

SOCIETY AND ENVIRONMENT: A HISTORICAL REVIEW

Jaqueline Tyrwhitt (1905–83) was a British town planner, editor, and educator. These four key Tyrwhitt texts illustrate how she forged and promoted a synthesis of Patrick Geddes' bioregionalism and the utopian ideals of European modernist urbanism, which influenced post-war academic discourse and professional practice in urban planning and design internationally, and United Nations community development policy specifically.

Tyrwhitt's contributions to *The Town and Country Planning Textbook* – the preface and “Society and Environment: A Historical Review” – spelt out a Geddessian (as opposed to Corbusian) line of modern planning thought, providing a scientific humanist theoretical framework for the field: an evolutionary perspective on “the inter-relation of history and environment with man's daily life.” She paid particular attention to the urban core and noted the limitations of the Garden City ideal – and thus Britain's New Town strategy – and called for a more creative approach to civic design, inspired by a love for *existing* places, considered as a whole, in their regional setting.

In her subsequent papers “The Valley Section: Patrick Geddes's World Image” (1951), “The Core and the City” (1953), and “The Village Centre” (1957) Tyrwhitt expanded on these themes to establish a cogent and coherent alternative to Corbusian CIAM norms.

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A Historical Review

Jaqueline Tyrwhitt

Introduction by Ellen Shoshkes

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INTRODUCTION

Jaqueline Tyrwhitt (1905–83) was a British town planner, editor, and educator who was at the center of a group of people who shaped the post-war Modern Movement. In the course of planning for the physical reconstruction of postwar Britain, Tyrwhitt forged an influential synthesis of planning ideas grounded in the bioregionalism of the pioneering Scottish planner Patrick Geddes and informed by the tenets of European modernism, as adapted by the Modern Architectural Research Group (MARS), the British branch of *Congrès International d'Architecture Moderne* (CIAM). Tyrwhitt's contribution to the development of these ideas – in diverse geographical, cultural, and institutional settings and through personal relationships – was connected to her role in the revival of transnational networks of scholars and practitioners concerned with a humanistic, ecological approach to urban planning and design, notably those connecting East and West. She was a key agent in the diffusion and cross-fertilization of this set of planning ideas and in the evolution of a collaborative planning and community design praxis that incorporated features of an emergent “postmodern globalist” civic culture.

Tyrwhitt willingly worked behind the scenes, translating, synthesizing, and mediating ideas that transcended national and disciplinary boundaries, making it a challenge for scholars to see the connections she helped to establish. Tyrwhitt exerted her influence, often anonymously, through collective leadership, or as an intermediary or catalyst. The texts selected for this volume illuminate how Tyrwhitt's synthesis influenced academic discourse and professional practice in urban planning and design generally, and United Nations (UN) community development policy specifically, in the mid-twentieth century.

1 Jaqueline Tyrwhitt

Born into a family descended from the original English gentry, Tyrwhitt trained for a career as a garden designer, which included a year at the Architectural Association (AA) (1924–5), and practiced for several years. Tyrwhitt enjoyed designing gardens, but wanted to do more meaningful work, so after taking an economics course at night she became an organizer for the League

of Industry, where she became conversant with the issues and people calling for a reorganization of industry along the lines of “planned capitalism.” In 1935, in order to learn more about the integration of industry with agriculture, Tyrwhitt took a job at Dartington Hall, the experimental estate established by Leonard and Dorothy Elmhirst, which fostered new methods of farming and forestry, the creation of related industries and included a progressive school and arts and crafts workshops. Tyrwhitt probably came across Patrick Geddes’s *Cities in Evolution* (1915) there, which inspired her interest in town planning. (That book was out of print but there was probably a copy in the Dartington Library. Geddes and his son Arthur had a special connection to Leonard Elmhirst and Dartington through their work in India with Rabindranath Tagore.)

In 1936 Tyrwhitt decided to study Geddes’ approach to regional and town planning at the School of Planning and Research for National Development (SPRND) that E.A.A. Rowse had recently established. Geddes’s ideas provided the conceptual basis for SPRND’s curriculum, including that a plan must be preceded by both regional and civic surveys. SPRND offered a more comprehensive postgraduate course than the existing departments of Civic Design at Liverpool and London Universities, and would admit as students graduates of any subject directly related to planning, such as sociology, public administration, geography, and economics; the other schools only admitted architects, engineers, and surveyors. But before returning to London Tyrwhitt spent the first nine months of 1937 studying town planning and land settlement in Berlin, and then in October enrolled in the two-year diploma course at SPRND. Tyrwhitt supplemented her studies with research for the Garden Cities & Town Planning Association and for the Industries Group of Political and Economic Planning (PEP). SPRND closed in September 1939 when Britain declared war on Germany. Tyrwhitt was among the first and last graduates of Rowse’s school.

Tyrwhitt joined the Women’s Land Army and served for over a year in the New Forest, where she enjoyed managing two sawmills. Rowse convinced Tyrwhitt to return to London to direct the Association for Planning and Regional Reconstruction (APRR), a new organization created to carry on SPRND’s research work.

1.1 The war years

Tyrwhitt assumed her position as APRR director in February 1941, in the midst of the blitz, at a pivotal moment in British planning history. The war had convinced the public of a need for physical as well as social and economic planning to build a better post-war world, and Tyrwhitt led APRR into the center of that conversation. Tyrwhitt modeled APRR on PEP, in which she was among the few active women members. APRR’s research agenda included regional planning, industry, agriculture and nutrition, population, housing and recreation, health and education, and uses of waste. It aimed to develop multi-disciplinary survey methods and mapping techniques to apply Geddes’s ideas

to postwar reconstruction. Like PEP, APRR published the results of its research in standardized broadsheet format. The idea of standardization to facilitate communication across specializations was a key aspect of APRR's effort to create a "composite mind" – Rowse's metaphor for the type of cooperative intelligence ideally generated by a multi-disciplinary team that was a requisite for comprehensive planning along Geddesian lines.

In December 1941, Tyrwhitt began to organize a correspondence course in town planning for those serving with the armed forces. She redesigned Rowse's pre-war school as the new School of Planning and Research for Regional Development (SPRRD), operated as an arm of APRR. The War Office agreed to offer the three-part course, which followed Geddes in emphasizing the need for a synoptic perspective of the region as the planning unit, and for an interdisciplinary team approach in order to integrate physical, economic, and social factors (Figure 1). A new chapter in Tyrwhitt's career – planning educator – began when the first students arrived by mail in December 1943. By April 1944 there were about 200 enrolled students, and the school was APRR's biggest job – which Tyrwhitt ran practically single-handedly. She then turned her attention to preparing a post-war Completion Course for those who wanted to qualify for Town Planning Institute (TPI) membership – professional certification.

1.2 Post-war planning for reconstruction: information and exchange

In spring, 1945, Tyrwhitt undertook a lecture tour of Canada on behalf of the British Ministry of Information, to report on town planning for post-war Britain. Jacob Crane, then Director of the U.S. National Housing Agency's International Office, knew Tyrwhitt through the International Federation of Housing and Town Planning (IFHTP) and arranged to extend her tour to include U.S. cities. This North American journey proved to be a life-changing experience for Tyrwhitt, opening new horizons and significantly extending her personal and professional networks. Tyrwhitt's membership in the MARS group ensured a warm reception by CIAM emigres in the U.S.; she was particularly impressed by László Moholy-Nagy and his friend Sigfried Giedion, who opened her eyes to a greater appreciation for aesthetics.

Upon her return to London Tyrwhitt completed editing *Patrick Geddes in India* (1947), a collection of excerpts drawn from the town planning reports Geddes made for Indian cities between 1915 and 1919. Her intent was to demonstrate the practical application of Geddes's principles to the current *worldwide* task of urban reconstruction. Those principles included: "diagnosis before treatment," i.e., survey before plan; "conservative surgery," i.e., rehabilitation rather than removal; and "bioregionalism," i.e., that people and place are inseparable. Moreover, through Geddes's words, Tyrwhitt (1947, 26) urged Westerners to learn, as Geddes did, from Indian civic beauty – "at all levels, from humble homes ... to palaces" – to look at life holistically.

INTRODUCTION TO COURSE

This third-part of the Course in Town Planning is intended to show the methods by which the student can employ the tools described in Part 2 according to the principles outlined in Part 1. The lessons in this part have increased in length as there are few current textbooks to which reference can be made. They will repay careful study in addition to that required to answer the actual questions set.

It will be noticed that Lesson I serves as an Introduction and has no questions. It is, however, necessary to read this lesson carefully before proceeding with the Course. It must again be studied at the end of the Course before answering the questions set to Lesson XI. Lesson XII is in the nature of an Appendix.

"A" students who successfully complete this course are eligible to attend Special Three Months' Completion Courses, which will be held in London and elsewhere as soon as the war is over. These will concentrate upon survey work, studio work and illustrated lectures on history and design—all subjects that cannot well be taught by correspondence. At the end of this Special Three Months' Course students will sit for examinations that will exempt them from the Final Examination of the Town Planning Institute.

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LESSON I.

REGIONAL INTEGRATION

Reading Creative Demobilisation : E. A. Gutkind : Kegan Paul : 1943.
Culture of Cities : L. Mumford : Secker & Warling : 1940.
Evolution of Cities : P. Geddes : 1913.
*T.V.A.

American Publications—
American Regionalism : H. W. Odum and H. E. Moore.
National Resources Planning Board.
Regional Factors in National Planning 1935.
Pacific Northwest 1936.
Upper Rio Grande 1938.
Problems of a Changing Population 1938.

SYNOPSIS.

The Problem. Part I.

What is Regionalism—Regionalism and Provincialism—Why is integration necessary—What is to be integrated—Interdependence of social and economic integration—Regionalism as a readaption—Main factors in regionality.

The Approach. Part II.

Approach from the top and approach from the bottom—Growth from within—Delimitation and marginal areas—Functional and personal factors—Unity, diversity and uniformity—Interaction of town and country—Inter-regional balance and regional homogeneity—Systematic planning, not laissez-faire—Co-operation of the people—Education for regional consciousness.

Figure 1 The correspondence course in town planning that Tyrwhitt ran on behalf of the War Office for those serving with the armed forces, followed Geddes in emphasizing the region as the planning unit, and the need for an interdisciplinary team approach in order to integrate physical, economic, and social factors.

Source: Courtesy EKISTICS: *The Problems and Science of Human Settlements*.

Tyrwhitt also organized a conference on “Human Needs in Planning: The Contribution of Social Studies to Architecture and Planning,” convened in November 1945 by APRR in cooperation with the Royal Institute of British Architects (RIBA) Architectural Science Board and the Institute of Sociology. A follow up to a meeting Tyrwhitt had organized with RIBA in 1942 on regional survey techniques, this conference aimed to enable those engaged in social surveys relating to physical planning to discuss their methods and findings. The conference attracted significant media attention, as it addressed a key assumption underlying the planning legislation being enacted by the new Labor government: the nature and availability of useful social data on which to base decisions.

It was to meet this urgent need for social data that Tyrwhitt launched an expanded version of APRR’s Information Service, featuring a bimonthly abstract of APRR’s work and “matters of interest in the planning world.” APRR offered data visualization and compilation services, including submission of evidence. Tyrwhitt was particularly proud of APRR’s library. She oversaw the adaptation of the Universal Decimal Classification (UDC) system to suit APRR’s work: organizing the main topics of physical planning and related subjects from a planner’s broad perspective. In conjunction with its growing library, APRR launched a monthly Reference Sheet listing recent acquisitions and featuring an annotated bibliography. In this way, Tyrwhitt directed APRR to provide the data to implement the “broader conception of planning” called for in the Town and County Planning Act of 1947, which required reliable and comprehensive social data.

One practical reason for the development of APRR’s library was to support SPRRD’s three-month Completion Course, which began in January 1946. There was such demand for this course that it ran for seven consecutive sessions, ending in December 1947. Tyrwhitt then stepped down as director of studies in favor of Rowse, who had returned from military service. As Britain’s post-war planning system became institutionalized, though, TPI decided to recognize only training programs affiliated with a college or university. SPRRD’s wartime correspondence course and postwar completion course had provided an important arena for developing the relevant subject matter in an interdisciplinary way before planning became an academic specialization. Tyrwhitt was especially proud that SPRRD had trained a small but influential cohort, whose members made significant contributions to postwar reconstruction worldwide, assuming positions throughout the British Commonwealth and Dominions and the UN.

However, in 1948 Tyrwhitt, age 42 and unmarried, was both free and forced to join the tide of European intellectuals looking for new opportunities abroad. England faced serious economic problems at war’s end, enduring austerity and rationing through the early 1950s. With scant funds for research, and shrinking demand for private consultants, APRR suffered from a lack of work. Openings for women in the workplace created by the war closed in favor of returning veterans. The international connections Tyrwhitt made propelled her into a

new phase of her career as a transnational actor. The years 1948 through 1954 were a fruitful but unsettled time, as she assumed a series of academic posts in North America, became Giedion's close collaborator, joined the CIAM inner circle, and worked with idealistic planners and designers who renewed their international ties in the context of the new UN organizations then being established. It is during this period of extensive travel and intensive interactions across cultural and disciplinary boundaries that Tyrwhitt produced the texts reprinted here – each of which represents an act of translation.

2 The Texts

2.1 Town and Country Planning Textbook (1950): “Preface,” and Chapter 6, “Society and Environment”

Production of the *Town and County Planning Textbook* (1950) was Tyrwhitt's last project for APRR, which closed in 1950. Tyrwhitt considered the *Textbook* “as APRR's swan-song ... it does contain the *raison-d'être* of our existence, and the proof that it was worth it.”¹ She states in her Preface that it was the “remarkable success” of the Correspondence Course that convinced APRR that there was growing demand for the publication of such a program of study. Preparation of this textbook – the first of its kind in Britain – involved revising and supplementing the original lectures with new material from several social science disciplines to reflect the requirements created by the 1947 Town and Country Planning Act.

APRR's decision to publish the *Textbook* was probably also triggered by the formation of the Schuster Committee on the Qualifications for Planners in May 1948, which initiated over two years of deliberation on the scope of planning and the role of planners to guide universities that were building training programs. APRR's *Textbook* attempted to define the curriculum, and organize the related parts of this new field of expertise, at a critical juncture in the history of the profession, when planning practice was becoming codified and planning education standardized.

Tyrwhitt (1950, xv) explained why APRR was credited as editor: “Just as Planning is not the work of one brain but rather the result of a joint effort of many individuals trained previously in different specialist fields, so the evolution of this book should be recognized as the product of such a team.” Tyrwhitt deserves credit as the guiding spirit of this team effort that produced a collection that represents the “sum of town planning theory and practice” at that time (White 1974: 45).

Tyrwhitt (1950, 1) was explicit about the synthesis of Geddesian and modernist social-aesthetic ideals this collection represented: “Patrick Geddes's triad ‘place, folk, work’ and the four points of the CIAM Charte d'Athenes ‘living, working, developing mind and body, circulating’ are fully treated and though the

purpose of the book is to impart technical information, there is a constant warm under current of enthusiasm for the well-being of a lively and diversified humanity.” Her contributions to the collection include “Chapter 6, Society and Environment: A Historical Review,” “Chapter 7, Surveys for Planning,” and the “Bibliography,” based on APRR’s Classification System. These contributions – as editor, author, compiler, and indexer – exemplify the various means by which she translated the ideas that evolved in the context of the collaborative group work she fostered at APRR and SPRRD. Collectively these topics represent three facets of her scientific humanist conception of planning as:

- grounded in an evolutionary macro-historical theoretical perspective;
- based on empirical research, using the survey method both as an analytic tool and as a means of civic engagement in the planning process; and
- a holistic, integrative process that requires as a corollary the coordination and classification of different branches of knowledge.

Tyrwhitt wrote Chapter 6 in the context of the trans-Atlantic activities she was immersed in during 1948–9 – including steering CIAM’s study of planning issues, and the education of planners in North America and the UK – which reinforced her confidence in the potential of an ecological approach to community design, integrating economic, social and physical analyses. The chapter provides an historical background and framework for planning as a search for ways of life suited to fundamental human needs. Her construction of this past – paying particular attention to treatment of the urban center – was connected to a vision of the future: designating the contextual, Geddesian line of modernist planning as the true way forward, and distinguishing it from the place-less application of a pre-conceived principle or panacea – the Garden City.

The *Schuster Report* was published at the same time as APRR’s *Textbook*, and recommended an approach similar to SPRRD’s course. But planning education in Britain did not develop along those lines in the 1950s; a narrower version of physical planning emerged as a separate discipline, described in Lewis Keeble’s *Principles and Practice of Town and Country Planning* (1952). Meanwhile, an ecological, research-based concept of planning did take root in prominent U.S. universities – notably at Harvard, where Tyrwhitt joined the faculty in 1956. The pendulum began to swing back in British planning education in the 1960s, though, with a revival of regional planning and comprehensive approaches stimulated by the second wave of systems thinking and the influence of UN technical assistance programs.

2.2 “The Valley Section: Patrick Geddes’ World Image” (1951)

Most people who became familiar with Geddes’s ideas in the 1940s knew them secondhand, as his work was largely unpublished and his published texts

were inaccessible and often incomprehensible. Tyrwhitt played an important role in stimulating the postwar revival of interest in Geddes's thinking through her edited versions of his writings: *Geddes in India* (1947); and an abridged edition of *Cities in Evolution* (1949), first published in 1915 and out of print for more than a generation.

Tyrwhitt's edition of *Cities in Evolution* omitted five chapters, but added an appendix including, et alia, Geddes' Notation of Life "thinking machine" diagram (Figure 2), an essay on that diagram as "an early general systems model" co-authored by John Turner, one of her former soldier-students, and excerpts from a lecture Geddes gave at the New School for Social Research in New York in 1923 that explained his concept of the Valley Section (Figure 3). Tyrwhitt worked on *Cities in Evolution* while teaching at the New School in 1948; she reprised Geddes's Valley Section lecture – based on rough shorthand notes she had found – for her own last lecture there.

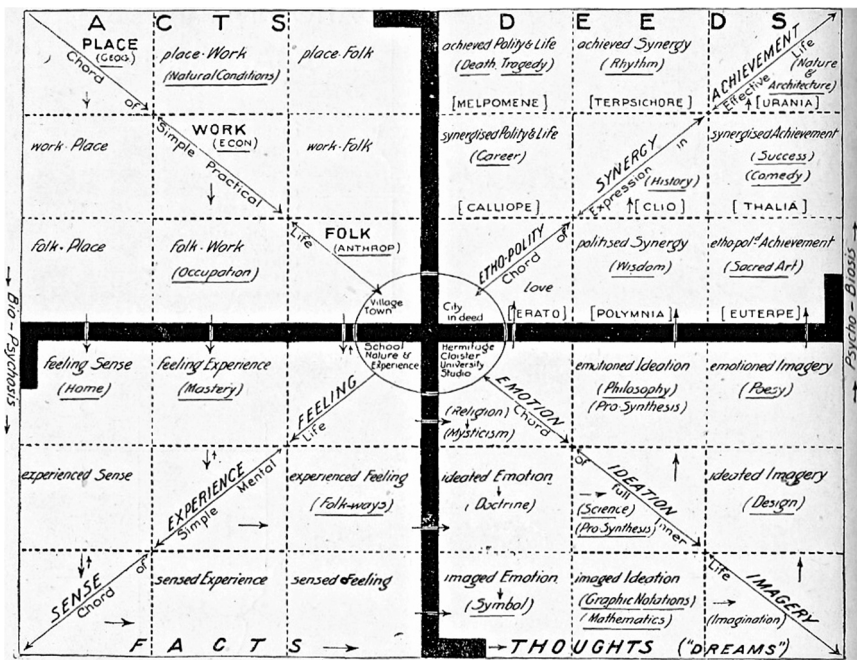


Figure 2 As General Editor of the second, revised edition of Geddes' *Cities in Evolution* (1915, 1949 ed.) Tyrwhitt included an appendix on Geddes' Notation of Life diagram featuring an essay by John Turner and W.P. Keating Clay interpreting the diagrams as a medium of expression of a new synthetic form of thought. Tyrwhitt provides her own reading of this diagram in "The Valley Section: Patrick Geddes' World Image" (1951).

Source: The Outlook Tower Association and APRR, eds. (1949) *Cities in Evolution*, by P. Geddes (1915) new and revised edition. Appendix I. 194.

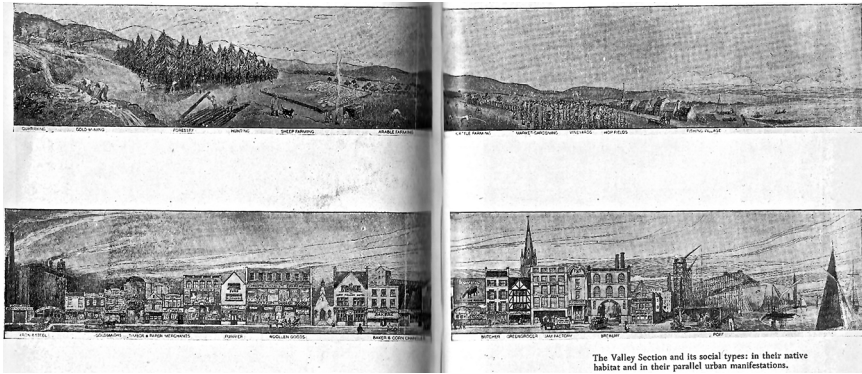


Figure 3 Tyrwhitt selected this illustration of The Valley Section from Geddes' second Cities and Town Planning Exhibition to include, along with texts drawn from Geddes' Catalogue to the first exhibition, in the second, revised edition of Geddes' *Cities in Evolution* (1915, 1949 ed.).

Source: The Outlook Tower Association and APRR, eds. (1949) *Cities in Evolution*, by P. Geddes (1915) new and revised edition. Cities and Town Planning Exhibition. 166–7.

Whereas Tyrwhitt had exercised her editorial voice silently in *Geddes in India*, rewriting passages to eliminate verbal obscurities; and quietly in *Cities in Evolution*, adding and subtracting text, in “The Valley Section” she constructed a narrative using Geddes’ texts in order to articulate *her* interpretation. Tyrwhitt’s (1951: 6) stated aim was to remind planners – for whom Geddes’ phrases “survey before plan” and “place-folk-work” had become commonplace – that Geddes’ “real contribution to planning thought and practice was to link these two concepts indissolubly both with each other and with Comte’s theory of ‘Peoples and Chiefs: Intellectuals and Emotionals’” – the typical personalities who are “carriers” of a culture. To make this case she extracted text from Geddes’ lectures that clarify the connections between the Notation of Life and Valley Section diagrams – the theoretical concepts examined more closely in her appendix to *Cities in Evolution*. In presenting Geddes’s texts in this particular way, against a backdrop of new appreciation for his thought, which resonated with contemporary trends in social thought, she not only played an important role in translating Geddes’s ideas – making them accessible – she essentially produced a work unique in its own right, creating a new way of seeing urban development processes as expressed in the subtitle: “Patrick Geddes’ World Image.”

Among the many ideas on display in this article, Tyrwhitt shows that the Notation of Life and Valley Section diagrams together operate as a cross-disciplinary, multi-level model of guided social evolution: social learning operating in space and time. From this systemic perspective, city and region, part and whole, subjective and objective, past, present, and future are inextricably related. This model provides a theoretical framework for comparative, historical study of human settlements and an analytic approach to the problems of cities

as complex interactions of functionally interdependent parts and developmental processes. The key to planning for the future is to understand – and raise public awareness about – trends and their consequences; the hope for the future lies in the unique ability of our species to set goals and follow a course of action, *imagine* a future, grounded in the realities of a particular place, and choose a path, among alternatives, to realize it. Therein lies the connection between the regional survey, an *imaginative* plan, and civic design.

Tyrwhitt's work on "The Valley Section" provided the larger intellectual context for her engagement in a range of activities: teaching a course on utopian traditions in town planning at Yale; writing the introduction to an issue of the UN's new *Housing and Town Planning Bulletin* on the integration of community facilities with housing; producing one CIAM book – *A Decade of New Architecture* (1951) – for Giedion and developing another on town planning with CIAM president José Luis Sert; and planning for CIAM 8, which the MARS group proposed to focus on the theme of civic centers and host in England in 1951. The MARS proposal countered one by Swiss architect Le Corbusier to use a grid he and others devised to articulate CIAM town planning principles. These engagements placed Tyrwhitt in the middle of the conflicts that flared between architects and planners around the growth of planning as a profession and the growth of architects' interest in planning aspects of redevelopment and civic design.

Tyrwhitt strategically timed publication of "The Valley Section" in January 1951 to introduce Geddes's Notation of Life diagram as an alternative to Corbusier's Town Planning Grid, which she felt inappropriately emphasized architectural design and building construction rather than town planning. Tyrwhitt thought that most British professionals viewed planning as a continuous – Geddesian – process, focusing on action based on analysis of recurring survey work rather than the production of a static master plan. Corbusier's grid was more suitable for smaller-scale civic design projects which the British considered the domain of the architect.²

In June 1950 Sert asked Tyrwhitt to reconcile the two themes proposed for CIAM 8. She proposed modifying Corbusier's Grid to examine civic centers – now called the Core – at five "scale levels" of community: housing group, neighborhood, town or city sector, city, and metropolis – in other words, the regional hierarchy of social units represented in The Valley Section. This new format was labelled the MARS Grid. In October, when Tyrwhitt began writing "The Valley Section," she clearly intended "Geddes' World Image" to lend weight to and complement the MARS Grid. Furthermore, her understanding of Geddes' ideas informed her understanding of the Core which, at CIAM 8, Tyrwhitt defined as "the gathering place of the people ... whether planned or not ... a physical setting for the expression of collective emotion" (Figure 4). Tyrwhitt thus ascribed to the Core a key role in the social learning process represented in the Notation of Life diagram, as – in Geddes' words – the place where "the whole awakened ... the voice of the people at its best – morally and emotionally" is heard, expressing the civic consciousness that gives rise to "the flowering of cities."

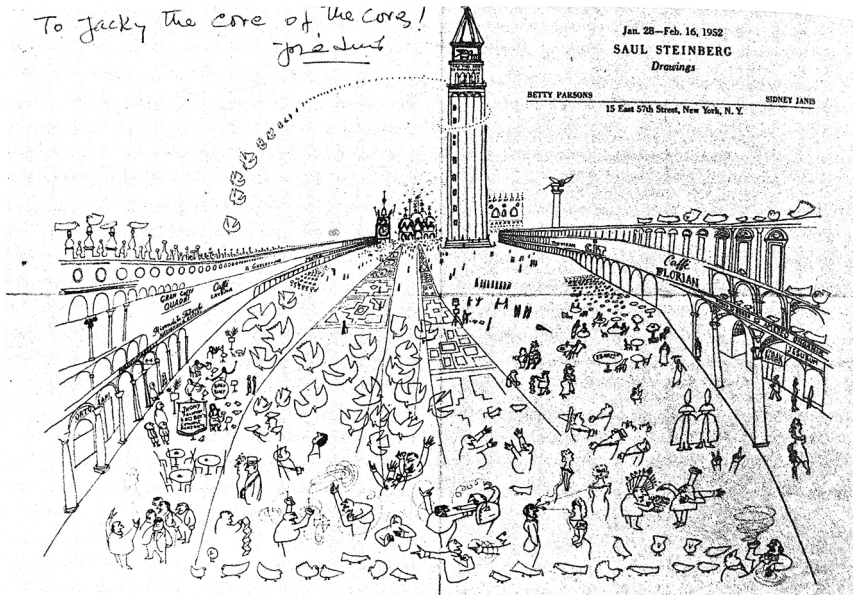


Figure 4 The sketch for the frontispiece of the companion book to CIAM 8 illustrates Tyrwhitt's concept of the Core as above all a place for spontaneous interaction.
Source: Courtesy *EKISTICS: The Problems and Science of Human Settlements*.

Some young architects and planners – notably the group known as Team X – took up this line of thought when they adopted Geddes's Valley Section as a humanistic alternative to the Corbusian line of CIAM town planning ideas; their understanding of the Valley Section was based on reading Tyrwhitt's translations of Geddes' texts and conversations with Tyrwhitt, who advised them. Tyrwhitt used Geddes' ideas to enrich and further CIAM discourse, not subvert it. She succeeded in moving modernism beyond functionalism to a new humanism, at least in the Geddesian arm of the planning branch of the post-war modern movement. In her summary of the resolutions of CIAM 8, which also announced the end of this era of CIAM, Tyrwhitt concluded that the Core as a means for the “animation of spontaneous nature ... seems a heritage that our group, after twenty years' work, can now hand on to the next generation. Our task has been to resolve the first cycle of the work of CIAM by finding a means to *transform the passive individual in society into an active participant of social life*” (“Short Outline of the Core” 1952, 168).

2.3 “The Core and the City” (1953)

In “The Core and the City” Tyrwhitt elaborated on the argument she made at CIAM 8: The “cure for our ... amorphous modern cities” was not by

decentralization but “by the creation of new Cores – new concentrations of activity – by a visual emphasis upon centers of integration rather than upon bands of separation,” such as greenbelts (1953, 103–4). Tyrwhitt probably wrote this article in London in the summer of 1952, after completing her first year as a visiting professor at the University of Toronto, where she was setting up a new graduate planning program within the School of Architecture. She had repeated her course on utopian traditions in town planning there, and now felt she had the basis for a book re-analyzing town planning ideals. The significance of “The Core and the City” lies in her effort to translate CIAM’s theoretical discourse on modernist urbanism into terms that the typical British practitioner could understand and use to make physical planning more responsive to social and economic trends.

