



Preliminary to social-geographical theory

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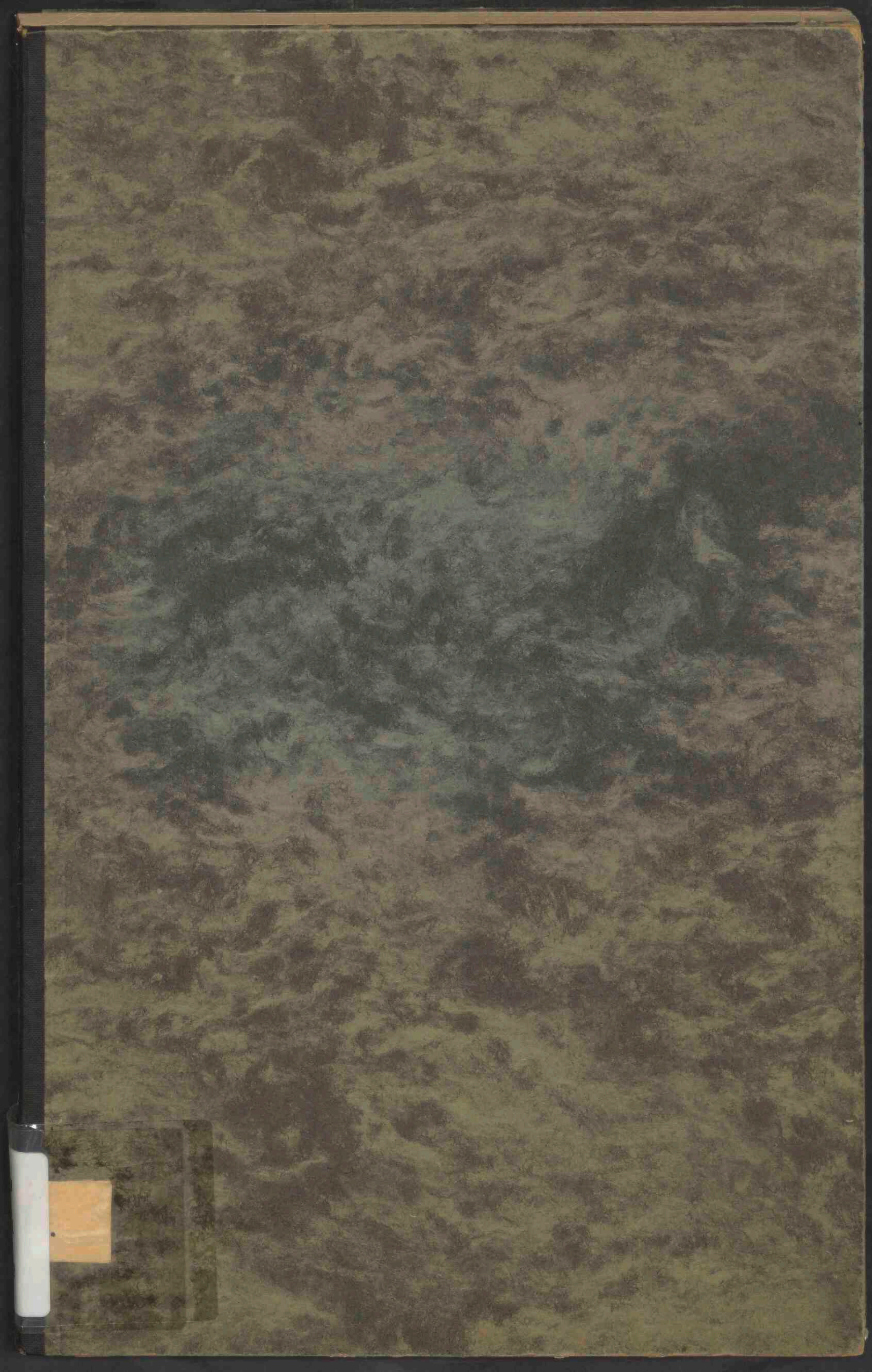
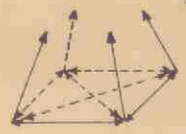
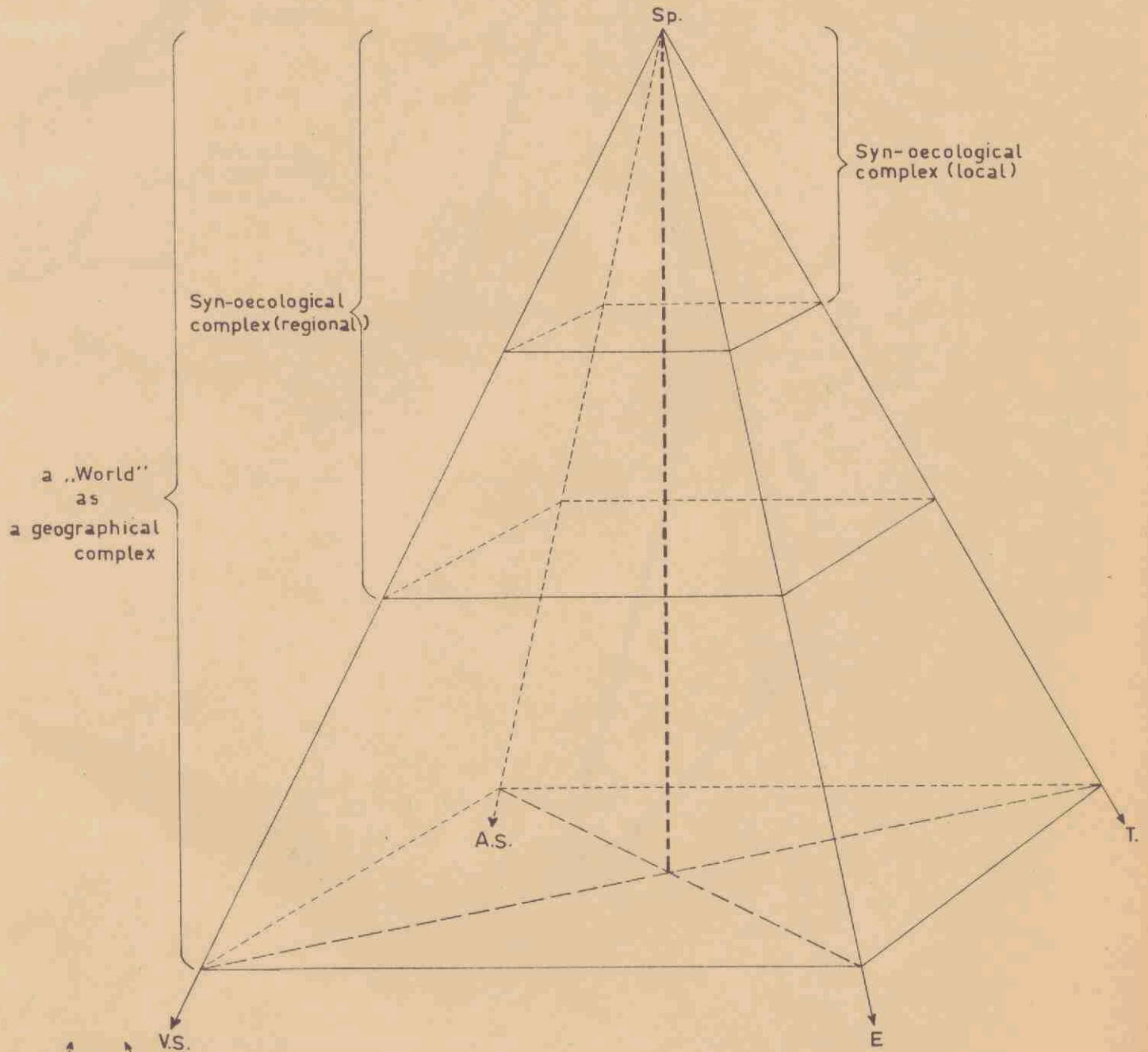


Figure 1

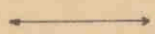
Diagram of the geographical system:
„The geographical pyramid“



inter-connection



increasing space



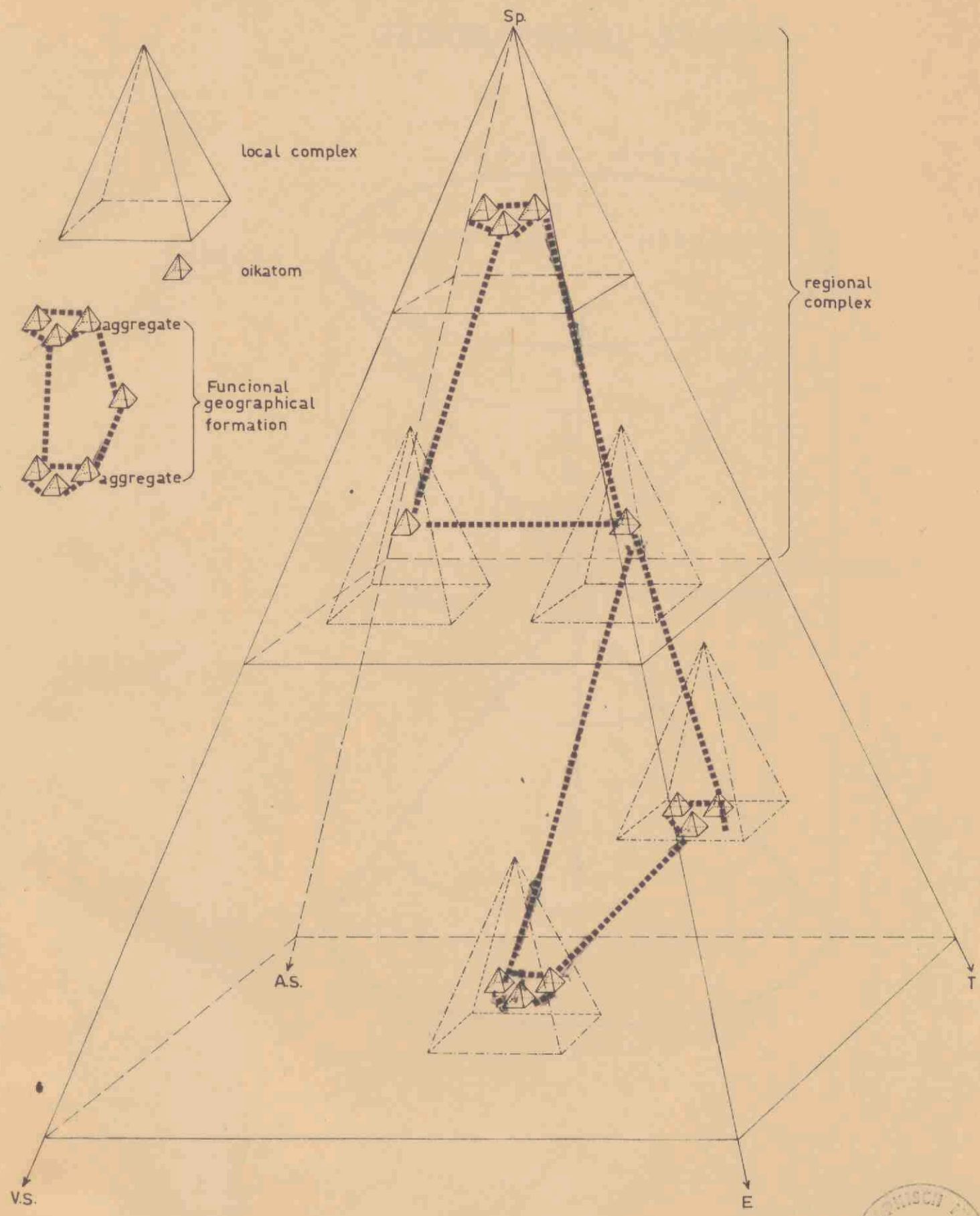
increasing complexity of interdependence

- A.S. action-system
- V.S. value-system
- T. technology
- E. environment
- Sp. Space



I A. 118

Figure 2.

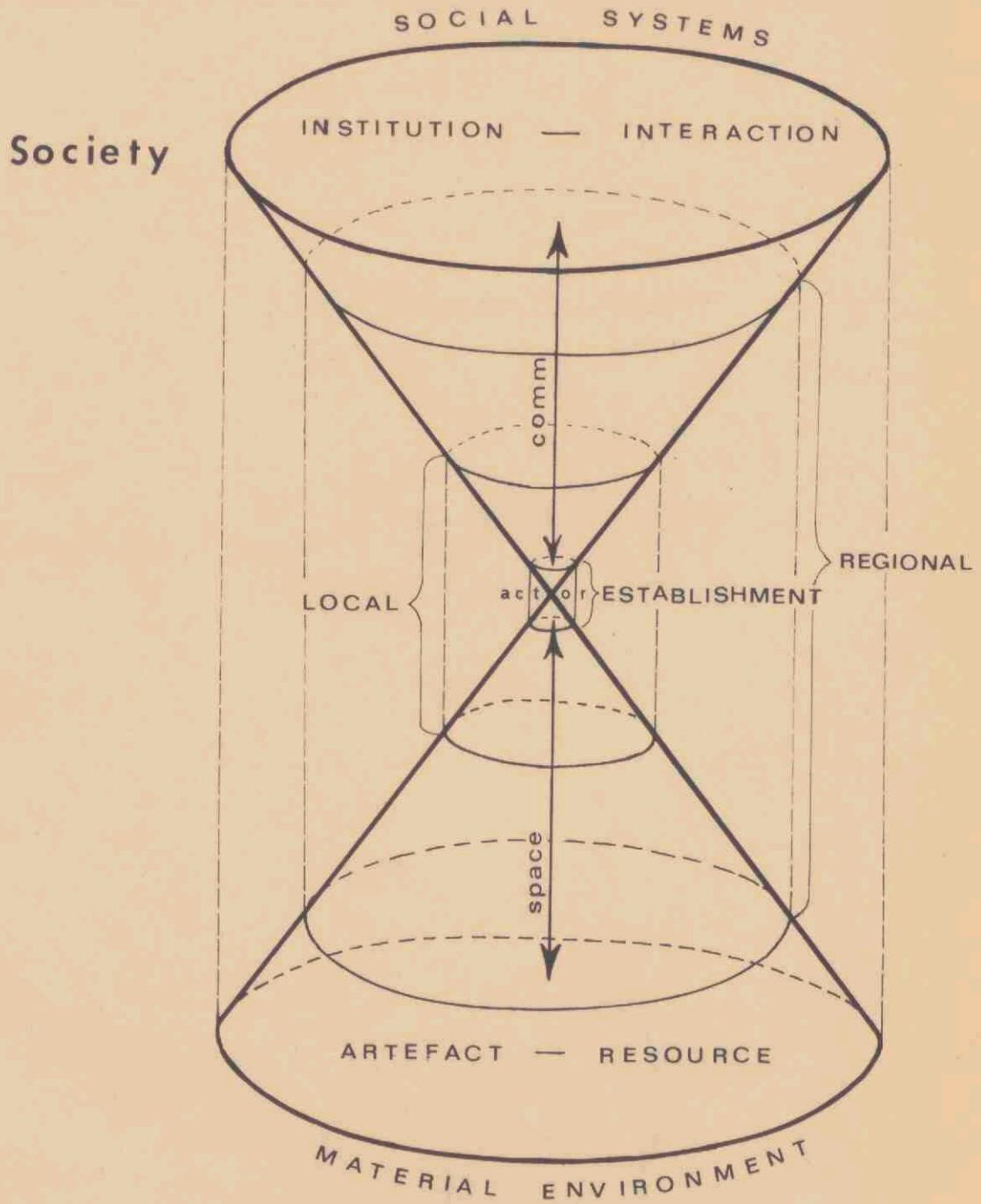


Syn-oecological complexes and a funtional geographical formation



I A. 118

GEOGRAPHICAL SYSTEM



C. van PAASSEN '66



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PRELIMINARY

TO

SOCIAL-GEOGRAPHICAL THEORY

BY

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The Netherlands



Preliminary To Social - Geographical Theory.

