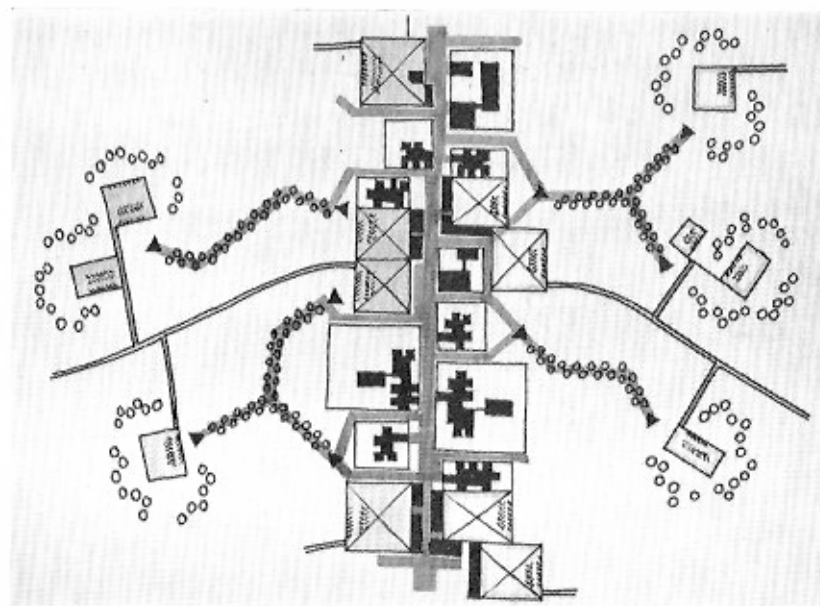# RECENT THOUGHTS IN TOWN PLANNING AND URBAN DESIGN

GEORGES CANDILIS
ALEXIS JOSIC
SHADRACH WOODS

Today we are involved in mass production, mass distribution, mass consumption, mass housing, mass education, mass leisure. We are especially concerned with the relationships between these mass activities. We have to define the use of public and private transport, from rocket ships to bicycles, and to relate their different scales of speed to each other and to man as he continues to be, despite these hurrying marvels. These problems are most acute when populations are greatest, i.e. in our cities and urban regions

The constant and rapid evolution of our society will not allow the stratification of cities. The question is not to build flexible buildings but to establish an environment in which buildings appropriate to their function may occur, and to encourage an interaction between these buildings and their environment. It is clear that no formal composition can provide an answer to this problem; for the nature of all formal composition is static, precise, and fixed. Buildings which formerly took fifty years to fail, now fail in five. We assume that technology will solve the problem of the five-year economic life by considering the total economic context. Our problem is to seek a way of allowing the five-year building to occur when and where it is needed. The object is not to make the building flexible but to make the urban complex flexible enough to foster short-life buildings as well as long lived ones

Town planning and architecture are parts of a continuous process. Planning is the correlating of human activities; architecture is the housing of these activities. Town planning establishes the milieu in which architecture can happen. Both are con-ditioned by economic, social, political, technical and physical climates. In a given environment thorough planning will lead to architecture. Planning remains abstract until it generates architecture. Only through its results (buildings, ways, places) can it be. Its function is to establish optimum conditions in which the present becomes future. To do this it must seek out, explore and explain the relationships between human activities. It must then bring these activities together so that the whole of life in the city becomes richer than the sum of its parts

Town planning and architecture today must reflect the image of an open society. New techniques of planning must be developed. We propose

1 To distribute ancillary activities throughout the domain of housing instead of localizing them in certain fixed places, to bring together as many activities as

Caen
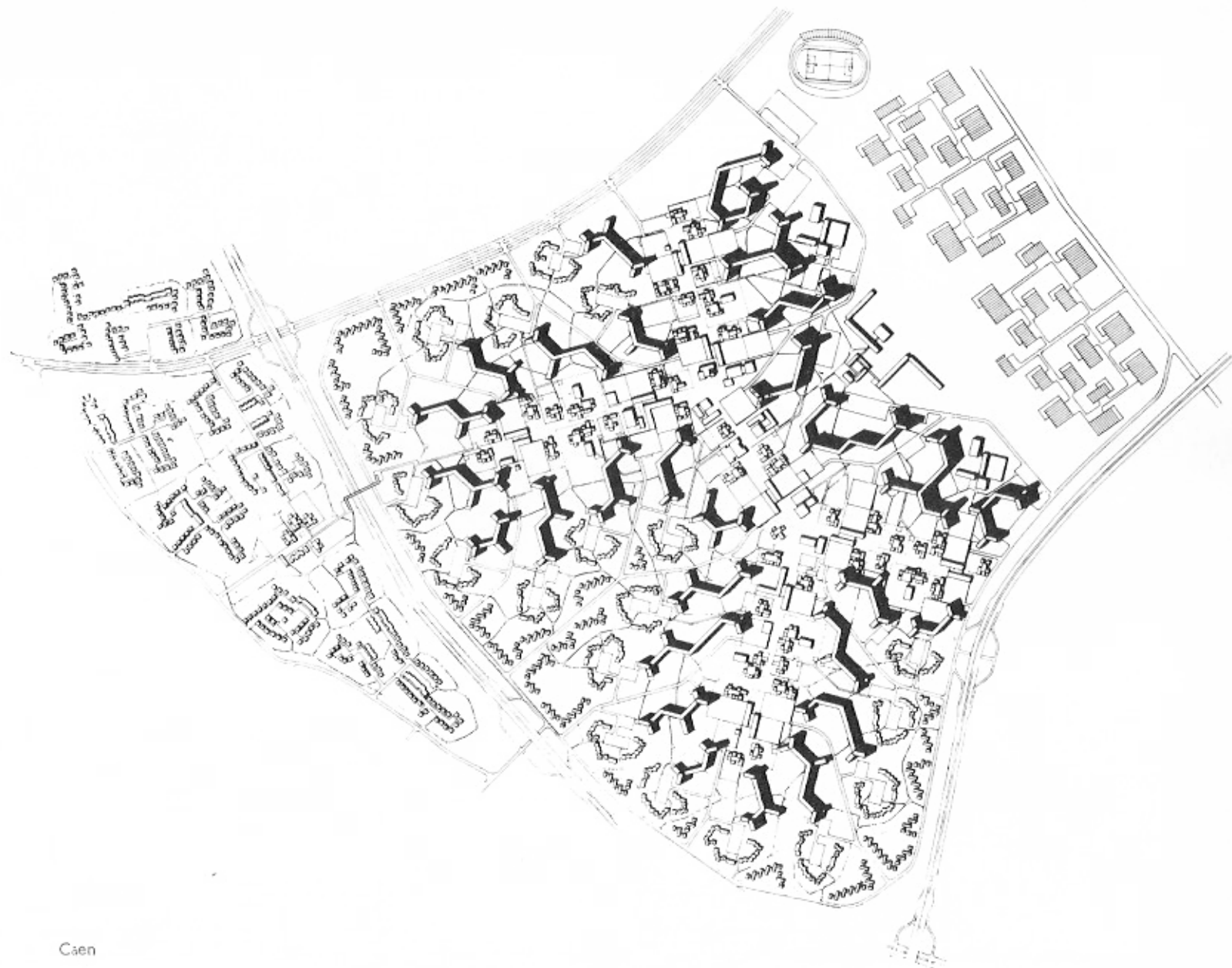
possible, to bring the sum of life to all parts. A linear organization (a line has neither shape nor size) is the truest reflection of an open society