Tyrwhitt drew on her understanding of Geddes’ Notation of Life diagram to frame how the idea of “good practice” is mediated by a consciously or unconsciously held image of the ideal way of life, one that crystallized over time from a concept proposed as a radical remedy to a particular societal problem to a panacea. Thus, she proposed, the Garden City concept evolved from a revolt against the nineteenth-century slum to a sacred cow in British planning theory and policy: “the prevalent ideology of escape from city.” Passage of the Town Development Act of 1952 exemplified the persistence of this doctrine in Britain despite continued growth of large urban areas.

Tyrwhitt argued that people were now drawn to cities not primarily for jobs, but for access to opportunities for social interaction and cultural resources – “the bright lights of the city and all that they imply” – that were mainly found in a small area: the core. She couched her argument in terms of “eternal human needs” for diversity and inter-exchange; asserting “a fundamental human right ... of citizens to move about freely in the core of their city.” The most important consideration in the animation of a core as a focus for urban activities – aside from providing buildings for various uses – is to provide a range of open spaces, notably, places for *casual discussions among strangers*, i.e., civic discourse.

To illustrate how the core of the city formed part of the hierarchy of inter-related centers at various scales within “the urban constellation,” Tyrwhitt presented examples from CIAM 8. They weren’t meant to suggest solutions for the problems of a particular community, but rather represented the creative ferment that was generated by the debates at CIAM. Those debates epitomized international concern with the social and economic forces driving metropolitan growth in all Western industrial nations in the 1950s, producing suburban sprawl and decline of central cities. The old urban patterns were breaking down, and there was a need to rethink basic assumptions, but what were the new models?

In this text Tyrwhitt proposed the ideal of the core as a guiding concept to positively influence the future form of growing middle-sized cities – which were otherwise encouraged by British policy to export their “surplus” population to a small town. Rather than “kill” these cities by imposing this cure-all,

Tyrwhitt called for *building on* existing trends to create the “new urban constellation.” Her proposals, drawing on the repertoire of CIAM ideas, included limiting the central, pedestrian-oriented core to a walkable area (adopting a research-based spatial metric); and revitalizing the blighted inner urban ring by introducing fingers of natural areas (i.e., green urbanism) to define mixed income communities large enough to support new or revived neighborhood cores with schools and shops.

Tyrwhitt’s image of the core and the urban constellation wasn’t taken up in British planning circles, where the doctrine of decentralization and containment that molded the post-war planning system remained relatively unchallenged into the 1960s. However, Tyrwhitt continued to develop this line of thought at Harvard while launching the new urban design program, and in the Ekistics movement, formulating models for cities that could absorb growth without destroying existing communities. As a result, several generations later, Tyrwhitt’s ideas for transit-based, urban and regional planning to guide metropolitan growth into a multi-nodal pattern of compact centers, with greenways defining and integrating nature into neighborhoods, is now widely acknowledged as a “best practice” for sustainable development – albeit one that is hard to implement in the absence of regional governance.

2.4 “The Village Centre” (1957)

During 1953–4, Tyrwhitt served as the first woman to lead a UN Technical Assistance mission, as advisor to the Government of India’s International Exhibition of Low Cost Housing, held in New Delhi, and director of a concurrent UN Seminar on Housing and Community Improvement in Asia and the Far East, another first. In “The Village Centre” she describes the working model she designed as the UN’s contribution to – and centerpiece for – the housing exhibition, which emphasized the use of local materials and skills; she presented this paper at IFHTP’s first South East Asia regional conference, which was held following the UN seminar and involved many of the same people. The significance of this text is in both its testimony to the pioneering role Tyrwhitt played in the UN technical assistance program, as well as in Tyrwhitt’s description of her adaptation of a CIAM-inspired core as an integrated approach linking rural housing policy to the political and economic development of village life. Tyrwhitt successfully employed this working model of a Village Center as one means of introducing her Geddesian line of modern planning thought into UN discussions at this critical initial stage in the evolution of the technical assistance program.

Tyrwhitt’s concept emphasized the community facilities that composed the village center – their siting, design, and function – rather than the construction methods employed in the experimental houses surrounding it. Those facilities included a multi-purpose school, a health clinic involved with environmental sanitation, crafts workshop, a communal seed store, and a plant for collecting

methane gas from cow dung to be used as fuel. This ensemble embodied “the integration of mind, body, hands and the good earth” as a “living actual reality” in the villagers’ immediate living environment, and fostered social learning. Tyrwhitt describes how these facilities would be used in different ways at different times by different people; how the construction, operation, and use of these buildings would employ self-help techniques, cooperative methods, and appropriate technology using local materials and skills available in the average village; and how those activities and services aligned with various public policies, local traditions of self-government, and the teachings of Gandhi, whose spirit infused the project, and whose presence was enshrined there in a replica of his hut.

Tyrwhitt developed her concept for the Village Center through an extensive process of international fact-finding and collaboration. After a month at UN headquarters planning the seminar, she met with experts in London, consulted with several related UN agencies in Geneva that played significant parts both during the seminar and as sponsors of the UN’s contribution to the housing exhibition, and met with IFHTP staff in The Hague to coordinate the two meetings. After securing official approval of her proposal for the model village, Tyrwhitt traveled from India to southern France to attend CIAM 9, first making a stop in Israel to meet with UN technical assistance experts working there. In Israel she was impressed by a building system devised by an Australian architect and decided to include it in the UN’s model village. She also collected ideas and designs for model houses at CIAM 9, and engaged diverse CIAM voices to contribute to the seminar, including members based in Japan, Ceylon (Sri Lanka), and Vietnam, a country not officially recognized by the UN.

Tyrwhitt then designed the Village Center in cooperation with the Delhi offices of the specialized UN agencies, and the corresponding Departments of the Government of India. “The Village Centre” is representative of Tyrwhitt’s role in building such far-reaching connections between people and institutions in the East and West, and in facilitating and translating the results of such multi-faceted cross-cultural and cross-disciplinary communication (Figure 5).

The Housing Exhibition and UN Seminar provided a rare opportunity for an international gathering of experts to study collectively in the field innovative projects in the developing world that integrated regional planning, urban design, community development, and resource management. Tyrwhitt helped UN staff translate recommendations that emerged from the seminar into recommendations to governments in the region. One proposal was to create the first planning school in Southeast Asia, which Tyrwhitt later helped establish in Indonesia through a partnership between the UN and Harvard. Recommendations for *comprehensive* housing and community improvement programs, and encouragement of mutual self-help and participatory practices within a regional planning framework that reconciled economic and social requirements, were incorporated in the long-range community development program approved by the UN’s Economic and Social Council in 1957 and the

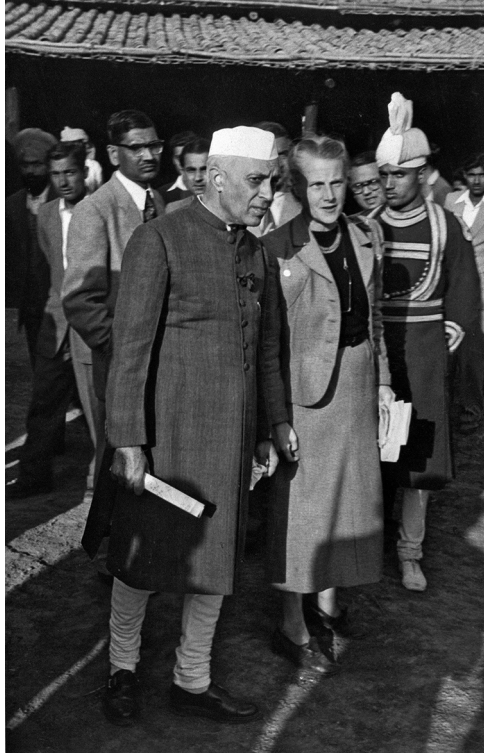


Figure 5 Tyrwhitt escorted Indian Prime Minister Nehru around the working model of a Village Center, the UN's contribution to – and focal point of – the Government of India's International Exhibition of Low Cost Housing.

Source: Courtesy of United Nations.

Long-Range International Program of Concerted Action in the Field of Housing and Related Facilities, adopted in 1959.

3 Conclusion

Jaqueline Tyrwhitt made significant contributions to planning theory, practice, and pedagogy during the 1940s and 1950s by conveying as well as translating planning and design ideas across national, cultural, and disciplinary borders. The texts re-issued here illuminate how she used translation to shape her engagement as a pioneering woman at the frontier of the planning field: synthesizing the collaborative work of APRR in defining a curriculum for comprehensive, Geddesian planning; interpreting Geddes's diagrams as a guiding concept linking research and practice; explaining the relevance of CIAM theoretical discourse on urbanism to British planning practitioners; and

cross-fertilizing Eastern and Western ideals in the formulation of UN community development policy. The syntheses developed in these texts – and throughout her career – are early examples of the lines of thought that led to the concept of sustainable development in the 1970s, the international Healthy City Movement in the 1980s, and the revival of ecological urbanism today in its several forms.

Notes

- 1 Letter from J. Tyrwhitt to B. Wells, January 23, 1950. This letter is part of a collection of Tyrwhitt papers added in 2013 to the Tyrwhitt Collection in the RIBA Archive, and not yet catalogued at the time of this writing.
- 2 Tyrwhitt continued to compare and contrast the CIAM grid and Geddes's Notation of Life diagram in the context of work with Constantinos Doxiadis, developing an Ekistic grid as a framework for a computerized information system to support the scientific study of human settlements. In a talk at AA in June 1965, Tyrwhitt (1965, 10) compared these three visual schemata as attempts to design "grids of inter-relations, each one building to some extent on the last." She featured this discussion in her introduction to an anthology of articles from the journal *Ekistics*, in 1972, demonstrating that ekistics was grounded in Geddes's evolutionary perspective and analogous to the CIAM approach to urbanism.

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A note about primary sources

Tyrwhitt's papers are mainly in the Jaqueline Tyrwhitt Collection in the Royal Institute of British Architects (RIBA) Architectural Library, Drawings & Archives Collection, in London. There are also Tyrwhitt papers in the Sir

INTRODUCTION

Patrick Geddes Collection, Strathclyde University Archives, Andersonian Library, in Glasgow and in the Patrick Geddes Centre for Planning Studies, Edinburgh University Library, Special Collections, in Edinburgh. Tyrwhitt's personal collection of CIAM papers is in the Archives of the Institute for History and Theory of Architecture (gta Archives), Swiss Federal Institute of Technology (ETH), in Zurich. There are papers related to Tyrwhitt in the CIAM Archive and Jose Luis Sert Archive, Special Collections, Frances Loeb Library, Harvard Graduate School of Design, in Cambridge Massachusetts, at the Ford Foundation Archive in New York City, and the Constantinos A. Doxiadis Archive, Benaki Museum, Athens.

PREFACE

This book aims at providing the student with as complete a course of study in the theory and practice of Town and Country Planning as is possible within the compass of a single volume. It endeavours particularly to meet the needs of those students who are unable to attend a school of planning recognised by the Town Planning Institute, but who may wish to pursue their studies in their own time and sit for the external examinations of that Institute.

Of recent years, and especially since the War, there has been a rising tide of interest in the study of Planning. On the purely physical side, air-raid damage brought the problems of the future to the fore with dramatic suddenness, so that reconstruction became a matter of urgency.

The idea of this textbook evolved during the War years, when the Association for Planning and Regional Reconstruction was approached by the Army Education Department of the War Office to devise a system of training by correspondence which would be available to all members of the Allied Forces. In 1942 the School of Planning and Research for Regional Development had been re-formed as a sister organisation to the Association for Planning and Regional Reconstruction. Its first job was to organise this Correspondence Course in collaboration with the War Office. The immediate and remarkable success of this course in Planning, not only in the numbers of men and women who enrolled but in their enthusiastic participation in the scheme, encouraged those who took part in its organisation in the belief that the general publication of such a course of study would meet a growing demand.

Since the original course was written there have been, however, many developments in the law and the technique of Planning. The passing of the 1947 Town and Country Planning Act introduced new and important provisions which made the training of planners in the new techniques an urgent necessity. The Minister of Town and Country Planning, speaking in the House of Commons,* said : " A new type of planner will have to be trained to carry out the broader conception of planning. . . . "

Just as Planning is not the work of one brain but rather the result of a joint effort of many individuals trained previously in different specialist fields, so the evolution of this book should be recognised as the product of such a team. Six specialists, under the general guidance of Cecil Stewart (who had been organising tutor of the War-

* 29th January, 1947.

time Correspondence Course), worked together to edit the original lectures. To meet the recent changes much of the material had to be radically revised and a number of new chapters specially written. It is not claimed that careful study of this textbook will equip the student with sufficient information to answer satisfactorily every question in the final examination of the Town Planning Institute. The aim has been rather to give him some grounding in the main principles of practice and theory of each aspect of planning so that he is in a position to supplement this by reference to the standard works on particular subjects that are listed in the Bibliography.

Subjects which are not yet fully treated in standard works are given more emphasis than those which have long been part of the standard equipment of the practical planner: e.g. problems relating to the location of power stations are more fully discussed than problems related to the calculation and disposal of sewerage. Particular acknowledgments are due to the original authors of the course, who not only provided the basis of this book but kindly permitted the revision and reproduction of their writings. Others who gave valuable assistance in the preliminary and final stages, but whose names are not among the authors of any of the work printed, were W. Tatton Brown, L. B. Escritt, W. F. B. Lovett, Miss B. Wills, and Miss G. Boole; the last named prepared most of the illustrations. The Boards of the Association for Planning and Regional Reconstruction and the School of Planning and Research for Regional Development wish to record their deep appreciation for all their help.

JAQUELINE TYRWHITT

for APPR

London, 1950.

VI

SOCIETY AND ENVIRONMENT

A Historical Review

By *Jaqueline Tyrwhitt*

“ Towns should be built so as to protect their inhabitants and at the same time make them happy.”

—ARISTOTLE.

The history of town planning involves the study of man in relation to his environment, of the efforts of man to build around himself the environment he desires, and of the effect on man of the natural environment and of environments designed by others.

Before we can judge the value of any plan, we must know something of the requirements it was designed to meet. A study of town planning can best begin with an analysis of :—

- (a) The universal needs of the community life, and
- (b) The conditions under which communities develop a high type of civilisation.

If, in a study of several primitive societies and their ways of living, we find much that they have in common, it is probable that these common factors are also important, though sometimes concealed, in more complicated societies. Unless we are aware of those primary characteristics of human society we are likely to make radical mistakes in planning. When designing a cage for an animal in the zoo, it is first necessary to know a good deal about the natural habits of the animal, or if he is likely to be troublesome, to be unhealthy, to pine or to die. In planning we are designing an environment for human beings.

(a) Primitive societies have been found to have several features in common no matter whether they exist now or did in 10,000 B.C., no matter whether they live in the Tropics or near the Arctic Circle. Here are some of the most remarkable :—

- (1) Food is used not only as nutriment but also as a means of expressing social relations. Even in primitive societies people don't necessarily just gulp their food, but dish it up appetisingly :

eat it according to rules : present it to others : invite guests : use it as religious offerings.

- (2) Possessions are not valued only for their utility but also for the part they can play in marriage, status, hospitality or religious ceremonies—for their social value.
- (3) Death, and often old age, is revered, with fear and respect. Tombs are among the earliest permanent forms of building in almost all countries.
- (4) There is usually a great regard for the close relationship of mother and child and the necessity for her to train the child in all that it should know in its early years (the tie of husband and wife is far less universally recognised).
- (5) Wrong-doing is punished by general consent—sometimes by a group of elders or the priest or chief, sometimes by the ridicule of others. Thus the fear of what other people will say or think induces the individual to control his actions even in the most primitive societies.

Such primitive community customs and attitudes persist in modern societies, and care is needed to see that they are given adequate physical expression in the communities that we design to-day.

(b) The conditions under which communities, in the past, have developed high types of civilisation are equally remarkable. Man can adapt himself to almost any natural environment, but civilisations have only developed within quite a narrow range of geographical circumstances. How has it happened that some have progressed greatly, some to a certain stage and then stopped, and some have remained in a primitive condition? This is a question discussed in Toynbee's *A Study of History*. With a wealth of argument he shows that civilisations come to birth in difficult environments and not in easy ones.

Here is his story of the effect of an easy environment : “ . . . a fine looking people, quiet and domestic, their life history from the cradle to the grave is of the utmost simplicity. Too ill-armed to hunt, they live all but exclusively on a vegetable diet. A small part of the year they depend, like the monkeys, upon wild fruits and herbs ; but the staple food is millet-seed which they grow in gardens, crush in a mortar, and stir with water into a thick porridge. Twice a day, nearly all the year round, each man stuffs himself with this dough, shovelling it into his mouth in handfuls and consuming at a sitting a pile the size of an ant-heap. His one occupation is to grow this millet, and his gardening is a curiosity. Selecting a spot in the forest, he climbs a tree, and with a small home-made axe lops off the branches one by one. He then wades through the litter to the next tree, and hacks it to pieces also, leaving the trunk standing erect. Upon all the trees within a circle of thirty or forty yards' diameter his axe works similar havoc, till the

ground stands breast-high in leaves and branches. Next, the whole is set on fire and burnt to ashes. Then, when the first rains moisten the hard ground and wash the fertile chemical constituents of the ash into the soil, he attacks it with his hoe, drops in a few handfuls of millet, and the year's work is over. But a few weeks off and on are required for these operations, and he may go to sleep till the rains are over, assured of a crop which never fails, which is never poor, and which will last him till the rains return again. Between the acts he does nothing but lounge and sleep . . . I have tried to think of something else that these people habitually do, but their vacuous life leaves nothing more to tell." (Toynbee : *A Study of History*, Vol. II, pp. 26-27).

On the other hand the environment can be too difficult for progress, although men adapt themselves to very rigorous conditions under which at first sight human existence seems impossible. Small scattered bands of aborigines live precariously in the almost waterless deserts of central Australia : Bushmen manage to survive in the Kalahari desert ; Eskimos live in the arctic wastes and Kazaks (Cossacks) on the dry steppelands of Southern Russia. The life of these people has only remained possible by a remarkable adaptation of their lives to the exigencies of their environment. They remain very much in the grip of their natural surroundings.

Life for the Eskimos and Kazaks, for example, has only been possible by a rigid training by which they might almost be said to identify themselves with animals. Though the Eskimo cannot grow the flippers and tails and waterproof skins of the seals to make him at home in the sea, he does acquire an artificial seal's body in the shape of his " Kayak " and an artificial pair of flippers in the shape of his double bladed paddle. Though the Kazak couldn't grow the legs of a horse to make him at home on the steppes, he did acquire the use of a horse's body in the shape of his mount. The results have been miracles of human will power and human ingenuity, but the price paid for both these adaptations has been very high, so high that the cultural development of such people has been sacrificed, for any deviation from the rigid imitation of animal life has meant death—and human nature can only develop where there is the possibility of experiment.

Between these two extremes of the millet planting forest dweller and the Eskimo come the conditions under which civilisations have grown up. Hard places, such as the neighbourhood of Rome, reveal the energy expended on transforming a forbidding landscape into a cultivated and prosperous countryside, the energy which afterwards conquered the world.

The Ancient Civilisations

Primitive man wandered over the earth for very many thousand years,

his mind concentrated on satisfying hunger. He lived in caves and rude shelters and killed what he could.

About 10,000 B.C. came the first great change, probably starting in the lands at the east end of the Mediterranean. Man started to domesticate the local sheep and to sow and cultivate the local wheat ; the first parents of our domestic sheep and wheat still occur in South West Asia.

The rhythm was constant. The family group settled on fertile ground : they bred flocks : these naturally increased and the pasture gave out : the animals were killed for food : famine followed : the encampment collapsed and the survivors moved on to new ground. This movement was brought to a halt at geographic barriers and the remnants died out unless, as happened in Egypt and Mesopotamia, they reached an area that could be kept perpetually fertile by reason of the regular flooding of the rivers in spring or summer. In these areas prosperity depended entirely upon the regular régime of the rivers and if this went wrong famine occurred. It was natural to think that regular seasonal changes could be assisted by magic.

From very early time, among primitive farmers, there arose the idea of the “ corn king ”, who, like the grain, must be buried in order that he may rise again. In practice this first meant that he must be slain and replaced by a young and vigorous successor. Gradually it became possible for the “ corn king ” to sacrifice a symbolical victim in his own stead and in this way grew the “ divine king ” who was himself God, guaranteeing by his own magic the fertility of flocks and crops. All land, all metals, all surplus crops belonged to him, and when he died a monumental tomb had to be made to ensure the continuance of his magic work on behalf of the land. Some of these tombs remain with us to this day.

Mesopotamia. The Sumerians in Mesopotamia were probably the first people to live in cities, and in every important city stood a hill of Heaven or a mountain of God. Near this lived the priestly rulers, their kinsfolk and the craftsmen of the town. These mounds were built up of clay bricks, for there was no stone in this country ; they were called Ziggurats and the biggest and most famous was in Babylon about 2,000 B.C.—the Tower of Babel—now entirely destroyed. The best preserved is at Ur. In 450 B.C. Herodotus visited the ruins of Babylon and described that town as follows :—“ It lies in a great plain and is the shape of a square, each side a hundred and twenty furlongs in length . . . the city is divided into two parts ; for it is cut in half by a river . . . the city itself is full of houses three and four stories high ; and the ways which traverse it—and those that run cross-wise to the river, and the rest—are all straight. Further, at the end of each road there was a gate in the riverside fence, one gate for each alley ; these gates

were of bronze . . . Great walls are the city's outer armour ; within them there is another encircling wall, well-nigh as strong as the other but narrower. In the mid-most of one division of the city stands the royal palace, surrounded by a high and strong wall ; and in the mid-most of the other is still to this day the sacred enclosure of Zeus Belus (Bel or Baal, the greatest of the Assyrian gods), a square of two furlongs each way, with gates of bronze. In the centre of this enclosure a solid tower has been built, of one furlong's length and breadth ; a second tower rises from this, and from it yet another, till at last there are eight. The way up to them mounts spirally outside all the towers ; about half-way in the ascent is a halting place with seats for repose, where those who ascend sit down and rest."

In Mesopotamia enormous luxury developed among the rulers, who derived their wealth from a more or less passive peasantry, but suffered a constant succession of invasions from their barbarian neighbours.

"Down pour the united nomads on the unwarlike, unarmed plains, and there ensues a war of conquest. Instead of carrying off the booty, the conquerors settle down on the conquered land, which becomes all booty for them ; the villagers and townsmen are reduced to servitude and tribute-paying, they become hewers of wood and drawers of water, and the leaders of the nomads become kings and princes, masters and aristocrats. They, too, settle down, they learn many of the arts and refinements of the conquered, they cease to be lean and hungry, but for many generations they retain traces of their old nomadic habits, they hunt and indulge in open-air sports, they drive and race chariots, they regard work, especially agricultural work, as the lot of an inferior race and class." (Wells : *Outline of History*, p. 162).

Egypt. The story of the Nile Valley is similar to that of Mesopotamia except that Egypt was less liable to invasion. Within its boundaries of sand to the east and west the culture and civilisation of Egypt remained relatively unchanged over a period of 3,000 years. The same tools which had evolved during the early period of Pyramid building are recognised in all their essentials three thousand years later in the Ptolemaic period. The development of pictographic writing was among the most important contributions of the valley civilisations. This provided a new instrument to support the human mind, a means of continuity infinitely superior to word of mouth, making it possible to pass on to succeeding generations the thoughts of the past. The "divine kings" were honoured with magnificent funeral rites which find material expression in the great pyramids and later in the rock-cut tombs at Thebes. The settlement of Kahun was laid out on a grid pattern to accommodate slaves engaged in the construction of the Pyramids. At Karnak and Luxor, great temples were erected over a period of a thousand years. Their colossal scale and the impressive avenues of sphinxes which mark

the processional way are characteristic of the emphasis of the Egyptian civilisation upon the power and majesty of the priestly ruler.

1500 B.C. At this time Egypt, after a period of upheavals, was at the zenith of her wealth and power. Here is a description of Tell el-Amarna, an early "planned" city.

"The city stretched along the river bank for a good six miles, its districts grouped round the main sacred and imperial buildings, and linked by broad avenues and geometrically planned streets. On the principal thoroughfares stood the residences of the great court functionaries and imperial officials, surrounded by gardens with pools and summer-houses. Most of these dwellings were made to a set plan, with slight variations in each case, and comprised not only reception and domestic apartments, but also every additional convenience, such as bathrooms, which could minister to the comfort of the inhabitants. The temples and the main palace stood in the Royal Avenue, which ran parallel to the river. This avenue was spanned by a great brick bridge, joining the two wings of the palace, which lay on opposite sides of the road." (Glanville : *The Legacy of Egypt*, p. 80).

Crete. 2000 B.C. In Crete, the Minoan matriarchal civilisation flowered about 2,000 B.C. For over a thousand years the people of this island peacefully developed the arts of civilisation immune from invasion. However by about 1000 B.C. their period of isolation came to an end. The Greeks and Phoenicians had built powerful fleets ; the island was invaded and the great palace at Knossos sacked and never re-built.

"The Minoan palace is no doubt the symbol of a great household, like the divine households of the Sumerians. But workshops are proportionately more conspicuous and occupy a relatively larger area . . . A smaller proportion of their contents and products must have been absorbed in supplying the household's needs ; the balance must have been used for trade. In other words the priest-king's economic power must, to quite a high degree, have depended on secondary industry and commerce as contrasted with agricultural production. Nor was the royal wealth so overwhelming as to overshadow altogether that earned by private traders and craftsmen. Provincial towns and cemeteries, particularly in Eastern Crete, give an impression of modest prosperity, even though they are not dominated by any palace. Gurnia in the fourteenth century B.C. covered $6\frac{1}{2}$ acres and comprised 60 houses, each probably two-storeyed and occupying a block about 40 feet by 30 feet." (Gordon Childe : *What Happened in History*, p. 146).

While relatively little is known of the early civilisation of Crete its importance is now recognised, providing, as it does, a kind of stepping stone between east and west. The centre of this culture was at Knossos,

a city of some 100,000 inhabitants, and from there it spread to the mainland of Greece where trading centres were established at Mycenae and Tiryns. These were walled citadels built of characteristic cyclopean masonry and dominated, like a mediaeval castle, by the lord's palace. Recent excavations have shown that this civilisation (with its black and orange pottery, its pictographic writing and its intricate sewage system) reached a level to which later culture in Greece is considerably in debt.

The Classic Civilisations

Greece. 1500 B.C. At long intervals barbarian peoples, intruding from the north, overran the ancient Minoan civilisation on the island of Crete and the derivative Mycenaean civilisation of the mainland of Greece. These tribes included the Achaeans, the Ionians and the Dorians. Like other invaders, they gradually absorbed a good deal from their victims and, after some centuries of chaos, the last millennium B.C. saw a wonderful civilisation grow up around the shores of the Aegean.

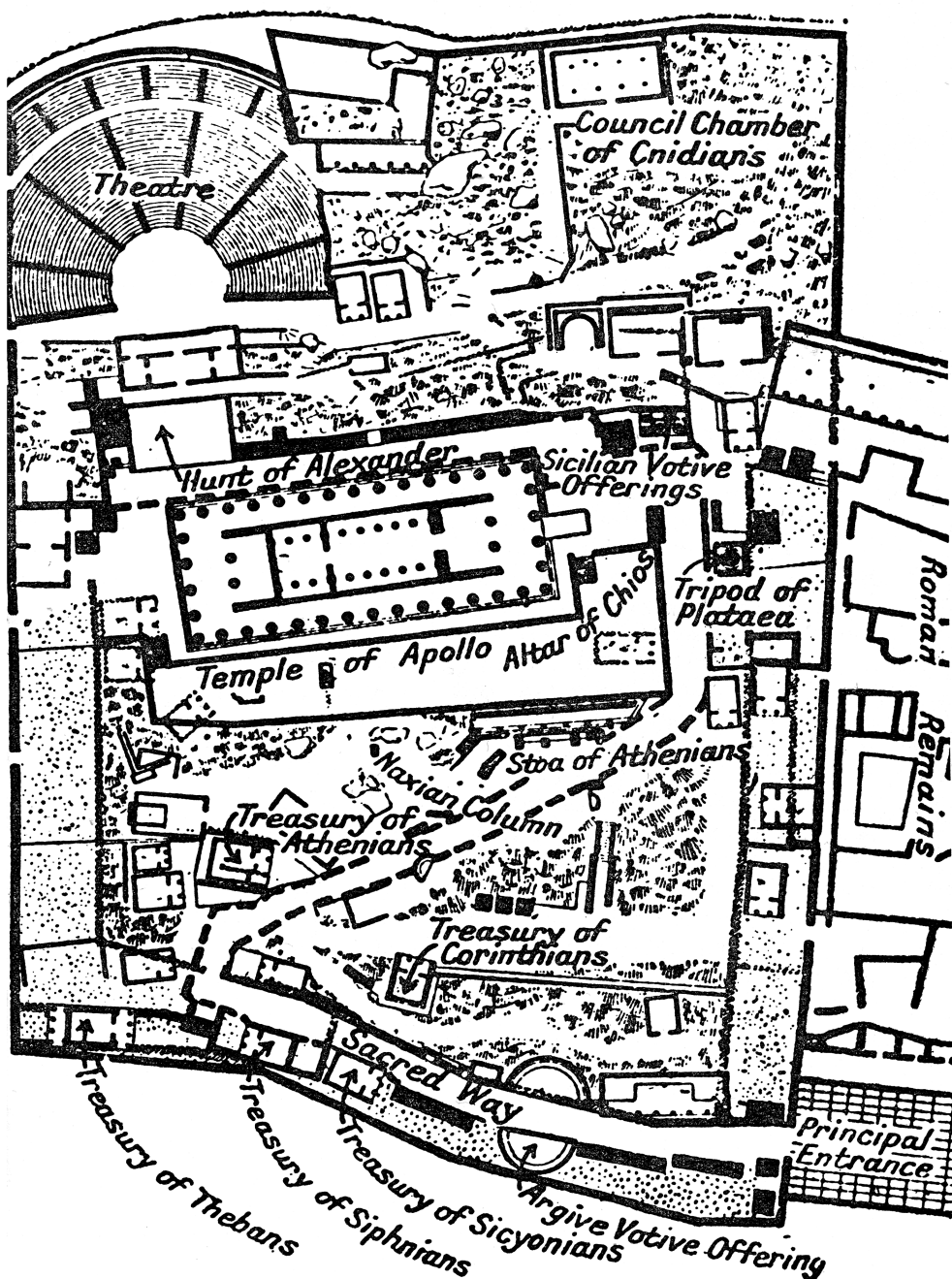
1200 B.C. The Trojan war was fought between rival Ionian peoples who were greatly influenced by the Minoan civilisation. They lived in fortified towns of which Tiryns is the best extant example. Although Ulysses is supposed to have lived in Ithaca, it is Tiryns that is described in the *Odyssey*. Tiryns was a fortified acropolis built upon a hill. At the centre was the main hall or megaron which was the centre of the city and the meeting place of the men. This was a pillared hall with a gabled roof and a great hearth in the middle.