Foreword

- I Introduction p. I - 3
- II The "syn-oecological" complex p. 3 - 6
- III The main components of the syn-oecological complex p.6 - 17
 - a. action-system component p. 7 - 9
 - b. spatial component p. 9 - II
 - c. material-environmental component p. II - I5
 - d. value-system and technological component p.I5-I7
- IV The "geographical pyramid" and the basic syn-oecological element termed "Oikatom". p. I7 - 2I
- V The functional-geographical formation p. 2I - 28
- VI The historicity of the syn-oecological complex: individuality and intergration p.28 - 36
- VII The fundamental principles of geographical structuring.
p. 36-

Foreword.

The following essay is the product of a personal concern about the present situation of human geography, which perhaps mainly by reason of its institutional context fails to join the common efforts of the social sciences, which to an increasing degree try to integrate their general viewpoints. Historians, sociologists, economists, cultural anthropologists, political scientists and social psychologists are more and more inclined to cooperate and several examples of inter-disciplinary teamwork on the field of theory, methodology and research-methods are already published. Geographers almost seem to prefer a safe retreat, where they are free to discuss matters in their own way without any confrontation with criticism of neighbours and where they try to concentrate on fields of interest, which are not (yet) intruded by other scientists.

The following remarks have no other pretension than to open the discussion about some general aspects of an object, to which geographers have devoted themselves since historical times. The famous device of Husserl, "zurück zu den Sachen", has been my guide. I am all too conscious of the fact, that my empirical experience is a limited one, and that therefore my attempt to present a synthetic viewpoint is due to fail. But my intention to present to critical discussion some thoughts, which, however unripe they may be, yet have ripened since years of work and of confrontation with parts of social scientific literature in general and geographical literature in particular, perhaps will be acknowledged.

I owe much to the splendid work of others, and to the exchange of thoughts with my friends and colleagues in my department. My thanks especially go to G.J. v.d. Berg and R.B. Bruins. It is difficult to distinguish the sources of ideas, but I may definitely say, that the concept of the functional-geographical formation to a large degree is a contribution of Mr. Bruins, as is the idea of the agora. The formulations and scheme of this essay (of course) belong to the responsibility of the author.

Chr. van Paassen.

Utrecht, March 1965

PRELIMINARY TO SOCIAL-GEOGRAPHICAL THEORY

I Introduction

Today human geography is conceived of and being developed as a social science. Representatives of the other social sciences, however, seem to have some difficulty in understanding the character and specific aims of human geography. The cause of these difficulties may partly be due to certain shortcomings of the traditional definitions and characterizations of this social science. It is an all too common feature that geographers have concentrated their efforts more on a critical rejection of one another's concepts than on the formulation of some common scientific frame of reference that would function at the same time as a criterion of identification in the scientific world.

This article intends merely to attempt to formulate some points of reference in order to stimulate discussion about the common theoretical framework which most geographers share in spite of the many differences in conceptual formulation.

For a first orientation it would appear useful to start with some formulations of the aims of human geography presented by geographers from different countries and different "schools".

According to the American geographer Ginsburg "geography is concerned with the areal organization of society"; this implies that geographers should study "The ways in which men occupy the surface of the earth, utilize the world's resources, organize themselves spatially. 1)

His American colleague Philbrick also pays attention to what he calls "the areal organization of human occupation". 2)

The French geographer Derruau speaks of "les rapports multiples expliquant les établissements humains et leurs modes de vie dans un cadre spatial". 3)

- 1) N.S.Ginsburg, Geography, in: A Reader's Guide to the Social Sciences Glencoe, Illinois, 1959, p. 70-89

Human geography will be termed shortly geography in the following discussion. Dutch geographers prefer the term social geography for the main reason that it expresses more clearly the social scientific character of "human geography".

- 2) A.K.Philbrick, Principles of areal functional organization in regional human geography, Economic Geography 1957, p. 299-336
- 3) M.Derruau, Précis de géographie humaine Paris, 1961, p.17

Another French author puts it in a more philosophical way: according to Dardel a geographer approaches man as "l'homme engagé comme être spatial". 4)

The German geographer Hartke considers as one of the main aims of geography the "beschreibende und erklärende Gliederung der Welt". 5)

Dutch geographers have given formulations which do not differ in principle. De Vooy speaks of "des Studiums der regionalen Differenzierung, Gruppierung und Interdependenz der menschlichen Gesellschaften". 6)

The final quotation is taken from a Dutch attempt to explain geography to sociologists: Akkeringa's conclusion reads as follows: in geography man becomes conscious of his socio-spatial existence as "living" in a place where he is "at home" which implies a sense of "belonging" to a qualitative spatial complex; the geographer objectivates this complex by means of its determining categories and tries to find a systematic purposeful order in this complex. 7)

Those few formulations of the aim of geography certainly show some differences, but a similarity in intention is much more apparent: orientation to a human-spatial entity.

Akkeringa has stated this common intention perhaps most explicitly and clearly. The differentiation of the social sciences seems to be related to the different forms of "belonging" of men. The social sciences share a common existential-anthropological basis, but they differ in their orientation to different "complexes" or "worlds", which are both made by and form a frame of reference to human activities. Man exists in a "complex", called "history", he takes part in "society", he acts in and reacts to an economical framework and he participates in a "complex" forming his town or country.

Those "complexes" are not independent from each other. Some scientists have even identified history with economy or region with society. This means in fact, that their image of a specific "complex", being the object of their scientific discipline, is disordered by confusing the different complexes.

- 4) E.Dardel, L'Homme et la terre. Paris, 1952, p. 124
- 5) W.Hartke, Gedanken über die Bestimmung von Räumen gleichen sozialgeographischen Verhältnisse, Erdkunde, 1959, p. 426-436
- 6) A.C. de Vooy Soziale Geographie, in: W.Bernsdorf, F.Bülow (Hrsg.) Wörterbuch der Soziologie. Stuttgart, 1955
- 7) E.Akkeringa, Geographie en Sociale Wetenschap Trans-Informator no.6 en 7, Utrecht, 1951

Each social science becomes confronted with that fundamental characteristic of human existence: the consciousness of belonging in a double sense: the belonging of man to a human "world" and the belonging of this "world" to man.

II The "syn-oecological complex"

In geography, according to Akkeringa, man becomes conscious of his geographical existence by asking and attempting to discover where and how people live. Geography is first of all a science of orientation in the concrete sense: orientation in the world and wanting to know where "I" live. This intention has given this science its name: geography. The geographer "travels" constantly. By travelling man is confronted with other "worlds", that is to say, with "worlds" of other people. He therefore becomes conscious of the fact that those other "worlds" belong to other people. At the same time his own "world" comes into view as a "world" constituted differently by his action. This "world" is his own: it belongs to him and he belongs to it. It is where he feels "at home". 8)

The "whole" to which the geographical existence is related, may be termed a "syn-oecological complex".

This term contains the word "oikos", the Greek word for "home" with a wider meaning, however, than usual. The Greek word "oikos" is related to the Latin word "vicus" and meant residence in general: tent-room-town-estate-country. The Greek word "oikeios" indicated house-mate, native, and "oikizein" was a synonym for "to build a house or a town", to colonize, to occupy.

The Greek associated many meanings with "oikos". The first meaning is residence: living in a certain place. This place may have several qualities, physical and locational, the latter connecting the place in a pattern of relations with the world outside.

The "oikos", however, is also a material structure, with physical space being "humanized". The "oikos" is in fact a man-made structure, an artifact.

- 8) The historical development of geographic thought offers some interesting confirmations of this view. The author has analysed this development in detail in the classical period:
The Classical Tradition of Geography, Groningen, 1957.

Residence implies residence of people and more than that. It is of interest to note that the terms household, indicating a human group in a residence, and housekeeping, indicating the household-economy, are closely connected. It is a wellknown fact that economy is derived from "oikos".

Residence further has the qualitative meaning of "home" in the sense of "at home": a spatial, man-made unit, being my own world with a distinctive personal order, where I can isolate myself from the world outside: "my home, my castle". But the "home" has another aspect too: my house has a door, a gate to the world outside.

My "home" is the place from which I "travel" to sites and people elsewhere, nearby or far-away.

That is to say, in order to interact with those people and to use those sites, I have to "move over a certain distance".

Location is to be seen in relation to a "world", that is to say in relation to a spatial pattern of sites and people, towards which my activities are oriented.

Location is relative to a "world" in which interaction and communication is only possible by movement of people, goods and messages. Interaction always has to "overcome" distance. Location in fact constructs a pattern of distance for interaction. On the other side, a pattern of interaction shows specific locational needs.

Location is selective with regard to both pattern of interaction and pattern of distance, for it may mean a short distance to some, a far distance to other sites and people.

Con-location or spatial association reduces the obstacle of distance for some but at the same time enlarges the distance to other sites and people, and thus implies more movement over distance.

Spatial association and spatial circulation (indicating movement of goods, people and messages) constitute one another's complement. 9)

It would now seem possible to apply the previously identified characteristics of the "oikos" to a spatial complex of many households. This may be done where the spatial complex shows the same characteristics: a human grouping, acting as a household, house-keeping on a well-defined site, creating artifacts, feeling "at home" and orienting and relating itself from this place to the world outside. Such a socio-spatial complex may be termed "syn-ecological" in reference to both residential association and "living" together.

- 9) Jean Gottmann uses the terms "cohabitation" and "circulation" in his "Eléments de géographie politique".
(Les cours de droit, Université de Paris, Institut d'études politiques, Paris, 1954-5).

The phenomenon of the division and specialization of labour is essential and closely connected with both spatial association and circulation. "Living together" implies many different, specialized activities of specific human groups forming together the syn-ecological complex. Besides, many activities take place no longer at home, but in other buildings; a great diversity of human groups, activities and artifacts replaces the indifferenced "oikos". The resources of the household now have become a complicated and differentiated set of means for the economy of a syn-ecological complex. The cohesion of this differentiated areal organization is impossible without technical and social facilities for communication. The integration of this differential association and of the human groups themselves constituting a syn-ecological complex is conditioned by the development of a certain common, but differentiated cultural framework, expressed in institutions.

The syn-ecological complex thus always consists of 1. institutions, 2. groups of interconnected activities, 3. artifacts, 4. resources and 5. communicational facilities.

This complex is a selective one. Not all activities are essential. Only those activities - they may be of economic, sociological or historical value - concern us in this context which have a relational value for the syn-ecological complex, both in the functional and the intentional sense.

The term "intentional" indicates the fact that human values constitute the complex in so far as they direct the syn-ecologically relevant human activities.

The term "syn-ecological" complex is a generic concept and may be applied to a multitude of factual socio-spatial entities of a different scale. It would be possible to construct a hierarchy of syn-ecological complexes ranging from village, town, rural region, city, agglomeration, conurbation, to region. Moreover, this difference in scale corresponds in general with a difference in character. 10)

In this preliminary theoretical context, however, this difference in scale and character will not be discussed, for the attention is focused on the fundamental principles of a syn-ecological complex in general.

Nevertheless, our theoretical viewpoint is strongly related, first of all, to the syn-ecological complex of a local scale (village, town, city, agglomeration), for that one represents the precedent condition for a regional complex.

- 10) The term geographical complex is a still more general concept, for it applies to nations and civilizations as well.
The syn-ecological complex is a geographical complex.

This is not ignoring the process of increase of societal scale in modern civilization, by means of which the regional context has acquired a greater geographical relevance. 11)

III The main components of the syn-ecological complex

The expression "geographical" or "syn-ecologically relevant" activities needs further comment. It indicates that a relationship of a certain importance should exist between a group of activities, including the human values connected with them, and the syn-ecological complex. This relation remains vague as long as this complex is interpreted only as an entity ignoring the fact that it consists of territorially associated, different activities and artifacts.

If this "differential association" were arbitrary, a scientific approach to this entity would be of limited value,

Most geographers, however, start their studies from the implicitly given assumption that this association is characterized by some order. Many geographers are even convinced that this entity has a structural quality and indicate this quality with the term "geographical structure".