2 To define the use of the automobile which, covering greater distances in shorter times, enables us to imagine a totally new organism in which vehicular and pedestrian traffic is entirely independent

3 To determine points of contact between transportation and dwelling as a way towards the realization of a collectivity and hence to the identification of the individual

4 To re-establish multiple access in collective dwellings, to have more than one way into one's house

The important question is not 'how?' but 'why?' or 'what for?'

Town planning, like architecture, has to help society to achieve its ends, to make life in a community as rich as possible, to aspire to a present utopia. We have no quarrel with the past except insofar as it is used to compromise the future. The past can guide us but past techniques (composition) are of little avail. Present techniques and present means must be used to open as many doors to the future as possible

Candilis, Josic and Woods Le Carré Bleu, No. 3, 1961

I STEM

As it became clear to us that the scale of human relationships is now such that they can no longer be expressed solely through architectural composition, we have sought new, or at least other, ways of organizing these relationships

Our assumptions were:

I All of our problems are problems in urban design. The city, the highest expression of the society of men, is the natural habitat of man in society

2 The city is, of necessity, oriented towards public mass transportation rather than towards private mobility. The city is the domain of man on foot and seeks to respect his scale. The engines of private mobility have another scale – which is suburban

Our first approach was to consider two families of components—Dwellings and Ancillaries—and to organize these on a linear system. All the servants of dwellings were to be organized into a system of activities and services, to which dwellings might attach themselves

The stem would correspond to a pedestrian street – not a road – composed of commercial, social, educational, and leisure activities and including those

elements of administration and industry whose size and character will allow them to be closely associated with dwellings. The stem would be served by public transportation, service roads and service yards, and could be reached by private motor car at points where this seems desirable and practical

Dwelling complexes, of different types, could be associated with the stem ('plugged in' to it), as the need arose and in measure with the collective equipment provided

The stem, then, provides a total organization within which various forms of human association occur with considerable freedom and spontaneity. By its linear character, it retains a high degree of flexibility. It is by nature open-ended, allowing therefore maximum possibilities for growth, whilst remaining valid at all stages of development

This theme is illustrated here by our three consecutive competition projects for Caen (above), Bilbao, and Toulouse Le Mirail

2 WEB

Further research into systems for human associations led us to consider the possibilities of forming a web of interconnected stems. This generally led to a more intense organization, using multi-level grids of services. The web, as a structuring device, has a higher degree of order than the stem, although in both the form is not a preconception but a result, in fact an unknown, which is assumed to be constantly changing or at least capable of change. We feel that both approaches are valid, possibly each at a different scale

In a web composed of interconnected stems, including all forms of human association and activity, it is supposed that some functions would tend to generate more intense activity than others. The web itself is non-centric by nature and through these peaks of intensity it becomes polycentric, reflecting the life of the society it serves. Like the stem, it is open-ended and can grow and change