1000 B.C. After the Trojan war had exhausted the Ionians, the Dorian invasions began. Many Ionians fled across the Aegean to such cities as Ephesus and Miletus and here the later Greek civilisation first developed. Contact was made with the Assyrians and, later, with the Persians. The Ionian habits of building, previously based on wood, began to be influenced by the brick and stone masonry of the eastern peoples. Buildings became squared, streets became straight, the chequer-board road pattern began to develop.

On the mainland the Dorians continued to build in wood until, as the forests of Greece became denuded, they too turned to the use of stone, at least for their temples. Their towns were in valleys between steep hills, and the streets were as irregular as the contours demanded.

The Greek gods were quite a different conception from the gods of the ancient world. Instead of a "divine king" there was a whole hierarchy of gods who were more like glorified human beings.

"The only priests of these early Greeks are the keepers of shrines and sacred places. There are chiefs, who are heads of families and who also perform sacrifices, but there does not appear to be much mystery



SCALE 0 250 500 750 1000 FEET

Fig. 27. The Sanctuary at Delphi, c. 500 B.C.

or sacramental feeling in their religion. When the Greeks go to war, these heads and elders meet in council and appoint a king, whose powers are very loosely defined. There are no laws, but only customs : and no exact standard of conduct. The social life of the early Greeks centred about the households of these leading men . . . The hall of the chief was a comprehensive centre to which everyone went to feast, to hear the bards, to take part in games and exercises." (Wells : *Outline of History*, p. 281).

700 B.C. Gradually the Ionians and the Dorians mingled. Many Ionians seeped back to the mainlands, especially to Athens. The soil of Greece is poor and shallow, and had been eroded by the cutting of the forests. The usual difficulties of subsistence farming arose and were solved by Solon of Athens who, by the development of olive growing as an industry, started Greek civilisation on its career of cash crop farming, exporting olive oil and importing wheat.

500 B.C. "The venture was successful. As a manufacturing and mining country and a producer of olive oil, Attica supported three or four times the population she could have fed if devoted to producing her own food supply. The latest estimate of the Athenian population in the fifth century is of the order of 300,000. Of course Athens was in the rather exceptional position of owning at Laurion the richest silver mines in the Eastern Mediterranean.

"Moreover, every Greek city enjoyed amenities foreign to the Orient—an 'agora', or market-square used for public assemblies, government offices, a theatre, a gymnasium and a fountain supplying a constant stream of water to a basin." (Gordon Childe : *What Happened in History*, p. 177).

The city state developed within the geographical region of the river valley. The Greek ideal was to produce a well-planned and self-complete township enclosed by a wall and set in the midst of fields and woods. The character of the country, with its deeply serrated sea coast and steep narrow valleys, did not encourage the development of formal towns on a grid-iron pattern—even for the slave quarters—and the cities of the Greek mainland consisted of narrow winding streets bordered by insignificant private houses, inhabited both by the Greeks and the large slave population. The central and important sites were occupied by the temples of the gods, the senate house and town hall, the market place and the gymnasium. The Greek men spent little of their time in their private houses ; they passed the day in public places. The lay-out of the Temple of Delphi is shown as a typical example of the way the Greeks adapted their buildings to the configuration of the site (fig. 27). At first glance the siting of buildings along the winding road appears haphazard. On inspection it will be seen that every advantage of the site is exploited to the full.

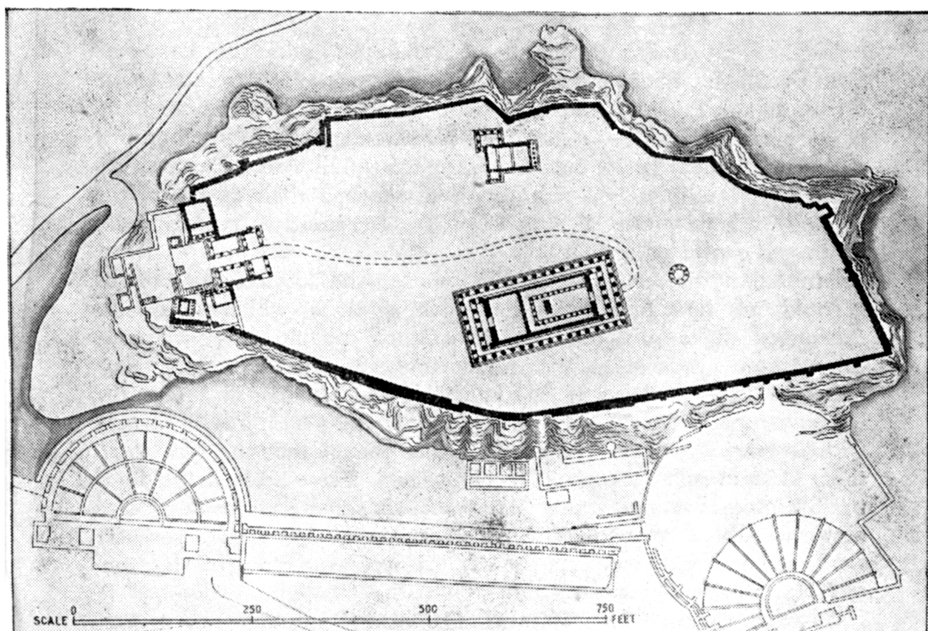


Fig. 28. Acropolis at Athens, c. 450 B.C.

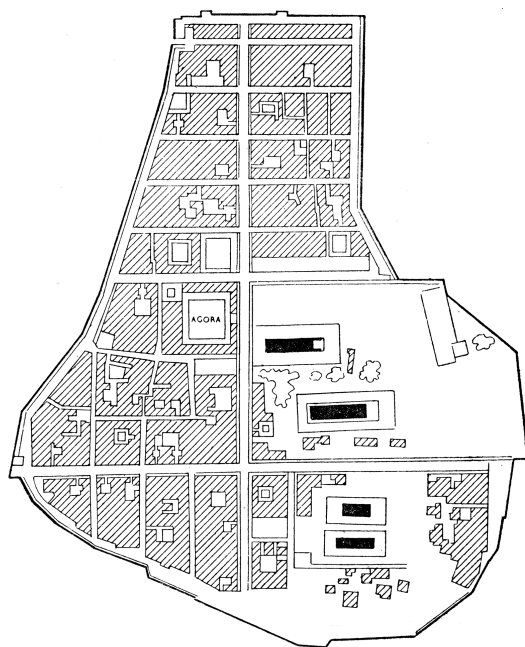


Fig. 29. Selinonte (Selinus) 628-250 B.C.

In this environment was developed a quality of mind that has never been equalled. Even to-day the study of geometry is associated with the name of Euclid ; medicine with Hippocrates ; medicine and biology with Aristotle ; ethics with Socrates and Plato ; geography with Herodotus. In its outward form this quality of mind was expressed by buildings and sculpture that reached their zenith in the carefully related group of temples on the Acropolis at Athens, built in the 5th century B.C. (fig. 28).

Arable land in Greece was limited, and as the population increased it could only be supported by imports of grain for which the Greeks exchanged their olive oil. A sea-trading people, they founded colonies round the shores of the Mediterranean and Black Seas, acquiring both wealth and slaves in so doing. Like the Minoans and the Myceneans, the Greeks lived in towns, but the geography of Greece with its narrow valleys and small islands meant that this was small town life and isolated town life. This led to fierce and narrow local patriotism that caused many wars—in particular a devastating war between Athens and Sparta in 431 B.C., that left Greece greatly weakened and ready to accept the leadership of King Philip of Macedon and his son Alexander the Great.

“ In a world in which empire had followed empire, each greater than its predecessor, in a world through which men and ideas drove ever more loosely and freely, in a world visibly unifying even then, the Greeks, because of their peculiar physical and political circumstances, were still dreaming impossibly of a compact little city state, impervious to outer influences, valiantly secure against the whole world. Plato’s estimate of the number of citizens in a perfect state varied between 1,000 (*the Republic*) and 5,040 citizens (*the Laws*). Said Aristotle in his *Politics* : ‘ For the proper administration of justice and for the distribution of authority it is necessary that the citizens be acquainted with each others’ characters, so that, where this cannot be, much mischief ensues, both in the use of authority and in the administration of justice ; for it is not just to decide arbitrarily, as must be the case, with excessive population.’ (Wells : *Outline of History*, p.336).

This local patriotism inspired its citizens to deliberate valour, triumphant art and noble generosity. It could not hold against an economic system based inexorably upon imperial trade.

300 B.C. Alexander the Great re-established an autocratic divine-king type of empire, such as had continued to obtain in Asia. After 332 B.C., came the Hellenistic period of commercial expansion throughout the Mediterranean, and great trading towns were established to hold down these new colonial ventures. For building these cities the rulers turned to the Ionian coast of Asia Minor. Here, in about 500 B.C. had lived Hippodamus of Miletus, steeped in the Babylonian

and Assyrian traditions of a chequer-board lay-out of towns, and acquainted with the teachings of Plato and Aristotle. Aristotle had described the perfect republic, 10,000 citizens divided into three classes, craftsmen, workers and soldiers : the town also divided into three parts, for the gods, administration, and dwelling houses : the role of the magistrates was also threefold, the general interests of the city, the business of strangers, the care of orphans : the town must satisfy the requirements of hygiene, defence and circulation : the meeting place should be near the precincts of the gods, and both should be in the heart of the city : the market should be on the periphery for easy transport. Hippocrates had earlier recommended that towns should be sited so that the dwellings obtained the morning sun : and another medical man that roads should cross at right angles orientated to the points of the compass in order to form a well aerated and sunny town.

Note : Vitruvius later, in the days of Imperial Rome, adjusted this theory to read that roads should be orientated in accordance with the prevailing wind.

Hippodamus in his generation and his followers in the days of Alexander the Great, accordingly laid out new towns on a chequer-board principle.

Alexander had revived the old formal processions to impress the populace, and in every new town processional ways and triumphal avenues were laid out. Priene, an early colonial town, had neither vistas nor processional ways, but Alexandria, for example, had a highway (now the Rue Rosette) that was 4 miles long and 100 feet wide. Streets were usually about twenty feet wide and the house blocks almost square. Over the period of colonial development, the pace greatly accelerated under Alexander and chequerboard towns were laid out and built at Priene, Miletus, Rhodes, Alexandria, Selinonte (Selinus) (fig. 29), and Pergamon.

The core of all Greek cities, whether they had grown slowly of themselves or been newly planned, was the agora, the market and meeting place. In the early days this had developed as an irregular open space beside the meeting of the main streets. By the time of the latter Hellenistic cities it had become a colonnaded rectangle enclosed from the through streets.

Rome. Alexander's Empire lasted only a few years and, in the west, the power of Rome was rising.

Among the Romans three virtues were recognised as all-important : self-control, obedience, and charity or goodwill towards one's neighbours. The head of the Roman family was the father—the *pater familias*—who was gravely aware of his responsibilities. Behind him were the spirits of his fore-fathers, embodied in the "law". His duty was to train his sons to become worthy heads of families themselves. His authority was absolute over his wife, his children and his slaves.

From early days the importance of the law was apparent. The Twelve Tables of the Law were first written down in the 5th century B.C. and the government placed in the hands of two elected Consuls, directed by the Senate and subject ultimately to the popular assembly of all full citizens.

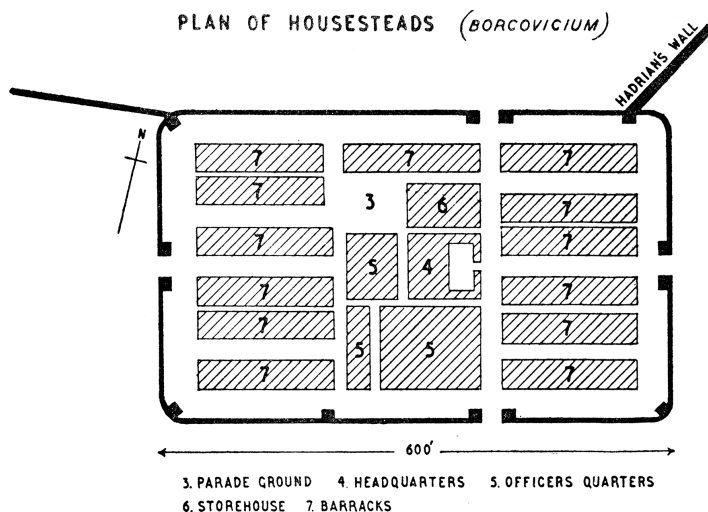
These laws and customs remained. They were essentially suited to a small community, and in their rigidity lies a germ of the ultimate fall of the Roman Empire. The gap between ruler and ruled became unbridgeable and the overwhelming concentration of all ultimate power into the hands of one central leader made for lack of personal responsibility among the rest of the population.

By the eve of the Christian Era Rome had become mistress of the Mediterranean and four great changes set in :—

- (1) The establishment of a permanent army with loyalty only to its leaders ;
- (2) The rise of home luxury made possible by the importation of enormous quantities of slaves ;
- (3) The movement of the peasant cultivator to the towns and substitution of huge estates of olive groves and sheep farms worked by slave labour ;
- (4) The reappearance of the “ divine king ”.

The Romans excelled in the establishment of new towns and the transformation of old ones. A town could be completely redeveloped on three occasions ; when it became a colonial centre ; when it was made a local capital ; when it became an Imperial residence.

The new town plan was conditioned by the religious auspices, by the defence requirements, and by technical considerations. The inauguration of a new town was a religious matter and religious practice also governed the plan in other ways. One of the first things to be done was to fix the boundaries of the new town : only within this area was it lawful for the magistrate to consult the auspices, and within this area no-one might be buried and no alien gods might be brought. The establishment of the city wall was thus a first consideration. Next of importance were the main cross-roads. The Romans based their town plans on a right-angle cross formed by roads called the *decumanus* and the *cardo*. The *decumanus* was carefully laid out to run towards the rising sun on the day of inauguration—Mithras, the sun god, was the god of the soldiers. After this the foundation of the town was consecrated by sacrifice. At the crossing of the two main roads the Forum was established. The four quarters were then divided into square or rectangular islands based on the unit of measurement—120 feet. This method of division was universal. The Roman magistrate or augur who consulted the will of heaven, marked out his *Templum* into four quarters. In these he sought for his signs. The general who encamped his troops ; the



Note: Temples, baths, theatre, etc. lay outside the walls

Fig. 30. Roman Camp, 1st Century A.D.

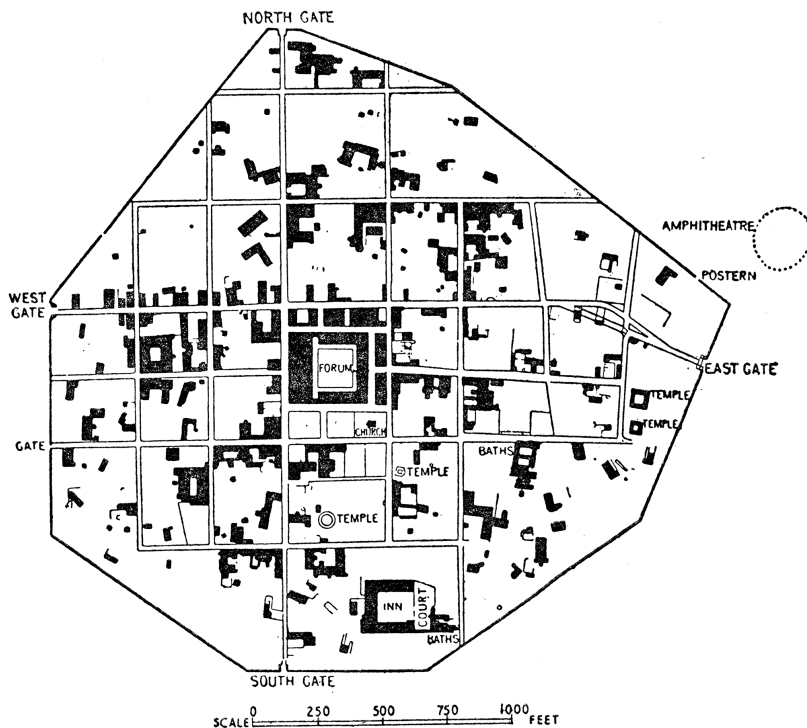


Fig. 31. Silchester, Hants.

commissioner who assigned farming plots to emigrants also used the same system. In the simplest case the camp might only be a square surrounded by a ditch and rampart, crossed by two roads intersecting

at the General's tent—the gates being guarded by picked sentries. As camps became permanent, elaborate towns arose colonized by compact bodies of farmer emigrants sent out from Rome. Several hundreds of these island settlements were formed, of which Timgad in North Africa, Trèves (Trier) in Germany, and Silchester in England are good examples (figs. 30 and 31).

The rigid lines of these towns served their original purpose well. They were quick and simple to lay out ; they were easy to police and defend. But as soon as military discipline was relaxed, the lines wavered. Almost all cities that did not immediately decline with the loosening of Roman rule, lost their chessboard pattern. Turin and Florence are exceptions but there Roman influence remained paramount. The new extensions wandered away in uncertain curves, the town centre was gradually twisted.

Regulations about cleanliness in cities and about street widths occur even in the first Twelve Tables of the Law. The house-owner must not build up to the edge of his plot, but must leave $2\frac{1}{2}$ feet clear. This left a gangway of 5 feet between buildings. Roads for vehicles must be 8 feet wide. Unfortunately, as technical progress grew, these laws were not sufficiently amended, and in Rome houses grew to seven storeys separated only by deep airless gorges. The drainage of Roman towns was elaborate, and the Cloaca Maxima, or main drain of Rome, is well known as a masterpiece of early engineering. Water was brought in lead pipes along viaducts. These aqueducts, the bridges, the defensive walls, fortifications and drainage works were usually built of a concrete and rubble core faced with cement bonded brick or stone.

Town traffic always remained a problem. The speed of Roman traffic was not great, pedestrian carriages and litters proceeded at foot pace, but their numbers were great in relation to the space available. Imperial Rome had about 1,000,000 inhabitants who lived at a slum density of over 200 to the acre. From quite early days vehicles had been forbidden in the centre of the city during the hours of daylight, and merchandise could only be delivered and collected between sunset and sunrise. As the widest street was about 20 feet wide, this regulation made sleep difficult. Juvenal complained that on entering the city he was splashed by mud and dirt, pushed aside by the rabble, and that the soldiers trod on his feet. In the newer, colonial cities the main cross-roads were made 80–100 feet wide both for police purposes and as a processional way.

In the centre of Roman towns was the Forum—akin to, but different from, the Agora of the Greeks. Broadly speaking, the primary function of the Agora remained as a market place, while the primary function of the Forum was the purveying of state law and state religion. Both

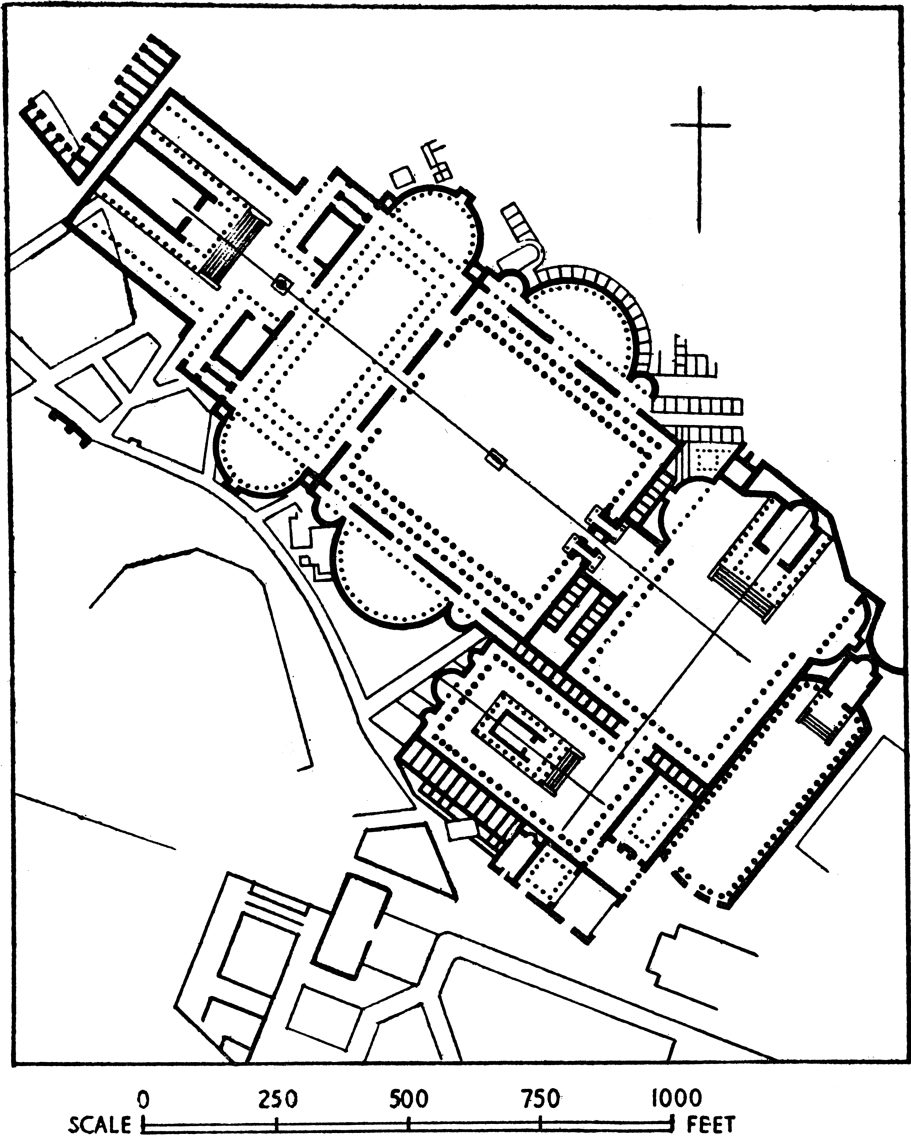


Fig. 32. The Imperial Forum, Rome, 123-135 A.D.

were built aside from main through traffic routes, but in the Greek and Hellenistic cities the approaches into the Agora were usually at the corners, whereas the approaches to the Roman Forum were usually in the centres of the sides. This opened the possibility of through views and enclosed vistas and the development of the triumphal arch (fig. 32).

In the days of Imperial Rome monumental architecture had ceased to grow from the people : it was presented to the city by a beneficent ruler or a munificent citizen.

“Temples were no longer their chief monuments, but palaces, baths, amphitheatres, granaries, bridges, aqueducts and drainage works. For the people ‘panem et circenses’; for the rich private individuals, the satisfaction of luxury and of material comforts; for the State, the government of the conquered peoples through the conferment of prosperity and through the impression of magnificence and power.” (Bailey: *The Legacy of Rome*, p. 430).

Despite the general appearance of outward prosperity there was no content among the people. Political events and changes were received with apathy—the masses could take no part in them—but new religious ideas were received with avidity. Stoicism spread among the more educated, but the poor became followers of Mithras, of Isis and then of Christ. All these preached in some measure righteousness and equality, immortality and salvation. They gave hope to the slaves and down-trodden and restored some measure of their self-respect. Gradually, despite persecution, the precepts of Christianity penetrated the Empire and eventually in A.D. 325, under Constantine, it became the State religion.

By A.D. 150 the period of imperial contraction had set in. The extreme frontiers of western civilisation had been reached. The demands of the new provinces had not been met by an expansion of manufacturing in Italy, but by migration of craftsmen from Italy and Greece to France, Germany and Britain, pushed out by cheap slave labour at home. The result was a reduction in inter-provincial trade. Each province tended to become an economic unit and gradually the large farms (such as the Roman “Villas” in Britain) became self-sufficing households. The Roman Empire had been based upon towns, and one of the chief causes of its decline was the weakening of town life that now set in.

Behind their screen of military outposts the Roman provinces of Europe remained at ease in fancied security and were becoming unwarlike, but, over the borders of the Empire, Germanic and other tribes had learnt the arts of war as mercenaries in the Roman armies, and from the second century A.D. their incursions began to be troublesome.

Early Britain

Britain B.C. Let us turn now to Britain. About 2500 B.C. Neolithic people were beginning to cross over into Britain from the continent. Their forefathers had started journeying with their flocks from the eastern end of the Mediterranean and they brought with them far off memories of the early civilisations there. From the beginning they buried their chieftains with ceremony in chambers under a mound, or barrow. They knew something of mining for flints and valued



Fig. 33. Maiden Castle, Dorset, circa 100 B.C.

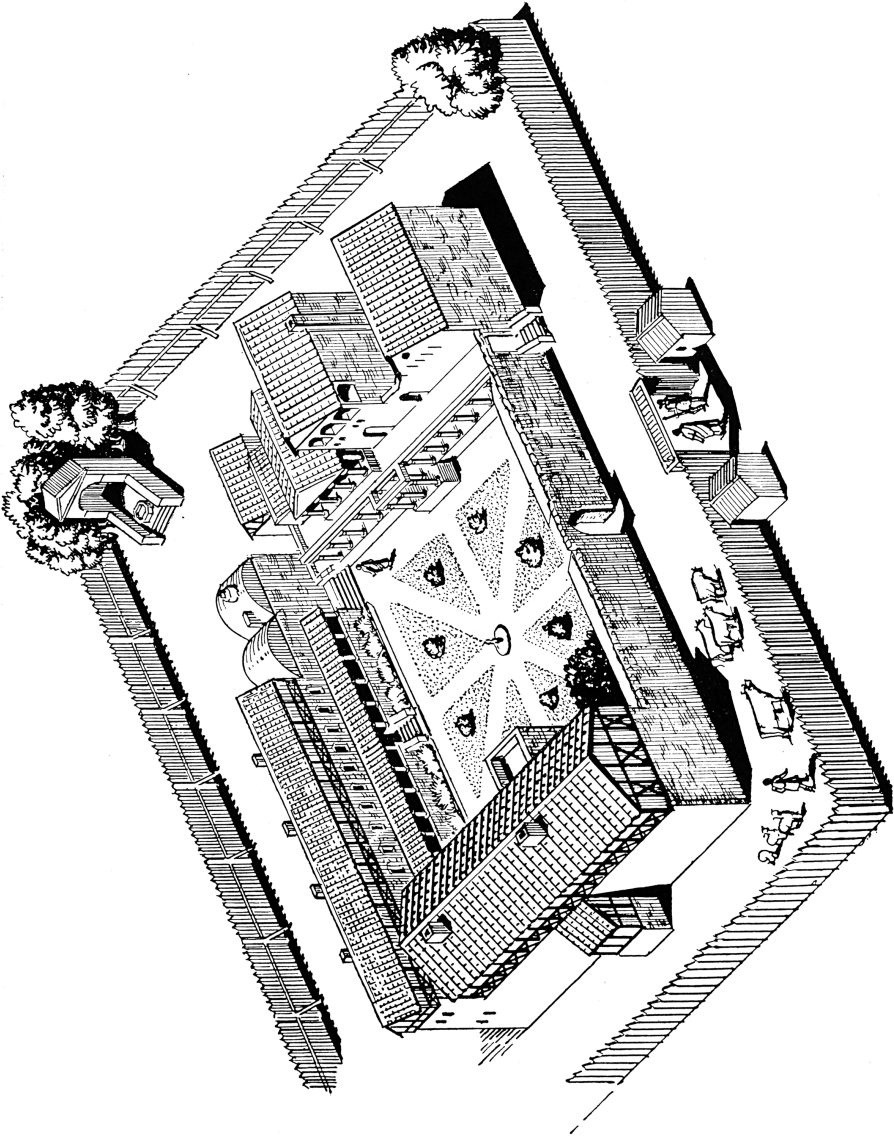


Fig. 34. A Roman Villa

gold. They scratched the ground with an antler plough before sowing.

The early arrivals lived in camps, on high ground, among which are Maiden Castle, Dorset (fig. 33) ; Windmill Hill, Wilts ; Goodwood, Sussex ; and Hembury, Devon. These sites continued in use at later periods.

About 2000 B.C. came the Bronze Age people who had followed much the same itinerary. They carried forward the same type of culture but religious rites became more elaborate and were connected, as in Egypt, with the sun. Stonehenge was the centre of the early routes in Britain along the chalk downs from all over the country, and the chief religious gatherings were held here, probably accompanied by human sacrifice.