The concept "structure" implies a more or less stable pattern of relationships between and an arrangement of relatively constant, mutually interdependent units. One has, however, to be careful of identifying an entity, consisting of so many different activities, with a structure, a concept which seems to suggest (but not necessarily needs) a too static idea of this dynamic entity. Without denying a certain structural quality and acknowledging a certain amount of stability in the ordered pattern of activities of a syn-ecological complex, the term "structuring" is preferred to "structure".

Geographic structuring indicates those processes which contribute to, maintain, or change, a certain order in a syn-ecological complex. It directs the attention to the structuring effect of human action and of factors influencing that action.

11) Compare: G. Isbary, Regionale Probleme der Raumordnung, eine Untersuchung am Beispiel des Landkreises Saarbrücken als Mittelpunkt des saarländischen Verdichtungsraumes, Bad Godesberg, 1963.

R.E. Dickinson, City and Region, a geographical interpretation, London, 1964

E. Juillard, La région, essai de définition, Annales de Géographie, 1962, p. 483-499

This fits in well with a more dynamic viewpoint presenting the syn-ecological complex as an entity, which is constantly being constituted, developed and transformed by human activities, without contradicting the two facts that these activities are confronted with a complex that is already structured as a result of former activities and that they partly anticipate the structuring effects of future activities.

The basic aim of geography should be directed to the analysis of those processes of geographical structuring, that is to say to the analysis of those human activities, and of the factors influencing them, which contribute to the distinctive order of a geographical complex. A geographer tries to understand this complex as an entity constituted and transformed by structuring factors manifest in specific human activities.

The first step to this understanding implies a further, more systematic conceptual analysis of the syn-ecological complex.

To begin with, the syn-ecological complex forms a materialized socio-spatial entity. The presumed order of this complex, therefore, concerns first of all the three following components:

- a. the interrelationships of activities, and of interaction systems
- b. the spatial pattern of activities, land-use and artifacts
- c. the natural, and man-made elements of the material environment

Secondly, the interrelationship of those three components, and thirdly, the value-system and technology, connected with those three components. It is of importance to distinguish those components most clearly in order to understand their interconnections.

ad a. Human activities constitute the foundation of the syn-ecological complex. The geographical relevance of human action is not to be evaluated according to its morphological expression or its land-use aspect, but has to be connected with human existence in a spatially limited context in general and with the interdependence with other activities essential to this "existential" context.¹²⁾ The first aim of the human geographer is to study this interdependence. Geographical structuring first of all results in a specific pattern of interdependence of activities. It is of interest to note - and it is the high merit of Hartke to have stated this explicitly and most clearly ¹³⁾ - that geography implies much more than a study of land-use. Geographically relevant activity

12) The german term "verbindlich" perhaps most clearly indicates both the interdependence with other activities and the relevance to human existence

13) W.Hartke, Gedanken über die Bestimmung von Räumen gleichen sozial-geographischen Verhaltens
Erdkunde, 1959, p. 426-436

is not identical with land-use activity. Not all human activities relevant to a syn-ecological complex direct their aim mainly to the use of land. They only depend for their realization more or less upon the qualities of the land, which in fact mostly is an environment already transformed and partly constructed by man. The dependence upon the natural environment may be reduced to the material foundation of a building only, and in many cases the land-use aspect fulfills a function of a minor importance for the action-unit in question.

A further point of high interest needs our special attention. Human activity operates in a social context. It operates in a formally or informally organized system of interaction and communication. The actor, who participates in such a system, occupies a specific position in that system. To this position is attached the rôle, in which he has to act. This rôle is connected with the goals to be attained by the cooperative efforts of the participants of the inter-action system. 14)

The differential association and interdependence of those inter-action systems in the context of a syn-ecological complex constitutes the field of interest of human geography. The interdependence of activities in this "existential" order thus in fact implies an interdependence of inter-action systems.

An inevitable complication, however, should not be ignored. The several inter-action systems, participating in the syn-ecological complex, are involved at the same time in other interdependencies directly connected with their goal-attainment and ranging outside the area of the syn-ecological complex.

The internal organizational structure of those extra-syn-ecological inter-dependencies in fact constitutes an inter-action system of a higher level and is of interest to the geographer only by its function for the operation of the inter-action-sub-system inside the syn-ecological complex. The interdependency between a branch-establishment and headquarters offers an illustration of that.

Those extra-syn-ecological inter-connections become of still more interest to the geographer if they show relevant spatial and environmental aspects both in their own way and/or in their inter-relationship with other inter-action-systems outside the syn-ecological complex. It is evident that geographers particularly are interested in interdependencies with other syn-ecological complexes. The interdependencies arising from the input-output relationships of a manufacturing plant may illustrate this.

- 14) This is in fact only a simplified resumé of the sociological conceptual framework, which by the way no other social science should ignore. Examples of those inter-action-systems are the family, the firm, the voluntary association and many other groups.

Later on the specific character of interdependencies of interaction-systems relevant to a syn-ecological complex will be discussed in some more detail.

- ad b. Geographical interdependence operates in a spatial context and shows a spatial pattern. The difference between the syn-ecological complex and the other social entities is connected exactly with its spatial characteristics.

The difficulty now is that the term spatial is often used in a most confusing way by ignoring the difference between spatial and environmental.

The recent contribution of Foley and Webber owes its high interest not in the last place to their attempt to clarify this difference. 15)

The term spatial refers to relative location, distance and extent.

A syn-ecological complex, first of all, is limited to a territory of a certain extent and is marked off from territory outside the complex by a more or less spatially fixed boundary.

It is apparent that this boundary is connected with the process of syn-ecological inter-action, but it is the distinctive feature of a syn-ecological complex that the internal syn-ecological inter-action is characterized by a restriction to a limited spatial range and that the boundary has a spatial character as well.

That is not to argue that all inter-actions take place within the boundary of a syn-ecological complex. On the contrary many relationships are oriented to actors outside.

From the internal spatial relationships originates the structural quality of a syn-ecological complex. The external relationships constitute the link with the world outside, essential for the functioning of the complex.

Nevertheless this "outside" presupposes a boundary. In other words, only by the existence of and the drawing of a boundary the distinction of internal and external relationships is made possible.

This distinction is fundamental for the very reason that it preconditions the possibility to locate an activity.

To locate an activity means to locate that activity in relation to a spatial context, inside or outside.

- 15) D.L.Foley, M.M.Webber a.o., Explorations into urban structure, Berkeley, 1964

It should, however, be called to memory that Friedrich Ratzel already did see this distinction quite clearly. His views about the spatial aspect are still valuable and have influenced the Chicago school of human ecology in particular.

An activity itself is among other things, characterized by its relative location, a location relative to a spatial entity. A location within a spatially limited entity creates the potentiality of "belonging" to that entity.

The factual belonging to that entity is achieved only if the location leads to a connection with the entity and if that connection is characterized by a distinctive "liability", both in the viewpoint of the entity and of that of the activity and actor in question. 16)

That connection has to be realized and maintained by action. A relative location inside the complex may contribute to or reduce the "efficiency" of that action, and the liability of that action to the complex.

In order to prevent misunderstanding it should be repeated that activities outside a syn-ecological complex may be of great relevance to the distinctive order of that complex. In fact, geographical structuring often operates "from outside", but this operation is made possible only and is mediated always by units located inside the complex!

Relative location not only refers to inside or outside but is at the same time and in a more particular way connected with the pattern in which activities and physical objects are distributed in space.

The spatial or locational pattern of activities is not in itself an aim for geographical study. One shall avoid a spatial formalism, for a spatial pattern acquires relevance only in connection with the objects (material or non-material) which appear in that distinctive pattern of location. But the specific locational pattern of activities is not irrelevant to them. Distance represents an obstacle for interaction and a spatial pattern in fact implies a pattern of distance. The different ways of spatial grouping of activities and of material objects like buildings and roads present an important geographical topic by the very reason of their relevance to the understanding of human action in general and of the socio-spatial entities constituted by that action, in particular.

- 16) The term "liability" corresponds, in our opinion, most closely with the meaning of the german word "Verbindlichkeit". Geography in general is interested in "verbindliche Lokalisierung". The term "Verbindlichkeit" refers to the geographic relevance of a located activity. The term is borrowed from Hans Freyer, who in his "Weltgeschichte Europas" (1948) introduces the expression: "verbindliche Entscheidung" in the following way: "Geschichte ist aber auch nicht denkbar ohne den Gedanken, dass die Entscheidungen, in denen sie geschieht, verbindlich sind" (p.52)

The importance of a spatial pattern can be perhaps most clearly indicated by its situational value. The concept geographical situation should not be identified - as is done by some geographers - with the concept of relative location, for it has a different and more general meaning: it indicates the intentional and by action constituted relationships of an actor with a selective and locationally patterned set of objects. (actors and artifacts). 17)

We may conclude therefore that geographical structuring not only results in a specific interdependence of activities, but also in a locational pattern of activities which have a situational value for each other. The differential association and location of activities represents a situational context which implies a pattern of mutually oriented interaction-systems. A syn-ecological complex constitutes such an orientational context by offering an ordered complex of situations as a result of both the internal and external relationships specific to the complex and its units. Van den Berg, therefore, characterizes a situation by the tension between "here and yonder". 18)

- ad c. The material-environmental aspect of a syn-ecological complex refers to the qualities of material objects which have a functional importance for the located activity. The attention now is no longer focused on the relative location, but on the location in connection with the physical qualities "on the spot".

It is of interest to stress the fact that the term environment in geography is reserved for the indication of material objects. The metaphorical use of the term in the sense of non-material as for example spiritual, cultural or social environment has to be avoided in geography for the sake of clear argumentation. 19) Clear argumentation further leads to a sharp distinction both between the natural and man-made components of the material environment, and between the resource and non-resource-function of the material environment.

- 17) G.J. van den Berg: *Situatie: spanning tussen "hier" en "ginder"*, in *"Isolatie en communicatie in de samenleving"*, Utrecht, 1962
- 18) G.J. van den Berg, *op.cit.*
- 19) The term "material" is preferred to that of "physical" for the last term too often is identified with natural. In the term "material environment" are included also the biotical elements.

It is of no use to repeat the many statements about the natural environment and to dwell at length upon its many features. We better pay attention to the natural environment as a resource. The term resource implies a socio-cultural and economic frame of reference, whereby the natural environment acquires a function as a medium for economic production and satisfaction of human needs in general (recreation for example). This resource-aspect always is connected with factual or potential land-use.

It is possible to integrate in a "resource-system" activities aimed at specific natural features as a resource. Firey's recent construction of a resource-system clearly illustrates the inter-relation of the socio-cultural, economic and natural environmental components of such a system. 20) It is typical, however, that he ignores the spatial aspect and one has to be conscious of the fact that all other activities relevant to human existence in its socio-spatial context are left outside. Videl de le Blache's concept of the "genre de vie" in fact represents an earlier and "classical" construction of a resource-system, as does to a certain extent Waibel's "Wirtschaftsformation". A large part of human geography in fact implied a study of resource-systems for the simple reason that human geography mainly was focused on agrarian activity.

Resource-use in most cases leads to a transformation of the natural environment. Man-made improvements and a by man transformed and maintained balance of the "biosphere" create a new material environment. Human activity results thus in material structures which show a relative durable character. The forms of land-use and material structures do not present the final aim of geographical study, but this material environment may serve as a means of understanding human activity of which, however, the land- and artifact-use-aspect forms only a part.

Especially in an urban milieu the man-made elements of the material environment come to the fore. Natural environment there plays a different role, for it functions no longer as a resource for economic existence. In addition an entirely man-made environment is created, is "built". Those by men constructed and built elements, like for example building and roads, are called "artifacts", described by Foley and Webber as "those permanent or semipermanent structures that house or channel activities and movement". 21)

20) W.Firey, Man, Mind and Land, a theory of resource use, 1960

21) D.F.Foley, M.M.Webber, op.cit.

The definition correctly stresses the interrelation of both activity and interaction with artifacts. The artifact "houses" an activity and "channels" interaction.

That interrelation shows two fundamental aspects.

First of all, the quality of the artifact has a functional importance for the activities connected with it. At first sight these qualities seem to be derived from the activities, since the artifact is built for the sake of those activities and by reason of that should show a perfect adaptation to the needs of those activities. In fact, however, there is an essential time-lag between the origination of the artifact in the past and the activities connected with the same artifact in the present. This time-lag often implies that artifact and activity no longer harmonize in the same way as they did in the beginning, for activity changes more rapidly than a material structure. This difference in the rate of change between artifact and activity is the very reason that there originates a problem of mutual adaptation of artifact and activity and that man-made environment functions by its durable character as an "obstacle" in the same way as a natural environment. Some artifacts may permit a large range of different activities, but not every artifact allows different uses. In most cases there exists a certain tension between an obstinate form and a dynamic content. Man-made environment therefore has to be transformed and improved as well as the natural environment.

The permanency, the persistence of artifacts thus create an environmental challenge to human activity. Those artifacts contribute to the order of the socio-spatial entity and their qualities produce in that way a geographical-structuring effect.

The second fundamental aspect is also connected with the persistence of artifacts. Almost every activity which needs a permanent location at the same time needs a physical "support". To "house" and to "channel" means in fact to "support" and this support mostly is the prerequisite for a permanent location. On the one hand an artifact offers the possibility of a permanent location. On the other hand an artifact "fixes" location, makes a location permanent, or at least semi-permanent, and thus "fixes" to a certain extent an activity on a specific site, and thus "channels" movement on specific "tracks".

In other words, the artifact connects the material-environmental with the spatial aspect of a syn-ecological complex. The man-made environment has an important locational function.

The prerequisite for belonging to a syn-ecological complex is connected with both the location of an activity and the location of the artifact which "houses" or "channels" this activity.

Not only the qualities of the artifacts, but their spatial pattern as well influences the spatial pattern of activities and interaction. The interconnection between those two spatial patterns, seen in relation with the kind of activities involved, offers a field of study of interest to the geographer. 22)

The spatial pattern of artifacts, being the result of earlier geographical structuring, functions in its turn as a geographical structuring factor.