186
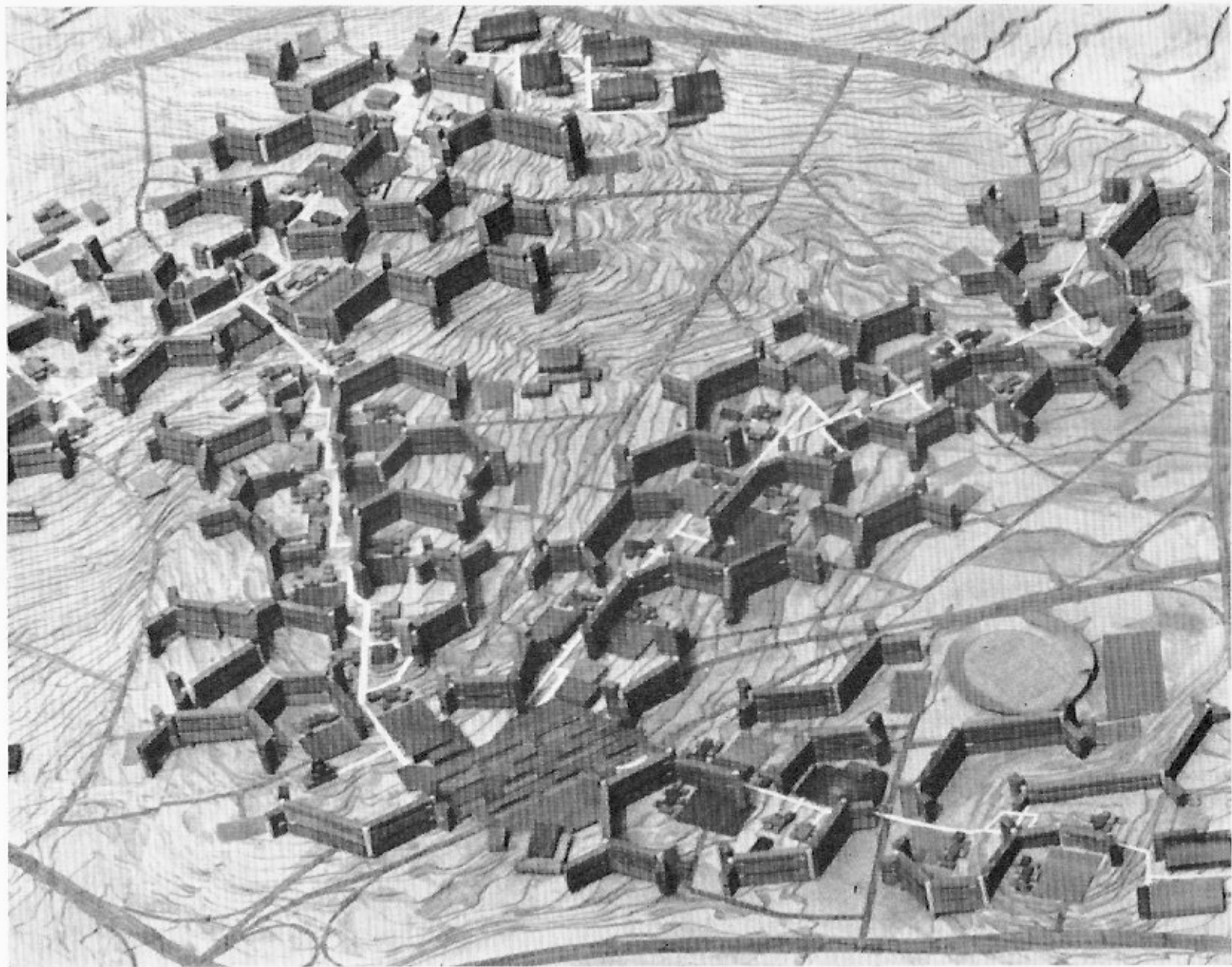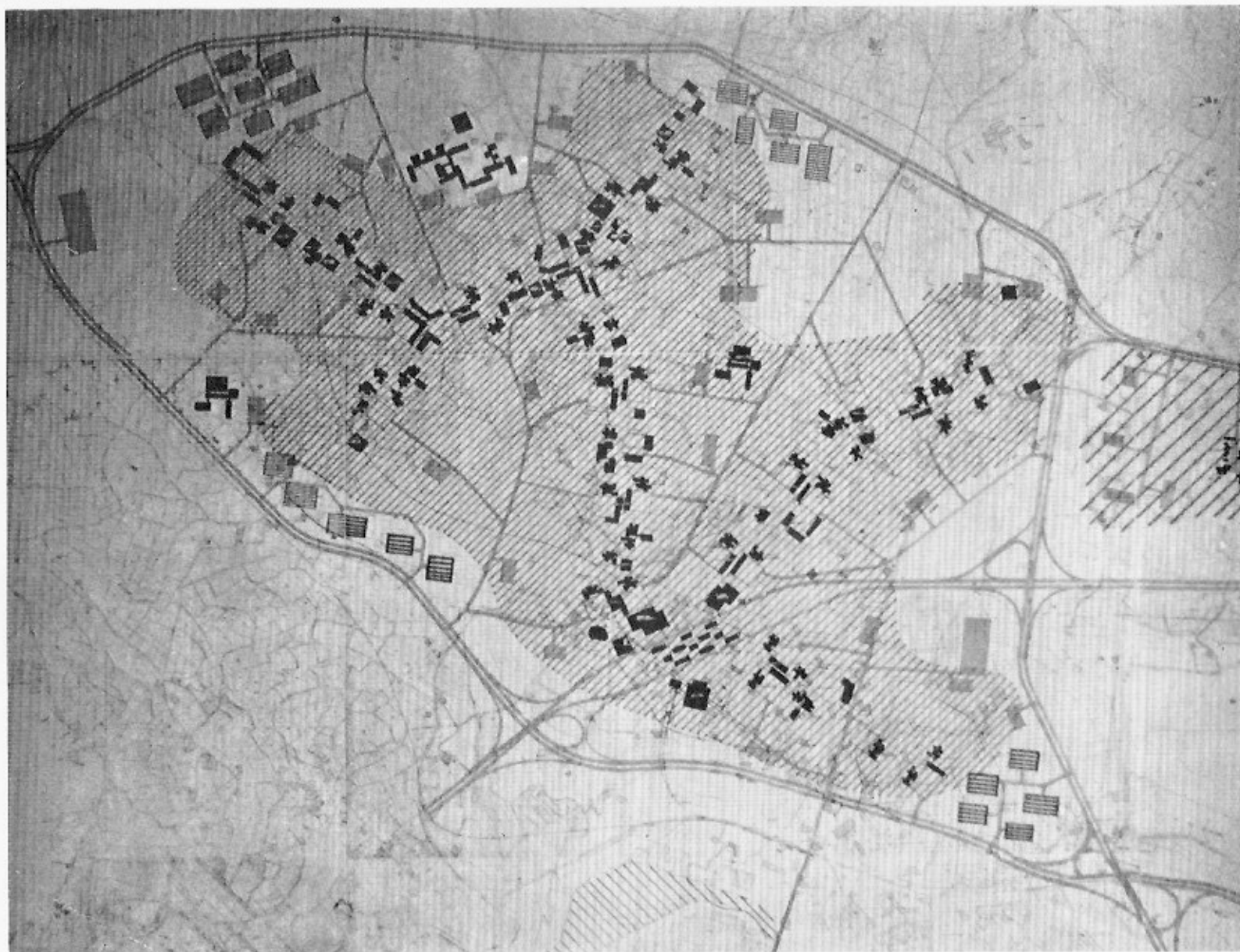
Bilbao

Bilbao. Stem of ancillaries

The web is illustrated here by our project for the centre of Frankfurt

Shadrach Woods   1963-64

WEB

Architecture and planning, which are each a part of the other, are concerned with the organization of places and ways for carrying out man's activities. The architectural process begins with a way of thinking about organization in a given place/time, then establishes a system of relationships and, finally, achieves plastic expression

This process has as its object the integration of specific activities into a total social context. Ideally the result is functional, in the same way that all art must be: it illuminates a society and prepares it for the next step along the way of its progress

As long as societies are evolving within the limits of perceivable human groupings (villages and towns, classes, castes and sects), so long could architecture operate within the limits of purely visual disciplines. With the breakdown of these limits and as man evolves towards a universal society, the need is felt to discover a clear framework for planning and architecture at the new scale. The visual group and its disciplines continue to operate but are no longer adequate to the scale of human relationships today. New systems of architecture are required to illuminate these relationships. The approach can no longer be only visual; we must call upon the whole range of sense, intellect and emotion to elaborate an architecture consonant with our aspirations

Today space is total and society is universal. These realities must be reflected in our planning and building

The rediscovery of continuous total space is the chief non-technical contribution of modern art and architecture to the social phenomena of the twentieth century. The world is one: a continuous surface surrounded by continuous space

Total space and universal society are interdependent; the one engenders the other

In order to reflect these realities of total space and universal society in our planning and building, and to deal with these problems of space and society at today's scale, we try to set up systems (intellectual frames) which can relate activities to each other and which can be understood. Understanding must come through the perception of the parts, as the whole system can never be seen. We try to discover

processes which will lead us to the realization of our society as surely as the visual groups gave clear expression to the societies which they served. In this search, it seems clear that we must dispense with the use of symbols and monuments, for this century has cast aside these crutches of authority. Indeed if authority can be said to exist it can only be through consent, and has no need of formalism or of allegories to impose itself

In Carré Bleu 3, 1961, we illustrated parts of one system for the organization of new housing development at large scale. The essence of the system is a linear association of those activities which serve the housing: shops, schools, social services, etc. . . . . The system extends into the housing groups so as to form a continuous collective circulation

The idea of continuity in the organization, so that no parts of it are in danger of isolation and none are subject to an a priori over-densification, is essential to our thought about what systems can be suitable to the evolving total society. Chains of relationships and circulations are continuous, cyclical and tend towards the infinite

When we predetermine points of maximum intensity – centres – it means that we are freezing a present or projected state of activity and relationships. We perpetuate an environment where some things are central and others are not, without, however, any competence for determining which things belong to which category. The future is thus compromised

