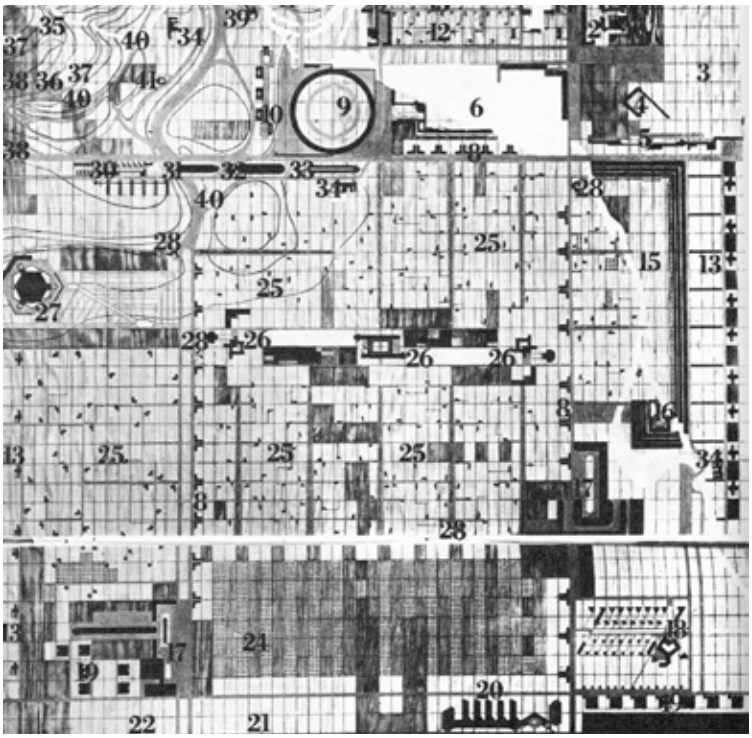

FIGURE 3 Broadacre City plan, 1935. The surface is two square-miles, corresponding to 520 hectares. Elements related to food system: 12. Small industries; 13. Small farms; 17. shopping centre; 23. Main road; 24. Vineyards and orchards; 25. Houses; 30. Research centre for science and agriculture; 31. Arboretum; 37. Water storage.

The origins of Frank Lloyd Wright's Broadacre City project are recognizable first of all in Jefferson's idea of autocracy but, as highlighted by Giorgio Ciucci[18], an important influence in the ideal city formulation is Thoureau's theory of "no government" that comes from the combination of autarchy idealism and Civil Disobedience propaganda. Wright, through his idea, promotes an anarchic individualism and aspires at the re-discovering of man's nature. Broadacre, as analysed by Ciucci, is an utopic solution to the problem related to late rural development in relation to the industrial one[19]. For contemporary experiences, such as the New Deal or the back-to-the-land movement, the problems of rural economy are related to its reconstruction inside a more general economic renovation. In Wright's mind, on the contrary, the main question is to recreate a sort of pre-bourgeoisie equilibrium, through the mythic power and dignity of agriculture[20]. The main objective is to give back quality to men, that was lost in the city; to reach this objective the only way is through the small scale and the decentralization of services; as Twombly correctly argues, "Boradacre is a scheme for decentralised America" [21]. The programme is directly related to Ford hypothesis: one acre to each family and the rural work integrated to the work in small factories. This de-urbanization of life, as described by Meyer Shapiro in his review of Wright's "The Living City"[22], is a fusion between town and country in order to find out the human integrity of the middle-class. This integrity should oppose the specialization, as promoted by Koprotkin theory[23]. The scheme of Broadacre includes a permanent agriculture for self-sufficiency combined with time-reduced work in the factory, as argued by Shapiro[24]. Looking closer at the Broadacre City food system, Wright imagines fresh food commodities every time and goods in the markets located in order to make the access efficient[25]. The system is based on two scales of production: small farms for factory workers that can contribute to family economy and collaborate to the supply of small markets along infrastructure; wider farms with medium properties that are the base structure of city food system. This combination, in Wright's opinion[26], can offer a great variety of products to the citizen-consumer, and guarantee subsistence to small workers-farmers.