This spatial pattern, however, should not be regarded as a totally static structure. An "espace socio-géographique" 23) both results from and is transformed by a "spatialisation géographique", a term indicating the environmental-spatial aspect of geographical structuring. 24)

We may now conclude as follows: the action-content, the environmental content, and the spatial pattern of both, altogether constitute a geographical-situational context and each of those both separately and interconnected are subject to structuring processes. The term geographical structuring might be applied to the integral structuring of a syn-ecological complex as a whole, whereas we prefer the term spatial structuring to be used only in connection with the spatial pattern of activity and artifacts. Similarly the term environmental structuring is logically connected with the material-environmental characteristics of a complex. 25)

22) The two patterns are of course not identical, already for the sole reason that artifacts house a multitude of actors and activities which are related with different actors and activities housed in different artifacts, and secondly for the simple reason that activities are oriented first of all to actors and only by that medium to artifacts. The specific spatial pattern of artifacts only may influence the spatial pattern of interaction.

23) P.H.Chambart De Lauwe, Esquisse d'un plan de recherches sur la vie sociale en milieu urbain, Cahiers de Tunisie, 1960, p. 5-17

24) E.Dardel, op.cit.

25) The term spatial structure used in reference to the order of a syn-ecological complex - as is done by some geographers - is confusing and inadequate and emphasizes too much the spatial aspect of the complex only.

But it is of interest to note that the origin of the term "geography" is connected more with the spatial aspect than with the environmental aspect. The term originally indicated first of all cartography: the drawing of the spatial pattern of the earth-surface and of human occupation in particular. It did not indicate the analysis of natural environment and land-use. During the development of 18th and 19th century geography only the term became associated

So far our discussion has been restricted to the interrelationship of interaction systems and both the environmental and the spatial context. Two other important components of the "geographical system" now need our attention.

The value-system is of primary importance indeed. This concept is almost identical with Tylor's famous definition of culture: "that complex whole which includes knowledge, belief, art, morals, law, custom and other capabilities acquired by man as a member of society. 26)

The present use of the term culture, however, offers so much space for different interpretation, that we prefer the term value-system indicating the central place of values. 27). In this term knowledge and capabilities acquired by man are included with one exception: technical skill. Our main argument for this exception is that technical level has such a distinctive influence on the character of geographical interdependence in general and on the spatial and environmental components in particular that a separate place for technology in the geographical system appears to be justified. 28)

The importance of the value-system cannot be estimated highly enough. Values direct human activities and institutionalize interaction systems, social positions, and rôles, communication and isolation. The value-system is a fundamental point of reference, which is shared by the entire complex of social sciences. 29)

- 25) with natural environment, which became the basic criterion for the geographical viewpoint (compare Chr. van Paassen, op.cit.) Some geographers still have some difficulty with the "geo" in geography, interpreting this prefix only as identical with natural environment.
- 26) E.B. Tylor, Primitive Culture, 1871
- 27) Compare: A.L. Kroeber, Clyde Kluckhohn, Culture, a critical review of concepts and definitions, Vintage Edition, New York, 1963
- 28) Compare for example: Fred. Cottrell, Energy and Society, New York, 1955. We therefore quite agree with O.D. Duncan, who selects technology as one of his four components, constituting his "ecological complex" ("Human Ecology and Population Studies, in: Ph.M. Hauser, O.D. Duncan (eds), the study of population, 1959, p. 678-717)
- 29) The weak point of the "orthodox" and "neo-orthodox" school of human ecology in America exactly is its neglect of the value-system. In O.D. Duncan's "ecological complex" the value-system is still absent (compare op.cit.). We agree with the excellent critics of Miss Milla Aissa Alihan in her dissertation of 1932 (Social Ecology, a critical analysis, Columbia University), and we further refer to Walter Firey's empirical illustration of the functioning of the value-system in his excellent study of Boston (Land use in Central Boston, 1947). The recent book of Sidney M. Wilhelm (Urban Zoning and Land-Use Theory, 1962) contains other good examples.

This common point of reference, however, is differentially placed in the various contexts of the different social sciences.

In geography the value-system operates in a materialized socio-spatial entity. It directs geographically relevant activity directly. It does this at the same time "indirectly" both by the institutionalization of social interrelationships of the population of a geographical complex and by associating to the complex itself a value of its own.

The social interrelationships of the population as such are of importance to the understanding of a geographical complex only in connection with the selective character of the differential social association in an area. More important is the connection between the social structure and geographically relevant activity. Hartke's work represents a splendid illustration of that. 30). The work of the Amsterdam school of "sociography" - certainly of a different character - has nevertheless a useful function in the development of geography through its link with sociology and by "channeling" sociological concepts relevant to geographical research into geography.

The values associated with the complex itself constitute an important integrating "force" in reference to the complex, but they may acquire at the same time a desintegrating effect in reference to the larger whole in which the complex participates. Jean Gottmann has proposed the characteristic term "iconography" to indicate this value-association. 31). It is no easy undertaking to analyze the content of "localistic" and "regionalistic" values. The correlation with the concept "image" stresses the socio-psychological component, but the different use of the concept as for example applied to the spatial-environmental component (K.Lynch) or to the social component (A.Strauss) manifests a certain ambivalence of interpretation. A further elaboration of this concept has to be awaited.

Definitely correct however is that the "iconography", the "image of a geographical complex" influences activity oriented on that complex. Geographical orientation has an "iconographical" aspect.

The relationship of a value-system with spatial pattern, distance or extent is apparent, for they are relative to the value as point of reference. Especially the boundary often is a "cultural" phenomenon and that not only in connection with political values. 32)

30) Compare among others his recent article: Eine ländliche Kleinstadt im Mittelgebirge im sozialen Umbruch der Gegenwart, Raumforschung und Raumordnung, 1964, p. 126-135.

31) J. Gottmann, Le Politique des Etats et leur géographie, Paris, 1952, p. 157

32) Compare M.W.Heslinga, The Irish border as a cultural divide A contribution to the study of regionalism in the British Isles, Assen, 1962

Environment, finally, regarded in connection with land-use and artifact is so closely related to values, that further comment appears superfluous.

The final component in the geographical system which needs discussion is the technological one. As noted earlier, the influence of technique in modern civilization is so large and so evident, that it cannot be missed, definitely not in a geographical system. For besides its function of technical medium for human interaction and for economic activity in general, its functional connection with environment and spatial pattern of activity is very close indeed. The space-time ratio of distance is a direct function of the technical media of movement and communication. They form the very prerequisite for increase of societal scale. The use and the transformation of the natural environment, the resource-system and the environmental artifacts themselves are strongly conditioned by the technological level as well.

In the inter-linkage of the five components the technological one, therefore, plays its distinctive rôle.

IV The "geographical pyramid" and the basic syn-ecological element termed
"oikatom"

Our first conclusion now can be formulated as follows: the conceptual framework for studying a syn-ecological complex refers to a system of five interrelated components consisting of (inter)-action-system, value-system, technology, environment and spatial structure.

An attempt to illustrate this conceptual framework in a simple diagram is to be found in figure 1, showing the "geographical pyramid". The base of the pyramid consists of the first four components, the top indicates the last one. In other words, the horizontal connections interrelate action and environment in combination with value-system and technology, the vertical connections indicate the composition of the spatial structure. The sides of the pyramid thus indicate the functional interrelationship of the five components. The actors are supposed to be inside, situated in the field of interrelationships of the five components.

At the same time the pyramid being a three-dimensional structure has a volume. The vertical dimension, the height, beginning in the top, might be used to indicate the spatial extent; the horizontal dimension, increasing downwards, might symbolize the relative complexity of interaction systems, value-systems, technology and environment.

This interpretation thus permits a diagrammatic representation of the syn-ecological complex. The entire pyramid is supposed to indicate the larger geographical complex of a civilization, within which are situated the syn-ecological complexes both on a local and a regional level,

distinguished from one another by spatial extent and complexity of content. 33)

Returning from the diagrammatic scheme to the main line of our discussion, the complexity of content of the syn-ecological complex now needs our attention first of all.

Our assumption that this complex is a structured entity implies that this complexity refers to a differential association of relatively constant units, which is not arbitrary.

The five components of the syn-ecological complex already present a clear indication with regard to the identity of those units.

The constancy of the unit is connected first of all with the action- and value-system which both are prerequisites for a relative constancy in action. The environmental and spatial components refer to the constancy of location as another prerequisite for this unit as a basic element of a materialized socio-spatial entity.

Consequently, we must look for those interconnected activities which show a relative constancy at a definite location. In other words, we must look for that unit, where a relative constancy of action coincides with a relative constancy of location.

The syn-ecological complex therefore might be described as a territorially delimited complex of differentially associated and mutually orientated interdependent action-systems connected with definite locations and artifacts.

Philbrick indicates the activities, constituting the syn-ecological complex, with the term "occupance" and defines occupance as the "sum of the activities of persons, focused in establishments, localized in places within structures or facilities by men, interconnected by communication, transportation and organization". 34)

33) The regular geometrical form of the pyramid does not permit a qualification of the importance or quality of the components, neither of the spatial extent or degree of complexity. In principle it might be possible perhaps to characterize an individual syn-ecological complex by a distinctive and therefore irregular form of the pyramid whose dimensions and relative internal proportions thus would indicate the actual relative importance of the components and both the spatial extent and the complexity of content.

Nevertheless, one should guard against an over-estimation of the diagram, which is to be interpreted as a visual aid for a conceptual framework only and which symbolizes moreover a very generalized conceptual scheme.

34) A.K. Philbrick, op.cit., p. 303

In this definition, which concords very well with our viewpoint, the term "establishment" appears, indicating the very locational-functional unit we were looking for. This term unites activity and location.

Rannells also uses the term as both a theoretical and empirical starting-point for his study of the urban core. Two aspects of the "establishment" are defined by him as follows: a. "a concentration of people's activities at a definite location", b. "a unit in the chains of action which link all kinds of activities into the continually changing networks that make up city life". 35). He argues that the concept "establishment" from "a place of business must be expanded to include all the places where routines of people come to a focus - residence, schools, even public open places where people habitually come together". 36). He formulates the concept several times and in many different ways, but every time the content widens from "a unit of land use" to "a unit of organization". The term "establishment" always indicates "individuals or groups using a definite location as a recognizable place of business, residence, government or assembly" 37); in short, the establishment originates and functions from "people using a definite location for carrying on regular activities". 38)

The establishment is the essential located and functioning unit of a syn-ecological complex. It is at the same time the smallest significant unit to which the geographer should direct his analysis.

Rannells connects the term "establishment" with a wider meaning than that immediately associated with the traditional use of the word. A new term may thus be wanted, indicating both the connection with the syn-ecological complex and the functioning as smallest relevant unit of that complex. The term "oik-atom" might perhaps offer an alternative to the term "establishment". 39)

35) J.Rannells, *The core of the City*, New York, 1956, p. 11

36) idem p. 10

37) idem p. 11

38) idem p. VI

39) It is obvious, that the term "oikotop", proposed by German geographers, is less useful, stressing too much the place-aspect only.

The establishment or oikatom represents the operational unit for geographical analysis. It is a unit of organized activities which operate in a syn-ecological context and which are connected with activities of other establishments inside and/or outside the syn-ecological complex. The organization of each unit has an institutional background: family, firm, church etc. The unit by using land has, further, a man-made quality: buildings, streets, parks, arable land etc. Finally, it must have communicational facilities at its disposal. In other words, the activities, artifacts, communicational facilities and institutions, constituting a syn-ecological complex are locationally and functionally present in different, spatially separated, but functionally interconnected, establishments.

The development of new, the disappearance of old, the transformation of existing establishments bear witness to the dynamics of a syn-ecological complex. Geographical structuring operates first of all via establishments and is manifested by establishments.

The analysis of the process of geographical structuring must be directed to human action, as was earlier stated. This analysis has now become operational since it can be directed to activities connected with establishments, both to activities directed to and influencing establishments, and activities performed by them.

The locational aspect of the establishment, however, deserves our attention as well. A syn-ecological complex is characterized by an internal spatial order, constituted by a specific spatial grouping of different establishments, a specific pattern of diversified land-use and a specific pattern of circulation. Friedmann speaks of "the orderly and persisting physical arrangement of activities with respect to each other in geographic space", thus indicating the connection between action and location. 40)

Geographical structuring reveals itself in a specific spatial distribution of establishments. It is especially the alternative of con-location and dis-location, the various forms of clustering and dispersion which draw the attention of the geographer. The study of the processes of con- and dislocation has to be regarded as a distinctive task of geography. These processes are connected with general processes of growth and expansion. 41)

40) J.R.P.Friedmann, The spatial structure of economic development in the Tennessee Valley. Chicago 1955.

41) The socio-spatial aspects of expansion have been studied intensively by both geographers and human ecologists, especially in the United States. The contributions of the school of Chicago, together with those of younger human ecologists, are of great value. The difference between a human geographical and a human ecological approach should not be exaggerated.

The different modes of con- and dislocation need serious attention especially in connection with the characteristics of the located elements, the oikatoms. Therefore, our interest now will be focused on the field of activities of an oikatom and its interdependence with other elements.

V The functional-geographical formation

An oikatom, taken as an individual unit, consists of activities, orientated to and forming part of one or more of the several societal activity-systems, which together constitute society. Each of those activity-systems and -sub-systems performs one or more functions in society in general.

It might be possible therefore to classify the oikatoms according to their participation in societal-activity-systems grouped around the major functions they perform in society. Warren, for example, distinguishes the following five major functions: production-distribution-consumption, socialization, social control, social participation, and mutual support. 42)

The difficulty remains, however, that many individual establishments participate in several societal activity-systems and thus perform different societal functions.

Besides, our starting point has been, that an oikatom, as a locational-functional unit, constitutes the basic element of the syn-ecological complex. In other words, the participation in that complex and the function(s) for that complex pose another problem, and the characteristics of an oikatom definitely must be connected in one way or another with that participation and functioning.