Given the disciplines of a continuous frame system, functions may be articulated without the chaotic results which we obtain when we pursue only the articulation of function without first establishing a total order. Indeed it is only within such a frame that function can be articulate. The parts of a system take their identity from the system. If there is no order, there is no identity, but only the chaos of disparate elements in pointless competition

The purpose of any putting-together, to create a whole which is greater than the sum of the parts, is only possible if we can guarantee a whole – a total synthetic order of all the functions

Point = concentric (static, fixed)

Line = linear (a measure of liberty)

Web = non-centric initially, polycentric through use (a fuller measure)

Although we do not know where the search for system in planning will lead, we can already recognize

some of the conditions to which these systems will conform. Among these are, principally

The systems will be such that man can, within them, contribute to the creation of his own environment, and in so doing, ameliorate the total environment. This condition holds at all scales, from man in general to each particular man. It is the reason for the systems

The systems will have more than the usual three dimensions. They will include a time dimension

The systems will be sufficiently flexible to permit growth and change within themselves throughout the course of their lives

The systems will remain open in both directions, i.e. in respect to smaller systems within them as well as in respect to greater systems around them

The systems will present, in their beginning, an even overall intensity of activity in order not to compromise the future

The extent and character of the systems will be apparent, or at least ascertainable, from the perception of parts of the systems

We feel that Web, by which word we mean to designate Stem to the next degree, may provide a way to approach the search for systems and, hence, for a true poetic discovery of architecture. (It is ridiculous and infantile to seek out the forms or techniques of the past, for their moment has gone with their society and can never return)

Web is not primarily a circulation system, but an environmental one. It is a way to establish a large-scale order which by its existence makes possible an individual expression at a smaller scale

In its circulation, it intends to find ways for men on foot to associate without inflicting hardship on other men in machines. It seeks to re-establish the human scale in planning. In relation to speed, the measure of which is distance, the human scale is the pedestrian who moves at about 4 km/h. This speed must be accorded with that of automobiles and other mechanical devices. If the human scale is to survive, it must subjugate all the other scales in the places where it is to be conserved. A pedestrian on a throughway is just as ridiculous as an automobile in a casbah. The web must have, as one of its dimensions, the time spent going from point to point, at those various speeds which range from man on foot to man in machine. It is clear that the measure of speed is distance and the measure of distance is time

Web must be a highly flexible system in a rapidly changing world. At the scales at which architect-planners are operating today, it is not possible to

188

conceive of any long-range plan based on fixed spatial or compositional relationships. Even as the first part of such a plan is realized, it modifies the conditions which govern the second, and by continuous feed-back, the whole plan. The non-centric, open-ended web seeks to respond to this life process

Openness is guaranteed by the initial even intensity of activities over the web, so that it can be plugged-into at any point and can itself plug-in to greater systems at any point. These connections provoke points of greater intensity but the original flexibility always remains and the points of density which occur, as the web becomes polycentric through use, retain a non-fixed character

Shadrach Woods Paris August/December 1962

CAEN

In 1961 a competition was organized by the Sociéte pour l'Equipement de la Basse-Normandie, an agency sponsored by the city of Caen, the Département, and the French Government, for a comprehensive site plan to develop a new quarter of the city of Caen. The present population is around 110,000. The proposed extension was to house 40,000 inhabitants with some light industry. The site assigned for the extension covers about 750 acres, of which 125 were to be set aside for industry. The land slopes towards the east and south-east about 3 to 5 per cent and looks over the valley of the Orne. The development was expected to extend over a period of ten to fifteen years

Our proposal was based on the principle of a linear association of all the ancillaries, excepting the industry which was accommodated as requested along the north-west side of the site. Schools, shops, social services, churches, administrative functions, etc, were disposed along pedestrian ways so as to form a continuous stem of activities

The plan was to be developed in five stages of 1,500 to 2,000 dwellings

The basic organization of dwellings was to be in six, ten and fourteen storey buildings plugged into the stem at those points where parking and services were provided. The buildings were to be served by banks of lifts at these entry points connected by 'streets in the sky' at convenient levels, as in Alison and Peter Smithson's Golden Lane proposal of 1952. Automobile access could be controlled and a con-tinuous collective pedestrian system would be provided, which meets but does not follow the

automobile. The distinction between street and road is established

BILBAO

A proposal similar to that for Caen, on a hilly site of about 1,000 acres, provided dwellings for about 85,000 inhabitants. In this scheme, the light industry was more intimately associated with the other activities which support and serve the dwellings. As in the Caen scheme a peripheral road was pro-posed, collecting all the secondary access roads. The linear centres of activity were proposed along the ridges in the site, and automobile access was to follow the valleys. Industry would be established at the ends of the stems, along the peripheral road

This sector was to be served by an underground rail transit system, connecting it with Bilbao and with the beaches

The pedestrian systems all come together in a central plaza from which the entire scheme can be compre-hended. This plaza bridges over the main road from France to Portugal, overlooks the railroad and the new port being built at the conjunction of the Asua and Nervion rivers and lies directly on the axis of the airport's main runway. From here one might see and understand all the transportation systems which link it to the rest of the world. Luxury shops, cafés, and entertainment would be placed here

Dwellings are organized on the same principles as in Caen, without, however, the low-density infill which had been required in that scheme