Marta De Marchi

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FIGURE 4 Broadacre City perspective. Strong infrastructures cross the countryside, cars and helicopters enrich this "rural scene", showing a different way to use space and territory.

FIGURE 5 Reclaimed territory of Agro Pontino Romano, 1927. The coastal area in the south of Rome, where the environment was occupied by wetlands and unhealthy lowlands, is reclaimed and divided into small allotments to be assigned to veterans and their families. Main new towns, such as Littoria, Pontinia, Sabaudia, are visible, constellated by smaller communal centres.

The main advantage is the shortening of food supply chain, reversing the traditional dependence of countryside from the city, and equilibrating the powers between the two contexts. Moreover, in Wright's vision[27], the city market is also planned to integrate small farms' products: the harvesting is sold before it has been cultivated, thanks to an integration between large and small markets, in order to reduce transport and decentralise selling points along the main infrastructures. This system recalls to us the perspective of farmer's markets and short food supply chains which have recently arisen in western countries: Wright himself uses the slogan "from the farm to the family" as a pay-off for direct distribution[28]. Broadacre City was not realized, but the heritage left by this project shows that it was not just an utopic vision, but rather a concrete programme that considers the city as a system of urban and rural dynamics moved by flows that should be planned together with spaces and buildings. Another example that anticipates future theories on Urban Metabolism.

1920-1940: SELF-SUFFICIENCY PROGRAMMES BETWEEN THE TWO WORLD WARS

Looking at the period between the First and Second world wars, we can find other programmes, with very different origins than the above mentioned, but not less visionary. These cases, in the majority European, have to be observed in the context of war economies and involve not only cultural movements or single designers, but, rather, they are promoted and actuated by governments and public administrations[29]. The post-war context in Europe, in fact, is characterised by the need for a reconstruction of nations, cities and economies, but also by the awareness that, in case of another conflict, each government has to think about the safety and autonomy of its own nation. Autonomy in terms of self-sufficient economy and production of energy, but also, safety in terms of food access and supply[30]. Between the Twenties and 1945 two experiences are representative of this awareness: the experiment of autocracy in Italy, and the plan to join food autonomy in Switzerland. These two cases are the most radical in the European panorama, even if they do not reach fully their original objectives; anyway they represent a precise intent and a strong communitarian policy that obtains, at least, to strength social cohesion.

In Italy, in the late Twenties, starts the experiences of "città nuove" [31], promoted by the fascist regime and related to the land reclamation campaign, developed between 1925 and 1935. Two main reasons stay at the origin of this campaign: on the one hand the necessity of decreasing the dependence from external import, according to

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Mussolini vision of autocracy; on the other hand the need to obtain new cultivable land for veterans, according to the directions of the "Opera Nazionale a favore dei Combattenti" (National Association for Veterans), born in 1917[32]. A lot of men and young persons, in fact, once the war finished, come back to Italy as unemployed. Those who had farms or cultivated lands before the war, often found their property occupied by those who have not gone to fight: the need for new available land is urgent. As well as the agrarian reform of 1920, the reclamation campaign started with the intent to promote rural life as the best way to express the fascist citizen behaviour, in opposition to city urban life, contaminated by Marxist theories[33]. In Mussolini's view, in fact, the idea of "the land to the farmers" is a specific piece of politic propaganda, as well as a response to Italian veterans coming back from the war. Nevertheless, it is also a specific economic programme, as the dictator is aware of the need to improve agriculture as the main economic resource of Italy[34]. The programme consists on the wide reclamation of areas in Tuscany and swamplands in Lazio, such as Agro Romano and Paludi Pontine, in the south of Rome. Big interventions, such as channels and ditches dug by men, lowlands filled and dried with low technical tools, recovery of unhealthy areas, make these territories inhabitable and fertile. Once the land has been reclaimed, the second phase of the agenda is implemented: the construction of some main urban centres, such as the towns of Littoria, Pontinia, Sabaudia, Aprilia, is planned by regime urbanists on the principle of the ideal fascist city. These new urban settlements, based on country life, are never called "cities" but rather as "communal rural centres", as support structure to the allotment, that is the minimum unity of production[35]. The allotments are intended as mono-familiar properties with a single house, while in the main centres and in the small agglomerations, public services to the food market are planned, realizing a rural network with local markets and distribution. Some historians talk about "ruralism" in opposition to urbanism; in fact, the regime's formula is to "ruralize the city, urbanize the country" [36]. Therefore, once again the ambition is to fuse city with countryside, in order to make society and life more equilibrate and "healthy". Even if the self-sufficiency wasn't rich, the programme was capable of obtaining social consensus, as well as new available lands.