About 500 B.C. a different people appeared—immigrant Celtic speaking farmers who knew how to smelt iron. With their iron ploughs drawn by oxen, they spread over the chalk lands, and have left the imprint of their square-shaped celtic fields on the slopes of the downs.

About 250 B.C. these farmers were followed by Celtic chieftains from Europe who had adopted the war chariots of the Mediterranean people with whom they traded. The existing inhabitants hastily threw up forts on hill-tops throughout southern England, and, in some measure, kept them off ; but in Yorkshire, which the Iron Age Celtic farmers had never penetrated, the new-comers enslaved the local population and ruled with great pomp. They imported craftsmen who had learnt a distinctive artistic style known as the “ La Tène ” style.

About 100 B.C. various Belgic tribes began to come over to Britain. They had been in close contact with the expanding Roman Empire and had imbibed many Roman ideas and customs of administration. During the next 150 years they conquered the south-east of the country and established, for the first time, large and stable kingdoms instead of small and scattered tribal groups. One headquarters was at Prae Wood, St. Albans, and another at Colchester.

Roman Britain. The Romans arrived in A.D. 40 to find a comparatively united and well governed country with a good network of trackways along which the war chariots could be driven at a swift pace.

Within 4 years the line of the Fosse Way had been established as a Roman military frontier, and towns were gradually developed along its length—Lincoln, Leicester, Cirencester and Axminster. To the south-east of this frontier the country became a peaceful Roman province : but to the north-west revolt was always breaking out.

The Roman roads usually followed lines of the existing tracks, straightening and paving most of them to a width of 14–16 feet, though some were only 8 feet wide.

The four chief Roman towns were Colchester, St. Albans, Lincoln and Gloucester. In addition the Romans founded London, and Bath had become a spa by A.D. 76. Other towns were founded on or near the headquarters of local tribes : Exeter, Dorchester, Caerwent,

Cirencester, Winchester, Wroxeter, Aldborough. Two major fortress towns were Chester and York. These were all laid out on the usual lines of the formalised Roman Camp (fig. 30).

More than 100 forts were built and manned along the borders of Wales and Scotland, and Hadrian's Wall was started in A.D. 122 under the command of the Emperor Hadrian himself.

In the early days the Romans did all they could to encourage town life, but in the later days both Romans and the Romanised British aristocracy lived in "villas", which were usually self-contained economic units, scattered over the area south-east of the Fosse Way (fig. 34). These fell into decay after the penetration of the Anglo-Saxons in the fourth and fifth centuries.

In the 3rd and 4th centuries A.D. the Roman Empire was everywhere in difficulties. Northern barbarian peoples, who had learnt the arts of warfare while serving in her armies, were now demanding their independence. In 367 a concerted attack on Britain by Picts, Scots and Saxons achieved a considerable success. Further invasions followed, and the Romans left the country. In some cases towns were burnt and people fled in terror to Brittany and there set up a new British Christian civilisation; but, in the main, it was a peaceful penetration.

The conquerors were not town dwellers and, even when not destroyed, the Roman towns decayed and remained in ruins for more than 500 years.

Mediaeval Europe

Byzantium. The collapse of Roman power in the west resulted in the movement of the capital of the Empire to Byzantium (Constantinople), a more convenient administrative centre for the Empire's most valued eastern possessions. Here, throughout nearly a thousand years of the Dark Ages of Europe—from the decline of Rome in the 3rd century to the rise of Venice in the 13th—Constantinople developed an individual type of civilisation that derived from Greek, Syrian and Roman sources. The Christian Emperor had again become almost divine—he was "God's Anointed"—though elected according to Roman Law. Excitements for the crowd were also provided on the lines of old Imperial Rome. The Hippodrome was a gigantic amphitheatre seating 80,000 people, in which chariot races and circuses were held and great public announcements made. The town was planted throughout with trees; sanitation was elaborate; building laws were strictly enforced. Byzantium, by reason of its strategic position, was the centre of world trade and special areas of the town were allotted to each of the many nationalities that lived and traded there. At its height, about A.D. 900, the city probably contained 1,000,000 people.

No other European city was to approach this figure for another thousand years.

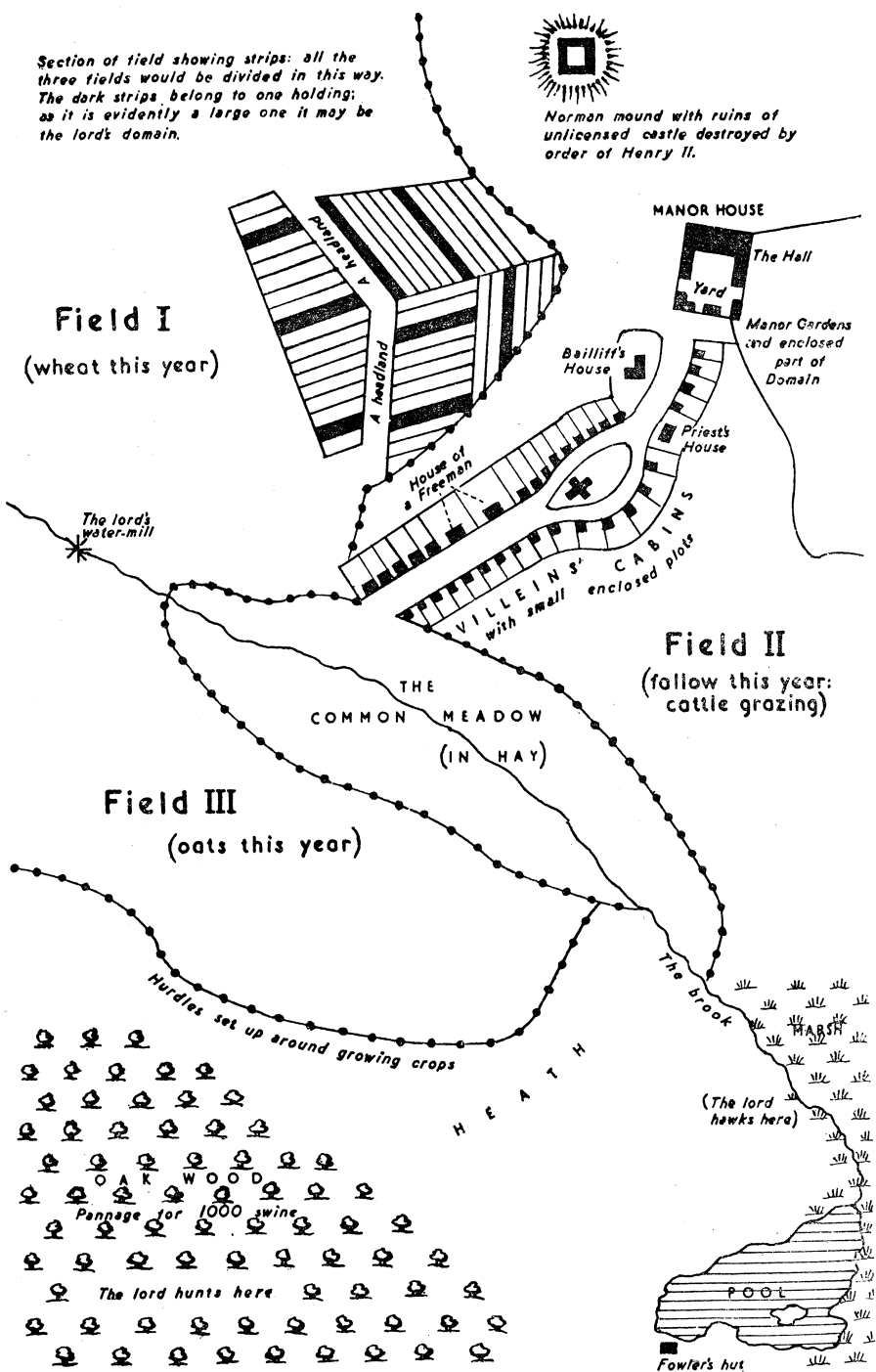
Byzantine architecture developed Roman engineering skill in the method of covering a square space with a dome. The cathedral of Sancta Sophia, built by Justinian in the 6th century, is the supreme example of Byzantine building achievement. The palaces of Constantinople consisted of a series of elaborate and magnificent buildings, rich with mosaic and coloured marbles, set in highly formal gardens with fountains and topiary.

Islam. From A.D. 610 another element appeared. Mohammed began to preach his gospel. He was a militant prophet and when he died, twenty years later, he was master of all Arabia. His followers carried out a series of military campaigns and, in the next three centuries they conquered all northern Africa and much of southern Europe.

"The Moslem conquests are associated with new types of architecture, called variously Saracenic, Mohammedan and Arabic. But the true Arab was never an artist. He built, because he had to build, mosques, palaces, tombs, cities, but he found his workmen and architects among the Egyptians, Syrians and Persians he had conquered." (Wells : *The Outline of History*, p. 629).

In A.D. 776 the capital of the Islamic world was built at Baghdad. The town was perfectly circular, the outer walls pierced by four gates at the points of the compass. Roads led straight to the palace and public buildings, which occupied the centre of the town and were surrounded by an inner wall. The houses were built closely together between this and a third wall. The space between the middle and outer walls was left clear. No trace remains of this town, but there is a tale that, when it was completed, the Caliph received the envoy of the Emperor of Byzantium who was asked for his views. "You have," he said, "built a town finer than any of your predecessors but it has three faults. First, the water is too far away, and men need water to wet their lips. Secondly, a spring is green and demands trees, and you have no gardens within your walls : thirdly, your subjects live beside you in your palace, and secrecy is impossible." The Caliph saw the justice of these remarks. He brought water from the Tigris, he made plantations and gardens, and he separated himself from his people. These alterations gave Baghdad the three characteristics of all Mohammedan towns ; an abundance of water, splendid gardens and special administrative quarters.

At the other end of the Moslem Empire was Cordoba, in Spain, the intellectual centre of the west, and, with a population of half a million, the largest town in Europe after Byzantium. In its heyday it was the wonder and admiration of the world with 70 libraries and 900 public baths.



An imaginary English village under the Manorial system,
from HISTORY OF ENGLAND by G.M.Trevelyan. Longmans, Green & Co., Ltd.

Fig. 35. Norman village, showing the pattern of our landscape prior to the Enclosure Acts.

The Dark Ages. After the fall of Rome the all pervading need was for protection against sudden attack from invading tribes. The idea of imperial government had, for a time, disappeared and the protection which is normally the business of government was not available. The small landowner had to seek his protection elsewhere. The institution that developed was a personal one—an alliance between the weak and the strong, the former securing protection and the latter services. Throughout western Europe a process of crystallisation was taking place. The country was split into small units and a new system of government was evolving. The foundation of this system was the “fief” which was usually land. In return for the use of the land the man became the vassal of the lord. This “Feudal” system covered all western Europe with a network of fiefs rising in graded ranks from serf to knight and ultimately to the king—who held his kingdom from God. Feudalism provided the most effective system of government during these centuries of insecurity. The serf, in return for so many hours work on his lord’s land, had a cottage, a certain allotment of strips of land to cultivate for himself, and rights to turn cattle on to the common field and gather fuel in his lord’s woods. With variations the system was customary throughout western Europe and worked reasonably well (fig. 35).

The Crusades. In the 10th century the Seljuk Turks conquered Baghdad, defeated the Byzantine army and occupied Jerusalem. The Pope called for a holy war and got a magnificent response. The first crusade conquered Jerusalem but only to lose it again. The Crusaders were, however, astounded and overcome by their contact with the magnificence of Christian Byzantium, and the fourth crusading army, under the lead of Venice, turned its energies to the capture of this magnificent prize. The city fell in 1204 and this was followed by what was probably the greatest sack in all history. The city had barely recovered from this conquest before it was menaced by persistent pressure from the Ottoman Turks by whom Byzantium was finally destroyed in 1453. From now on, Venice obtained almost the whole of the trade with the Far East that had been the virtual monopoly of Byzantium for nearly a thousand years.

After a difficult period during the 9th and 10th centuries there came a fairly rapid trade development in the Mediterranean, the Netherlands and other more advanced areas of Europe. This process, even in outlying countries such as England, had developed considerably by the 13th century. Merchant traders were circulating from Venice across Europe to exchange goods with other traders from the north, and Venice, Milan, Augsburg, Nuremberg, Antwerp, Bruges, were among the earliest wealthy market centres along this connecting route.

Western Europe. The mediaeval city developed firstly as a series

of trading posts. Along the trade routes, as in the towns, men banded themselves together for protection. Boats only sailed when assembled in flotillas, merchants only travelled when collected in company. Co-operation was a social necessity and resulted in "gilds", "hanses", "friaries", "charities" and "compagnies". Except during winter, the merchant of the Middle Ages was continually on the road.

"This rover, this vagabond of trade, by the strangeness of his manner of life must have, from the very first, astonished the agricultural society all of the customs of which he went counter to and in which no place was set aside for him. He brought mobility to the midst of people attached to the soil; he revealed, to a world faithful to tradition and respectful of a hierarchy which fixed the rank and role of each class, a shrewd and rationalist activity in which fortune, instead of being measured by social status, depended only on intelligence and energy. And so it is not surprising that he gave offence. The nobility never had anything but disdain for these upstarts come from no one knew where, and whose insolent good fortune they could not bear. . . . As to the clergy, their attitude to merchants was still more unfavourable. In the eyes of the Church, commercial life was dangerous to the safety of the soul. . . . We must admit, however, that this attitude was not without its benefits. It certainly resulted in preventing the passion for gain from spreading without limit; it protected, in a certain measure, the poor from the rich, debtors from creditors. The scourge of debts, which in Greek and Roman antiquity so sorely afflicted the people, was spared the social order of the middle ages, and it may well be that the Church contributed largely to that happy result. The universal prestige it enjoyed served as a moral check-rein. If it was not strong enough to subject the traders to the doctrine of "Just Price", it was strong enough to restrain them from giving way entirely to greediness for profits. They were certainly very uneasy over the peril to which their way of living exposed their eternal salvation. The fear of the future life tormented their conscience. Many there were who on their death beds, founded by their wills charitable institutions or appropriated a part of their wealth to reimburse sums unjustly acquired." (Pirenne: *Mediaeval Cities*, pp. 127-30).

Cities. The mediæval town was built up by the merchant traders, the craftsmen and the shop-keepers of the town. From the beginning the town stood opposed to the feudal lords, providing, as it did, a possible escape from the ties of the land. Local loyalties grew up and cities competed with one another in trade, industry and craftsmanship. This consciousness of citizenship and common purpose expressed itself in the layout. The towns were naturally walled—they were islands in a hostile world and sharply defined from the surrounding countryside

—and every citizen had to bear his share in the upkeep of the fortification. “As early as the twelfth century the merchants were expending a good part of their profits for the benefit of their fellow citizens—building churches, founding hospitals, buying off the market tolls. The love of gain was allied in them with local patriotism. Every man was proud of his city and spontaneously devoted himself to its prosperity. This was because, in reality, each individual life depended directly upon the collective life of the municipal association. The commune of the middle ages had, in fact, all the essential attributes which the State exercises to-day. It guaranteed to all its members the security of his person and of his chattels. Outside of it he was in a hostile world, surrounded by perils and exposed to every risk. In it alone did he have a shelter, and for it he felt a gratitude which bordered upon love. He was ready to devote himself to its defence, just as he was always ready to bedeck it and make it more beautiful than its neighbours. These magnificent cathedrals which the thirteenth century saw erected would not have been conceivable without the joyous alacrity with which the burghers contributed, by gifts, to their construction. They not only were houses of God; they also glorified the city of which they were the greatest ornament and which their majestic towers advertised afar. They were for the cities of the middle ages what temples were for those of antiquity.” (Pirenne : *Mediaeval Cities*, p. 218).

The citizens of the mediaeval town had a common meeting place in the market square. Here regular markets were held under the supervision of the merchant guilds whose civic buildings were grouped around it. Open spaces, the piazza, the plaza, the place, the platz, are all far more common on the Continent than in England. There they form an integral part of almost any town—whether “planned” or not. In England even the market is frequently held in a wide street rather than a definite “place”—indeed there is scarcely an English word for it. The reason is probably mainly due to the climate. A reasonable certainty of fine weather is needed for it to be practicable for people to hold their social occasions regularly in the open.

Mediaeval open places had six main characteristics :—(fig. 36).

- (1) Public buildings are not isolated within them, but form the walls of them.
- (2) Monuments, statuary, etc., are seldom central, but stand off the traffic routes.
- (3) The centre is usually open.
- (4) The sides are, or appear to be, closed.
- (5) The place gives a visual impression of formality though it may be irregular on plan.



Fig. 36. Rothenburg. Mediaeval city.

- (6) Proportions are designed to enhance, not to dwarf, principal buildings (width of place usually less than twice the height of principal buildings). (*See Camillo Sitte*).

England was off the mediaeval trade routes, but her wool was already famous and the chief mediaeval towns of England were in her wool centres, stretching from East Anglia to the Cotswolds—Lavenham,

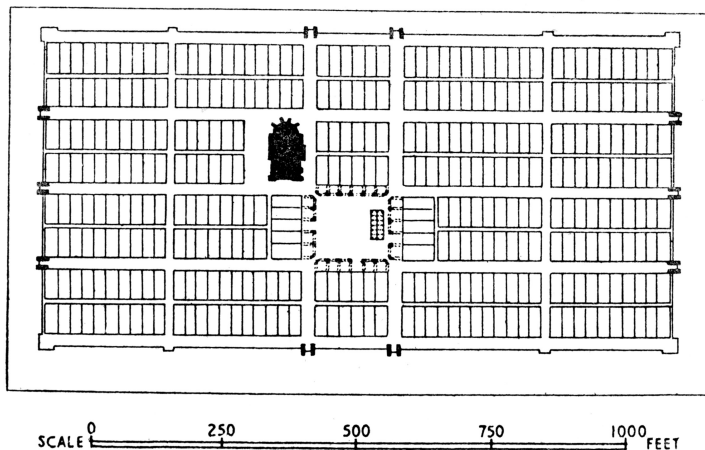


Fig. 37. Montpazier. Mediaeval bastide.

Ipswich, Norwich, Bury St. Edmunds, Oxford, Chipping Campden, Cirencester, Northleach. On the island of England there was, however, no need to build up protective walls round these towns so they developed on more open lines.

Meanwhile in the 13th and 14th centuries the aristocracy of England and France were gradually destroying one another during the interminable Hundred Years War. In the devastated region of south-west France, Edward I and others had built "bastide" towns to consolidate the wretched peasantry. These were built on a military pattern—very much like the Roman camp (fig. 37). The English and French built over forty of these towns scattered over the area behind Bordeaux. They were so successful that Edward I decided to found some new towns in England as well. Among these Salisbury and Winchelsea were re-established on new sites near existing towns that were evacuated (fig. 38), and Flint, Caernarvon and Rhuddlan were built as frontier towns to keep down the Welsh.

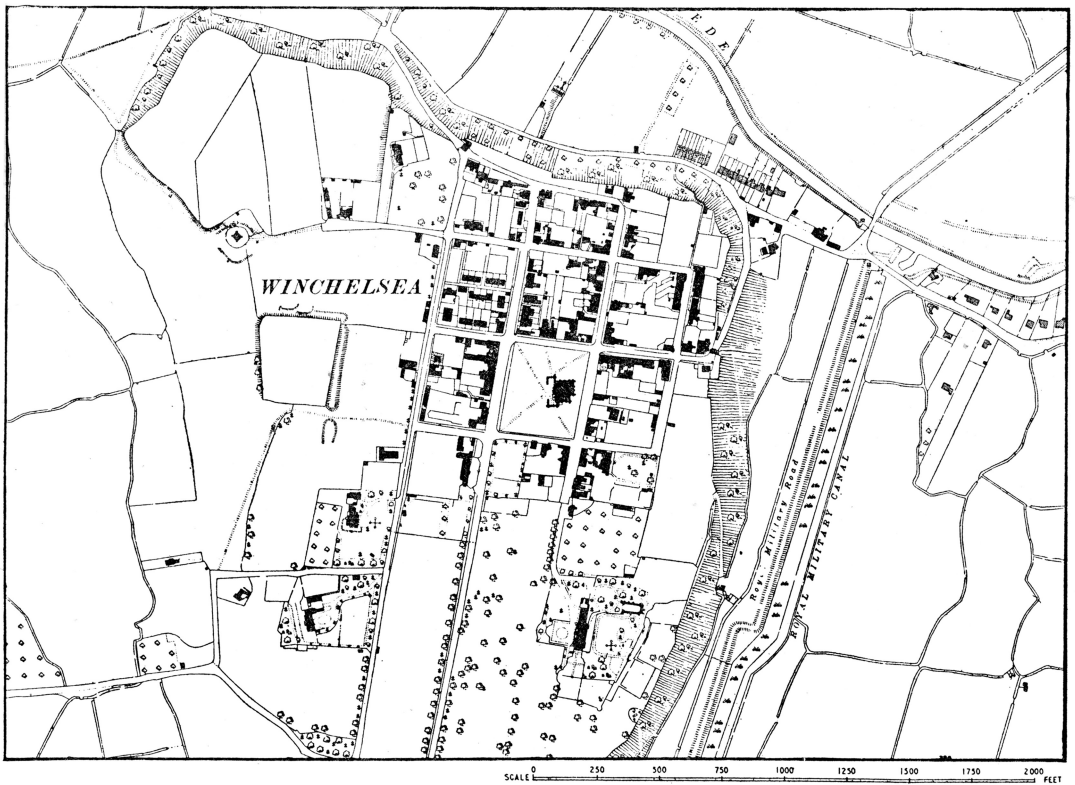


Fig. 38. Winchelsea, Sussex, circa 1290.

The Renaissance. About 1400 a Greek called Chrysolora from Constantinople had entered Florence. Influential citizens invited him to settle there and teach in the University. At that time there were said to be only 8 men in Italy who knew Greek. Many of the most famous scholars of the next generation were his pupils. Constantinople was being hard pressed by the Turks and decade by decade increasing numbers of Byzantine refugees made their way to Italy. With the fall of Constantinople in 1453, Italy became "sole heir and guardian of ancient civilisation", and students all over Europe came to her Universities.

Florence was the first home of the new learning and there developed for the first time the new cult of the individual that was to have a profound influence upon all future western civilisation. One of the first outstanding individuals, who seems to express in his own life the "whole man" of this period, was Leone Battista Alberti (1401-72).

"Of his various gymnastic feats and exercises we read with astonishment how, with his feet together, he could spring over a man's head; how, in the cathedral, he threw a coin in the air till it was heard to ring against the distant roof; how the wildest horses trembled under him. In three things he desired to appear faultless to others, in walking, in riding, and in speaking. He learned music without a master, and yet his compositions were admired by professional judges. Under the pressure of poverty, he studied both civil and canonical law for many years, till exhaustion brought on a severe illness. In his 24th year, finding his memory for words weakened, but his sense of facts unimpaired, he set to work at physics and mathematics. And all the while he acquired every sort of accomplishment and dexterity, cross-examining artists, scholars, and artisans of all descriptions, down to the cobblers, about the secrets and peculiarities of their craft. Painting and modelling he practised by the way, and especially excelled in admirable likenesses from memory. Great admiration was excited by his mysterious 'camera obscura'. To all these must be added his literary works, first of all those on art, which are landmarks and authorities of the first order for the Renaissance of Form, especially in architecture; then his Latin prose writings—novels and other works—of which some have been taken for productions of antiquity; his elegies, eclogues, and humorous dinner-speeches. Notwithstanding his admiration for the Latin language, he wrote in Italian and encouraged others to do the same; himself a disciple of Greek science, he maintained the doctrine that without Christianity the world would wander in a labyrinth of error. And all that he had and knew he imparted, as rich natures always do, without the least reserve, giving away his chief discoveries

for nothing. But the deepest spring of his nature has yet to be spoken of—the sympathetic intensity with which he entered into the whole life around him. At the sight of noble trees and waving cornfields he shed tears ; handsome and dignified old men he honoured as ‘ a delight of nature ’, and could never look at them enough. Perfectly formed animals won his good will as being specially favoured by nature ; and more than once, when he was ill, the sight of a beautiful landscape cured him. It need not be added that an iron will pervaded and sustained his whole personality ; like all the great men of the Renaissance, he said, ‘ Men can do all things if they will ’.” (Burckhardt : *The Renaissance in Italy*, pp. 136–8).

The systematic study of the physical remains of classical Rome was first inspired by the writings of Alberti but acquired great impetus after the publication of the first printed edition of Vitruvius in 1486. “ This work, which is in the nature of a handbook containing a code of formulae by means of which engineers engaged on the public works of the Roman Empire might clothe any structure in an architectural garb, was accepted by the men of the Renaissance as giving a clue to the system they assumed to underlie classical architecture and account for its beauty.” (Ward : *The Renaissance in France*, p. 22–3).

South of the Alps the Renaissance opened with a burst of exuberance that was accompanied by an influx of new riches that poured in from the newly discovered New World.

North of the Alps, however, the emphasis of the new learning was less on the beauties of ancient literature and the questions of form and style. Bacon, Erasmus and Luther all sought one thing above all others—the destruction of the evils which result from ignorance and obscurantism.

The exuberant opening period was followed by a time of social upheaval, of anxious and troubled thought and conflict. The Mediaeval Town, and all that it had stood for, was breaking up. The causes were manifold.

Church : The whole outlook of people was being altered by the effect of the revival of classical knowledge upon the authority of the Mediaeval Church. Until the contact of traders with Byzantium and Islam and the discovery of other sources of learning, all fields of knowledge and of art had been entirely under the control of the Church. In the eyes of the Church the aim of learning was not the independent quest of truth, for no such independent quest was permitted, but the re-statement in rational terms of truth already given. The only purpose of learning and philosophy must be to ‘ prove that the truth of revelation is also the truth of reason.’ Those who questioned were heretics and must be destroyed. In addition to growing irritation at

this irksome authority, there was an increasing indignation at the wealth and worldliness of the Church itself.

Trade : As life outside the walls of the town ceased to be perilous, merchants with sufficient capital to purchase adequate tools and raw materials began to farm their work out in the countryside, paying subsistence wages instead of town rates, escaping employment regulations made by the Trade Guilds, under-cutting the urban standard of living, and destroying the regulated market.

As a result of the invention of printing and the manufacture of paper (learnt from the Chinese) local dialects became merged into standard languages—Italian, English, French, Spanish, German—and national consciousness gradually took the place of the mediaeval city loyalties.

Defence : Up to the 15th century a well fortified city was almost impregnable. After the invention of gunpowder and the cannon, everything was changed. The towns from this point on were compelled to abandon their old system of simple walls, defended for the most part by a citizen soldiery. They were forced to adopt the new methods of fortification that had been worked out by the Italian

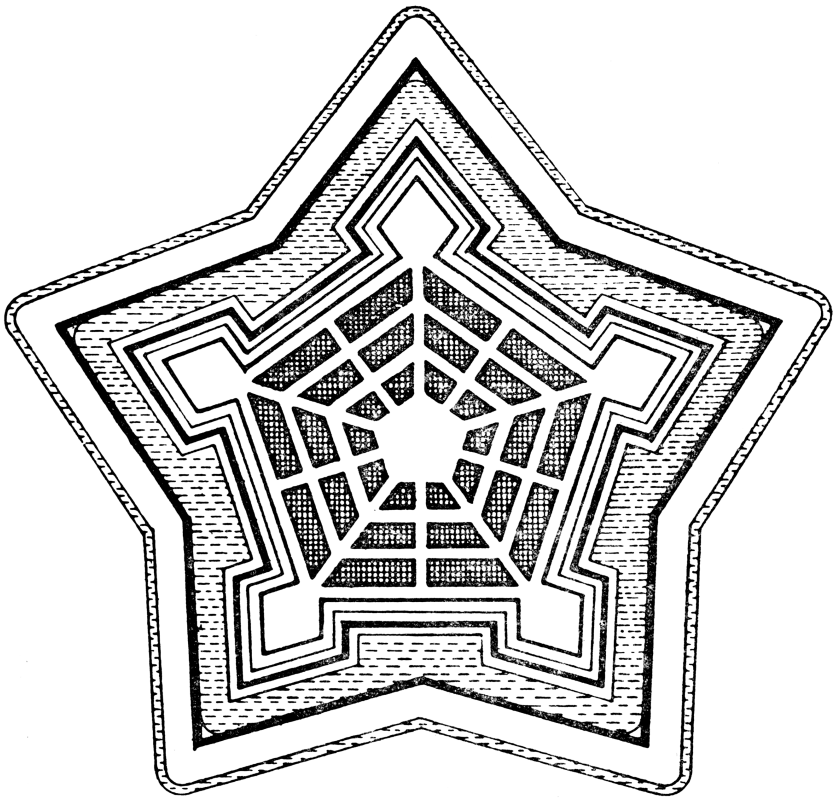


Fig. 39. Ideal plan by Adam Freitagach. 17th century.

military engineers. These new fortifications were far more elaborate than the old walls : they had outworks, salients, bastions, in starlike formations which permitted both the artillery and the armed infantry to rake the ranks of the attacking forces, from whatever side they might approach (fig. 39).

These fortifications were not only extremely expensive to erect, but almost impossible to alter. The old walls could be extended to include a new suburb, but the new fortifications prevented all outward growth. Military orders required that no houses should be built outside the walls as these might provide cover to an advancing enemy, and overcrowding in the towns became a major problem.

Over most of the Continent the citizen had to pay heavy taxes for these fortifications. England alone was free, for the cannon could not reach across the Channel.