Toulouse Le Mirail. The shaded area shows the situation of the new city in relation to Toulouse
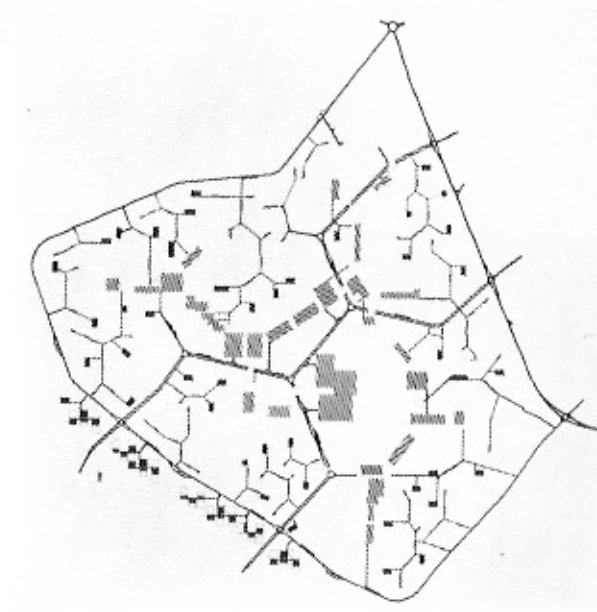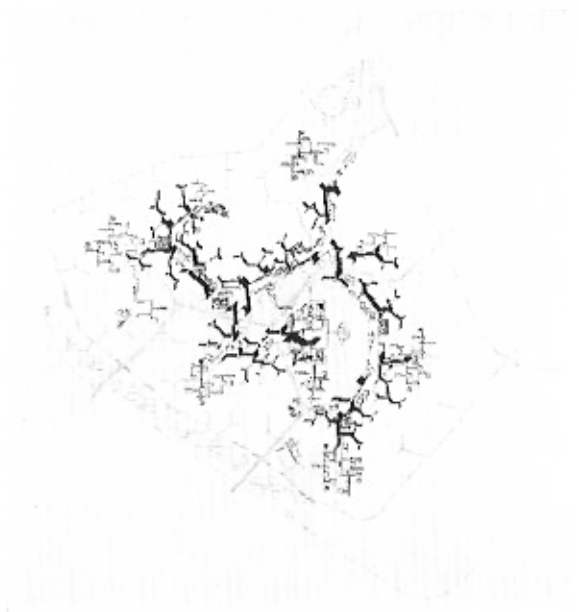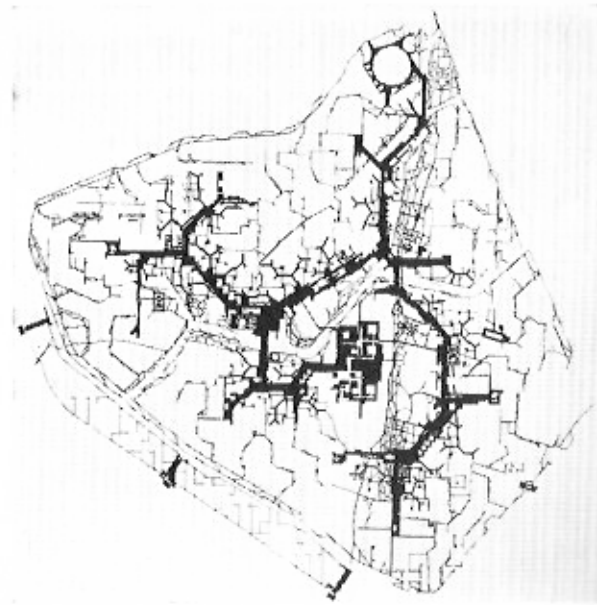
Top left: Toulouse Le Mirail.
Basic green structure

Top right: Pedestrian ways

Bottom left: High density
housing and stems

Bottom right: Roads and
parking. Hatched areas repre-
sent parking under the
pedestrian ways and plazas

TOULOUSE

Le Mirail is an extension of the city of Toulouse, to house 100,000 inhabitants. Our project illustrated here won first place in a national competition organized in 1961 by the Mayor of Toulouse, Louis Bazerque, through an interministerial agency working in collaboration with the municipality

The present population of Toulouse is around 350,000. The increase in population reflects industrial development as well as the attraction the region holds for settlers returning from North Africa. It is estimated that the realization of Toulouse Le Mirail, which will include light industry and offices as well as housing, will extend over a period of ten to fifteen years

The site for this new sector comprised 2,000 acres of semi-agricultural, semi-residential land, about five miles from the centre of Toulouse. It consists of two relatively flat plains, the alluvial Garonne to the east, and the Blagnac terrace, separated by a 30-50 ft bluff, running north-south through the site. The upper plateau is again divided by a ravine running from west to east. These natural conditions have created a heavily wooded natural green system on the site, which we proposed to retain and to use as a basis for a structuring system

The plan is a further application of the linear centre as a servant and generator of habitat and as a structuring device for the city. Human activities, ancillaries and services are organized into a linear system of relationships into which housing units are plugged. The stem will contain commercial, social and cultural activities, and traffic will be completely separated, with automobile parking and service roads and courts being sunken so as to leave the pedestrian completely free in his movement. The dwellings along these stems are organized in interconnected buildings of six, ten, and fourteen storeys with streets-in-the-air—continuous horizontal ways through the buildings, linking their vertical circulations and various entry points. This facilitates the localization of automobile ways and parks, establishing a harmony of pedestrian and mechanical circulations. Roughly 75 per cent of the dwellings will be organized in this fashion: the remaining 25 per cent being arranged in typical low-density infill patterns around the dense, central core. The embankment and a small stream running from west to east through the upper terrace determine a natural linear park which is retained in this scheme. The stream feeds an artificial lake in the centre of the project, bordering the regional administrative and cultural centre. The linear centre, which follows this
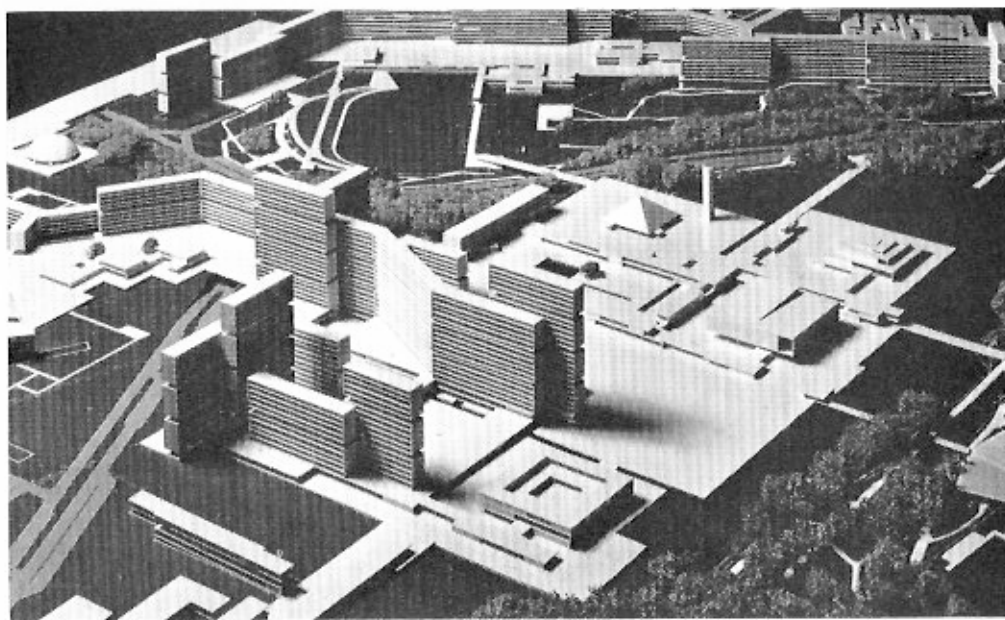
natural greenway, contains shops, markets, social and cultural centres, places of entertainment and of worship, parks and gardens, etc. The origin of the linear centre is an administrative complex which is intended to serve the region (radius about 125 miles), and will contain public buildings, offices, theatres, a shopping centre, meeting halls, exhibition halls, a museum, etc

The high density housing plugged-into these linear centres is in continuous six- to ten-storey buildings, as we have said. All apartments have double orientation and all have outdoor space in the form of either balcony or loggia. Maximum distance to the nearest elevator is 250 ft