The story of Plan Wahlen in Switzerland has some common points with the Italian case, but the objectives and the results were quite different. Between the two world wars the Government realized the need to protect Confederation in case of a new war. The main objective was to reduce the dependence from imports, especially of foreign food supply. At the end of the First World War, in fact, Switzerland's food supply coming from abroad was about 50% of the national supply[37]. In 1929, the Government produced a new law in order to promote the transformation of green public areas, not occupied by parks, into cultivable lands; with this first law several new urban and territorial plans, such as the Plan of Winterthur, started to include a new category of green open spaces: farmland (*grünflachen*, in German). At that moment the national geo-political condition of Switzerland and the risk of trade sanctions, pushed the Government to act a specific plan: in 1935 the agronomist and politician Friedrich Traugott Wahlen started the redaction of a plan to make the agro-food system autonomous. The so called "Plan Wahlen" is seen as the beginning of a new agro-politics and, first of all, as a long term strategy[38]. The plan was welcomed by both farmers and entrepreneurs: farmers saw the plan as a back-to-the-land manifesto, while entrepreneurs understood the choice as a key towards a war economy. In 1940 the Plan was actualized with specific regulations such as: reduction of livestock; expected increase of agriculture productive surfaces from 180.000 hectares to 500.000 hectares; cultivation of fallow areas, parks and public green areas[39]. During wartime, Switzerland did not need fruit or vegetable rationing; the objective to reach the food autonomy was far from successful: the national food production arrived just at 59% of total need[40]. Anyway other good results were obtained. Firstly a general consensus to national policies, and a strong social cohesion to face difficulties related to the war; secondly, the rising of a national sense of independence in the European context, in relation to the choice of neutrality, important to the cohesion of Confederation; thirdly, the coherence, directed at national level, between planning tools in different cantons, that permits to build the base for a long term project. Today the most important heritage of Plan Wahlen is the existing normative. A new law, in fact, preserves national food security in the short term (six month), but technicians are investigating in order to design new planning tools facing long term food systems. In general, the story of Plan Wahlen is today encreasingly more promoted and told, in order to increase the awareness of people around food issue.

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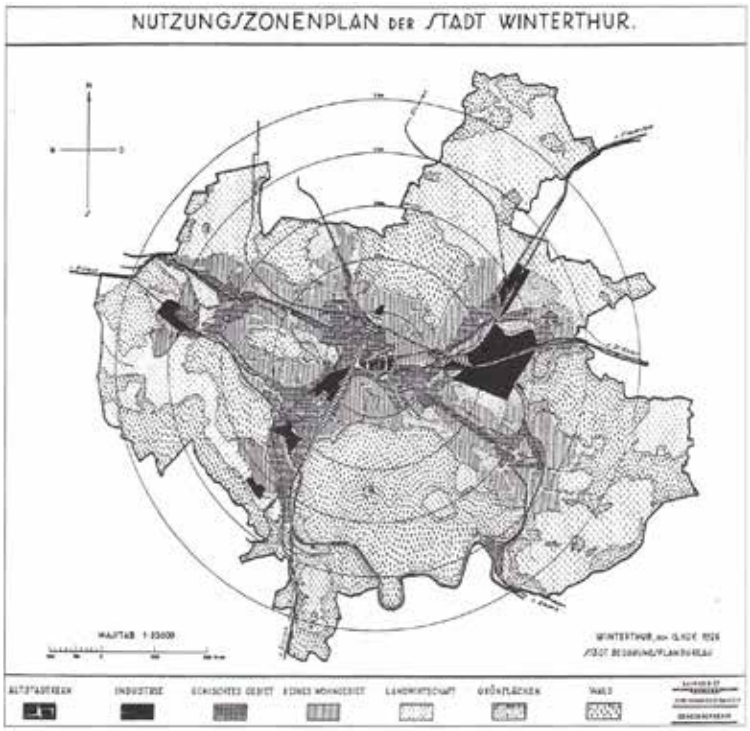

FIGURE 6 Plan de Zones de Winterthur, 1926. It is the first plan in Switzerland in which the area before named as "residual communal territory" becomes "grünflachen", that means "farmland".