The city could also no longer depend for its defence upon unpaid citizen soldiers. Each city had to have a paid standing army. "The army barracks have almost the same place in the baroque order that the monastery had in the mediaeval one ; and the Parade Grounds—the new Champ de Mars in Paris, for instance—were as conspicuous in the new cities as Mars himself was in Renaissance painting. Turning out the guard, drilling, parading, became one of the great mass spectacles : the blare of the bugle, the tattoo of the drum, were as characteristic a sound for this new phase of urban life as the tolling of the bells had been for the mediaeval town." (Mumford : *The Culture of Cities*, p. 88).

Finance : Cities obliged to go in for this heavy military expenditure were bound to lose their democratic character and become subject to the holder of the purse strings ; in Italy often a merchant prince ; in Germany a member of the local aristocracy ; in France the King.

"Once political power had been thus consolidated, economic privileges were obtained by individuals, not from the city, but from the prince ; and they could be exercised, as a rule, anywhere in the realm. After the sixteenth century, accordingly, the cities that increased most rapidly in population and area and wealth were those that harboured a royal court : the fountainhead of economic power. About a dozen towns quickly reached a size not attained in the Middle Ages even by a bare handful : presently London had 250,000 inhabitants, Naples 240,000, Milan over 200,000, Palermo and Rome 100,000, Lisbon, port of a great monarchy, over 100,000 ; similarly Seville, Antwerp, and Amsterdam ; while Paris in 1594 had 180,000 . . . except for overseas colonisation, the chief new cities built from the sixteenth to the nineteenth century were places selected for the permanent home of the prince and his court. Versailles (fig. 40), Mannheim, Karlsruhe (fig. 41), and Potsdam belong to this group. The town extensions that took

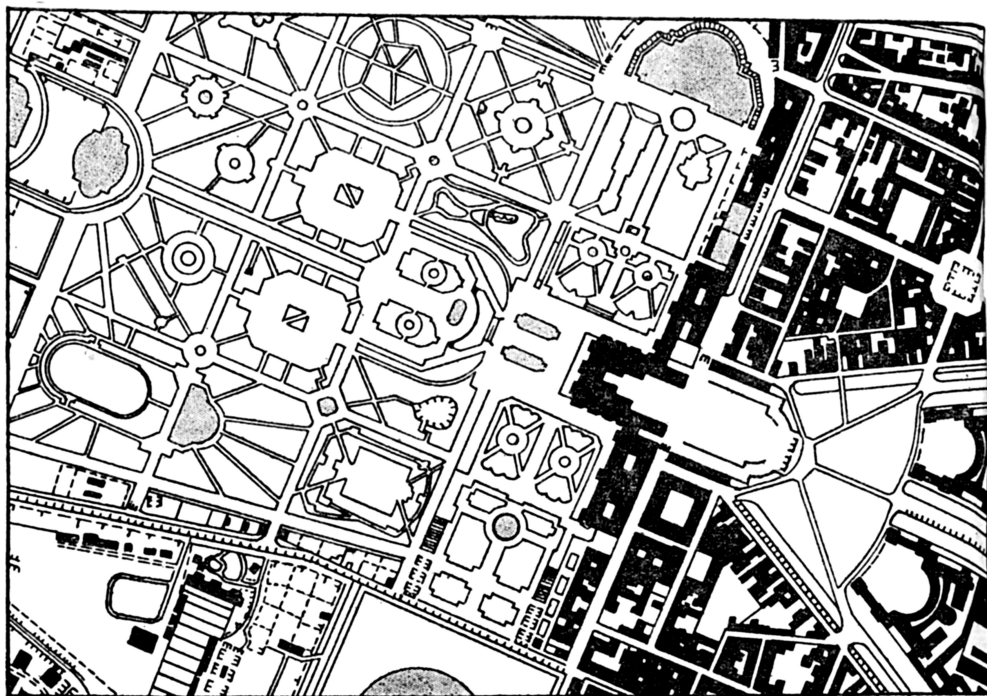


Fig. 40. Versailles. circa 1602.

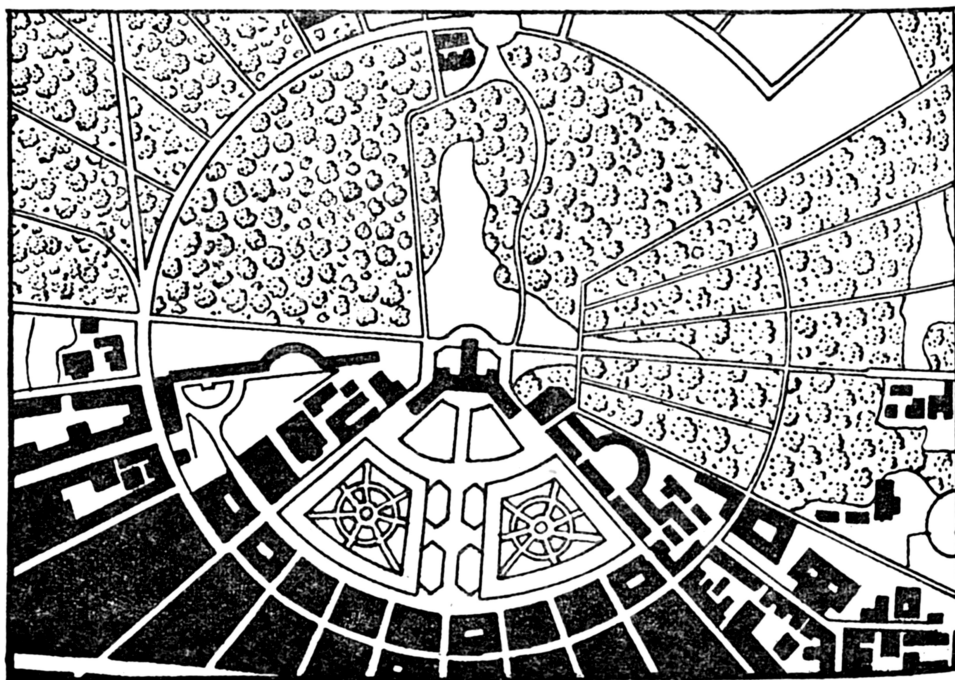


Fig. 41. Karlsruhe. circa 1776.

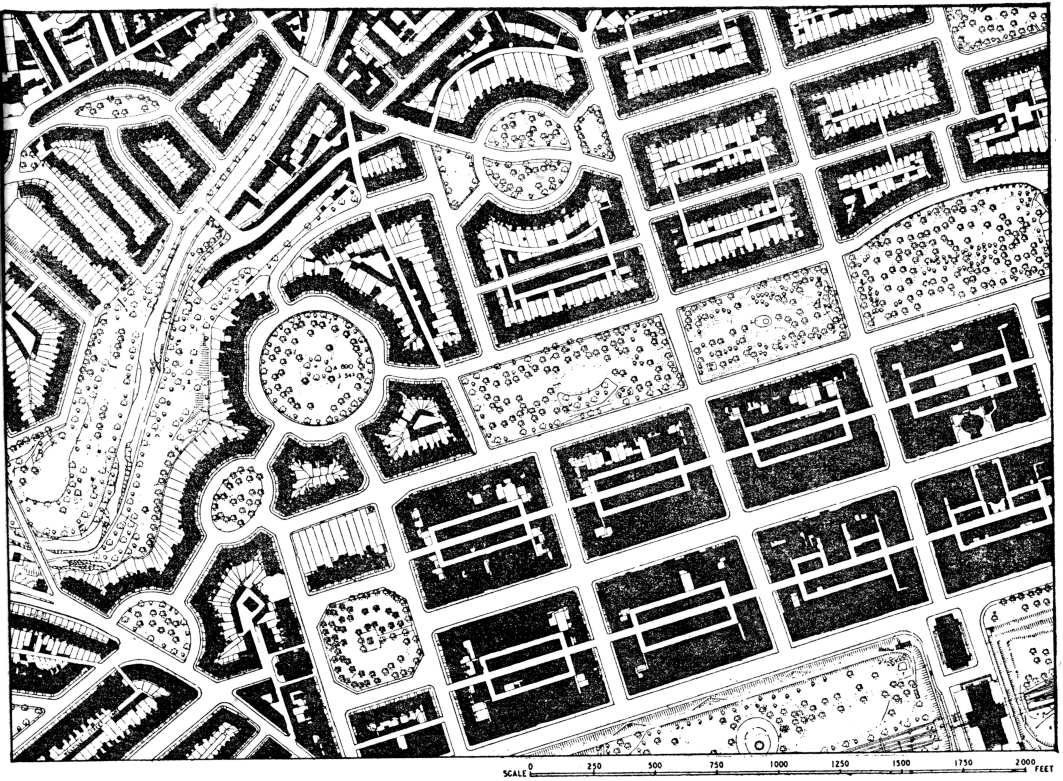


Fig. 42. *New Town, Edinburgh.*

place on the new lines were usually done in capital cities, like Naples, or Munich, or in towns like Edinburgh (fig. 42) and Nancy where the new bourgeoisie had achieved almost aristocratic pretensions." (Mumford : *The Culture of Cities*, p. 80).

Traffic : It was not until the 16th century that carts and wagons came into general use within towns. This was partly the result of technical improvements that replaced the old solid wheel with one built up of separate parts. The streets of the mediaeval town were primarily for pedestrians and therefore ill adapted for wheeled traffic, so that changes were required.

By the 16th century the avenue became the hall mark of the late Renaissance towns, and, in accordance both with the classical principles as set out by Alberti and Palladio, and with the military needs of the time, the avenues were straight.

"In the new city, or in the formal additions made to old centres, the building forms a setting for the avenue and the avenue is essentially a parade ground ; a place where spectators may gather, on the sidewalks or in the windows, to review the evolutions and exercises and

triumphal marches of the army—and be duly awed and intimidated.” (Mumford : *The Culture of Cities*, p. 97).

The English Countryside in the Eighteenth Century. 18th century Britain was an age of aristocracy. The crown was in decline ; powerful merchants and great landowners ruled the towns and countryside. Grandiose country mansions and noble parks spread over the land, imposing public buildings and spacious city squares filled the towns.

There came the development of pleasure resorts. Fashionable people got tired of remaining at their homes all the year round. The court life was not gay enough for some, and political differences barred London for others. At the very beginning of the 18th century Celia Fiennes went to Tunbridge Wells to drink the waters and to Bath to bathe. Other resorts sprang up at Epsom and Clifton. Later on sea-bathing became popular and Lyme Regis, Margate, Ramsgate, Brighton, Weymouth, Weston, Scarborough and Tenby became fashionable. Then Cheltenham, Buxton, Leamington and Harrogate increased the number of inland Spas.

The ruling oligarchy was, however, totally divided from the common people. Agricultural developments demanded a reorganisation of the incompetent mediaeval strip system of husbandry (fig. 35). This system had prevailed for over 800 years and had many disadvantages. “ Under the primitive system the area under the plough was excessive and much land which might have been more profitably employed as pasture was tilled for corn. A quantity of the arable land was wasted in innumerable balks and footpaths. All the occupiers were bound by rigid customary rules, compelled to treat all kinds of soil alike, obliged to keep exact time with one another in sowing and reaping their crops.” (Prothero : *English Farming Past and Present*, pp. 154-5). You could not cross-plough ; you could not introduce new crops such as the turnip which could ensure winter fodder for the livestock ; and you could not exercise personal initiative. Men like Jethro Tull (inventor of the seed drill which ensured even sowing in rows, between which weeds could be kept down), Charles Townshend (who devised a four course system of crop rotation, introducing root crops), and Arthur Young (Secretary to the Board of Agriculture and enthusiastic advocate of enclosure) are among the great names which are associated with the improved agricultural methods. The rapidly increasing population demanded a far larger supply of food and without these improvements England would probably have starved during the Napoleonic wars.

The Enclosure Acts, though undoubtedly necessary, were callously and stupidly administered, and they created a landless peasantry that, for more than a generation, was only kept alive by public charity. The lord of the manor, the tithe owner and the large farmer gained

much by the enclosures. The small farmer, the cottager and the squatter lost heavily. "Even if the small farmer received strict justice in the division of the common fields, his share in the legal costs and the additional expenses of fencing his own allotments often overwhelmed him and he was obliged to sell his property." For the others "the destruction of the commons had deprived him of any career within his own village ; the Settlement Laws barred his escape out of it." (Hammond : *The Village Labourer*, pp. 73, 88). By the Settlement Laws any unwelcome newcomer could be returned to the parish from which he came.

"In the course of the eighteenth century something between four and five million acres of land were enclosed under parliamentary powers. There was, besides, a great though incalculable amount of enclosure and consolidation of properties through private treaties : so that it has been estimated that in the eighteenth and early nineteenth centuries something like a quarter of the entire area of the country was enclosed very largely from the common fields. It was these common field enclosures more than any other that changed the appearance of the countryside. The work entailed in the business of enclosure must have been of extraordinary complexity. First of all it was necessary for surveyors to measure and value every one of the innumerable little properties involved. Then the whole of the enclosure area was pieced out so that each holder received his proportionate share, with, as far as possible, each new holding laid out contiguous with the existing homestead. This often entailed a complete remodelling of the public road system, for while it was desirable that each new holding should be compact and unsevered by roads, it was also necessary that as far as possible it should have direct access to them. Hitherto the highways had been unfenced and unfixed : rights of passage only, which might deviate and alter to avoid obstacles and bad impassable patches. Now they became fixed, narrow, hedged strips which had to be fitted into the general pattern of the re-distributed fields. So the winding, sharp-turning and apparently erratic English country roads are not the result purely of ancient purposelessness and blind chance, but are a natural part of, and arose from, the individual development of English agriculture. . . ." (Sharp : *English Panorama*, p. 48).

At the same time as the agricultural scene was being transformed, a new interest in the landscape was developing among the wealthier classes. "Le Notre had been laying out the great gardens of France in a patterned smoothness like so many Aubusson carpets, and every English owner of a country house conceived the ambition to emulate Versailles or St. Germain ; the older type of garden still lingered on here and there to the end of the seventeenth century, but by the reign of Queen Anne (1702-1714) the revolution was accomplished.

Flowers to all intents and purposes had been banished ; the house was surrounded now by broad terraces and smooth stretches of lawn, and from it radiated, for miles, great avenues of lime and chestnut ; instead of fishponds there were canals, parterres in place of knot-gardens, and, perhaps the most important change, the garden was no longer separated so distinctly from the park. Yet another change, however, began to make its appearance about the 1720's, and an even greater change than any that had yet come about ; while hitherto gardens had passed from small scale formality to formality on a scale almost monumental, they now began to move from that formality towards an equally studied informality. The truth of the matter is that Nature, provided that she behaved herself, was coming into fashion and the countryside was beginning to be noticed ; it was hardly possible to extend the garden and the park any more, so as to include all the visible country beyond, but it was at least possible to create an illusion of so doing by removing the conspicuous barriers and substituting a demarcation that was, from the immediate neighbourhood of the house, invisible. The " ha-ha " is probably the most important single innovation in the whole history of gardens ; with the removal of the barrier the artificial formality must go too, and instead of the garden being made to harmonise with the house it must be made to harmonise with the surrounding view." (Steegman : *The Rule of Taste*, p. 54-6) (fig. 43).

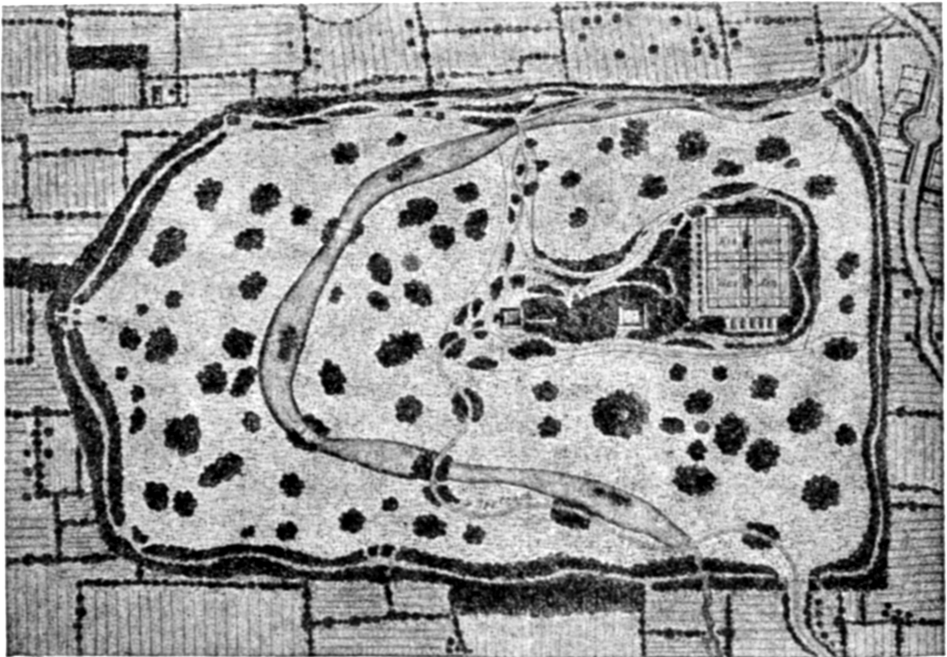


Fig. 43. Treatment of a hypothetical site, 1800, from Loudon's "Country Residences".

British Urban Development. By the middle of the 17th century London had a population of 200,000 or more, and was one of the chief commercial cities of the world. Town and village were in a continuous course of rebuilding, as well as of natural expansion, for by now wood was being almost universally discarded as the normal building material, and houses of brick and stone offered fashionable, no less than physical advantage.

In London the new architecture of the Renaissance was first introduced by Inigo Jones on a grand scale in the design of the "Piazza" at Covent Garden (1630). This was, as its name implies, an attempt to impose Italian classicism upon England. It was followed in the latter half of the 17th century by many others, and the square became the most conspicuous feature of English town planning. The square resolved itself into a compact arrangement of narrow houses, all almost identical, forming a symmetrical composition and having in the centre a garden which conformed in its lay-out to the principles of the "picturesque". With the square came the terrace and, later, the crescent and the circus, and they introduced elements of grace and orderliness into ordinary domestic architecture, which are often regarded as England's great contribution to the progress of civic design.

The economic rise of the middle-class in Britain had a creative effect upon the building of the period. For the first time speculative building on a considerable scale, planned housing development, was undertaken for the middle-classes, and the results remain to-day in almost every country town in the country where the "Georgian district" has now become the locale of lawyers, doctors or clerics, according to the general character of the town or, in the larger manufacturing centres, it often now houses the offices of wholesalers or has had its ground floors altered to form shop fronts.

These 18th century houses and streets are notable for their graciousness and unobtrusiveness—seemliness is perhaps the best word. "The civic consciousness reflected in nearly all these seventeenth and eighteenth century town developments is remarkable indeed when we consider how slight was the civic control over the building activities during that period. Besides Edinburgh New Town, the Regent Street and Regent's Park development in London was the only large scheme springing directly out of government initiative. The rest were the works of private landowners and speculative builders. These men did not undertake their work solely for the good of the community. They expected, and many of them got, considerable fortunes from it. But they were nevertheless imbued with civic ideals. They had a passion for "improvement"—an operation which had not then acquired the sinister associations it has to-day. The landowners, leasing off their building estates to developers, leased only to

those who undertook to conform to designs that had been laid down with a passionate regard for beauty and seemliness." (Sharp : *English Panorama* : p. 38).

This seemliness was however, to a modern conscience, only skin deep. On the continent, 18th century towns were designed for the prince, in Britain for the well-to-do. "The glories of Bath, of Edinburgh (fig. 42), of Cheltenham, were not to be seen in the quarters of the poor and inhabited by the less fashionable members of the community. Behind the pleasant façades of the houses of the gentry and the more prosperous merchants which lined the main streets of the country towns, out of sight beyond the narrow archways that gave the dead-end alleys access to the main street, the 'lower orders of society' were congregated in crowding and crowded cottages. In London there had been little other building than that of fine streets and fashionable squares, and the old houses that were deserted for those elegant new ones in Bloomsbury and the West End remained to become the teeming rookeries of the poor." (Sharp : *English Panorama*, p. 55).

Britain in the Nineteenth Century

The Railway. By the turn of the century the machine age had begun and new industrial towns—situated on the main coalfields—had begun to mop up the half-starving country labourers. The industrial slums began : slums that for a generation had no civic life at all—except at the pub where cheap gin was sold in huge quantities. Only after the Reform Act of 1832 did most of these great new urban masses (one cannot call them "cities") have any national representation : only in the last third of the century, as a rule, did local administration begin to be really effective. Before that time there were many gaps between legislation and performance, and even legislation was narrow in scope.

In between the Reform Act of 1832 and Chadwick's Public Health Act of 1848 came the railways to assist the great revolution in industrial transport which the canals had begun. The mine, the ironworks, the railroad, the factory system, led to a new pattern of industrial location over the whole of the world. "But the steam locomotive, which could not easily climb a grade steeper than two feet in a hundred, tended to concentrate the new industrial centres on the coalbeds and in the connecting valleys : the Lille district in France, the Merseburg and Ruhr districts in Germany, the Black Country of England, the Allegheny Great Lakes region and the Eastern Coastal Plain region in the United States . . . along with this went a thinning out of population and a running down of activities in the country districts ; the falling off of local mines, quarries, canals, small factories, local mills . . . from the 1830's on, the environment of the mine, once restricted to

the original site was universalised by the railroad. Wherever the iron rails went, the mine and its debris went with them. Whereas the canals with their locks and bridges and toll-houses, with their trim banks and their gliding barges, had brought a new element of beauty into the rural landscape, the railroads made huge gashes ; the cuts and embankments for the greater part long remained unplanted and the wound in the earth was unhealed. The rushing locomotive brought noise, smoke, grit, into the hearts of the towns : more than one superb urban site, like Prince's Gardens in Edinburgh, was desecrated by the invasion of the railroad. And the factories that grew up alongside the railroad sidings mirrored the slatternly environment of the railroad itself." (Mumford : *The Culture of Cities*, pp. 150, 159, 160).

Industrial Housing. The housing of the industrial workers that was rushed up conformed to a classical pattern : the congested, undifferentiated gridiron that had been used to house slaves in Egypt and Mesopotamia, and in the cities of the Alexandrian Empire. It provided the quickest and most economical covering of the ground, and, moreover, was easy to police (fig. 44).



Fig. 44. Middlesbrough, circa 1860.

America and Germany went the same way and France did not escape entirely. Haussmann's Boulevards were thrust through slums of Paris that were quite as bad as those of London or of Chicago.

The Suburb. Those who could afford it rushed from the squalor within the towns to new one-class suburbs in their fringes—where they could live shut off from the horrors of industrial life.

“Two points should be noted about this new type of community. First it was a segregated community, not merely set apart topographically from the central areas of a city: but its occupants were laterally segregated from other economic classes. Except for a small detail of tradesmen and handymen, the suburb was a one-class community: it boasted in fact of its “exclusiveness”—which means, sociologically speaking, of the fact that it was not and could not become a city. Further, suburban living encouraged a complete segregation of consumption from production: there was no visible connecting link, except the iron rails that led to the city, between the barbarous industries that manufactured the goods and the romantic suburban homes, remote from the grime and the sweat, where these things were consumed.” (Mumford: *The Culture of Cities*, p. 214).

The first movement towards a thought-out environment that was more than a one class suburb was prepared by a series of industrialists for their own workers. (Robert Owen at New Lanark, 1800–1828: Godwin at Guise, 1850: Salt at Saltaire, 1852; Cadbury at Bournville, 1879: Lever at Port Sunlight, 1886.) Their efforts were not directly copied by others, for the wide scale of planning, the low density and the provision of other buildings besides dwelling houses were not possible without extensive land ownership and considerable capital. This was difficult for the speculator and not really possible for the town council before the Town Planning Act of 1947.

Modern Trends in Town Planning

“By 1900 any fairly acute person might have realised that housing in its largest sense as average human environment was bound to be one of the pivotal questions of the twentieth century. It was not merely that the doctors and the sanitary inspectors, the reformers and the revolutionists, the progressive bureaucrats, and the sentimental philanthropists, managed to agree at least that housing conditions were bad. Certain elementary but nevertheless fundamental changes in the general standard of demand were becoming apparent. After a full century, during which even the houses of the rich had been inconvenient, ugly and uncomfortable, there were vague stirrings of revolt. The ‘elements’—sun, air, cleanliness, order—were just beginning to come back over the threshold of consciousness.” (Bauer: *Modern Housing*, p. 106).

Howard. In 1892 Ebenezer Howard published a little book called *To-morrow*. Howard was neither a revolutionist, a millionaire suffering pangs of conscience, nor a modern architect. He was a shorthand writer. In his youth in Chicago he had seen the effects of the great fire and had been led to think about the possibility of creating entirely new cities, whole and fresh from the bottom up and built according to a rational plan.

“The easiest way to outline the principle involved is to quote the later definition of a Garden City. It is a ‘town designed for healthy living and industry ; of a size that makes possible a full measure of social life, but not larger ; surrounded by a rural belt ; the whole of the land being in public ownership or held in trust for the community’. No tiny isolated colony, then, but a complete working city whose estimated population was to be around thirty thousand. The diagrammatic scheme is circular, with a large central park containing also the principal public buildings and skirted by a main shopping street, with an outer circle of factories and the permanent green belt

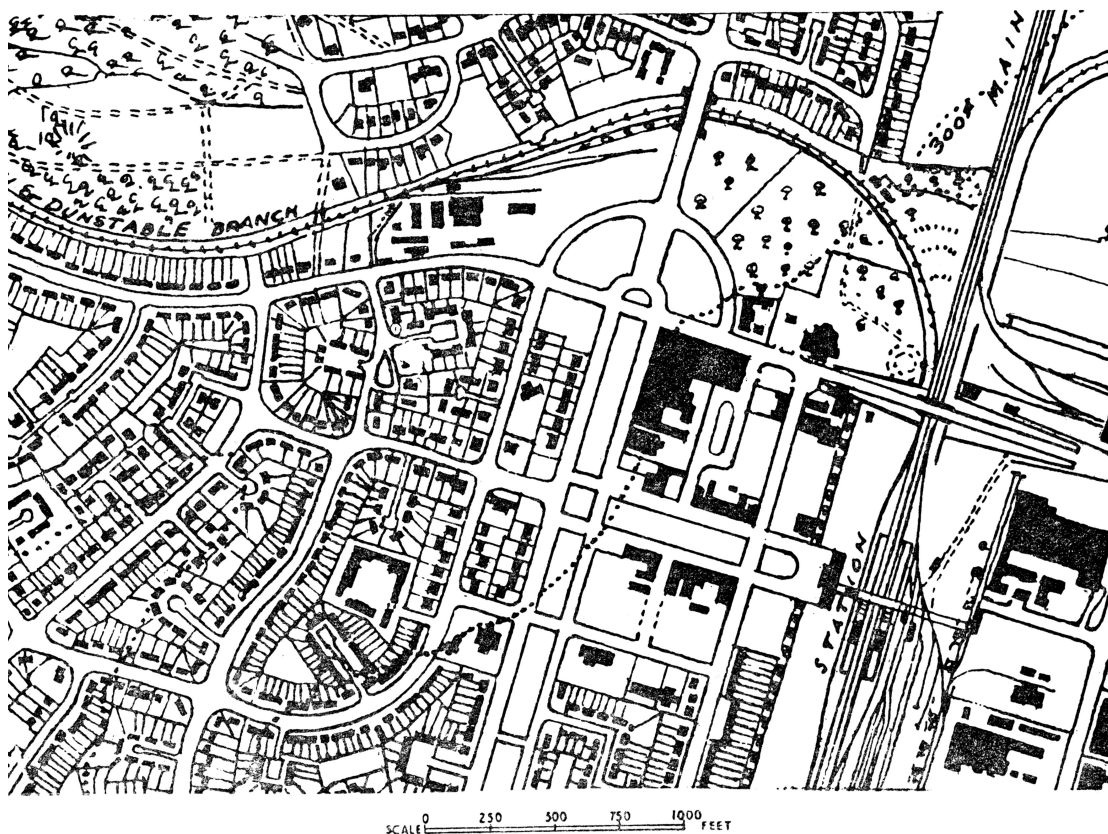


Fig. 45. Welwyn Garden City, Herts, circa 1930.

beyond. The city itself was to occupy one thousand acres and the agricultural belt five thousand. The railroad by-passes the town, meeting the circle at a tangent. By keeping the land in single ownership the possibility of speculation and overcrowding would be eliminated and the increment of value created by the community in industrial and shop sites would be preserved for itself. Essentially a thorough-going experiment in middle-class consumers' co-operation." (Bauer : *Modern Housing*, p. 110).

In 1899 the Garden City Association was formed, and in 1901 it had thirteen hundred members. A site was procured in Hertfordshire, about 40 miles from London, and in 1903 the First Garden City, Ltd., a limited dividend society, was organised and the building of Letchworth commenced. By 1947 Letchworth had about 16,000 inhabitants, paid the permitted 5 per cent. on its stock and had over one hundred factories and workshops. Its successor, Welwyn Garden City, was started in 1920 (fig. 45) and by 1947 had a population of about 18,000 and something over 70 factories. Both towns profited by the southward move of manufacturing England and by the 1939-45 war boom. Howard's general principles, including the communal ownership of the land and the permanent green belt, have been carried through in both cases, and the garden cities have been a testing ground for technical and planning improvements which have influenced all English, American and Dominion inter-war housing.