Shadrach Woods 1963, with acknowledgments to Architectural Design, London, April 1963

THE CENTRE OF FRANKFURT

The city is the expression of human associations and activities. It exists to stimulate and encourage human intercourse. It is the realm of man in society

Men create cities in order to conjugate their efforts and co-ordinate their activities in such a way that the whole of their life together may become greater than the sum of their lives apart. If the city is to fulfil its promises it must be able to adapt itself constantly to the changing forms and intensities of human exchange. The city cannot be the result of either a land-use diagram or a composition of spaces and volumes, since the first tends to dissociate the various functions of the city and to ignore the relationships between them; while in the second, the most perfect manifestation will be that which is the least adapted to change and growth, which is life. The city expresses life; it is a living, changing organism, formed by man and his activities for the development of his society

Any event in the city relates in some way to every other event in the city

The problem of the construction or renewal of cities lies in the discovery of these relationships and may be resolved by the invention of systems which enable us to put them into harmony in a total, organic order

These systems or organizations can not only harmonize present functions; they should also take into account change and growth, and the evolution of the city. They must organize the present, while opening the way to the future

The problem of the centre of Frankfurt is not to make a museum of it, but to discover a system which the
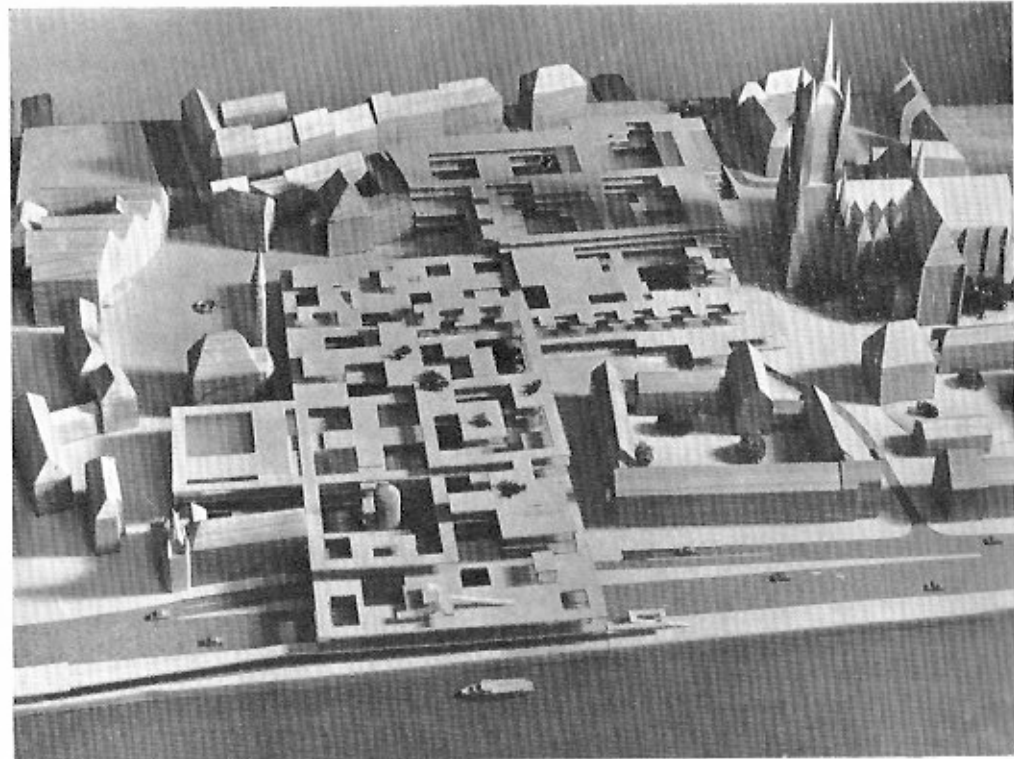
citizens can use to create their own environment and which they can evolve parallel to their own evolution

The needs of such a centre are so diverse, the activities so different, that if each were to be considered separately the result would necessarily be chaotic. The only way to proceed is to consider them all as parts of a single organism, containing or supporting different functions, keeping a valid scale for both the site and the people using this complex

Our proposal was made as a result of an invitation to participate in a competition to determine how the centre of Frankfurt, destroyed by fire-bombs in the second world war, should be rebuilt. This was the second competition; the first, held in the early fifties, was fruitless

The cathedral, the town-hall (Römer), the Nikolaikirche, and some gothic houses around the site had already been rebuilt and restored. Some new

buildings with a historic (pseudo-gothic) flavour have been built, notably some medium-rent apartment housing along the Main Quay between the site and the river

The programme given by the organizers of the competition called for a commercial and cultural complex, consisting of two libraries, a youth centre, a historical museum, a school of music, an art gallery, exhibition spaces, a bus station, shops and stores as well as restaurants, snack bars, cabaret, cinema. It was left to the discretion of the competitors whether to include office space for the city's technical services or to leave these in an existing, quite ugly building in the north-east corner of the site. We chose to include them

Since such a variety of accommodation was required, we sought to discover an organization in which all these different functions could integrate in a total order. This was felt to be preferable to housing each

192

function in its own building – each building expressing its function – and the whole being sprayed with neogothic paint to avoid chaos. Our approach was through a multi-level web system, scaled to the pedestrian and to the immediate environment, into which different uses and functions could be plugged

The proposal therefore consists¹of a system of multi-level distribution grids containing the mechanical services and corresponding to a circulation net of horizontal or inclined ways. This organization serves as a basis for the determination of areas to be built up on a secondary structural grid, inserted into the main grid. Parts of the distribution grid are executed only as they are needed; if they do not serve any immediate building, they exist only as possibilities or as 'rights-of-way'. As more accommodation is needed, more of the web can be built. Presumably, if parts of the complex were removed, the corresponding parts of the web could be disconnected. The system, then, retains a certain potential for growth and for change

The lowest level of the complex is the service area containing direct access for trucks, lorries and other service vehicles, storage space and the heart of the mechanical systems. Above this level a network of horizontal and vertical ducts, and of pedestrian ways with level changes by escalators or travelators, is established. The dimensions of this network are determined by the known needs as well as by manageable building sizes. In the present scheme the basic dimension is around 100 ft square. The net is composed of 12 ft rights-of-way, leaving free areas of about 11,500 sq ft. The 110 ft dimension was found to correspond approximately to the size of the existing net of pedestrian ways in the immediate vicinity of the site. Within this net, there is a system of construction based on bays of 25 ft 5 in and 15 ft 8½ in. These dimensions are not arbitrary but are based upon the relationships between man and the