41) L.F.Schnore's conclusions in his "Geography and human ecology" (Economic Geography, 1961, p. 207-218), that in geography the core of interest should be areal differentiation and in ecology social organization, obviously does not concord with our viewpoint. It is true, however, that some ecologists tend to shift their orientation from a geographical direction to a more sociological one, focused on an entity of which the social aspects of human activity form the primary structuring component.

For a clear statement from a purely geographical viewpoint we refer to the university rectorial oration of Th.Kraus: "Häufung und Streuung als Raumordnende Prinzipien, Cologne, 1958

42) Roland L.Warren, The community in America, 1963

It is impossible to explain the activities of an establishment completely either by the societal activity-system and societal function in general or by the connection with the syn-ecological complex in particular. For an establishment shows a multi-orientational character: its activities are orientated both to one or more societal activity-systems in which it participates and to the syn-ecological complex as a situational complex of differentially associated action-units with which it is differentially inter-connected.

This dichotomy of societal activity-system and syn-ecological complex cannot be, however, our final conclusion.

The syn-ecological complex is no closed system. An establishment mostly does not limit his inter-action-field to that complex.

On the other side, the activity-system in which an establishment participates in fact has a locational aspect, for it operates by way of a multitude of differentially located action-units, whose inter-relations show a differential locational pattern as well.

An individual establishment mostly operates in a spatial pattern of interrelationships with other establishments located inside and outside the territory of a syn-ecological complex. This spatial pattern of interrelationships is determined by the societal function, the type of activity and of goal-attainment of the establishment in question, and by the factual locational pattern of establishments which as a historical datum has a functional importance for that establishment as well.

An individual establishment, however, may consist of a multitude of diverse activities, connected with diverse societal activity-systems and performing diverse societal functions.

Therefore, it is evident that the spatial pattern of relationships in which an establishment is involved, first of all should be connected with the diverse kinds of activities performed by that establishment.

For example, a firm which produces products for diverse markets, thus operates in diverse functional interrelationships. A chartered accountant may offer his services to a specific group of manufacturing-plants or to a quite different group of establishments, for example commercial banks.

In other words, an individual establishment may operate in diverse sets of interrelationships.

The total pattern of input- and output-relations of an individual establishment viewed in its spatial-environmental aspect constitutes a traditional field of geographical study.

Less attention is given, however, to the relatively constant interrelationships between establishments which co-operatively perform a societal function or subfunction.

Those sets of interrelationships grouped around societal functions draw especially the attention of the geographer, for they constitute an essential part of the "world" in which an establishment operates. The identification of those interrelationships, therefore, represents one of the main tasks of the geographer.

This identification should be based, in our opinion, upon a specific societal function or sub-function performed jointly by a multitude of interrelated and differentially located establishments which in the aggregate constitute a kind of functional formation. We propose to term this a functional-geographical formation. A functional-geographical formation is constituted both by a distinctive societal function and by a patterned interrelationship. The belonging of an establishment to such a formation is determined by the direct and indirect utility of its "product" both for the performance of the function in general and for the functioning of other establishments of the formation in particular. Its belonging to a formation is determined as well by the constancy of its relationships with the other establishments of the formation.

The financial "world", the world of assurance, medical care, but also distinctive manufacturing-complexes and agricultural ones constitute illustrative cases in point as far as they are connected with establishments of a specific syn-ecological complex. For another essential characteristic of a functional-geographical formation is its locational pattern of relationship grouped around establishments of a syn-ecological complex which constitute the primary point of reference. In other words, the assurance-formation for example is not identical with the entire world of assurance, but form only that part of it, with which the assurance-establishments of a syn-ecological complex maintain permanent and relevant relationships.

There exists another reason for terming the formation geographical. The formation consists of a multitude of differentially located establishments. This locational pattern has both a spatial and environmental aspect. Thus in fact, the five components constituting a syn-ecological complex are of similar relevance to a functional-geographical formation.

Two essential differences, however, remain between a syn-ecological complex and a functional geographical formation. The first one refers to the action-component; the second difference is connected with the spatial aspect.

A functional-geographical formation consists of only a restricted selection of distinctive action-units connected with one societal function, whereas a syn-ecological complex is a multi-functional complex. Secondly a syn-ecological complex has a continuous but limited territory, a functional-geographical formation on the contrary constitutes a discontinuous field and shows a spatial pattern of different locations

spread out in a discontinuous way, sometimes throughout the world, sometimes throughout the nation or throughout a region.

The functional-geographical formation can easily be sketched in our diagram, the "geographical pyramid" (see figure 2), thus illustrating schematically the relation to the syn-ecological complex.

It is evident that the spatial pattern of the formation is not arbitrary and that it should be explained by locational factors. It is further apparent too, that this spatial pattern is not without any connection with the syn-ecological complexes in which many of the elements of the formation participate.

In fact, the interrelationships between syn-ecological complexes mostly are determined by the functional-geographical functions they have in common.

Not only the interrelationships between but also the intra-relationships of syn-ecological complexes can only be understood if we take account of the relevant functional-geographical formations.

The particular character of a syn-ecological complex might even be definitely connected with the specific formations related with it. This becomes apparent as soon as we have a closer look at the structural qualities of the formation.

In this respect three aspects of the functional-geographical formation need our particular attention:

1. the level of specialization of the activities constituting the formation, in combination with the spatial scale of the range of the interrelationships;
2. the structure of inter-dependency of the units of the formation;
3. the spatial pattern.

ad 1. More developed civilisations form a large-scale network of activities resulting from a more elaborated division of labor and from the corresponding differentiation of societal functions. Specialisation of activity and differentiation of function correlate with the scale of the entity which forms the context for this specialization and differentiation. The scale of the entity has both a quantitative (number of "consumers") and a spatial aspect. The territorial distribution of societal tasks structures a civilization into a differential geographical complex, consisting at the one side of adjacent syn-ecological complexes, at the other side of non-contiguous and selective functional-geographical formations, some linking syn-ecological complexes on a regional level, others forming connections on a world-scale and linking selectively syn-ecological complexes characterized by highly specialized establishments. Highly specialized establishments of the metropolises might operate in functions which cover the entire world, formations of less specialized establishments in smaller cities might be restricted to a small region.

ad 2. Functional-geographical formations differ according to their structural qualities. The system of interdependency, therefore, needs much more attention than is given in geographical literature in general. Research in this field is only in its initial phase. Structural analysis is done by each social science. There is some common methodology in structural analysis, independently from the individual characteristics of the entity. In communication- and organization-research has been developed already a methodology, which may be of great use to geographical research and which might be applied to geographical structures, like the functional-geographical formation. In the context of this preliminary theoretical framework it might suffice to present a few general indications with regard to some structural aspects.

A functional-geographical formation, in fact, is a communicational structure. This communicational structure may vary considerably according to frequency, regularity and variety of interaction. Communication may be truly mutual or it may imply an orientation strongly focused in one direction, it may be direct or it may be indirect.

Another important aspect refers to the presence or absence of a formalized organizational context, within which integration and allocation of tasks are institutionalized. Mostly, however, a functional-geographical formation operates without such an organizational framework. But, the positions and the roles of the establishments operating in this formation are definitely connected with its structural quality. Some of the establishments may possess a dominant role-position in a formation and may, therefore, determine the activities and tasks of the other establishments of the formation. Dominance may be connected with the role of coordination and control, it may be connected with the utility of the "product" for the function-performance of the formation. The indispensability and replacementvalue of the activities have to be considered. The complementary and ancillary functions of the establishments within the formation influence the pattern of role-positions.

It will be evident that this subject is not exhausted with these few indications. In our opinion, especially the structuring of the role-positions of establishments in the functional-geographical formations needs the particular attention of the geographer.

ad 3. The spatial pattern of a functional-geographical formation does not originate independently from the pattern of interdependency of the formation. Both patterns are interconnected. Keeping in mind this interconnection, the spatial pattern merits closer study.

In the previously mentioned study of Webber we find a descriptive scheme for the analysis of spatial patterns which besides its value for the analysis of a syn-ecological complex appears to be useful as well to the study of a functional-geographical formation. 43)

43) M.M. Webber, The urban place and the nonplace urban realm, in: Explorations into Urban Structure, 1964, p. 102-108.

Webber distinguishes three components which may appear in spatial patterns: interactions, located activities and artifacts. Thereupon he distinguishes several "dimensions" of those patterns, two of which are especially relevant in our opinion: the density per unit of territory and the degree to which interactions, actions and artifacts tend to congregate around a single or around several places in a territory. His terminology, however, seems to us less adequate. The second dimension applied to the spatial pattern of activities is termed centralization. This term, however, refers not only to a specific spatial pattern, but also to a specific pattern of interdependency. It indicates, in our opinion, the formation of both a functional and a spatial core. The term is used, for example, in reference to the concentration of control in one or a few establishments which thus constitute the center to which the other establishments of an entity orientate themselves. At the same time the term implies a spatial association connected with "central" location and focality of interaction. The use of the term only as an indication of a spatial characteristic should be avoided in our opinion and another term is needed.

The term concentration also presents some difficulty and is sometimes used as a near-synonym of centralisation. Mostly, however, it indicates some degree of density and in that way the term is used by Webber. But, if we speak of concentration of activities, the point of reference is not the unit of space but the degree to which the activities pile up in an aggregate. Concentration, in other words, refers to a pattern of concentration.

Therefore, we propose the following terminology and distinction:

- a. condensation: the number of elements per unit of space
- b. concentration: the degree to which elements pile up in an aggregate
- c. focused concentration: the degree to which elements tend to congregate around a place
- d. differential concentration: the distributional pattern of aggregates
- e. aggregate: a more or less condensed grouping of elements

The term centralisation does represent primarily a functional-organizational structuring implying, however, a distinctive spatial pattern.

Showing some form of concentration, centralization primarily and simply is the formation of a center. The merit of Webber's scheme primarily is, that it confronts us with the problem whether or not and in which degree density, concentration or focused concentration of interactions corresponds with that of activities and/or artifacts.

Functional-geographical formations may be characterized according to their degree of condensation and (differential or focused) concentration. Especially the centralized pattern of a formation (the existence of one or more centers which dominate the formation) needs special attention. The differential composition of aggregates may constitute another essential characteristic of the formation.

Functional-geographical formations and syn-ecological complexes are interconnected for the simple reason already that the oikatoms form part of both entities at the same time.

A closer look at this interconnection might be taken in two directions. Firstly, the importance of a functional-geographical formation for a syn-ecological complex depends upon the level of specialization of the formation and especially upon the role-position of the oikatoms of that complex in that formation. The difference between cities is closely connected with the kind of establishments and aggregates by which they perform their functions in society, and by which they dominate or fall under the domination of several functional geographical formations in particular.

The locational patterns of several formations may coincide and the dominant elements of these formations may all be located at the territory of one particular syn-ecological complex. In that case a regional context originates, which in geographical literature is called a nodal region. A nodal region, in fact, is characterized by a multitude of functional-geographical formations, whose centralized patterns coincide and whose central aggregates fall within the same "central" syn-ecological complex.

A quite different situation arises when in one and the same area of a regional extent several dominant and highly specialized aggregates of a multitude of formations differentially are located, forming part of varying highly specialized syn-ecological complexes and operating in national and/or international fields of activities. In many nations we find such regional concentrations, for example the north-east region of the United States of America (the Megalopolis), the south-east region of England with the metropole of London and the "Randstad" of the Netherlands. A city like Utrecht thus may participate both in the context of a nodal region of which it forms the dominant center, and in the context of a "center-region", the "Randstad". This participation is determined by the kinds of oikatoms which constitute the syn-ecological complex of Utrecht.

The interconnection of functional-geographical formation and syn-ecological complex must be regarded also from a different angle. Besides the function of a formation for a complex, the function of a complex for a formation has to be accounted of as much:

A functional-geographical formation is no foot-loose entity. Its elements show definite locations and therefore are distinctively connected with particular syn-ecological complexes. The locational pattern of a formation is determined by a number of factors, the situational value of a syn-ecological complex being one of the most essential factors. The location of the dominant elements of a formation is not arbitrary and is connected with those qualities of a syn-ecological complex which are relevant to the formation and thus to the social function performed by that formation. In other words, the syn-ecological complex

now is to be viewed as a situational complex which constitutes a milieu whether or not favorable with regard to the operation of individual elements and/or aggregates of a particular formation. The "milieu-conditions" of a syn-ecological complex therefore have to be analyzed for they are primarily responsible for the development of the complex. 44)

VI The historicity of the syn-ecological complex: individuality and integration.

The first steps toward geographical analysis have been made. We started with the syn-ecological complex and constructed a system of five interrelated components as a conceptual framework, instrumental in analyzing the complex. We "dissected" the complex into oikatoms, and we allocated them in principle to functional-geographical formations. Finally we stressed the interrelationship between those formations and the syn-ecological complex. This procedure thus leads us back to the problems of the syn-ecological complex which in the beginning was regarded as an entity originating from the specific interconnections of oikatoms and which now comes to the fore as a specific milieu for oikatoms.

Neither a wholistic approach, deriving the character of an oikatom from the complex to which it belongs, nor an atomistic approach, deriving the character of a complex from its elements, would be appropriate. The first approach would fail to regard the complex as a non-closed system, the second approach would neglect the structural aspects of the complex.

The complex as entity is no formally organized structure; its activities are not deliberately interrelated. Partly the interrelations originate between pre-existent elements, partly those interrelations are pre-existent with regard to new elements and interrelations, which are partly generated by those pre-existent activities and interrelations.

44) Compare the argumentation of H. Blumenfeld, who regards the high level of the so-called non-basic services of New York as the essential "milieu-condition" of this metropolis responsible for its economic growth ("On the Growth of Metropolitan Areas, Social Forces, 1949, p. 59-64). Compare also the excellent article of H. Beguin, Aspects géographiques de la polarisation, Tiers-Monde, 1963, p. 559-608. This Belgian geographer correctly stresses the connection between agglomeration and economic growth.