Geddes: Then in 1910 came Patrick Geddes—disciple of Le Play and master of Reilly, Abercrombie and Mumford. "The importance of Geddes in the history of housing lies in the fact that he was the first person who really placed the housing problem within the larger physical and social framework of society. He saw a dwelling not as a 'model'—something existing in a paper vacuum or at an International Exposition or set down in any available hole in the old pattern—nor yet as part of an idyllic and isolated community. He saw that people who live in a house require not merely private shelter but food and work and recreation and social life, and that this makes the house an inseparable part of the neighbourhood, the city, the surrounding open country and the region. Folk, Work, Place—Organism, Function, Environment. These were the three poles of his 'simultaneous thinking'." (Bauer : *Modern Housing*, p. 114).

Geddes was the originator not only of the idea and the technique of the regional survey and the city survey, he was also the first, since Cobbett, to call attention to the existence of "conurbations"—indeed he coined the word. Regional Survey ; Rural Development ; Town Planning ; City Design. This was his sequence of operation—and these must be kept constantly up-to-date.

In 1915 he published a book, *Cities in Evolution*, in which he says :—

“ We are sated with the existing medley our cities show of pseudo classical or feebly romantic buildings, supposed to revive the past, and of the mean streets or conventional villa suburbs, which represent the limitations of their builders. Yet the piercing of characterless perspectives and boulevards through this part confusion or beyond it, which would seem to satisfy too many town planners, or the endeavours of too many schemes to repeat here, there, and everywhere, bits of Letchworth or Hampstead Suburb (excellent as these are in their own place and way) are but poor examples of Town Planning ; in fact they are becoming fresh delays and new obstacles to City Design. True Rural Development, true Town Planning, true City Design, have little in common with these too cheap adaptations or copies. On pain of economic waste, of practical failure no less than of artistic gullibility and even worse, each true design, each valid scheme should and must embody the full utilisation of its local and regional conditions, and be the expression of local and regional personality. “ Local character ” is thus no mere accidental old-world quaintness, as its mimics think and say. It is attained only in course of adequate grasp and treatment of the whole environment and in active sympathy with the essential and characteristic life of the place concerned. Each place has a true personality ; and with this shows some unique elements—a personality too much asleep it may be, but which it is the task of the planner, as master-artist, to awaken. And only he can do this who is in love and at home with his subject—truly in love and fully at home—the love in which high intuition supplements knowledge and arouses his own fullest intensity of expression, to call forth the latent but not less vital possibilities before him. Hence our plea for a full and thorough survey of country and town, village and city, as preparatory to all town planning and city design.” (Geddes : *Cities in Evolution*, first edition, p. 397).

From this time, planning exponents have tended to divide into two classes. The first link *Folk and Work*. They believe that the best life can be lived in a new town of limited size closely related to sufficient industry to provide its population with their daily bread. From this school of thought have come the Garden Cities, the Green Belt Towns in U.S.A., the German Siedlungen both before and after Hitler and the New Towns Act, 1946. The second link, *Folk, Work and Place*. They are convinced of the inter-relation of history and environment with man's daily life, and that the problems of the congested, unhealthy, over-grown cities can only be solved when these cities are considered as a whole, in their regional setting. It is from this outlook that the Tennessee Valley Authority and the Russian Gosplan schemes have come, and the general point of view is well expressed in the statements of C.I.A.M.

C.I.A.M. (Congrès Internationaux d'Architecture Moderne) was founded in 1928 to "put architecture back on its real plane, the economic and social plane". From the first it affirmed that "town planning is the organisation of the functions of collective life ; it applies just as well to rural areas as to urban agglomerations. The functions it embraces are four in number : dwelling, work, recreation and transportation, which connects the first three functions with one another."

Members of this loosely knit organisation have included some of the finest exponents of architecture and planning, among them Le Corbusier, Walter Gropius, C. van Eesteren, José L. Sert, Sigfried Giedion, Maxwell Fry.

In 1933, at their fourth Congress, the Charte d'Athènes was agreed upon and it stated : "Town and country merge into one another and are elements of what may be called a regional unit. Every city forms part of a geographic, economic, social, cultural and political region, upon which its development depends. Towns or cities cannot in consequence be studied apart from their regions which constitute their natural limits and environment . . . The city should be examined in the economic *ensemble* of its region of influence. A plan of the economic unit, the 'city region' in its totality, must therefore replace the simple city plan of to-day . . . It is necessary to utilise the resources put at our disposal by modern technics and to procure the collaboration of specialists. Every town planning programme must be based upon accurate researches made by specialists. It must foresee the different stages of urban development in time and space. It must co-ordinate the natural, sociological, economic and cultural factors that exist in each case." (Sert : *Can Our Cities Survive*, pp. 246-9). The aims of the first Congress are now generally accepted ; those of the fourth Congress are beginning to be taught but are not yet fully put into practice. At the sixth Congress in 1947 the aims were redefined as : "To work for the creation of a physical environment that will satisfy man's emotional and material needs and stimulate his spiritual growth."

Mumford: Another ideal was that of the "neighbourhood unit" of which Lewis Mumford is probably the most outstanding advocate. His book, *The Culture of Cities*, first published in 1938, has had a great influence on planning thought.

"In the new city, a neighbourhood has visible definition. Its size is determined by the convenient walking distance for children between the farthest house and the school and playground in which a major part of their activities are focused. Its pattern is determined by the need of isolating school and home from the noise of traffic and its dangers : so main traffic arteries of any sort must never run through a neighbourhood : they may exist at its boundaries, separated both for safety and amenity by a broad parkway : whatever traffic filters into the neigh-

bourhood must be that which directly subserves it, moving at a pace that respects the rights of the footwalker." (Mumford : *The Culture of Cities*, p. 472).

The idea of a "neighbourhood unit" or "residential zone" has been generally accepted to represent the smallest convenient agglomeration of human beings, together with everything necessary for their daily needs, for which a reasonable plan can be made. Agreement goes further than this, for it is agreed that this primary unit should have some clear physical boundary. Exactly how many human beings it should contain and exactly what constitutes their daily needs, is still a matter for argument, but the idea is accepted by all. Fundamentally this means that the purpose of even the most limited town-planning is something more than the provision of sufficient houses for the population sited in the most convenient manner. Differences only arise on the nature and extent of this physical boundary and on the character of the housing within the unit.

Mumford focused his neighbourhood on the school—and others have adopted this as a convenient idea without much further thought. But Mumford did not mean just a "nursery school" or an "elementary school" or even a "secondary school". "The school, indeed, in a modern sense, may be defined as an environment modified for biological and social development; an environment especially concerned with growth, which no longer treats the processes of growth as accidental intrusions on an ideal pattern. Under the paleotechnic and metropolitan regime, the school had the duty of making the population responsive to print, skilled in arithmetic, and docile to external stimuli. To-day the school has another task: that of making the community as a whole capable of controlling its destinies: capable of disciplining and making over every aspect of its activities, the practical and the instrumental, the personal and the communal. A large order: it puts the school in the central position occupied by the Church in mediaeval Christendom . . . The institutions that are necessary, as it were, to the school are the public library and reading room, public workshops, studios, and laboratories, and public dance-halls and little theatres. In America, both the settlement house and school itself have demonstrated how these various activities may be effectively grouped, often in a single building, for service to the whole population at every age level. Here again, what distinguishes the new biotechnic community is not the introduction of any essentially new institutions so much as their adequate organisation and incorporation as an elemental, indispensable part of the whole. Most neighbourhoods, even where public housing has been achieved, lack more than the most rudimentary physical facilities for a good social life." (Mumford : *The Culture of Cities*, pp. 476–7).

Conclusion

This study of the history of town planning has, of necessity, been extremely congested. Many important trends and pointers have been omitted or mentioned only in passing.

As a broad generalisation it can be said that towns have tended to fall into three categories—those built to enhance the grandeur of a ruler (tending to a radial or focusing pattern) ; those built quickly for military or commercial purposes (tending to a grid-iron pattern) ; and those built gradually by the townspeople for their own use (tending to an organic pattern).

The introduction included a brief analysis of five features common to all primitive societies which, it was suggested, might be considered as universal needs and should be expressed in the town plan.

- (1) *Food (used as a means of expressing social relationship)*. This is most obviously expressed in the town plan by market centres and by halls for private and public festivities. The open market place is declining in favour and public banquets are not of very frequent occurrence. Both possess, however, important social functions as centres for the informal gossip of the busy housewives and the festive dignity of civic pride. If they are no longer to exist in old form, the need should be met in some other way. Perhaps by ample provision of cheerful teashops and coffee shops near a busy shopping street, and well equipped dining halls attached to civic and community centres.
- (2) *Possessions (used for display and ceremony)*. This primitive requirement is still expressed by parades, by promenades and by processions, as well as by museums, exhibitions, and art galleries. There is a deep human need, however foolish, for some place to see and be seen. The promenade has a useful social function and should have a proper place in the plan and not be left to take place on a narrow strip of pavement between bright shop fronts and rushing traffic. The actual position in the town of museum, library, exhibition room and art gallery is also of great importance and influences very considerably the public use of the buildings.
- (3) *Old Age (regarded with respect, especially after death)*. The place of old age, and still more of death, has ceased to receive much outward respect in town plans. A convenient placing of homes for the elderly in focal parts of the town, where they can continue to take part in the life of their city ; a judicious and humane choice of sites for hospitals for the chronic invalids where they can easily be visited by their relations ; the provision of quietly dignified chapels of repose for the dead before the funeral ; the provision of relatively untrafficked routes to

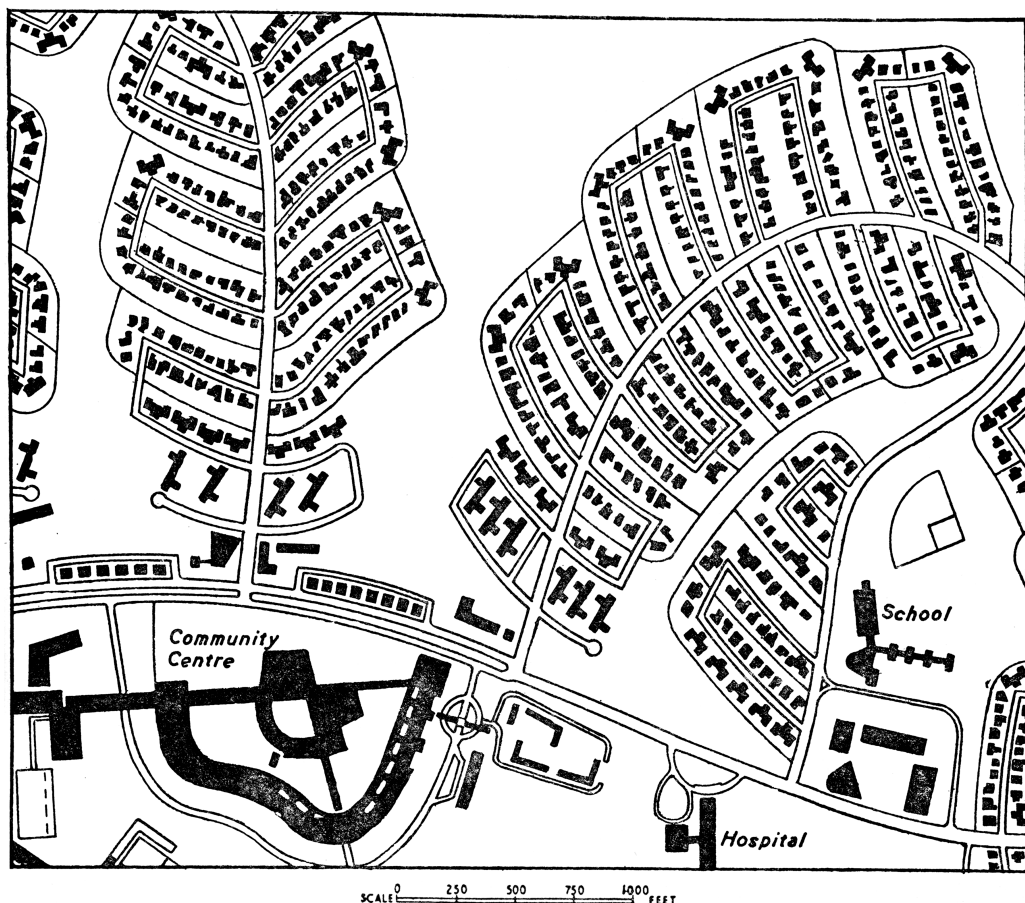


Fig. 46. Proposed scheme for Belleville, U.S.A., 1944.

the crematorium and cemetery ; the effect of these and other such ideas welded into the town plan could do much to raise the dignity of human life itself.

- (4) *Mother and child (regarded as inseparable)*. This primitive relationship is most clearly expressed by the design of house and garden, the provision of neighbourhood facilities within easy reach of the mother wheeling a pram. Education may also be included here, even though this is no longer the duty of the mother. The school, however, needs to be within easy and safe distance from the home.
- (5) *Wrong-doing (punished by public consent)*. The centres of civic administration, as well as law courts and the police, are visible evidence in towns to-day of this eternal problem. Considera-

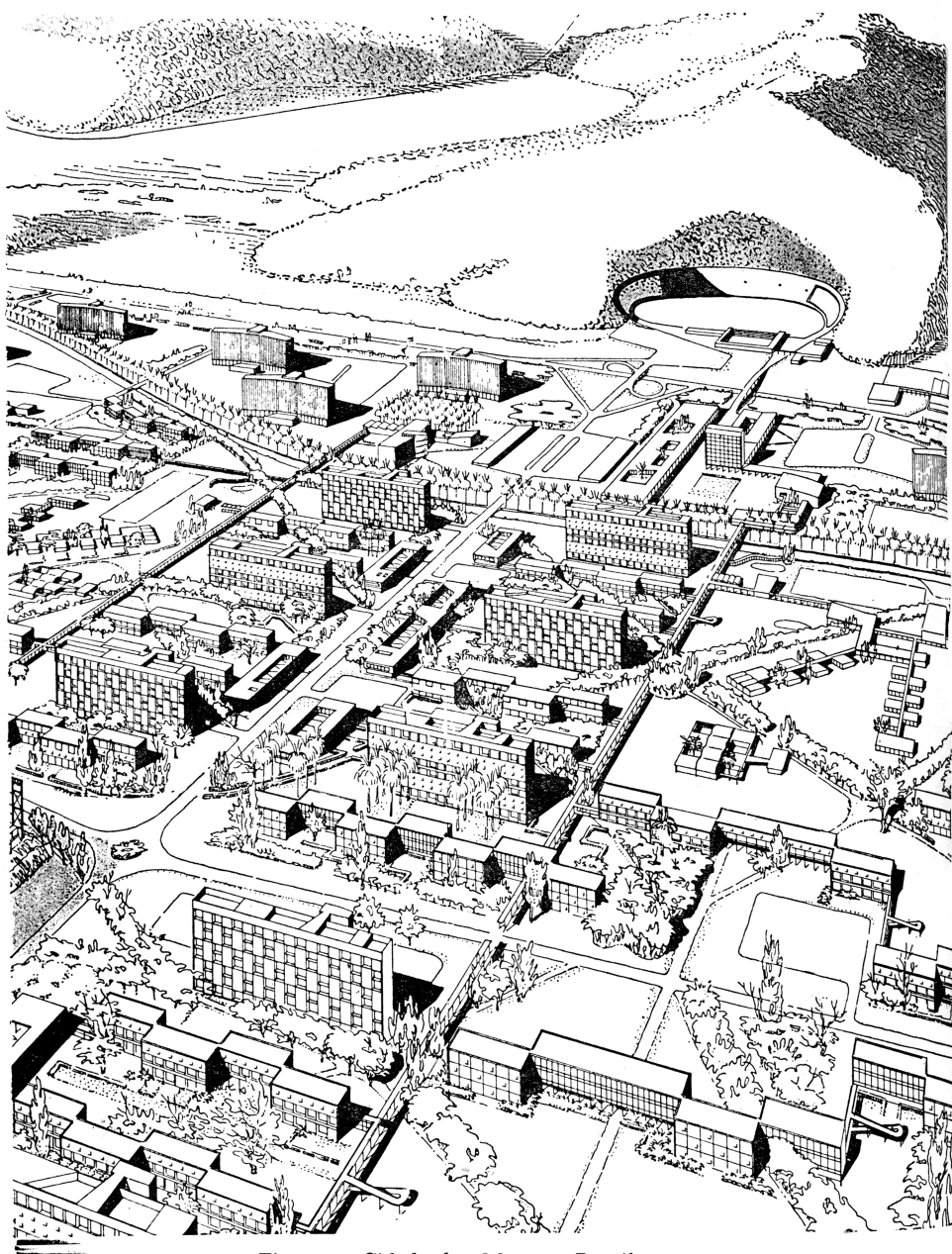


Fig. 47. Cidade dos Motores, Brazil, 1944.

tion should be given to the siting and approaches of these buildings consonant with their local dignity but not forgetting the human scale of their operations. Every town should also have some suitable outdoor area where public meetings on great occasions can fittingly be held.

It will be noticed that the radial type of town provides the best opportunities for the gratification of the second and sometimes the third features, and the grid-iron type for the policing associated with the fifth feature, but the organic type, although perhaps it usually concentrates on the first, nevertheless is the only one that makes any conscious effort to cater for all five.

Modern towns have to provide for something more than the human needs of their inhabitants. They have also to consider requirements of swiftly moving traffic which greatly complicate the issue. Indeed, it was the introduction of fast wheeled traffic that, more than anything else, made the mediaeval city unworkable, and it has been the introduction first of the railway, and then of the motor-car, that has made a chaos of our towns to-day.

Ideas for the future are well shown in the different lay-outs of Belleville, near Chicago (fig. 46) and the Cidade dos Motores, Brazil (fig. 47) where the present trends are clearly exemplified. There is a complete segregation of main through traffic ; housing groups are compact and set apart from the traffic routes ; and the whole community is permeated by stretches of open countryside. Both are focused upon the civic community centre and sub-divided into coherent neighbourhood units, each with its own shopping centre and primary school.

“ The modern town planner is not primarily concerned with architecture. He seeks to discover how the town came into being and how it has reached its present state of growth. He wants to know as much as he can of the site and of its relations to the surrounding district and the country as a whole. Above all he studies the different categories of people who have to be accommodated, each according to their manner of life. He must consider where these people work, the routes traffic must take, the distance there should be between residential and industrial sections. He must also establish a control of the relation between the communications of the city and its living quarters. He thinks no longer in terms of streets and axes, but in terms of population groupings.” (Giedion : *Time, Space and Architecture*, p. 540).

as possible. The more wisely the money and materials are used the more there will be available.

New roads should be planned and designed so that in location and construction they will be economical in vehicle fuel, cheap in maintenance, and the initial cost and

consequent loan charges kept as low as possible. In this the members of the town planning profession must play their part in collaboration with the highway engineers—both municipal and county—who will have to construct and maintain the new roads in town and country.

The Valley Section

Patrick Geddes' World Image

TWO OF PATRICK GEDDES' phrases have become commonly used in planning circles: 'The Valley Section'—mainly employed by the geographer-planner—and 'Place, Work, Folk'—mainly employed by the sociologist planner. It seems to have been forgotten that Geddes' real contribution to planning thought and practice was to link these two concepts indissolubly both with each other and with Comte's theory of 'Peoples and Chiefs; Intellectuals and Emotionals.'

The only way to bring this point home seemed to be to search among such of Geddes' lectures as have been preserved in pamphlet form or in the annals of societies to whom he spoke. This work proved well worth while as the following series of extracts will show.

JAQUELINE TYRWHITT

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PATRICK GEDDES was born in 1854 and by the time he was twenty-seven he had completed his studies as a biologist and had been for a year practising as demonstrator of Botany and lecturer in Zoology at the University of Edinburgh. He had also absorbed and was beginning to weld on to his own biological background the two concepts that would dominate his thoughts for the rest of his life: the 'place, work, folk' concept of Le Play and the 'people and chiefs; intellectuals and emotions' of Comte.

The Classification of Statistics

In the spring of 1881 Geddes read three lectures to the Royal Society of Edinburgh entitled 'The Classification of Statistics and its Results' in which he described the confusion that arose from the multiplicity of methods of classification employed by different learned societies, government bodies and the like, and described a system that would, he claimed, function to classify everything—from fossils to cities. He said:

'First, then, a society obviously exists within certain limits of time and space. Secondly, it consists of a number of living organisms. Thirdly, these modify surrounding nature, primarily by seizing part of its matter and energy. Fourthly, they apply this matter and energy to the maintenance of their life, i.e. the support of their physiological functions,

'We can thus classify the facts relating to each and every society as follows:—

Territory of Society—Statistics: relating to the limits of time and space occupied by the given society:—

- I. Quantity at given time.
- II. Quality at given time.
- III. Decrease since last unit time.

Organisms—Statistics: relating to the organisms composing the society:—

- I. Quantity at given time.
- II. Quality at given time.
- III. Decrease since last unit time.

Occupations.

- I. Quantity: operations on matter and energy.
- II. Quality: direct services to members of the society.
- III. Decrease: loss from unemployment, destruction, etc.

Production—Statistics: relating to the matter and energy utilized by the society from surrounding nature:—

- I. Quantity: sources of energy in territory.
- II. Quality: development of products.
- III. Decrease: dissipation of energy.

Distribution: the manner in which territory, products, services, or tokens for any of these are divided among or consumed by the society's members.

Results: observations on the effects of environment and mode of life upon the organisms.'

The real claim of this system, which was further elaborated, did not lie, said Geddes, in its newness 'for indeed it probably contains no new ideas at all, but in its serving so far as is consistent with truth to represent the doctrine and to harmonize the labours of all the different schools of studies. It would be as easy to monograph a city or a village; a nation, a single household or even an individual, and to compare the facts . . . since the organisms composing society are largely occupied in utilizing matter and energy and since every action, every movement, involves some disintegration and dissipation of energy—in other words, produces an economic result.'

The Principles of Economics

Three years later Geddes, now aged thirty, but still only demonstrator in Botany to the University, again delivered three papers to the same learned society. This time they were entitled 'An Analysis of the Principles of Economics.'

He went straight on from the previous series and said:

'Our biological studies then commence with . . . an organised census in which the quantity and quality of the population are carefully recorded—all organized into a vast body of knowledge—the statistics and generalizations of the new sub-science of "demography." But our survey must not only be static but dynamic, not only structural but functional.

'The animal demands only ultimate products, and at first only produces food, accepting for shelter simply what the environment chances to afford. With increasing intelligence, shelters are next constructed—a bird's nest is as truly an ultimate economic product to its builders as a house to a man. Stages of exploitation, manufacturers and movements are frequently more or less distinguishable.

'Differentiation of function then leads to the development of occupations. Some individuals specialize in the indirectly productive service of government; others leave productive operations on surrounding nature for the bodily care and service of their fellows; others, again, become unoccupied; and thus the three great classes of occupations (Classification of Statistics) are not simply analogous, but identical among bees, ants or men, and are sometimes more differentiated in the former, sometimes in the latter. It is never difficult to distinguish a soldier from a joiner, or a ploughman from a weaver . . . but this has been ignored by the vast majority of economic writers. The occupations of ploughman and weaver or joiner are alike productive. To economists whose preparatory studies included no biology any insistence upon the wide differences of these occupations to the men performing them must needs seem mere nonsense and the proposal to found practical action upon the observed results pure "sentiment." But it is a biological fact that as "function makes the organ" it also shapes the organism, and modifies it either for evolution or for degeneration; moreover it determines its quantity of health and limits its length of life.

'The disadvantages of the division of labour, slowly forced into prominence through the sufferings of the many and the moral enthusiasm of an unscientific few, demand study and classification among the "Variations of Animals and Plants under Domestication."

'Food, which alone determines whether the young bee is to be worker or queen, has a thoroughly well marked influence upon men. The importance of the quality of the atmosphere is becoming recognized. So also with light: the gardener blanches his celery, the zoologist stops the development of the tadpole by withdrawing light, the sphymograph shows how the pulse bounds at every gleam of sunshine, and the physiologist and physician are not hesitating to generalize and apply these results to the development of human life in towns.'

Fifteen years passed. Geddes' influence had come to be recognized. He had personally initiated slum clearance schemes in darkest Edinburgh; had raised funds

to build the city's first residential University College; had started a famous series of Summer Schools; had founded the Outlook Tower and had published *The Evolution of Sex* with J. Arthur Thomson. He had also been on a lecture tour to the United States and had run an International School at Paris during the Great Exhibition of 1900. All this was almost if not entirely voluntary work. His only regular income came from a part-time professorship of Botany at Dundee University College.

The Valley Section

The Valley Section had long become an integral part of Geddes' thinking, but the earliest published description relating to it that I have seen is in an article in the *American Journal of Sociology* of 1899 in which Professor Zueblin of Chicago gives his impressions of a visit to the Outlook Tower and quotes 'a passage in which Professor Geddes illustrates the significance of topography in the case of a popular sport (golf) that we have imported from Scotland.'

'Everyone', said Geddes, 'has his own ideas about Scotland: has heard, let us say, of the romantic aspect and associations of Edinburgh or of the industrial intensity and world-wide commerce of Glasgow. He has heard too of golf at St. Andrews, of sport in the Highlands and of yachting on the west coast. Shooting on moor and mountain, sailing on the great sea lochs are obviously intelligible; but the connection of St. Andrews and golf is less obvious. What has made its club "Royal and Ancient" and given it world-wide authority? There are certainly sand dunes, with a grassy margin—links as they call them. Over the more fixed surfaces come the finer grasses that are eaten by sheep; and so the sheep themselves and with them the shepherd.

'This fringe of pasture is narrow, else a pastoral civilization would develop; but here no migratory pastoral families are possible. The shepherd remains at the simplest level, scarcely distinct from the ordinary agricultural population. He retains its type, and instead of contemplating indefinitely like his Eastern counterpart, he needs something to do. His sheep are not the sole possessors of the pasture; the dry sandy soil and grass are suited admirably also to the rabbit, both for its burrow and its pasture. As the shepherd goes along he knocks now and then a stone into a rabbit-hole with his crook. Having put the stone in—it is a white one—he fishes it out again and drives it on to another hole. He idles away his hour and also invents the game of golf.'

This short quotation illustrates the earth-based and yet wide flung imagination that both bedazzled and maddened Geddes' hearers.

Now to a more complete description of the Valley Section itself taken from the guide book to the Outlook Tower.

'The horizontal panel above the door represents a stretch of landscape from sea to hill top. This may be viewed in various ways. We may think of it as stretching from the blue waters of the Forth to the bare Pentland hill tops; or we may regard it as a diagram of the great plains of Europe rising slowly to the mountains, or of North America from the Atlantic sea-board to the Rockies and beyond. So that we see that the little

landscape is typical of the earth at many points and is indeed a "microcosm of nature."

'But where we find hill tops, bare or wooded, we find hunters and woodsmen, and as these will want iron for their spearheads or axes, we sooner or later find miners. In the same way, where there are pastures we find sheep and cattle, shepherds and drovers and where we find the richer lands where corn can grow, we find peasants and millers, while by the sea we find fishers and sailors. So that this microcosm of nature is also veritably the "seat of mankind."

'But hunters and woodmen, miners and shepherds, peasants and fishers, extend and develop, mingle and strive, fight and combine, so that from these half dozen primitive types the extraordinary complex of our modern world evolves. Here then is a clue to many of the present-day problems with which we are confronted, for may we not understand better, e.g. the ever-renewed conflict between Turk and Armenian, if we realize that it represents on the one hand the aggressions of nomadized shepherds, or on the other, the reprisals of exasperated peasants?

'And as we look a little closer we see that the history of mankind resolves itself into the history of the conflicts and compromises of these various types with their correspondingly varied cultures institutions and ideals. Our little landscape is thus not only the *microcosm of nature* and the *seat of man* but also the *theatre of history* on which the drama of the human race plays itself out.

'In this way we come to some understanding of the relation between man and his environment; of how the geographical features of his native land determine his work, and that in turn determines his family group, and this again his institutions and ideals. But Man, Worker and Idealist, reacts profoundly on his environment, so that he is always pressing forward towards "a new heaven and a new earth."

Influence of Le Play

In 1903 Geddes was invited by Andrew Carnegie to prepare a plan for the development of the large Carnegie estate at Dunfermline which was published as *A Study in City Development* the following year. In the same year Victor Brandford, a friend and admirer of Geddes, founded the Sociological Society in London and, at two of their early meetings (in 1904 and 1906) Geddes gave the first fully rounded descriptions of the three concepts contained within the Valley Section—Le Play's 'place, work, folk', Comte's 'people and chiefs; intellectuals and emotionals' and his own biological contribution. Among his audience in 1904 were Ebenezer Howard, and Charles Booth took the Chair. Geddes said:

'Coming to concrete Civic Survey, where shall we begin? Not only the variety and magnitude of civic activities claim our attention. More suitable to our fundamental thesis—that no less definite than the study of races and usages or languages, is the study of the groupings of men—is the panoramic view of a definite geographic region, such for instance as lies beneath us on a mountain holiday. Beneath vast hunting desolations lie the pastoral hillsides. Below these again, scattered arable crofts and sparsely dotted hamlets lead us to the small upland village of the main glen. From this again one descends to the large and prosperous village of the

foothills and its railway terminus, where lowland and highland meet. East or west each mountain valley has its analogous terminal and initial village upon its fertile fan shaped slope, and with its corresponding minor market; while central to the broad agricultural strath with its slow meandering river, stands the prosperous market town, the road and railway junction upon which all the various glen villages converge. A day's march further down and at the convergence of several such valleys stands the larger county town. Finally at the mouth of its estuary rises the smoke of a great manufacturing city, a central world market in its way. Such a river system is, as geographer after geographer has pointed out, the essential unit for the student of cities and civilizations. Hence this method is fundamental to any really orderly and comparative treatment of our subject. By descending from source to sea we follow the development of civilization from its simple origins to its complex resultants; nor can any element of this be omitted.