193

Right: Bochum University. Plan showing pedestrian routes and central spine. The dotted line indicates the elevated monorail route, and the cranked blocks on each side of the central spine are the student housing suspended above the faculty wings
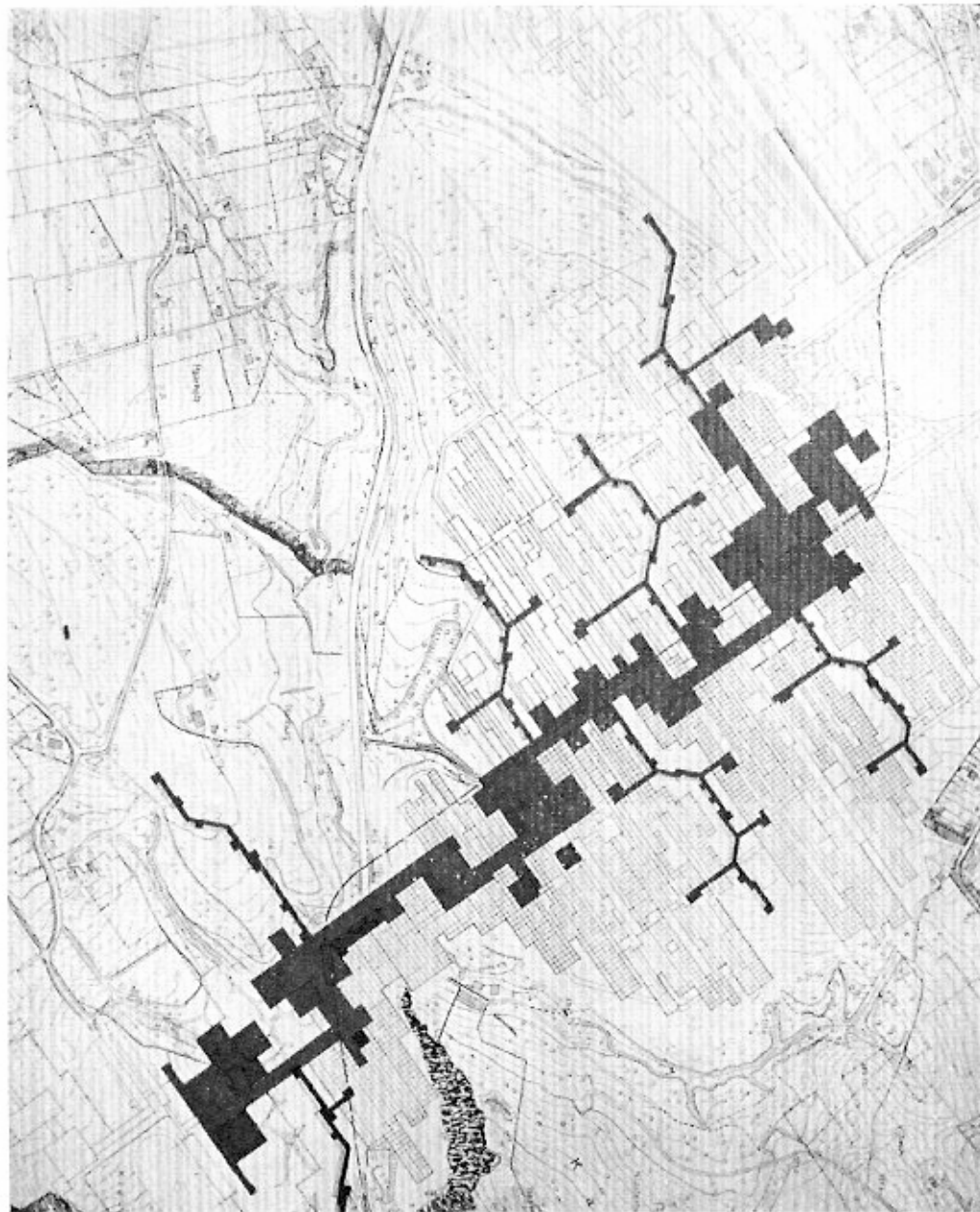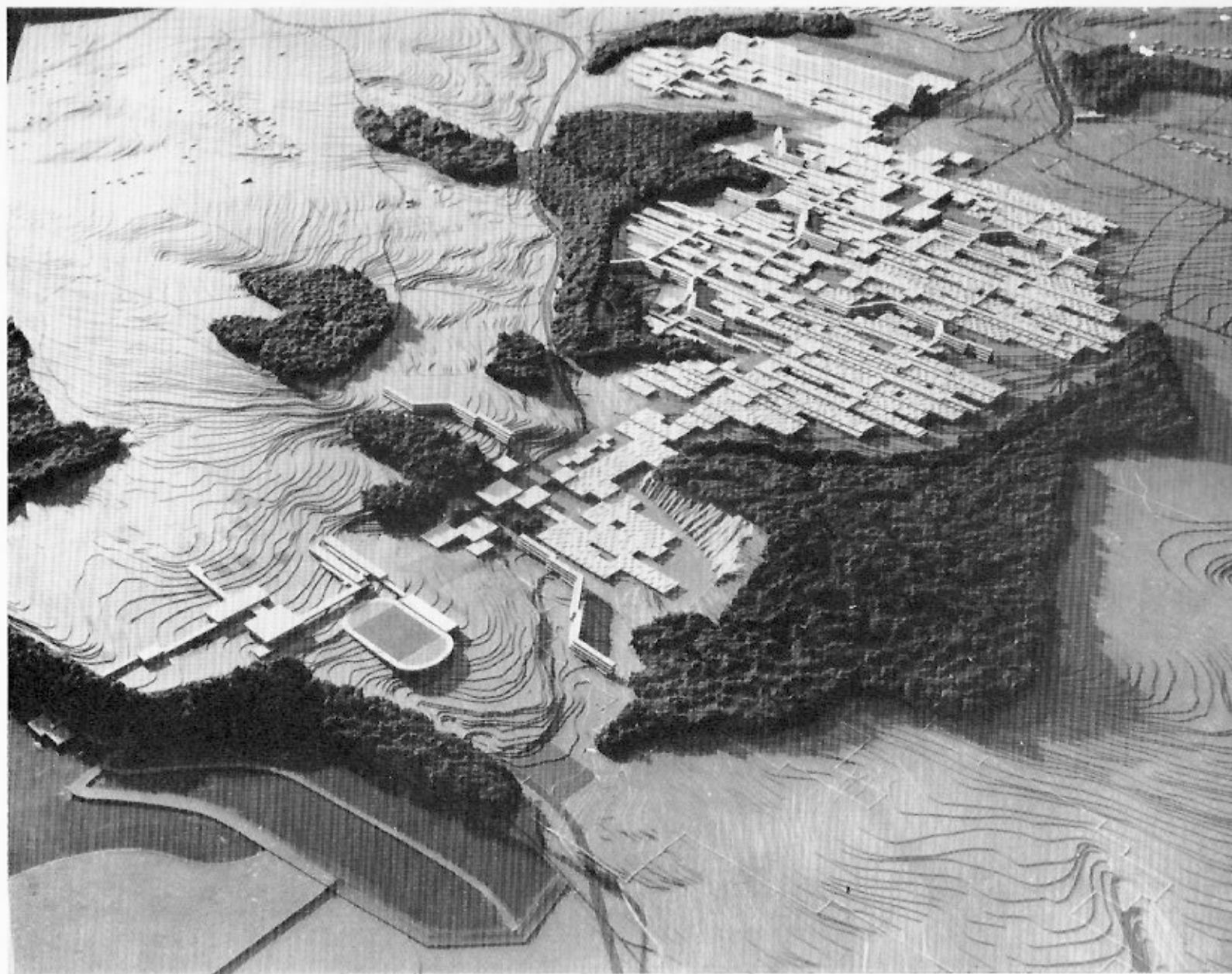
space through which he moves as put forth in Le Corbusier's Modulor