The term pre-existent refers to a time-dimension. And this brings us to an essential characteristic of the syn-ecological complex, which up to now has not been exposed explicitly: the historicity of the complex.

The syn-ecological complex is a historical entity, structured by human activities in the past. This differential association of activities and artifacts has evolved in time and its great diversity is the result of a less or more gradual development in the past. Historical processes have created a differential entity which presents a situational frame of reference for new activities. This situational frame of reference has a strongly individual character, resulting from the history of the complex and its elements.

Historicity and individuality are closely connected and it is apparent that complexity and heterogeneity of a complex together with the absence of a formal organizational structure increase its individuality.

No wonder that geographers since long have followed the tradition to pay attention to this very individuality and to prefer the monographical approach. The so-called french school has excelled in this respect. With this individualizing approach corresponded a strongly geographical-historical emphasis.

Geographers had still more reasons to emphasize the individuality of a geographical complex, for not only its historicity, but also its spatial-environmental components are responsible for that individuality. The spread of natural resources is extremely uneven indeed and thus geographical diversity is definitely connected with diversity of natural environment.

History and natural environment together have created a world-wide diversity which constitutes spatial patterns of strong individuality. The relative location of each syn-ecological complex, therefore, individualizes its situation with regard to this world-wide diversity. Spatial location is one of the essential individualizing factors by the very reason that it implies a unique spatial relationship with an already strongly varied content, distributed differentially in space.

Not only a syn-ecological complex, but also the functional-geographical formations are marked by individuality connected with history, environment and relative location.

History, environment and relative location thus constitute an individual pattern of data towards which human activity is orientated and of which it has to take account. History, environment and relative location have to be evaluated. The evaluation in the past is fixated in an already structured man-made environment. But the essential aspect of the individuality of a syn-ecological complex is connected with the continual necessity of evaluation of history, environment and relative location and of actualization of goals, adjusted with regard to those external data.

Evaluation and actualization imply a continual "cultivation" of the individuality of the syn-oecological complex. They may even increase individuality, for the value-systems of human groups differ. Apart from the spatial-environmental aspects and the historical legacy, the individual mosaic of the world already results from the differential operation of human value-system.

The spatial-environmental component, however, immediately comes in, for this differential operation of value-systems implies an individual entity to the degree in which spatial fixation of activity leads to a solidarity between space and society, for space cannot be multiplied and is unique in principle. 45)

Individuality is something different from variety. If a syn-oecological complex would be nothing else than a variety of activities and artifacts it would present little value for scientific research. In our previous discussion the structural quality of the complex has been stressed continually. Individuality now precisely refers to a structural quality. The original meaning of the term indicated this structural quality most clearly: "individual" originally meant indivisible.

Individuality, in other words, is associated with the particular patterning of interrelationship which characterizes a syn-oecological complex and which originates from the selective internal diversity and corresponding mutual cooperation and adaptation of activities, participating in different, individual functional-geographical formations.

- 45) Georg Simmel mentions in his "Soziologie" (1908), chapter IX: "Der Raum und die räumliche Ordnungen der Gesellschaft", as the first essential basic quality of the spatial component "die Ausschliesslichkeit des Raumes" and writes: "In dem Masz, in dem ein gesellschaftliches Gebilde mit einer bestimmten Bodenausdehnung verschmelzen oder solidarisch ist, hat er einen Charakter von Einzigkeit oder Ausschliesslichkeit, der auf andre Weise nicht ebenso erreichbar ist". (p. 617)

We may draw attention to the extraordinary importance of Simmel's analysis of the socially relevant "Grundqualitäten des Raumes", which represents some main aspects of philosophical foundation of the geographical phenomenon. The influence of Ratzel is without any doubt, but Simmel's conception is much more social-philosophical framework, which in principle is intended as a common framework for each of the social sciences and which is of a much more general nature than a purely sociological theory can possibly present.

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The territorial association of people, moreover, implies an internal diversity precisely for the reason that a multiplicity of most different human needs requires to be satisfied, to which corresponds a diversity of activities and facilities. This internal diversity is greatly increased by the external relationships with the world outside, which are connected with the place occupied by a syn-ecological complex in the geographical distribution of societal tasks. The selective territorial associations arising from this geographical division of labor are necessarily differential.

A syn-ecological complex thus becomes a structured entity characterized by a distinctive order of a factual individuality.

Individuality, therefore, is connected with both internal and external integration. Internal integration refers to the connections "inside" a syn-ecological complex, external integration refers to the connections of the complex with the world outside. The previously discussed functional geographical formations play an essential role with regard to both external and internal integration, thus demonstrating the interdependency between both kinds of integration. The individuality of a complex is closely connected both with its "position" in the "world" created by the participation in geographical formations and with the "position" of the elements of those formations in reference to other elements of the complex. The way in which highly specialized establishments, operating in a nation- or worldwide context, are integrated in the complex is of great importance with regard to its individual structural quality. A large manufacturing plant or a large office may occupy a dominant position in the complex and thus closely be linked with other establishments of the complex, but it may exist as well like an island "inside" the complex without essential links with any other element of the complex.

We should distinguish not only internal and external integration. W.S. Landecker distinguishes four types of integration: cultural integration (consistency among cultural standards), normative integration (agreement between cultural standards and the behaviour), communicative integration (degree of intercommunication) and functional integration (interdependent activity) 46)

Geographers mostly have concentrated their analysis upon the last type of integration. Sociologists, however, emphasized in their so-called "community"-studies the other forms of integration. 47)

46) W.S.Landecker, Types of integration and their measurement, Am. Journal of Soc., vol. LVI, 4, 1951

47) We will pass by the discussion of the concept of "community" for sociologists strongly differ in their interpretation of this concept as is illustrated by the article of George A.Hillery in spite of its title (Definitions of community: areas of agreement, Social Forces, 1958/59).

These forms of integration in itself are only of interest for the question as to how far and in which way there exists and operates a socio-cultural system within a syn-oecological complex, a question which evidently mostly interests the sociologist. If, however, the interest is focused on the question: what makes out the distinctive integrating order of a syn-oecological complex, the different forms of integration only should be analyzed in their mutual interdependency. Many geographers implicitly interpret a syn-oecological complex as an economic entity which primarily functions as a spatial-environmental framework for human living thus identifying human living with an "economic way of life".

The importance of economy for human life cannot be disputed. We will discuss later on the valid reason for a geographical study of the economic order of a syn-oecological complex. We further may stress the importance of such an economical-geographical study which in contrast with a pure economical study concentrates upon the individual constellation of the local or regional economy.

But an identification of human existence, connected with and constituting a syn-oecological complex with economic existence gives evidence of subjective prejudice for which there are no scientifically valid reasons, and thus leads to an unscientific reduction, both of human life and of the syn-oecological complex.

- 47) Mostly the concept community represents a sociological reduction of the syn-oecological complex disregarding the spatial-environmental components, the resource-system and the economic system, and disregarding the essential difference between human groups and formal organizations as social systems, and the historical and geographical complexes. Nevertheless, geographers should pay much more attention to the community-literature, for it covers a field, where sociologists and geographers meet one another, and may learn from one another. It is typical, however, that in the recently developed theoretical framework of sociology the concept of community occupies a very peripheral position. One gets the impression, that sociologists have the same difficulty as geographers in developing a conceptual framework adequate to this complex phenomenon. The only theoretical discussion of importance in our opinion, is presented by an article of T.Parsons: "the principal structures of community", in "Structure and process in modern societies", 1960, p. 250-280. The well-known book of R.König, Die Gemeinde (1958) gives the concept "community" a purely sociological character. The recent book of R.L.Warren (the community in America, 1963) is of more interest to the geographer than the previously published book of L.Nelson, Ch.E.Ramsey, C.Verner, Community, structure and change, 1960.

Not only do social structure and different value-systems exercise an important influence upon economic activities operating in a syn-ecological complex, but the differential, residential association of human groups and the co-existence of different value-systems determine the distinctive order of the complex itself. Moreover, social and cultural needs require as much as economic needs institutions which constitute essential elements of the syn-ecological complexes.

Social-cultural structure particularly generates the individuality of the syn-ecological complex. Values become associated with the complex itself and strengthen its individual identity. Whether geographers should pay attention to this, should not be determined by a prejudice with regard to the traditional character of geographical science, but should only be judged according to the only essential criterion: the efficiency of instrumentality for scientific understanding of the syn-ecological complex. If necessary, geographers should not fear to learn from the other social sciences. In fact, too long already geographers have neglected new developments in the other social sciences of great importance to geographical analysis.

Remarkable in this context is the neglect of a very important aspect of the syn-ecological complex, which strongly favors its individuality, which moreover strongly influences its integration, and which in earlier times received much more attention of geographers than today: the "political" aspect. Ratzel's main contribution has been on the political field. Only, political geographical research was done on a macro-geographical level. It consisted mainly of geography of political systems like states. The political problems of local and regional complexes certainly show some difference, but they are equally essential, and intimately connected with the distinctive order of the syn-ecological complex. The connection between geography and political system has its distinctive rationality, which has been acknowledged not only by geographers, but which is now made explicit in general, social scientific theory. Parsons has picked up the thread already spun by Simmel and Max Weber and presents "jurisdiction" as one of the main foci of "community-structure". This term indicates the "obligations which are imposed on categories of persons by some process of decision-making when the ultimately relevant agency is held to be 'legitimate authority' under a system of normative order". The connection of jurisdiction with territory now is determined by the possibility to impose sanctions at places: "the sanctions of force must be applied to concrete physical persons in concrete physical locations, control of force without territorial jurisdiction is impossible". 49). In other words, permanence of location is the essential prerequisite for the functioning of a political system.

48) T.Parsons, the principal structures of community, in: structure and process in modern societies, 1960, p. 259.

49) idem p. 262

But there exists still another link between territory and political order, now regarded from the point of view of occupation of a territory. Spatial propinquity produces problems of "public" order and it does this especially in case of a concentration of a diversity of persons, activities and value-systems. Contiguous groups may need common facilities and develop similar interests by sharing a common site which necessitates and definitely stimulates common action. Common living on one area may, however, produce tensions as well and many problems of mutual adaptation, which need some form of formal or informal polity.

Scott Greer correctly writes: "the city as a social congeries is dependent upon the city as a polity for its minimal working conditions" 50)

In many cases informal polity is as important as the formal political structure. Informal polity is intimately connected with the informal power structure, which again is closely connected with the differential association of activity-systems particular to a syn-ecological complex. The role-position of establishments with regard to both functional geographical formation and syn-ecological complex may influence power-structure, although there may be no direct connection between role-position and "political" participation.

It is evident that the analysis of political systems and informal power-structure is done primarily by political scientists and sociologists. 51). But there is no excuse for the serious neglect of this field by geographers, for the close connection between syn-ecological order and power-structure forms a sufficient justification for political-geographical study, whereas the importance of power-structure for the understanding of the syn-ecological complex makes its study definite compulsory. 52)

For without knowledge of power-structure and community decision-making a real insight in the integration of a syn-ecological complex is impossible. Moreover, economic activity basic to the complex may be influenced considerably by its power-structure and it may at the same time itself influence it as well. What establishments function as instruments through which integration is sustained and developed, is a question which may lead us immediately to the problems of informal polity. The press not only presents a source of information about the problems of a large city, but functions as an instrument for integration. It presents a geographical reflection, but at the same time it helps to create a geographical object.

50) Compare Scott Greer, *The Emerging City*, 1962, p. 60-64

51) A recent review of literature on power-structure and decision-making is presented by Lawrence D. Mann, *Studies in community decision-making*, in: *Journal of American Institute of Planners*, 1964, p. 58-65.

52) It is the merit of Jean Gottmann to have stressed and clarified the political element of geography (compare op.cit.)

The "public talk" in shop, church and pub has a more general integrating influence than the special interests which created those establishments.

The individuality of a syn-ecological complex is definitely entranced by polity, for local and regional polity is concerned not only with the internal order, but with the external relations with the world outside as well. In this respect the relative degree of autonomy in reference to the world outside both in its subjective (as experienced and valued by the members of the complex) and in its objective aspect merits separate attention.

Increasing division of labor and corresponding territorial specialization tend to reduce this autonomy strongly both in economic, social and political respect. But each complex tries to maintain its own distinctive identity and individuality by opposing those forces which tend to subordinate it completely. This is not merely a psychological phenomenon, for it is closely connected with the "raison d'être" of the complex which needs an amount of diversity of establishments in order to be able to perform its function.

It has already been indicated that values become associated to the complex itself; it is among others local or regional polity which "creates" them.

Ratzel already formulated this admirably in a manner characteristic of his time: "Jede menschliche Gemeinschaft ist mit der Auszenwelt und mit sich selbst im Kampf um ihr selbständiges Leben. Sie will ein Organismus bleiben, und alles arbeitet daran, sie zum Organ herunterzudrücken". 53)

Gottmann almost half a century later speaks of "la recherche de l'individualité du groupe humain qui veut connaître ses limites et n'accepte pas d'être une particule parmi beaucoup d'autres particules identiques" 54). He uses the characteristic term "cloison" (partition) for indicating the syn-ecological complex as a retreat" with respect to the world outside, as a home where exists a solidarity of individual existence with a distinctive territory, marked off by a boundary. For individuality implies a boundary, and a boundary implies polity. And we may refer to a general social scientific principle, that even in this time of increasing international integration in economic and technological respect still applies: the principle of differential functional autonomy. Gouldner draws attention to the fact that "organization" not only serves to link, control, and interrelate parts but also functions to separate them and to maintain and protect their functional autonomy". 55)

53) Fr. Ratzel, Politische Geographie, second edition, 1903, p. 22

54) op.cit. p. 15

55) Compare A.W. Gouldner, Reciprocity and Autonomy in Functional Theory, in: Symposium on Sociological Theory, ed. L. Gross, 1959, p. 257

VII The fundamental principles of geographic structuring

The strongly individual character of the geographical complex has evidently influenced the scientific approach of geographers. In general, they have always been inclined to prefer a descriptive analysis aimed at the unravelment of the complex and varied content of the geographical entity; at the same time they have tried to reconstruct the entity by presenting an individual descriptive synthesis in a monographical form. By those attempts geography acquired the odium to be a descriptive science. But geographers themselves made a virtue out of what was named a shortcoming according to the criterion of the so-called systematic sciences. They called their approach idiographic and they had strong reasons to refer to the science of history and the philosophical literature about the methods of this science. 56)

It has to be conceded, that there was a general geography as well, but that branch of geography had only an analytical and initial function and was descriptive as well. 57). Regional geography was predominant. Descriptive analysis was purely inductive.