CONCLUSIONS

The experiences described, with their different objectives, reasons and results, have a common ground where they share aims and part of their strategies. Food systems and food production are, at different scales, investigated in the complex system of territorial dynamics and transformations. In general, the limit of these approaches is revealed by the homogeneity of disposals and application on wide areas: territories are not enough considered in their specificity or as that complex system of spaces and dynamics they are. However these experiences show interesting intuitions in relation to the food planning approach of our days. Firstly the idea of decentralization and the interest for the small scale, strategic in terms of territorial control and management, and in relation to local/national food market. Secondly the territorial asset imagined by designers and politicians: mixed in terms of land use, multifunctional from the point of view of human activities, efficient for the use of residual spaces. Moreover, the different purposes of these visions are inspiring for the planners of our times: food autonomy of territories, or, at least, a system less dependent on external sources; integration of different economies at the family scale, very useful in periods of economic and environmental crisis; a more efficient use of public green spaces, in terms of cost and management; a way to improve social cohesion and territorial identity. To conclude, it is finally possible to reflect on these experiences in terms of resilience, both economic and ecologic. The integration of food production with other economies, in fact, is an opportunity for families to guarantee family food supply or, if the scale is adequate, even becoming a secondary financial resource. At the national scale, decentralization can reduce food import; the increase of local production, even if it is not competitive in the global market, can become necessary in case of emergency (loss of harvesting, prices fluctuation, market instability, etc.). On the other side, in terms of ecology, the possible configuration of a mixed, multifunctional and combined territory, is a good way to improve territorial resilience and biodiversity: if the production is more integrated and/or organic, rather than conventional, it can preserve environmental quality, reducing soil and water pollution; if the supply

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chain is shortened, it can reduce CO_2 emissions coming from transportation and distribution; if the territory is well drained and maintained in terms of water supply, it can prevent hydraulic risk and control the growth of permeable patches. These stories offer the opportunity to reflect on the role of food issues inside urban planning in the course of history, but also how we see it today, because food, food production and food supply are always following man history and territories development.

Disclosure Statement

No potential conflict of interest was reported by the author.

Notes on contributor

Marta De Marchi (Montebelluna, Italy, 1984) obtains her Master degree in Landscape Architecture in March 2011 at University IUAV of Venice, with a thesis on Po river delta region, in northern Italy. In the following three years she works in professional architecture practices between Venice and Treviso, in Italy. In the same time she works as young researcher with the no-profit organization Latitude Platform, based in Belgium and Italy. She is member of Latitude since 2012. Since 2014 she is PhD student in Urbanism at University IUAV of
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Figure 1: Garden Cities of To-morrow. Original diagrams by Ebenezer Howard, 1902. From book edited by F.J. Osborn. (London: Faber and Faber, 1945). 52-53.

Figure 2: Garden Cities of To-morrow. Original drawing by Ebenezer Howard, 1902. From book edited by F.J. Osborn. (London: Faber and Faber, 1945). 105.

Figure 3: La città americana dalla guerra civile al New Deal. Original drawing by Frank Lloyd Wright and his collaborators. From the book edited by Ciucci, G., Dal CO, F., Manieri-Elia, M., Tafuri, M. (Roma: Laterza, 1973). 394.

Figure 4: La città vivente. Original drawing by Frank Lloyd Wright. From the Italian edition (Torino: Einaudi, 1966). 161.

Figure 5: Fascismo e "città nuove". Drawing of the author, Riccardo Mariani, 1976. (Milano: Feltrinelli, 1976). 32.

Figure 6: Maurice Braillard e ses urbanistes. Original drawing for the Plan of Winterthur, 1926. From the book written by Elena Cogato Lanza, 2003. (Geneve: Editions Slatkine, 2003).

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Endnotes

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