'Were we to begin with the peasant hamlet as our initial unit, and forget the hinterlands of pasture, forest and chase (an error to which the writer on cities is naturally prone) the anthropologist would soon remind us that in forgetting the hunter we had omitted the essential germ of active militarism, and hence very largely of aristocratic rule. Similarly in ignoring the pastoral life, we should be losing sight of a main fount of spiritual power, and this not only as regards the historic religions, but all later culture elements also, from the poetic to the educational.

'In short then it takes the whole region to make the city. As the river carries down contributions from its whole course, so each complex community as we descend is modified by its predecessors. The converse is no doubt true also, but commonly in less degree.

'In this way with the geographer we may rapidly review and extend our knowledge of the grouping of cities. Such a survey of a series of our own river basins, say from Dee to Thames, and of a few leading continental ones, say the Rhine and Meuse, the Seine and Loire, the Rhone, the Po, the Danube—and if possible in America also, at least the Hudson and Mississippi—will be found the soundest of introductions to the study of cities.

'The comparison of corresponding types at once yields the conviction of broad general unity of development, structure and function. Thus, with Metschnikoff we recognize the succession of potamic, thalassic and oceanic civilizations; with Réclus we see the regular distribution of minor and major towns to have been largely influenced not only by geographical position but by convenient journey distances. Again we note that the exigencies of defence and of government, the developments of religion, despite all historic diversities, have been fundamentally the same. It is not of course to be forgotten how government commerce and communications have concentrated, altered or at least disguised the fundamental geographic simplicity of this descending hierarchy from mountain-hamlet to ocean-metropolis, but it is useful for the student constantly to recover the elemental and naturalist-like point of view even in the greatest cities.

'At times we all see London as still fundamentally an agglomeration of villages with their surviving patches of common, around a mediæval seaport; or we discern even in the utmost magnificence of Paris, say its Place de l'Etoile with its spread of boulevards, merely the

hunter's tryst by the fallen tree with its radiating forest rides, each literally arrow-straight.

* But a city is more than a place in space, it is a drama in time. Though the claim of geography be fundamental, our interest in the history of the city is supremely greater.

* Some panoramic simplification of our ideas of history, comparable to that of our geography, is plainly what we want. And the answer again comes through geography, though no longer in map or relief, but now in vertical section.

* Starting with the same river basin as before, the geographic panorama now gains a new and deeper interest. Primitive centres long forgotten start into life; prehistoric tumuli give up their dead; to the stone circle the worshippers return; the British and Roman camps again fill with armed men, and beside the prosaic market town arises a shadowy Arthurian capital. Next—some moment centuries later—a usurper's tower rises and falls; the mediæval abbey, the great castles, have their day; with the Reformation and the Renaissance the towns again are transformed; and yet more thoroughly than ever by the Industrial Revolution, with its factories, railways, steamships and all that they bring with them. . . . In a word, not only does the main series of active cities display traces of all the past phases of evolution, but beside this lie fossils or linger survivals of almost every preceding phase.

* Having taken full note of places as they were and are, of things as they have come about, and of people as they are—of their occupations, families and institutions, their ideas and ideals—may we not to some extent discern, then patiently plan out, at length boldly suggest something of their actual or potential development? Such a work would differ widely from the traditional "literature of Utopias." The theme of such a work would be to indicate the practicable alternatives and to select and define from these the lines of development of the legitimate EU-TOPIA possible in the actual city and characteristic of it; obviously therefore a very different thing from a vague U-TOPIA, concretely realizable nowhere. Such abstract counsels of perfection as the descriptions of the ideal city, from Augustine through More or Campanella and Bacon to Morris, have been consolatory to many, to others inspiring. Still Utopia is one thing, a plan for our city improvement is another.*

Two points raised in the discussion of this lecture are particularly interesting. The first was a cry from Ebenezer Howard: 'Professor Geddes' wonderfully luminous and picturesque paper has given us a graphic description of the geographic process which leads to the development of the city. We see vividly the gradual stages by which the city grows and swells, with the descent of the population from the hillsides into the valleys, even as the river which flows through the city is fed continually by the streams which flow down to it . . . but surely there must be a way, could we but discover it, of . . . creating channels through which some of our population shall be attracted back to the fields; so that there shall be a stream of population pouring from the city into the country, till the healthy balance is restored, and we have solved the twin problems of rural depopulation and of the overcrowded, overgrown city.'

The French hunting forests

Later in the discussion, a speaker said, 'There is the

danger of confusing a resemblance with a relationship. It is extremely interesting to speculate that the Place de l'Etoile is an evolution from the plan of a game forest with its shooting avenues radiating from a centre, but it would be difficult to show that there is any historical connection. The thing is not proved.'

This caused Geddes to reply as follows :

* Taking a concrete point of criticism such as that of the monumental planning of modern Paris as derived from forest rides, the critic need only walk through any French forest, or even to consult a Baedeker or other guide-book with its maps of any historic dwelling and its surroundings, from Chantilly or Fontainebleau to minor ones, to see that this plan, originally devised for the pleasure, success and safety of the hunt, and later adapted to domination and defence, became next appreciated as affording the finest possible perspectives of the palatially rebuilt chateau. So that it is not at all a fantastic hypothesis, but an obvious and inevitable conclusion that Napoleon's and Haussman's plans were not at all invented by them for Paris, but were directly imitated from the familiar landscape architecture of the preceding century, which again was but the simplest development from the spacious forest rides of older hunting nobles, laid out without any thought of the architectural and city developments they were destined in later centuries to determine. The citizen of Washington had till lately forgotten that the magnificent perspectives of his city are due to the French landscape architect (Major l'Enfant) whom Washington imported for the express purpose of laying out his capital. It is no less clear that this most magnificent of the New World city plans is derived from Old World forest rides than that its monumental edifices descend from Renaissance and Classic exemplars.

* Every modern city is but the most complex evolutionary expression and development of the life of Nature. This view I take to be indeed a commonplace in France; but I account for its apparent unfamiliarity to English readers from the fact of our scanty forests in this island having been left practically wild. Our nobles not inhabiting them but the cultivated pasture and arable regions below; planting trees as plantations indeed but seldom woods and practically never forests at all. This again brings out the fact that the French nobles have belonged far more than ours to the social formation and tradition of the hunter, while ours—despite their love of sports—are yet fundamentally squires, i.e. essentially and historically approximating to the peasants of their villages. The bearing of all this upon their respective history will be obvious. Here we have the origins of the vivid contrast of the English so-called "naturalistic" style of landscape gardening with the more formal French tradition.

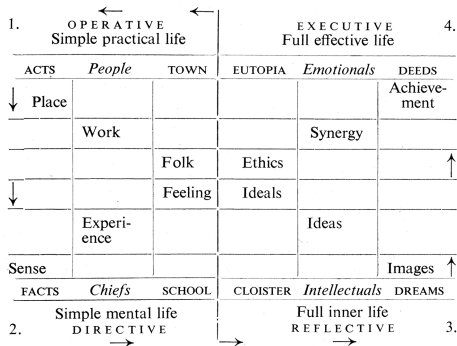
* The English citizen who may even admit this way of looking at the contrasted city plans of London and Paris may fail, unless he has appreciated the principle here involved, to see why London and Paris houses are so different—the one separate and self-contained, with its door undefended and open upon the street; while the normal Paris house is a populous high-piled tenement around a central court, with a high *porte cochère* closed by massive oaken doors and guarded always by a vigilant and often surly *conciërge*. A moment of historical reflection suffices to see that the former is the architecture of a long settled agricultural place, with its spreading

undefended villages, in which each household had its separate dwelling; the other a persistence of the continental fortified city, crowded within its walls. But, even beyond this, we must see the earlier historic and simple geographic origins of the French court-yard house as a defensible farmyard, where the space was needed nightly for defence against wild beasts, if not also wilder men, against whom the *concièrge* is not only the antique porter but the primitive sentinel.

'I may seem unduly to labour such points, yet I do so advisedly in order to emphasize and make clearer the essential thesis of this portion of my paper; not only that every scientific survey involves a geographic and historic exploration of origins but that the still unwritten chapters—the far-seeing glance forward, idealistic yet also critical—can be prepared by habitually imaging the course of evolution in the past.'

Influence of Auguste Comte

We now move straight on to an extract from the second lecture in which the value and use of 'the Geddes' diagram' is clearly put forward.



'As Comte long ago laid down, societies are not simply of objective and "temporal" interest (industrial, economic and political) as so many schools of historians have taught. Nor are they essentially of subjective and "spiritual" interest as the rival historians of religion or of science have insisted. They are of both kinds of interest taken together. A society has indeed a fourfold life in which we may distinguish the "temporal" activities; first those of the PEOPLE in their working everyday life of occupation and expenditure; in their homes, their material existence; and in their everyday experience and custom also. To this we must plainly add a survey of the organization of all this everyday popular life of everyday acts and facts, by a study of their CHIEFS of whatever kind, whether mediæval barons or modern employers. Besides these two groups, which make up THE TEMPORAL POWER, we have to distinguish the intellectual life, be this represented by ancient philosophers, or by mediæval doctors, by academic scholars or by modern men of science. These form a main element of THE SPIRITUAL POWER which includes the whole thinking world; that of all thinking individuals—not merely the

traditionally learned but the whole community at its best. Finally to complete this conception of The Spiritual Power we have to take note of the EMOTIONAL or moral forces whose obvious and everyday types are the mother among her children, the minister busy among his flock, the true teacher among his pupils, rather than the thinker in his cell.

'Into this atmosphere there happily arises at times the whole awakened community, and then we hear the voice of the people at its best—morally and emotionally—' *vox populi, vox Dei*.' Such moments are only too rare in history, but we need them to explain the flowering of cities.

'This twofold or rather fourfold conception of Comte, I take to be fundamental to all sociology. To illustrate it more clearly, without too much historic detail, let us take one definite period, say the Mediæval world. Here then, plain enough, were the chiefs in their castles, the people in their towns and town halls, the intellectuals in their abbeys, and the emotional forces of the time centering around the cathedral. Thus it is that town hall and castle, cloister and cathedral are all needed to understand and express the main life of the cities in the mediæval time.

'Passing onward to the Renaissance we see the castle becoming a palace, while the abbey with its scriptorium becomes replaced in intellectual functioning by the college with its library; so that in palace and college the "gentleman" and the "scholar" appear—the types of CHIEFS and INTELLECTUALS characteristic of the Renaissance order at its highest.

'In the same simple way one must follow out for these various types each phase of history, and their place in each city. We must ask "What of the CHIEFS: what of the PEOPLE; what of the INTELLECTUALS and what of the EMOTIONALS, the moral forces?" And we must repeat these questions for each time and each town. Who, for instance, play these four parts in the present Industrial order with its manufactures? In the Imperial order with its markets? In the Financial order with its companies and trusts? And who are now preparing to take over these same parts in the opening time, and with what modifications?

'I shall not attempt to answer these questions here. But it is surely of value to remind the ordinary citizen of the fourfold aspect and responsibilities of his own life—industrial and directive, reflective and executive—and so make him aware of his high calling to be not only a strenuous worker, or a competent organizer, or a thinking being, or a generous soul, but in some measure all these in one. For so long as we come short in any one of these we are no complete citizen—we are not even complete individuals—for these are the four wings of the spirit.

'In each of us poor modern folk the Psyche flutters but feebly, and only the utilitarian scarabæus creeps safely along, pushing his humble industrial and domestic burden. Neither the individual nor the social life was always thus lamed. The ancient, the classic, the mediæval and later histories tell us this and their cities show it to us; nor need they always remain at the present low level.

'Now that our general conception of cities, historical and geographical has been set forth, interpretation has begun to arise. This may be briefly recapitulated. We

start with the general notion of a town ; its situation, its industry, its inhabitants ; in other words its environment, function and population. We next see this simple town developing an experience and tradition in relation to its locality, its industry, its population and each of these in appropriate types of "schools" at different psychological levels. We can distinguish in these a "lore" of sense-experience and simple memory ; a "lear" (or learning) of definite craft-tradition ; finally a still more definite "law." The "lore" of place grows up into geography and natural science ; the "lear" of work may develop into technical schools of all sorts ; while the folk-association develops customs into established order, whence the "law." Thus attached to every town there is some corresponding "school" of thought ; and in this way it is often easy to disentangle the essential local and contemporary elements from those inherited from its own past and derived from other cities.

Besides this study of town and school there next grows up—a little apart from both—a new life with new (i.e. transformed) ideals, new ideas, new images. This is the Cloister of the Middle Ages, the Academy of the philosophers, the Studio of the artists. Despite all differences between the religious, the philosophic and the artistic mind, the Greek thinker, the mediæval schoolman, the modern investigator or the artist are all of them in some court or cell of this labyrinthine cloister—this world of detached thought. Each and all of them have been occupied in elaborating some kind of inner life for themselves apart from the activities of the town, apart from its established and authoritative schools—something at first outside both the practical everyday world and the conventional learned one, and it may be in sharp opposition to them.

The further interest of the Cloister is that it sooner or later projects its subjective world into reality. In each great civic period, each new phase of civilization, its three elements have ever risen together : the moral ideal is revived, the thought-system becomes reorganized, the inward eye and ear re-opened. Amid the modern town—at best but a larval city—even the more advanced individuals seldom fully escape from the chrysalis, much less spread their wings and find scope. The social psychologist however may constantly discover them, notably among the "cranks" and the "dreamers," the "outcasts" and the "unbalanced" and indeed even among the criminals of the conventional order.

Thus, and indeed thus only, can arise the City proper, the renewed ideals of the Cloister creating or reforming social organization ; the new ideas creating or transforming culture ; the new imagery expressing itself in public art.

Great movements of history

At the outbreak of the 1914 war, Geddes read another paper to the Sociological Society in which he said :

'Can we not construct a chart for the philosophy of history—that is, of history without the characteristic names and the particular dates which identify the individual wave crests and wave marks—and map the great tides of time to which these waves belonged ? In broad and simple ways we all do this : as when we speak of Græco-Roman times and their civilization, of the Middle Ages, of the Renaissance, and of the Revolution.

For these then, and with such sub-divisions as we

may, let us map out the main—the characteristic—social formations and types : the people and their chiefs, the relevant intellectuals and emotionals. To give this definiteness we have to recall, first the people in their homes, workshops and town halls ; next the chiefs in their castles or palaces ; the intellectuals in their strangely varied cloisters (libraries, laboratories, studios) ; lastly the expressionals from their pulpits to their pamphlets or their newspaper columns.

Thus arises a fresh image—no longer the flowing streams of national existences through time, uniting again or separating anew like the tributaries and branches of a river—but rather of a more organic fourfold growth of grouped (or rather whorled) branches of a single tree of civilization.

This main fourfold growth takes place upon the great scale but rarely. Only with the advent of a new order of things, as when the Middle Ages gave place to the Renaissance, or the Renaissance to the Revolution.

This tree of history the studious traveller may see in every city he visits : for, from its changing town plan, its corresponding monuments, edifices, survivals of all kinds, he reconstructs the main aspect of its branching and fruiting, in strangely complete detail of ramifications. Not less significant than the survivals of the ancient beauty of such historic city-trees are the dead branches left by time, the breakages and scars caused by its wars.

Are there not important war movements, more terrific, more epic, more significant than others because associated with the great transition periods of history—"Nodal Wars" we may perhaps call them. Such for instance are the Barbarian Invasions through which the Roman Order slowly gave way to the Mediæval system. So again may the Thirty Years War be called nodal or transitional as a provisional settlement of the wars of the Reformation, leaving its sowings of dragon's teeth once and again springing up in armed men. So, once more, were plainly transitional the wars of the Revolution, continuing into those of the Napoleonic Empire with their consequences manifold.

In such ways are we not moving at least to fuller questioning of what may be the origins, the nature, the significance, the possibilities of the stupendous war in which we find ourselves engaged today.

One of Geddes' last public lectures was given in New York in 1926, when Geddes was seventy-two. The theme that had dominated his first lecture in Edinburgh, nearly half a century earlier, is still dominant and the extract printed in the introduction to the new edition of *Cities in Evolution* gives an idea of the richness with which the sociological types of the Valley Section had now become embroidered.

By this time Geddes had reached an age when people tend to ruminate over the past. But, despite the fact that he had suffered more than most men from private grief and public frustration, Geddes still kept his gaze fixed hopefully upon the future. It was with undimmed confidence that he repeated at the end of this lecture, as he had said so often before, that survey and analysis—no matter how interesting—were without value unless they were implemented by an imaginative plan and put into active execution. This was the sum and substance of all his Teaching.

The Core and the City

The practising planner often feels far remote from the world of ideas. He is engaged in pulling together and pushing apart bits of an existing rickety and obstinate framework to ease the activities of a form of life undreamed of when the frame was first created. Ideas are all very well for the 'visionary chaps' who work on 'new towns' (though even there they are hard to hold on to) but they seem to have little to do with the daily routine of planning adjustments.

Yet when one steps aside sufficiently far to get a less detailed view of the picture, it is perfectly clear that – consciously or unconsciously – each planner does attempt to solve the problems of his area according to a set of ideas that he has acquired either deliberately of his own volition, or just because they have become part of the general attitude of mind of a wide section of the public. What is 'good planning practice' or 'contrary to good planning practice' is in most cases only relative to some set of ideas that have become accepted as an ideal way of life.

An analysis of the ideal will usually show it to be the crystallization of a concept that was somewhat revolutionary about 50 years back and that then expressed an active reaction against some fairly obvious abuse. Its protagonists, feeling strongly and needing to impress the public, are apt to overstate their case: their remedy for a certain specific ill becomes the only ideal way of life. They live (more often than not) the lives of martyrs to their faith. But the next generation of younger men who have sat at their feet arise and proclaim the new ideal from the house-tops. By the third generation the idea has become current jargon and part of the speeches of politicians: another ten years and a private bill may be laid on the table. But by this time the idea has ceased to be associated with the specific evil it was intended to remedy. It has become

the current panacea, although it may have little connection now with the actual living requirements of the people themselves.

We are to-day in a situation of this sort. The revolt against the evils of the nineteenth century industrial slum resulted in theories of escape into small ideal settlements; the individual house and garden and the walk to work across green fields. Now, well over 50 years later, it is almost impossible for anyone to speak against this as an ideal: anything else is an expedient, a make-shift, something forced upon us by circumstances, a departure from the 'known' ideal.

This attitude of mind persists though it is known that all statistical evidence goes to show that the general population of the country continues to concentrate near the large towns; and those social surveys that have been undertaken in small towns or settlements not located within the orbit of a large city bring out a number of disadvantageous conditions, and nearly always show an unstable or economically unsound population. This state of affairs is put down to the absence of good physical planning, the present economic situation or pure unenlightenment, according to the professional outlook and political views of the observer. It certainly is not because his basic premises are wrong. The small settlement is the right way to live and large cities are evil monstrosities – even though slightly shame-facedly, and with a grin, one may add that nevertheless you can have a good time in these places.

When one again steps back to look less closely at this situation, it becomes fairly clear that two of the chief aims in life are *stability and privacy* (in a more or less degree) in one's home life and *opportunities for diversity* both in business and pleasure outside one's home. The child who said in a school essay

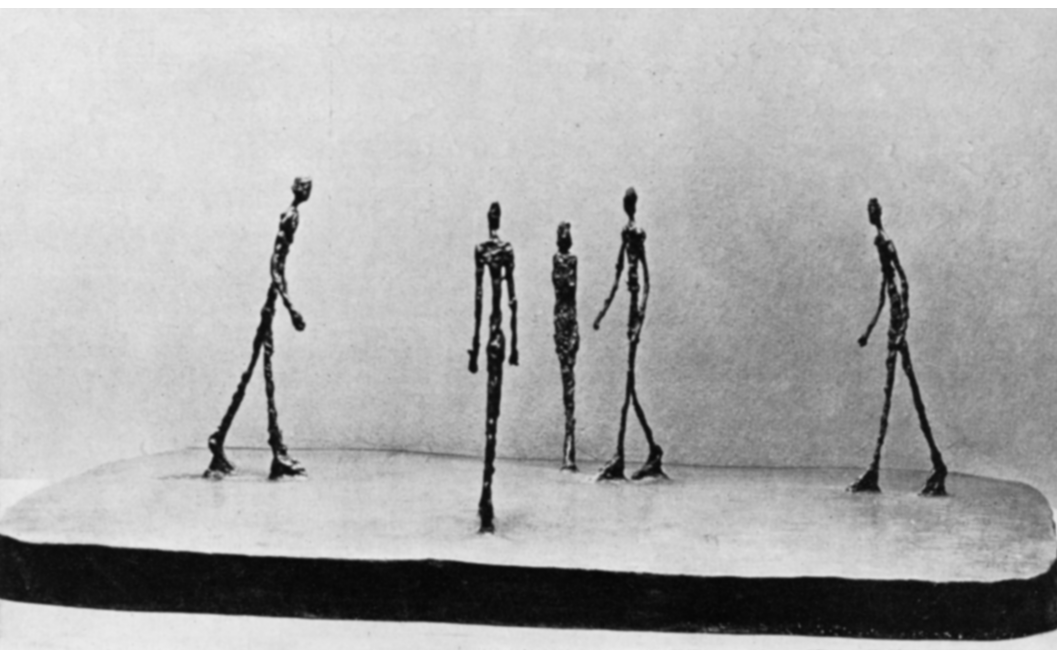


Fig. 25. Alberto Giacometti: *The Square*, 1948–9. Bronze. Photo Hanover Gallery

that her ideal was to live in a country cottage with a cinema and a fish and chip shop just down the road was not far from the mark. The normal human being has a normal human urge to have some contact, even if purely visual, with the countryside and the 'world of nature' but he also has a normal human liking for the bright lights of the city.

The bright lights of the city! Apart from the more diverse opportunities of earning a living that are associated with city life, but which can be catered for independently of large cities if one accepts a reasonable journey to work as part of the way of life of a technological era, it seems that the bright lights and all that they imply really constitute the main pull to the city: shopping opportunities, entertainment opportunities, cultural opportunities: all things that cannot be provided without a matrix of a large population, and yet all things that themselves only occupy a very small part of the surface of a large city – just the core in fact.

The core of the city. This, it seems, is what the people

crave. The garden settlement can meet economic requirements, but man is a gregarious animal: it was through social contacts and social organization that he ever emerged from the prehuman state, and the small settlement cannot provide opportunities to taste contemporary culture, except at second-hand, through radio and television. Here the shopping expedition is a routine job; one's eyes are not enraptured by a host of alternatives. Here entertainment is 'take it or leave it' not a fascinating display of possibilities. Here 'culture' is an exotic plant, accessible only to special sects of the population, and a man cannot pursue his hobby or gratify his curiosity without having a label pinned on to him. Only in the core of the city is there place for anonymous discussion, for the expression and hearing of points of view of other normal human beings – and through this of making up one's own mind, to some extent for oneself: independent from the mass-dispersed views of radio and newspapers.

This is the idea of the city that lures men to it: not its long streets of houses, nor its herds of belching traffic, but the bright lights in the core of the city. It is this we have tended to forget in our rhapsodies of the small green town. Out with the squalid urban slum. Undoubtedly. But must we at the same time lose the core?

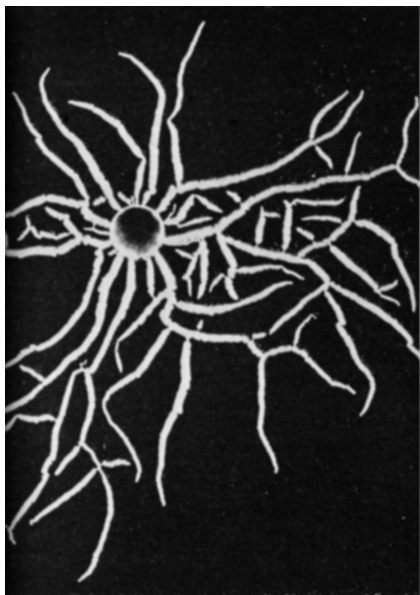


Fig. 26. *Science reveals new visions.* Lichtenberg figure by Prof. Von Hippe (MIT). From Gyorgy Kepes: *The New Landscape*

On the other hand, is the core not already lost in fact? Where in England is there a city core that has not been taken over as a traffic terminus? If indeed any space is left for the citizen it is almost invariably circled by an endless moving belt of vehicles. For any open space to be useable it must clearly be accessible: in other words along at least two sides it must be linked to buildings of some communal use, not separated from them by traffic lanes. Fortunately there is another idea that is currently prevalent in Town Planning circles though it has not yet reached the political platform. This is the 'inner ring road'. It is an idea often abused in its design, but it does in essence stand for a fundamental human right – the right of citizens to move about freely in the core of their city. Nottingham is a good example of a city that has still an open space at its centre: a centre that once was a core, surrounded by arcades and busy shops, the sloping open space with its row of trees covered with booths on market days and the centre of every demonstration and excitement in the city. Now that this centre has become a desert of stone slabs surrounded by a



Fig. 27. *London, Charing Cross Road.* Photo Picture Post



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ring of buses, the core, the focus of urban activity has moved away from it. The needs of a human being in the core of a city are very simple apart from the buildings themselves, containing shops, clubs, meeting halls, cinemas, theatres, concert halls, art galleries, museums, libraries, restaurants, pubs, dance halls the citizen needs open spaces. Not a bowling green in the centre of a traffic roundabout as at Westminster, but small urban open spaces across which he can stroll from one building to another; where he can loiter at his ease, either under cover, (as in the Galleria Vittorio Emanuele in Milan), or in the open, as in Leicester Square. Space is also necessary for the more mobile pleasures of the core; the flower sellers, the newspaper stand, the hot-chestnut man and the bootblack. Above all, however, there must be space for casual discussion; space where three or four men can get together and argue, out in the open, casually, without previous acquaintance – lesser Marble Arches!

All discussion so far has been of the core of the city, but there are other cores. There is the core of a village, the core of a group of urban streets (usually around the corner by the pub, the tobacconist and the newspaper shop), the core of the residential neighbourhood (usually – if it exists at all – along by the shops), the core of the country town (almost invariably the old market place before the town hall). All these are cores and exercise a pull upon the people of the place, but their powers of attraction vary both in the quantity of people they draw to them, and the age groups of these people. The core of the small unit, be it village or urban housing group, is the main centre for the very young and the very old, for the less mobile members of the population. For the rest of the people it is a provisional centre, a place they use when there is no time or they have no inclination to go elsewhere. Seats for the old and a playground for the small children are the priorities for open space in this core, linked to local shops, club rooms, café, and pub. The core

Fig. 28. Milan, Galleria.

Fig. 29. London, Tottenham Court Road. Flower Seller. Photo Picture Post

Fig. 30. London, Tottenham Court Road. Shoeblack. Photo Picture Post

Fig. 31. London, Marble Arch. Fruit Stall. Photo Picture Post

Fig. 32. Paris, Place Royale

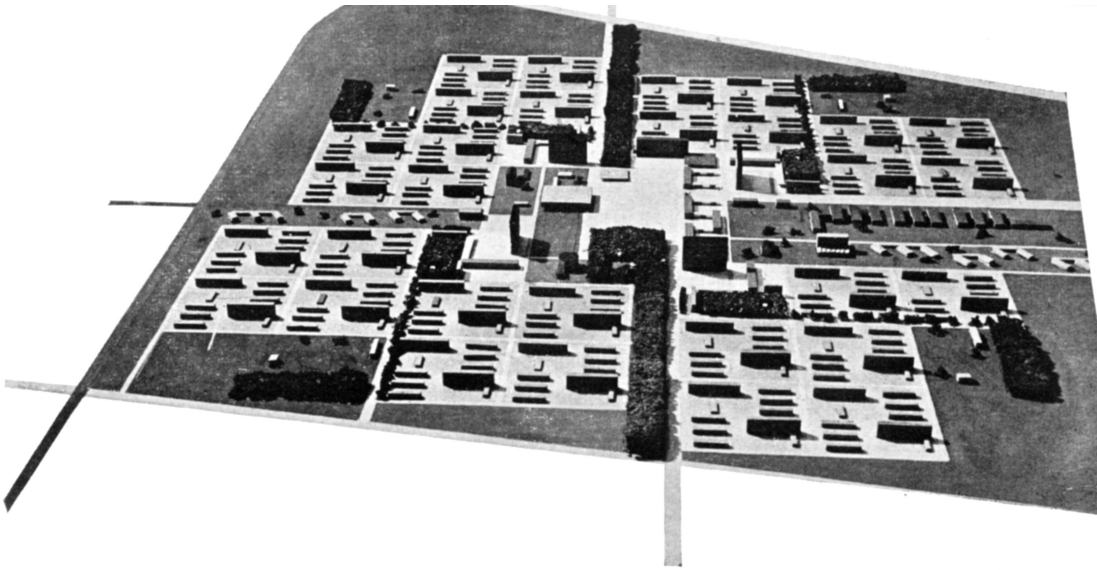


Fig. 33. *Rotterdam, Suburb of 17,000 People. Model.*
Scheme prepared by CIAM Group *Opbouw*

of the residential neighbourhood is a family centre, the focus of life of the family operating as a unit and of the schoolchildren gathering in groups of their own: cinemas, shops, libraries, restaurants, meeting rooms, youth clubs are needed and open space, free of traffic, that can be used as the gathering place of the residential community, whether for church functions, school displays, political meetings or spontaneous demonstrations – the Guy Fawkes bonfire, Christmas tree, Maypole or what you will. A place where tradition and social cohesion can be made manifest.

Such places still exist in many of our older towns, but have usually become denigrated to car-parks or covered with neatly mown grass. For an open space in Britain to be really available for popular use it must be near shelter and have a surface that will dry quickly. The French habit of planting trees in serried ranks in gravel is one we could re-adopt – it was common with us in the sixteenth and seventeenth centuries.