Nevertheless, there is bound to be a certain doubt about the efficiency of this inductive approach. Ackermann expressed this doubt as follows: "the larger the accumulation of data on the unique, the less meaning those data have without an improved conceptual pattern in which to present them. Continued idiographic research may be self-defeating unless it is accompanied by the organizing concepts". 58)

But there is still more reason for doubt.

If we credit a syn-ecological complex with a structural quality, we imply the inadequacy of an inductive approach. For the term structure may only be used on the condition, firstly that the interrelated elements together constitute an entity characterized by features which cannot be deduced from the individual elements; secondly, that the interrelated elements show characteristics which are not independent of those of the entity to which they belong.

In other words, the geographer faces the problem to select from the variety of elements and from the variety of characteristics of the elements, those elements and characteristics which together constitute a structure. This selection cannot be done inductively, for the criterion of this selection is connected with the character of the structure.

56) The work of Rickert is still pre-eminent in this field. The term idiographic however, has been formulated by Windelband.

57) The term general only referred to the analysis of the locational pattern of specific phenomena all over the world.

58) E.A.Ackermann, Geography as a fundamental research discipline, Univ. of Chicago, Dep. of Geogr., Research Papers, No.53, Chicago, 1953

The well-known dilemma - trying to know the entity by studying its relevant elements and interrelations and trying to know that relevance from its relation to the, yet unknown, entity - remains a dilemma as long as there is no hypothetical system to connect the main components of the entity in a consistent structural manner.

The famous chorological principle of Hertner constitutes nothing else than this very dilemma: to study those individual phenomena which show differential spatial distribution patterns and which at the same time are interconnected with other phenomena at the same place. The problem of selection thus precedes the analysis of interconnection and, therefore, precedes the referential framework.

In fact, many geographers have made implicit use of different kinds of conceptual systems, which, however, by their implicitness mostly remained in the dark. They only come to the fore by an analysis of their scheme of description.

Here definitely lies a task for the historian of geographical science to make explicit what is present implicitly in the traditionally developed schemes of geographical description,

Other geographers, however, have given methodological justifications of their particular analytical approach. Those justifications, however, were mostly of a normative character: they just indicated what geographers should do and what geography should be. They were less aimed at the structural principles of geographical reality itself.

Only a few geographers have tried to look for the essential principles of orders which are basic to each geographical entity.

In the present phase of historical development of geographical science, the search for these fundamental principles of geographical order appears to be, in our opinion, most urgent. The unique character of geographical complexes has only a meaning and can only be explained if individuation becomes identified as a historical and spatial-environmental realization, differential in nature, of an order, characterized by some general principles.

Geographical order should be regarded from a dynamic viewpoint. We should look for the main principles of geographical structuring. Without pretending to give an elaborated view or a ready-made solution, we now want to present some ideas about this problem of the fundamental principles of geographical structuring. We are obliged to do so, for our previous discussion has not yet produced a point of view in this respect. We only tried to clarify the main components and elements, and their general connections, but the principles of geographical structuring were not discussed.

It appears to be logical to start again with the five components and to focus our attention upon the spatial-environmental components, for they are particular to the geographical complex, which shares the other

three components (action-system, technology and value-system) with other social complexes.

It stands to reason, that the principles of geographical structuring must be connected with the way in which the spatial-environmental components in combination with the other three components produce a social entity.

The history of geographical thought shows that the environmental component was regarded as the predominant one. The main principle of geographical structuring thus was connected mainly with the ways in which human groups solved the problem of sustenance by a distinctive use of natural environment: geographical order was regarded as the result of the reciprocal interrelation of culture and natural environment. Carl Sauer conceived geography as the study of habit and habitat, and in that way presented his own formulation of Vidal de la Blache's concept of "genre de vie". In "les principes de géographie humaine" of Vidal de la Blache we find one of the few elaborated attempts to interpret the great diversity of the world as a result of the combination of two diversifying factors: culture and natural environment, which are integrated by an activity-system, and the corresponding social structure, constituting a "genre de vie".

In a civilization, in which the problem of sustenance mainly is determined by the local availability of natural resources, this concept has its value, although some doubt may be expressed whether settlement-patterns can be explained by the "genre de vie" only.

In modern civilization, however, the problem of sustenance no longer is tied up with local resources. Natural environment in general may still be important as a resource, but the direct relation between culture and local environment no longer prevails. Moreover, division of labor and economic specialization have led to a territorial differentiation of sustentant activities, which no longer are entirely based on natural resources.

This well-known development have forced geographers to change their views. The main line of thought now became linked with economic activity as the focal frame of reference, which now brought into view the spatial component (which, however, was strongly present already in Ratzel's conceptual framework!).

This change of thought, however, has two implicit assumptions, which need attention.

Firstly, sustenance activity and economic activity are regarded as being identical. Secondly, the principle of geographical order is linked with economic activity.

The first assumption fails to recognize the difference between sustenance and economic activity. Sustenance activity, however, is an undifferentiated activity, which can only with difficulty be distinguished from the entire complex of activities constituting human existence.

Economic activity, on the contrary, is a specialized activity which both results into and operates within an economic order, which constitutes a relatively autonomous societal sub-system.

The question, therefore is, whether the principles of geographical structuring are to be found only in the context of this societal sub-system. To connect the principles of geographical structure with the economic system would mean in fact, that the geographical complex constitutes a kind of economic system. Both assumptions, therefore, have to be doubted.

We must resume our starting-point: in which way the spatial-environmental components may specifically contribute to the existence of a distinctive social complex, which may be distinguished from other social complexes.

We further have to take into particular consideration the spatial component in order to find the principles of geographical structuring, which are relevant to modern civilization.

The best way to do this, in our opinion, definitely is to regard the world as one specially interconnected entity, for the time disregarding the non-participating isolated areas.

The essential simple and basic question now is: what are the reasons that this entity falls apart in a variety of spatial aggregates of different extent and quality; what principles account for this differential distribution in spite of the interrelation of the parts? In short, what principle accounts for both differential location and differential aggregation?

The question of differential aggregation leads us immediately to the still more fundamental question: why should there exist spatial aggregates, why not an arbitrary diffusion?

The uneven distribution of natural resources cannot present the complete answer for a civilization which no longer is based solely on natural resource activities. Besides the environmental component, the spatial component now has to be brought into account.

Interconnection in a world-scale proves that spatial distance presents no absolute barrier for interaction and communication. But without any doubt spatial distance does present a relative barrier. Many interactions need a restriction of distance. For many activities spatial proximity to other activities constitutes a necessary condition.

If we agree that syn-ecological complexes in fact constitute aggregates of shared living based on a common locality, then we imply a system of activities for which the common locality constitutes a pre-requisite, for which, in other words, a spatial and environmental quality has an essential function.

The spatial quality is distance, evaluated as proximity according to a time-space-ratio in the context of human activity.

Firey characterizes the syn-ecological complex as a "system of spatially contingent processes". 59..

The spatial contingency of general and specific human needs met by human interaction and communication constitutes, in our opinion, the first principle responsible for geographical order.

We may thus partly agree with the definition of "community" by Warren: "the organization of social activities to afford people daily local access to those broad areas of activity which are necessary in day-to-day living". 60). Parsons indicates the same principle: "that collectivity the members of which share a common territorial area as their base of operations for daily activities". 61)

In both definitions the accent is put on daily activities thus correctly indicating a connection between frequency of interaction and need for proximity. But this connection is more complicated than the adjective daily indicates and it is definitely not the only one, for quality of interaction plays its essential role besides frequency of interaction.

Proximity, further, may constitute relative accessibility not only to actors and activities but also to material amenities including natural resources, thus linking the spatial component with the natural and man-made environmental component.

The syn-ecological complex, in other words, is a communicational structure based on relative proximity. The character of this communicational structure is a function of relevant environmental content, spatial scale, and of both number and quality of interacting establishments, whereas the number and the quality of the interacting establishments are no independent variables. For the greater the number of interacting people may be, the more possibilities exist for specialized activities. Those activities depend upon the quantity and specific demand of people for whom they serve and upon the distance which is tolerated between the location of those activities and the location of the "consumers". Threshold and range thus jointly account for the type of activities which may be performed on a place and the difference in threshold- and range-needs of activities account for the differential

59) W.Firey, Ecological consideration in planning for urban fringe, Am. Soc.Rev., 1946, p. 411-421

60) R.L.Warren, op.cit., Introduction

61) T.Parsons, The social system, 1951, p. 91.
Hawley's definition is quite similar: "the structure of relationships through which a localized population provides its daily requirements" (Human Ecology, 1950)

aggregation of people. 62). Activity-systems differ according to their elasticity of range of action and this difference in many cases is connected with the elasticity of the radius of action of individual people.

The primary point of reference for a geographical complex constitutes the human individual in its locational aspect, in other words residential location, for residence constitutes the daily basis of operation from which the individual participates in society and makes its living.

It is from this viewpoint that the importance of economic activity for the geographical complex comes to the fore, for the daily access to his "work" is a prerequisite for the existence of the individual, as is in modern civilization the daily access to the place where he may acquire the products he needs.

Proximity between private realm (residence) and economic realm (place of work and place of consumption) thus constitutes the primary basis of a geographical aggregate.

But besides the economic realm presenting welfare to the individual there exists an essential public realm which from a positive point of view is intended to offer well-being to the individual and which may promote economic welfare as well. The geographical complex does constitute not only an economic realm but also a social-cultural context for the satisfaction of social-cultural needs of the people. Those social-cultural needs also require activities and amenities in relative proximity. 63)

62) Central place theory thus is placed in a larger context. The concepts of threshold and range are elaborated in an article of Brian J.L. Berry and William L. Garrison, a note on central place theory and the range of a good, *Econ. Geogr.*, 1958, p. 304-311. Of interest is also: R.C. Mayfield, The range of a central good in the Indian Punjab, *Ann. of the Ass. of Am. Geogr.*, 1963, p. 38-50.

63) In general geographers have paid small attention to this aspect of the syn-ecological complex. A.K. Constandse earns the merit to present an exception by applying the concept of well-being to the geographical order of agricultural villages in a recently occupied agricultural region: "Het Dorp in de IJsselmeerpolders, doctoral thesis, Zwolle 1960. Jean Gottmann presents the same aspect in a different way, and in a different and much larger extent: *Megalopolis, the urbanized Northeastern Seaboard of the United States*, New York, 1961

And those socio-cultural activities on their turn are characterized by threshold- and range-needs.

In this respect the relation between the private realm and the public realm needs special attention, for this relation is marked by a certain degree of functional interchange, connected with both the character of the cultural system and the character of the geographical complex. Bahrđt extends the well-known definition of Max Weber of the city in the following way: Ansiedlung wo die Teilhabe an einer Öffentlichkeit für die Masse der Bewohner eine alltägliche Form des sozialen Verhaltens ist; Bahrđt speaks of a polarization of existence into a public and private realm. 64). In other words, in different societies and geographical complexes societal functions may be differently connected with the private or the public realm.

The private realm itself shows its requirements with regard to proximity of facilities and persons. We need only to refer to the selective informal intimate or superficial personal contact and to the cultural and physical recreational activities.

The public realm has its special importance for the individual, for it constitutes largely the medium through which the individual participates in society and civilization. The increasing role-segmentation in present times ties the individual to the public realm to an increasing degree.

Our preliminary conclusion thus may read as follows: the structural quality of the syn-ecological complex is particularly connected with the process of proximation as a spatial communicational process leading to aggregation. Proximation thus may be regarded as that geographical structuring which directs location of elements to mutual proximity by reason of the value of proximity itself. The value of proximity is connected with that kind of communication (including interaction) which needs proximity. Proximation in other words favors communication by reducing distance.

Proximation is always relative and selective, for it creates at the same time distance to other elements.

64) H.P.Bahrđt, Die moderne Groszstadt, 1961.

Max Weber defines the city as the settlement where "Die ortsansässige Bevölkerung einen ökonomischen wesentlichen Teil ihres Alltagsbedarf auf dem örtlichen Markt befriedigt".

Richard L.Meier also indicates a correspondence between this polarization, and both the extent and quality of the geographical complex: ... "the attraction of city life became stronger as time spent in public and professional activities, as distinguished from time spent reflectively on matters of personal concern, or in familial interactions, increased (A communications theory of urban growth, 1962, p. 35).

Besides, aggregation does not imply isolation or complete separation from the world. The aggregates, or rather the elements of the aggregates extend their relations to other elements else-where in the world. Those relations are essential to the complex, for they determine not only its situation in a wider world, but also its specific character. Even in societies which are poorly developed from an economic and technological viewpoint, some activities interconnect the different complexes.

Our previous starting-point, the inter-related world, therefore, still leaves some problems unsolved: the pattern of location of those specialized activities which form the "pillars" of a civilization-complex, and the kind of connection of their location with the process of aggregation.

The pattern of location must have some connection with the degree of participation in the "world", and thus must be connected with the degree of accessibility to the "world", whereby again the spatial factor of distance comes into discussion.

There are, however, interactions of a world-wide scale for which apparently distance presents no barrier. And it seems likely, therefore, that the place of location in that case would be indifferent.

Nevertheless, there exist differences in dependency upon distance with regard to inter-action for different kinds of activities.