It was felt that any project whose purpose was to revitalize the centre of Frankfurt should not be separated from the Main by a block of apartments. We took the liberty of demolishing some thirty apartments, to bring the centre out over the Main Quay to the riverside where excursion boats now dock. These apartments would be replaced by dwellings at the upper levels of the new construction

An attempt was made to re-establish the conditions of scale and space in which the cathedral was built, so that it could retain its vertical validity

(All the prize-winning schemes in this competition created large open spaces in front of the cathedral, a form of architectural assassination which delighted Viollet le Duc and Baron Haussmann!)

Candilis, Josic and Woods Le Carré Bleu, No 3, 1963 Bauwelt No 34, August 1963

PROJECT FOR BOCHUM UNIVERSITY

The project illustrated here was designed for the international competition for a University of the Ruhr at Bochum in 1963. The competition programme called for 'an arrangement of relatively small departments which are brought together into the closest possible contact'; yet the design for the projected 10,000 student enrolment must also be capable of expansion in numbers and facilities

The solution illustrated shows a linear university organized along a stem or 'backbone', running northeast south-west, which is both open-ended, and extendable sideways. The architects have placed large lecture rooms, restaurants, libraries, auditoria, administration buildings and other important common facilities along this central stem so that a dense pedestrian-oriented central thoroughfare will act as a spine for the University as a whole

To the east of the stem are buildings for technical, natural and applied sciences. To the west are the human and social sciences, philosophy, religion, languages, economics and law. Student housing accommodation is in the cranked blocks which rise above the faculty buildings and extend outwards from the central stem. Indeed, in common with the University as a whole, extension outwards is the principal means of growth

The south-eastern end of the stem links with Bochum itself, and at this end the architects have sited the

largest of the University auditoria, the theatre, the sports stadium, and some library facilities. At the north-eastern end of the stem are the medical school with a 2,800-bed teaching hospital. Although the stem is entirely pedestrian-oriented, an overhead monorail links Bochum with the hospital, and on to Wissen

The site is extremely hilly, and along the length of the site as a whole there is a level change of over 200 ft. These level changes are used to interpenetrate buildings and segregate pedestrian and automobile circulation

BERLIN FREE UNIVERSITY

This proposal was designed for the competition for the Berlin Free University in September 1963 and emerged the winner. The Berlin Free University was formed by professors and students who left the university located in the East Zone of Berlin, and settled in the Western Zone, re-establishing themselves in old mansions and some new buildings financed by the Ford Foundation

The competition was not for the university as a whole, but for an extension of about 3,600 students of the faculties of arts, philosophy, literature, and psychology, physics and organic chemistry. Like most universities, it is assumed that the Free University will continue to expand, and in fact much of the land surrounding the site is already being acquired for this purpose

Above: This plan shows the web of pedestrian circulation within the University, the four main spines and the cross connections linking faculty buildings and quiet courts

Previous page: This view of the model from the south-east shows the University extending from the stadium and the town of Bochum on the lower left to the teaching hospital complex on the upper right. Note the dramatic changes of level, and the spread of the University outwards from the central spine

Below: This site plan of the Free University of Berlin shows its relation to the parklands (shaded areas), the U-bahn and the S-bahn. The dotted lines indicate the main pedestrian routes through the University complex
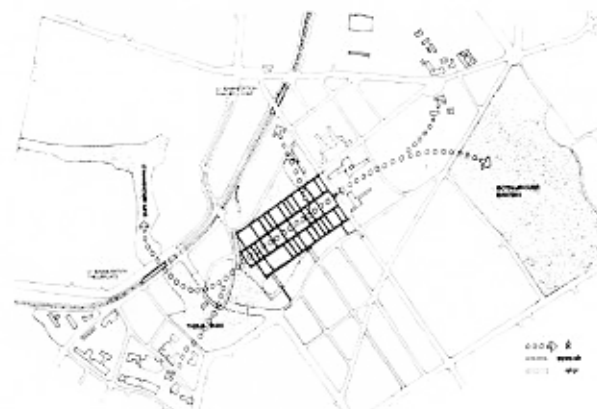
The orientation of the site is again north-west south-east, and is related to two small parks. Its direction is roughly parallel to the main rapid-transit facilities, U-bahn (subway) and S-bahn (elevated); by U-bahn, the site is about thirty minutes from Berlin Centre

This proposal is based, not on one, but on four parallel stems, 200 ft apart, and oriented in the main direction of the university. The design is thus capable of expansion, in the main orientation by the extension of the stems, and also a further bay-size of 200 ft on each side. Like the Frankfurt project, the stems are interconnected by secondary ways at appropriate intervals, transforming the total design into a web

Along the main stems are situated those functions which serve the whole university and encourage easy contact with people in other disciplines—auditoria, libraries, exhibition spaces, restaurants, meeting rooms, plazas, and lounges, etc. Those places and functions—private workrooms, laboratories, seminar rooms and studies, offices and so forth—which require privacy and tranquillity are located away from the main stems, and yet are linked to them by the comprehensible structure

The thematic advantages of this structure are enormous in terms of flexibility and formal subtlety, ease of access to all parts, multiplication of contacts (which is one of the chief functions of a university), comprehensibility and compactness, and the rapid transition from public areas to buildings and courts of absolute quiet and privacy. The present stage of the design shows three levels; an underground service and storage floor, a ground floor on which most of the public activities occur, as well as the tranquil courts so traditional to university life, and an upper floor of offices and lecture rooms, seminar rooms and private studies. Most of the roofs are made accessible as public or private terraces. Localized third and fourth floor levels of student and faculty housing accommodation may be added as the programme progresses

The architects have been careful not to impose a hierarchy of importance on certain parts, or buildings, or faculties, in their design of the university. To the contrary, the design is deliberately non-centric, in the belief that buildings should be places in which men may locate importance through their work, activity and association—and that these, within the discipline of the overall structure or web, will create the more important evolving character of the university as a whole

Below: Model of the University from the south