An illustration is shown of an interesting plan prepared by the Dutch CIAM group of Rotterdam '*Opbouw*' for a suburb of 17,000 people. The main core of this residential neighbourhood is a central space, free from traffic, around which are grouped the shops, administrative, cultural and recreational buildings of the community. The feature of special interest, however, is the way in which this central

open space is visually emphasized by four tall slabs of apartments for old and single people, and the four radiating beams that tie it into the entire community: one containing the secondary schools, one workshop industry, and the other two long park alleys or promenades. The whole project is built up of individual units each of about 500 people and each intended to contain as far as possible a complete cross section of household groupings. Space for small and large families is provided in each unit in two storey houses, three storey flats, four storey maisonettes, and six storey flats, all grouped together around a local playground and clubroom, an elementary expression of the core. In these two cores, the centre and the unit, they have catered for activities in which everyone is interested at some time, as well as those that only concern a very local group. In addition they have an intermediate set of four local cores, one at each corner, that contain the primary schools and the churches in a park setting. To quote the words of Wim Wissing, one of the workers on the scheme, the intention is to express:

- (1) *That the core is not one space or one activity, but an idea now here, now there, now expressed by one activity, now by another, but reaching its highest expression within a definite (but not rigidly) bounded space.*
- (2) *That a scale of 'core-forming' activities can be drawn up, each of which needs to be placed in a certain relationship to the central core.*
- (3) *That this distinction of elements must not lead to their complete separation from one another.*
- (4) *That the total area must express a dynamic continuity of space, giving a wider value to each of its components.*

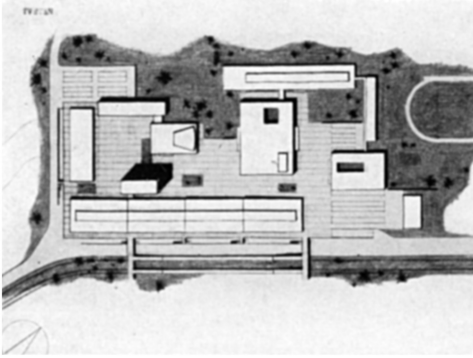


Fig. 34. Norway, Tvetan. Core of a developing suburb of Oslo. The new core will contain a secondary school, swimming bath, community hall and cinema, large covered market, tall block with offices and small apartments, and a number of car parks. Lund Humphries: *The Heart of the City*



Fig. 35. Lausanne. The ravine from the east as it is today, filled with warehouses. Lund Humphries: *The Heart of the City*

Fig. 36. Lausanne. Model of the new core from the south. Lund Humphries: *The Heart of the City*

Three other designs for cores are illustrated, all of which were shown at the CIAM Congress at Hoddesdon, Herts, in 1951. These are near Oslo, the work of the Norwegian CIAM group; at Lausanne, the work of W. Vetter; and at Medellin, the work of

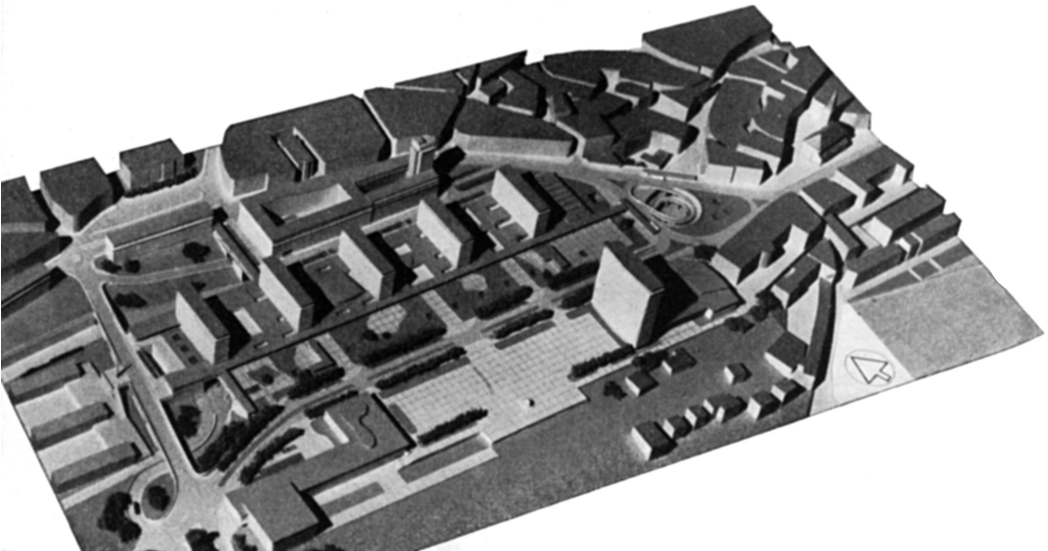




Fig. 37. Medellín, Columbia. Layout of new centre. The principal elements of the core comprise municipal theatre, a museum, a public library, a paved square for public meetings, and several office

buildings grouped around planted patios. Road access and parking is provided for every building without interfering with free movement of the pedestrian. Lund Humphries: *The Heart of the City*

Wiener and Sert. All show a grouping of buildings standing as sculptures in open space that has been freed for the people of the cities.

The Oslo scheme is for a new independent centre that will serve a number of existing and developing scattered suburban settlements. It is in the same vein of thinking as the new American out-of-town shopping centres, but more dynamically organized. The site is on the slope of a wooded hill and parking areas (not as lavish as in the States) are provided to the east and north-west.

The scheme at Lausanne entails roofing over an existing ravine, now cluttered up with out-moded warehouses, and creating a new platform above a vast area of garage space and modernized storage. This platform, commanding a magnificent view of the lake, would be developed for a range of hotels, office blocks and shops, and on the open terrace would arise a tall city hall and a low complex containing concert hall, library and museum. This scheme would create new open space within a very crowded city.

The third scheme is for a new centre for the growing industrial city of Medellin in Colombia, South America, that will soon have half a million inhabitants. It is laid out on entirely new land and is surrounded by expressways, entry for traffic being only at three points. The scheme very subtly allows traffic access to every building but still maintains complete freedom of movement to the walking citizen. The roof areas that encompass the site on two sides cover open shopping areas – the natural extension of the present trend of the Woolworth type of store and the serve-yourself food markets of America and Canada, though still closely related to the traditional stall market of European and South American tradition. Office blocks rise above this parasol roof. The central buildings comprise the municipal buildings, auditorium, theatre, library and museum.

I have discussed the need for the core; the meaning of the core; and some designs for contemporary cores for communities of different sizes and types but have not yet touched on the problem I started with, the relation between the prevalent ideology of escape from the slums of the city and the eternal human need for access to the core of the city.

We have already accepted in principle the idea that the great cities should 'be broken up'. This was given its first form in the County of London Plan when we were presented with Arthur Ling's 'egg-basket'-

the breaks were park-rimmed traffic routes between the egg-shaped communities which were based on old village centres; their populations new averaging around 50-70,000 people. Rowse's students at the School of Planning have carried this form of 'break-up' further and have studied the economics of re-developing large areas of Fulham as market gardens. It is probable that 'break-up' of both these sorts is essential, not in order to destroy our cities, but in order that they may breathe and live: in order that the cores, the hearts, the vital organs of the city may again come into active life. These are, however, drastic measures that have to be taken for the few huge cities of the world. A more wide spread problem is that of the many growing cities that, though traffic-strangled, continue to expand although they are not yet at the stage of London, which has been forced to give official (though still reluctant) recognition to its diseased condition. It is these growing cities that require a new attitude of mind, a new idea, a new policy: a policy that is constructive. The position at present is that policy makers are inhibited by the feeling that they ought to desire to kill the city – to evacuate from the city to the ideal small towns – while at the same time they know that they must strive to increase the city in order to meet current liabilities. The result is a traffic-strangled centre; a dreary waste of outworn buildings around it, usually in the process of changing from one use to another, or hoping so to change (and including the worst of the slums); large residential buildings of uncertain future use but too good to be pulled down; and then ring upon ring of more and more 'open' suburban development threaded with industrial areas. Research, both in America and in Paris has gone to show that the actual core – the central area of pedestrian movement – cannot get larger than a certain size – about a mile across in all directions at its maximum. It may *move*: in fact in most cities it does move as the city alters its character, but it doesn't get larger in *area*, though of course it may, and does, get more densely built-up. It may also become more specialized so that in the great cities of the world – Paris, London, New York – there are distinct cores for commercial business (the City of London) and for retail trade and entertainment, etc. (the West End) and for Government (Westminster).

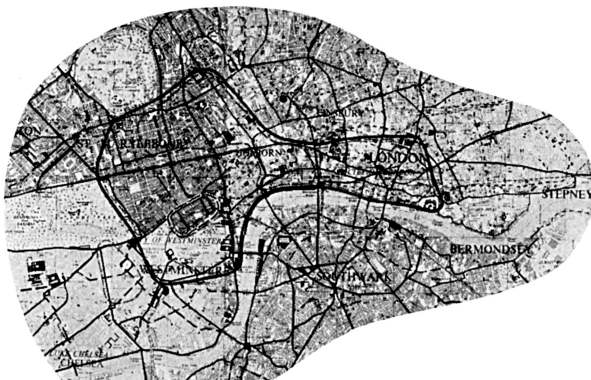
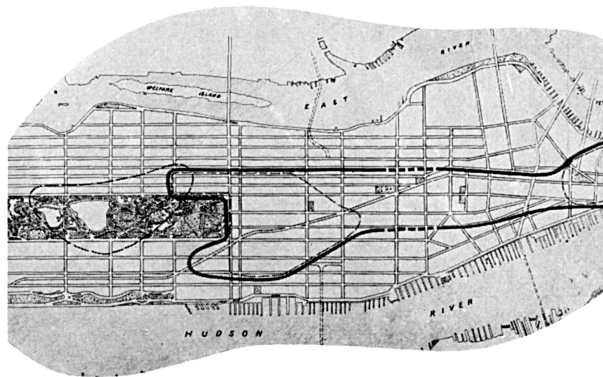
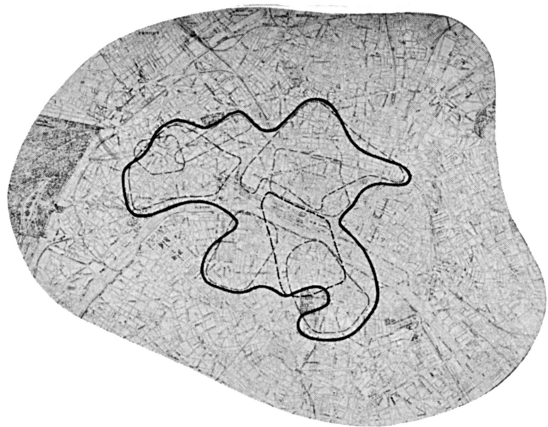
A complete grasp of this fact would alter a lot of preconceptions about the future possibilities of areas just around these central zones: areas that now have a spectacularly lower *use-value* than the core areas, but whose owners are usually eternally hopeful that the core may expand in their direction. They are thus extremely expensive areas to handle

and continue to remain in their semi-rotting condition. But it is just here that we need to make the break in the city; here around the congested cores. If this is only made sufficiently boldly it can revive the whole of the city, and revitalise it with health. A break here and a policy of repeated wide bands and strips of green land, not always associated with traffic routes, and definitely not cutting up the city into units smaller than 30,000 or so, is the first line of battle. Then comes the creation of (or revival of) local cores in the units – each large enough to maintain some active existence, but each accessible to the main core of the city. Then comes the policy of industrial location, and with the middle-sized type of city – the growing city of half-a-million or so – the shrewd realtor of America has one location he likes: just far enough from the city to get plenty of space, and just near enough to attract workers from the suburbs to move *out* from and not into the city. ‘Buy a good parcel of land, build one factory suitable for selling to a light industry with good standards of wages and steady work, build a lunch bar (or just a hot-dog stand) and in two years you can sell the rest of the land at a good profit to such industries as you like.’ Of course this assumes that the basic site requirements have been met, but here I am only treating location in relation to the population.

These are the trends, trends we are all aware of and that we can build upon to create the new urban constellation: the journey out to industry, the journey in to culture, the home community large enough to support normal shops and schools for all income types. This can result in urban planning that encompasses the urban region and that can enable every citizen to have ready access to the best the country has to offer in the form both of employment and of personal development.

Fig. 38. *The Pattern of the Sunday Promenade.*
Lund Humphries: *The Heart of the City*

- Paris c.3,000,000
- France c 40,000,000
- New York c.8,000,000
- USA c.150,000,000
- Venice c.300,000
- London c.8,000,000
- Britain c.50,000,000



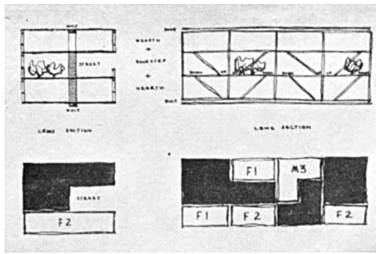
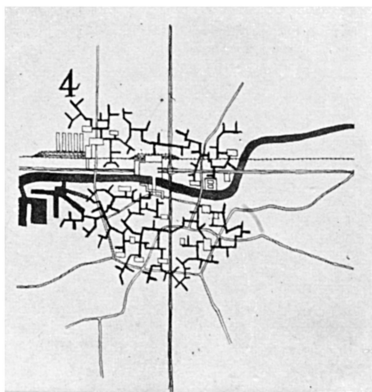
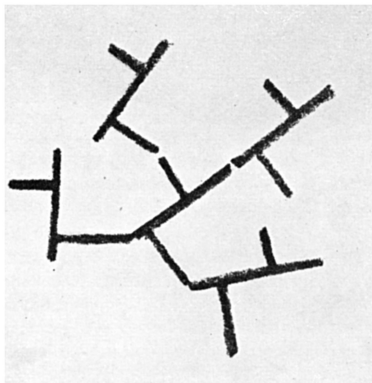
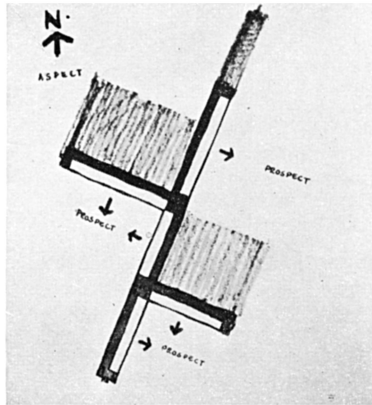


Fig. 39. Diagram of Basic Unit: The House

Fig. 40. The Street

Fig. 41. The District

Fig. 42. The City



THE VILLAGE CENTRE

(By Jaqueline Tyrwhitt)

Village housing needs are not the same as those in the towns, not only because of the unavailability in villages of urban machinery of construction but also because of the social and economic needs of the villager. With him the integration of mind, body, hands and the good earth is a living actual reality, and this has to be expressed in his immediate living environment.

The revival of village life in India in its fullness is based primarily upon the restoration of responsibility to the village panchayat—a restoration of the self-reliance and pride, that made the Indian village of earlier times the real home of thought and culture in India. The new policy of rural housing must therefore be, and is, closely tied up with the political and economic development of village life.

An expression of this integrated approach has been attempted in the Exhibition by the creation of a Village Centre amid a group of experimental village houses—the intention being to show that the two are inseparable—which is the policy of the Community Projects Administration who have found the funds for the erection of most of the buildings.

The houses are six in number; a rural house with enclosed cattle shed designed by Shri. C. B. Patel, Housing Adviser to the Community Projects Administration; a rammed earth house showing an improved method of technique, the design being based on the 'ideal village home' designed by Dr. S. P. Raju of Hyderabad; the parabolic rammed earth house developed in the Punjab Soil Research Station at Karnal; a new Central Public Works Department design for a rural house; and two West Bengal designs designed and erected by the West Bengal School of Engineering. These show a variety of solutions of the basic needs of village housing: a house that can be built by self-help methods from locally available materials, and provides accommodation both for the family and their animals.

There is nothing new in this approach. Almost all the houses in the six lacs of villages of India are built by the villagers themselves of locally available materials. The accommodation for the cattle is, however, often so closely linked to that of humans that health and hygiene are both impaired. This is due more to the poverty of the villager than to his lack of understanding. The revival of the panchayats, bringing in their train a greater pride in local responsibility (and one's duty towards one's neighbour), together with a higher standard of living brought about by the revival of secondary village industries, as well as improved farming techniques, will undoubtedly lead to the separation of the sleeping quarters of men and beasts even in the poorer village homes; it already exists in the houses of the more well-to-do.

The emphasis of the village area of the Exhibition has not however been laid upon these six houses, but upon the community facilities that provide the basis of village life. The integration of mind and body, hands and the good earth is shown by the careful siting and design of a multiple purpose basic school building; a small health clinic planned in relation to environmental sanitation needs; a crafts centre where production is centred on housing; and a seed store and manure producing plant, linked to the cultivation of a vegetable garden which, by being itself linked to the basic school, restarts the cycle of life.

All these buildings have been designed to be practicable for the average village of India not merely for the large villages in which the work of the Community Projects Administration is still, perforce, concentrated. All could be built by self-help methods instigated by the Panchayat itself, or by a locally formed village co-operative, for, though the construction of several of the buildings actually shown is of third class brick with cement pointing, they could be made just as well of rammed earth, for the interest of this village centre lies not in the construction methods employed at the Exhibition but in the general disposition of the buildings, their plan and their function.

The Mind.—The little school building is given the place of honour. In an Indian village there are no traffic hazards : the bullock-cart and the child move at approximately the same pace, and each has a civil awareness of the other's right to existence. There is therefore no need to oust the school to some distant corner because lethal machines have taken possession of the central areas. In this Village Centre the school and the Panchayat meeting place are in one and the same building. This was designed not only for economy, but also that the relationship between learning and responsibility might be made very clear. The school is a very simple building, but many things can happen there. First it is a basic school, concentrating upon horticulture. This is in keeping with the policy of the Community Projects Administration, and with the teachings of Gandhiji. The children learn by doing from their earliest years.

As this is intended as a first school, it only provides for 5 classes (*i.e.* for children from 6 to 10 years of age), and as it is designed for the Indian climate it only provides two enclosed class rooms, though there are three large verandahs, a school yard, and a fairly large vegetable garden in which it is expected that many classes will be held. In the smaller enclosed class room there is a laboratory bench for 'field science' training ; also a library box which will be collected and renewed periodically by the nearest town library. On library days this room will be open in the evenings to the adults of the village.

The larger school room can be entered directly from the village centre and will be used in the evenings, and during the Exhibition itself, for adult classes, whether for literacy classes, art courses, discussion groups or whatever the Panchayat and the village people feel is desirable. During the Exhibition these classes are being run by Jamia Millia University. The Panchayat itself will meet on the front verandah, and there is a small office that can be locked, where the Panchayat records and also the head master's papers can be stored. On one of the other verandahs there is a carpenter's bench and a small forge, where the boys will learn the elements of two of the basic trades, apart from their general concentration upon horticulture and agriculture. A smokeless chula has also been installed, where the girls can be taught the principles of preparing a balanced diet for their families.

The mind requires more information for its development, and therefore, in the open space before the school house, there is a low platform that can be used by the story-teller, acrobats, dancers and mummers. Upon it a screen can easily be erected and film shows given from travelling movie vans. As much as possible of this sort of village entertainment will be in evidence at the Exhibition itself.

Body.—Across the space from the school house is a small health clinic. It is not a 'Health Centre' in the phraseology of the Community Projects Administration, but a smaller affair : the first step along the road. The permanent staff consists merely of the village nurse, or trained mid-wife, but the

little clinic would be visited at regular intervals by a doctor. Its purpose is to improve health and to check or report sickness before it becomes serious. Really sick people will be reported to the nearest hospital and sent there for treatment. The clinic is the place at which first aid and advice can be given, and through which expert attention can be secured.

Examination rooms for patients, a dispensary and a small room for the nurse-in-charge are all that this modest building contains : but the examination rooms can be opened up and made into quite a large room where the nurse can conduct classes in personal hygiene and other matters.

A large part of the sickness that occurs in Indian villages arises from a contaminated water supply or from inadequate disposal of refuse, especially human refuse. Environmental sanitation therefore plays an important part in the work supervised by the health clinic.

Both the health clinic and the school house have latrines of the 'water seal' type, strongly advocated by the Ministry of Health and the World Health Organisation of the United Nations. These need no skilled labour in their construction, and the pan that provides the 'water seal' by reason of its design, can be made by the village potter so long as he has access to some glaze. In Mysore a satisfactory glaze has been manufactured from local products, and the results are excellent. This type of latrine requires very little attention.

Other latrines of the 'bore-hole' type are shown within the village area. These are very suitable for the individual family and again require very little attention. But Gandhiji was apt to remind India how the wealth of Chinese agriculture had been maintained through the centuries by the careful return to the land of all sources of fertility. An example of one of the 'trench latrines' that he advocated, and which are in constant use at Sevagram and elsewhere, is also being shown. This little structure is moved along a garden trench upon its four wooden wheels. The trench is never very deep and is filled in as soon as need be, and the latrine shifted forward over the new hole dug by this filling process. This works excellently in the hands of careful people, but is not advocated for community buildings except for the training of school children.

The disposal of animal refuse is also handled near the Village Centre. The use of cow dung for fuel has often been condemned as it robs the soil of valuable nutriment, but the problem of an alternative fuel has seldom been fully solved. Wood is in very short supply, and also—in most cases—not a suitable fuel for the slow cooking of many Indian dishes : coal is relatively scarce and expensive as it cannot be obtained by the villager within his own milieu. A very simple plant has been developed and tested in many parts of India, which collects the methane gas given off by cow dung, pipes this direct to the chula for cooking, and provides a semi-liquid residue, quite without smell, which forms an excellent manure for the land. This plant is being demonstrated at the Exhibition, and a woman will be boiling water on two chulas operated from the methane gas, and her room will also be lit by a gas burner. The cost of installation of such a plant is mainly labour, as a pit has to be dug and lined to hold the cow dung. Apart from this the apparatus consists of a metal gas cylinder and gas piping to the points of outlet. Experiments are being made to produce an air-tight cylinder of local materials, but at present it seems necessary for the village to incur this capital outlay—approximately Rs. 500 for the tank alone. At the Exhibition it has been assumed that the gas plant would be run by a village co-operative.

Apart from this dramatic display of the disposal of animal refuse, care has been taken to see that all the cattle sheds shown are practical from the point of view of the owner, but do not allow the animal's dung to foul the spaces occupied by the family. In each case, a hard sloping floor with a simple drain has been provided.

It is not claimed that the problem of the village fuel supply has been met by the installation of this plant, but it is a step in that direction, and another step is shown by a plantation of trees—which forms part of the school garden—that are recommended for planting simply for fuel. There is no doubt that 'in the old days' India was far more heavily afforested than now, and the promotion of village forests is not a new idea, though it is one that needs constant encouragement.

The maintenance of pure water in the village is shown by the design of two different types of wells. The safest type of well is undoubtedly the tube-well. In this case an impervious tube is thrust through the earth to a major supply of pure water. The Community Projects Administration have an active programme for assisting villagers to obtain tube-wells, and large numbers have recently been installed. Many villages however have a good and pure water supply fairly close to the surface of the ground, and the common dug well will always remain a major source of water supply.

In the Exhibition Village Centre the dug well is shown protected by a cover. This is considered essential by all health authorities, though there is a mistaken folk notion that water needs air and sunlight to remain pure. This well is operated by a hand pump, worked by turning a wheel. This is both easier for the operator, and mechanically less complicated than the lever type. It is an Indian development. The water can be pumped into water pots or can be pumped directly on to the surface of the well-head, where a built-in channel directs it into a trough, which can be used for washing purposes or (as in the Exhibition) for an animal drinking trough. From here it flows along irrigation channels through the school vegetable garden. There is always a problem of preventing the animal's refuse from contaminating the well water by gradual seepage through the soil near the well. This is met by providing a hard gently sloping platform on which the animals (or the washer-women) stand, and which can be cleansed simply by operating the pump, which will swill the refuse, or the soiled water from the clothes washing, into the irrigation ditches—to the benefit of the soil and the protection of the well. This distance is still too near for absolute safety, and this well is intended rather for irrigation purposes than to provide pure drinking water.

The tube-well in the Exhibition is operated by a small diesel engine, which pumps the water into an overhead tank some 50 ft. from the well itself (the minimum distance considered absolutely safe from the point of view of seepage). From this tank the water can be drawn off by five taps; two supply overhead showers for the public use of the villagers, two are for drinking water, and there are small, slightly hollowed, blocks on which the women's pots can be placed. The surplus water falling here will not splash up at her, nor will she have to stand on a wet surface (another source of passing on infections); also the raised height of the block makes it easy for her to raise her filled vessel to her head. On the other side of the little structure is the washing place for clothes and the fifth tap. The whole is surrounded by a drain which leads all the used water into a sump. This is both a completely protected water supply for the use of the village household, and a centre or social gathering. In realisation of this important function of the village

well, the 'community shower' building is under shady trees and two log seats have been placed near it. The pump for the tube-well is near the little health clinic, with the idea that its operation might be in the hands of the servant of the nurse-midwife in charge of the clinic.

A third type of village well, an improved pattern of a bucket and chain well, is being shown in model form by the Ministry of Health. It is also quite possible to have a covered well operated by a persian wheel, but it was not considered advisable to site such a well so close to the village centre.

Hands.—The Exhibition Village Centre does not display much of the villager's main occupation—farming—as this is patently not carried on within the village itself. It does, however, show a communal seed store which has been designed by the Ministry of Food and Agriculture as a means of conserving grain from the ravages of mice, weevils and damp which ruins so large a proportion of India's produce. This store is combined with a grain shop, and the suggestion at the Exhibition is that these could be both operated by a village co-operative society. For this reason a member of the Indian Co-operative Union will be in constant attendance in the grain shop, prepared to describe the operation of such projects. This grain store and shop are close to the plant manufacturing methane gas from cow dung and to a bullock-operated oil-press, the intention being to group together the activities which a multiple-purpose village co-operative might well undertake. The oil-press being demonstrated recently won an All-India award. It was developed by the Maganwadi Village Industries at Wardha and is being shown by the Indian Oil-Seeds Committee of the Government.

One of the tragedies of the Indian villages, a point often made by the Prime Minister, is the way in which their secondary industries declined during British rule. Any village in any country that relies solely upon agriculture for its prosperity is bound to live at a low level both socially and economically. Even single industry towns are notorious for their economic instability and social discontent. Village crafts supply not only a secondary source of income to the village, but also a secondary outlet for village talent and skill. In the Exhibition only the crafts have been shown that are directly concerned with house construction—after all this is a Housing Exhibition.

First we have the potter, and this Punjabi potter will be showing that he can make cottage tiles just as well as the Southerners. The tiles he will be making will be of different patterns, but all can be made in his simple workshop and baked in his normal kiln. Drain pipes, chulas and many other household needs, apart from the usual water-pot, can be made by any skilful village potter.

The blacksmith's shop will be in active operation, and the smith will be concentrating on the manufacture of bolts, hooks, hold-fasts for doors, and other items of house construction, which he can well make in addition to his steady work on ploughshares and sickles.

The carpenter will display his skill at making window frames and doors as well as plough handles and wheels.

The weaver will be working on heavy coverings, that can be used to hang over doorways, throw over beds, or to sit upon on the floor, but the weaving shed will not only contain the loom, but will show the whole process of cloth-making, picking, carding, spinning, etc.

In the background are two rammed earth houses under construction, showing the work of the village builder himself. Each is being built on a different principle, but both methods can be employed by the average villager himself to erect his own home, with some guidance from the skilled village mason.

The first house employs a small travelling wooden form with two wooden rollers and four iron pegs. This form can be made by the local carpenter and blacksmith, and with it the whole house can be strongly and easily erected, either of simple rammed earth with a mud plaster, as is usual in the villages, or with a surface layer rendered impermeable to water by an admixture of lime, bitumen, cement, or any other binding material that is locally available. The technique of this form of building was worked out by an Australian, who has now tried the system out in Israel and Ceylon as well as his native country, working on behalf of the Technical Assistance Administration of the United Nations.

The second house is also built with thick walls of simple rammed earth, but its special characteristic is that, by assuming a parabolic form, it cuts out the need for any timber, tiles or thatch for the roof. The roof and the walls have in fact become one. This system was developed at the Punjab Soil Research Station, and—though it may not be entirely convenient to live between walls that curve inwards—the resulting house is very cool and very economical to build.

Spirit.—The visitor will find one thing lacking in the Exhibition Village Centre. It contains no temple, mosque, chapel or shrine. Yet there is one building that is itself in the nature of a shrine, being a replica of Gandhiji's hut at Sevagram. Its simple mud walls and wide verandah catch the eye at the entrance to the area. Within it will be replicas of his bed, made of a few boards, and his small book case. On the walls artists from the staff of Delhi Polytechnic have already reproduced the mud reliefs of the original cottage. Though the actual responsibility for the design, construction and equipment of this Village Centre is shared between the Community Projects Administration of the Planning Commission and the Technical Assistance Administration of the United Nations, the spirit that has prompted them is the spirit of Gandhi, for, as he himself said :

"I would say that if the village perishes, India will perish too. India will be no more India. Her own Mission in the world will get lost. The revival of the village is possible only when it is no more exploited. Industrialisation on a mass scale will necessarily lead to passive or active exploitation of the villagers as the problems of competition and marketing come in. Therefore we have to concentrate on the village being self-contained manufacturing mainly for use. Provided this character of the village industry is maintained, there would be no objection to villagers using even the modern machines and tools that they can make and can afford to use. Only they should not be used as a means of exploitation of others."