Webber presents an interesting hypothesis: he states that "spatial range of intercourse varies directly as some function of a person's level of specialization". 65)

We only hint at the problem whether the degree of specialization partly depends upon the ability to overcome the barrier of distance, and we immediately continue to consider the conclusion which Webber draws from his hypothesis.

He views a person's level of specialization in the context of what he calls the interest-community in which a person participates in his specialized role. "At any given level of specialization there is a wide variety of interest-communities whose members conduct their affairs within roughly the same spatial field; in some degree they are interdependent and interact with each other". The world thus is conceived as a "hierarchical array" of spatially discontinuous 'urban realms' corresponding with respective levels of specialization and consisting of different interrelated interest-communities. Residents of large urban settlements thus may communicate throughout the entire hierarchical array of realms. Each settlement, according to this view, "is the partial locus of realms at many levels in the hierarchy". 66)

65) M.V. Webber, op.cit., p. 112

66) idem p. 114-118

It is apparent that these realms are not territories, but groups of people located in non-contiguous places throughout the world.

This most important contribution of Webber to geographical thought stands not alone. Scott Greer and Warren presented some ideas in a similar direction, as have done Groenman and Constandse in Dutch publications. 67). Their general line of thought refers to an increasing importance of the non-place "interest-communities" and to a decreasing importance of place-related interests.

The importance of interest-communities cannot be denied, but besides their levels of specialization the vertical pattern must definitely be taken into account.

We must resume, therefore, our discussion of the functional-geographical formation which in fact constitutes a more complex interest-commu-

/establish-
ments

nity of interdependent/operating in a common functional context. The locational pattern of these formations is not to be considered in advance as an arbitrary one. Some formations show a distinctive focal pattern of interaction and a centralized pattern of activities. Not only the formations but also the market-areas of their economic establishments may show a similar pattern.

It is useful to quote the original formulation of Christaller: "Eine elementare Form der Ordnung von Zusammengehörigem ist die Anordnung einer Masse um einen Kern, ein Zentrum", and he applies the term "zentralistische Anordnung" to such a spatial order. 68).

His theory of the "Zentrale Orte" constitutes one of the main achievements in the development of geographical thought. Since he developed his system, geographers have confirmed the rightness of its principles, not, however, without finding many variants of this system.

67) R.L. Warren applies the term "vertical pattern" to the complex of external relations. Scott Greer (the emerging city, 1962) stresses the process of increase of societal scale. Groenman does the same (Uitdijende Werelden, 1956) and indicates the discontinuous character of man's image of his world (Het discontinue wereldbeeld, Mens en Maatschappij, 1960, p. 401-412). Constandse speaks of categorial integration in contrast to territorial integration, thus indicating the formation of "interest-communities" (op.cit. p. 42). His terminology is less adequate, in our opinion, for the internal territorial relations are partly categorial as well.

68) W. Christaller, Die Zentralen Orte in Süddeutschland, 1933.

An important sector of geography has been developed with a wide scope for further study of the principles of centralization. 69)

Nevertheless a more critical and more fundamental analysis of this field appears to be necessary. The principle of focality of interaction and the principle of centralization has to be clarified. What kind of activities generate patterns of focality and centrality?

Harris and Ullman distinguish central and "spatial" "functions", but they present no sufficient fundamental background to this difference in our opinion. 70).

For the time being we may state, that "central functions" must show a specific dependency upon distance, if they imply both a focal pattern of interactions and a concentric arrangement of activities. The increasing market-orientation of so-called "spatial functions" mentioned by Harris, and the process of economic regionalization, mentioned by Raymond Vernon, tend to change them to a certain degree into semi-central functions. 71).

A more elaborate discussion in this context is not possible. The indication of the process of centralization may suffice; the way it works and the degree to which it applies to activity-systems require a closer inspection. For the present we may accept the factual operation of this process in a multitude of activity-systems. 72). We may add, that Christaller's theory should be applied to functional-geographical formations and activity-systems and not directly to syn-ecological complexes. Confusion already has originated many times by forgetting this fundamental point.

The locational pattern of Webber's urban realms now remains to be discussed. The weak point of his concept of urban realms exactly is its neglect of the locational pattern of the realm-participants.

- 69) Compare B.J.L.Berry and A.Pred, Central Place Studies: a bibliography of theory and applications. Philadelphia, Regional Science Research Institute, 1961.
- 70) Ch.D.Harris, Edw.L.Ullman, The nature of cities, Ann. of the Am. Acad. of Pol. and Soc.Sc., 1945
- 71) Ch.D.Harris, The market as a factor in the localization of industry in the United States, Ann.Am.Assoc. of Geographers, 1954, p.315-348
R.Vernon, Metropolis 1985, Garden City, New York, 1963, p. 93 f.f.
- 72) This is not to deny that different location patterns of activities, and that many different location factors may prevail. The so-called location theory is too well-known. In this context, however, the connection between interest-communities and geographical aggregates favors the interest in centralized patterns of activity-systems.

The world-wide interactions mostly constitute no interactions between arbitrary located elements. Level of specialization of "central activities" has some consequences for their location. World-wide interaction mostly takes place between large cities.

In other words, another geographical process comes to the fore: the process of con-centralization, indicating the clustering of different kinds of "central" activities of a common level of specialization in the same syn-ecological complex.

This process is connected with a process of proximation, to the degree in which con-centralization implies a direct interdependence of activities which require for their operation a relative degree of proximity. Proximity may be a functional requirement with regard to the interdependence of central activities, but this kind of interdependence definitely should not be regarded as the only cause of con-centralization. The previously defined milieu-conditions of a syn-ecological complex may strongly favor con-centralization as well. The presence of a variety of specialized activities, the presence of a high quality of facilities and amenities and particularly the presence of a highly developed set of communicational facilities sufficiently illustrate the kind of milieu-conditions we have in mind. Perloff and Wingo distinguish five assets of a syn-ecological complex which correspond largely to our concept of milieu-condition: human resources, (accessibility to) natural resources, private and public capital and organizational tools. 73)

As far as the quality of man-made environment favors location of distinctive activities, we may speak of "artifactual support".

Con-centralization leads to nucleation, if mutual proximity of central activities acquires such a high value, that a dense concentration of location becomes necessary, whereas the channeling of communication (including transportation) may offer an important additional support.

The process of nucleation in fact is the joint result of the operation of the four processes of con-centralization, proximation, artifactual concentration and artifactual support, for the nucleus constitutes a spatial concentration of a diversity of less or more inter-linked central establishments on a place, localized less or more centrally in relation to the spatial patterns of interactions focused on those establishments. 74)

73) Harvey S. Perloff, L. Wingo Jr., Planning and Development in Metropolitan Affairs, J. of Am. Inst. of Pl., 1962, p. 67-90.

74) Compare Chr. van Paassen, Geografische Structurering en ecologisch complex, Tijdschrift van het Koninklijk Nederlandsch Aardrijkskundig Genootschap, 1962, p. 215-233.

In this way we have made the connection between geographical aggregates and level of specialization-realms, a connection which needs not to surprise us, for history has shown that increasing specialization has led to increasing urbanization. Specialization indeed requires contact with an increasing variety of establishments. Urban realms are definitely linked with specific syn-ecological complexes which present such a variety.

For a large part the milieu-conditions of geographical complexes do present nothing else than a quality of accessibility to the world-outside by favoring participation in that world. Besides the communicational facilities, the presence of a large variety of specialized establishments, each of them having important external relations, brings the world at home, and each of those establishments generates quality products exactly by virtue of those external relations and presents them as input to other establishments of the complex.

The milieu-conditions therefore are connected with the principle of complementarity and mutual support. The entire complex operates as a strongly differentiated system in which interrelated establishments support each other.

Proximity again plays its essential role by favoring communication. It does even more.

"Proximity leads to accumulation of shared experiences", writes Meier, and thus accelerates communication, which may generate new ideas, new initiatives, and innovations.

In the "hearts" of metropolitan regions the accumulation of highly specialized and central establishments begins to function like a kind of "storage-battery": a cumulation of cultural and economic energy is connected with a highly intensified communication network.

We may term this the process of "geographical generation".

Mumford characterizes the city as "a special receptacle for storing and transmitting messages". 75). The metropolitan nucleus operates as an "agora": spatial clustering and intensification of communication between highly qualified establishments and persons create a maximum of mutual personal contact, a maximum transmission of culture and intelligence. The "agora" constitutes the cradle, where new ideas originate and innovations circulate. Prompt information both by personal contact and by communicational vehicles controlling a wide realm of activities is essential to decision-making on a national and international level. A metropolitan center functions as an informal club and as a crucible for public opinion. The "agora" is "a place designed to offer the widest facilities for significant conversation" 76), and constitutes a distinctive meeting-place for people coming there to "consume" economical-

75) L.Mumford, The city in history, p. 99

76) idem , op.cit., p. 116

ly, socially, recreationally and culturally. 77)

The "agora"-phenomenon itself, therefore, has a spatial-structuring effect, which may be termed "artifactual symbolization". The establishments of a metropolitan nucleus function both as institutions in a civilization and as symbolic representatives of a civilization. Their presence in the nucleus acts as a status-symbol. This symbolization constitutes a geographical structuring factor, additional to proximation and artifactual fixation. The institutional value to civilization demands expression in specific, distinctive artifacts, in monuments or monumental forms. Neither the Cathedral, nor the large office-buildings of corporations can be explained purely functionally. Even their location in the nucleus might sometimes be mainly justified exclusively by the need for symbolic representation. 78).

The process of geographic generation is not only connected with the process of con-centralization. Special "functions" in many cases show definite patterns of con-location. Bobek distinguishes "zentrierte" und "unzentrierte Regionen"; among those non-nodal regions the manufacturing-agglomerations and -conurbations, marked by a detached structure, merit particular attention. 79). They are based on specific locational and environmental resources, and they constitute mostly a distinctive pattern of interdependent manufacturing plants. Their growth, which is sometimes considerable, partly is due to the process of geographic generation in this sense, that technological and economical development in manufacturing is favored by mutual proximity. The process of special function-aggregation is partly a variant of the process of geographical generation. 80)

78) Compare: R.Mackensen, a.o., Daseinsformen der Groszstadt, Typische Formen sozialer Existenz in Stadtmitte, Vorstadt and Gürtel der industriellen Groszstadt, Tübingen, 1959.
Compare also: R.Mackensen, Soziale "Anlagen" einer mobilen Gesellschaft, Überlegungen zur Anwendung ökologischer Groszstadtforschung, in: Proceedings of the I.G.U. symposium in Urban Geography, Lund 1960, 1962

79) H.Bobek, Ueber den Einbau der sozialgeographische Betrachtungsweise in die Kulturgeographie, Deutsche Geographen Tag., Köln, 1961, p. 148-166.
This excellent article presents a most valuable contribution to geographical theory.

80) We refer again to the connection between agglomeration and polarization of economic growth discussed by Beguin (op.cit.), compare note 44.

It is apparent, that the process of geographical generation does refer not only to spatial structuring, but also to geographical structuring. In other words, in this process we meet the qualitative content of activity- and value-systems and technology particular to a syn-ecological complex. The previously discussed individuality of a complex plays its essential role. But the other processes of geographic structuring should also not be interpreted as spatial structuring processes only. Proximity in itself has no sense at all. The spatial and environmental components in general acquire only their meaning in combination with the other three components and the many sub-components. The processes of proximation, centralization, con-centralization, nucleation, artificial support, and geographical generation definitely refer to an action-content as well.

It is further evident, that many other processes of geographical structuring are to be discussed. Our discussion thus far concentrated upon those processes which are connected with the phenomenon of geographical aggregation.

But geographical aggregation is selective and has its limitation. Besides processes of conlocation, those of dislocation need our attention as well.

Many social and economic processes favor dislocation. We may only refer to the different forms of residential segregation. Many activities do not tolerate one another's proximity. Push- and pull-factors co-operate in favoring distinctive forms of isolation, which results from conscious efforts, however, of both separation and selective proximation.

In the context of our discussion we cannot elaborate on the processes of dislocation. 81).

Only two points may be put to discussion.

Firstly, a syn-ecological complex itself may operate as a repelling pole. Dissimilar poles repel each other. The milieu-conditions of a particular complex may possess a negative value to specific elements. Chinitz has given a splendid example of the way in which the distinctive socio-economic structure of a city works as a repelling force: "there is an aura of second-class citizenship attached to the small businessman in an environment dominated by big business". 82). The study of the Harvard-team under the directorship of Vernon of the New York Metropolitan Region in fact constitutes an analysis both of the negative and repelling, and the positive and attracting milieu-conditions of the region with reference to distinctive activity-systems.

81) Urban over-population presents an interesting complex of problems connected with both concentration and de-concentration. Compare: Chr.van Paassen, *Stedelijke overbevolking, een verwaarloosd aspect van de theorie der overbevolking*, T.E.S.G., 1955.

82) B.Chinitz, *Contrasts in agglomeration: New York and Pittsburgh*, *Am.Ec.Rev.*, 1961, p. 279-290.

The selective character of the differential association of elements particular to a complex favors the location and operation of activities which show some affinity to the distinctive character of the complex and disfavors those which lack such affinity.

A systematic analysis of this differential affinity constitutes, in our opinion, one of the most important and attractive tasks of the geographer and such an analysis may lead to a more elaborated system of principles of geographical structuring.

The second point, we want to discuss, is a favorite topic today: the increase in societal scale. This phenomenon indicates an important spatial aspect of the organizational integration of the entire society: the widening of the radii of interaction and the intensification of both human interaction and communication flow, favored by modern technology, which reduces the space-time-ratio for communication.

"The increasing span of organizational networks in which men and machines are integrated for productive and distributive purposes" leads Scott Greer to the following conclusion with regard to future developments: "the process of increase in scale, nurtured in cities, will have so transformed the society as to eliminate any need for urban centers". 83).

Without following this extreme viewpoint of Scott Greer, we must agree that the previously stated opinions with regard to the increasing importance of large-scale "interest-communities", detrimental for the so-called place-related interests, essentially are connected with the process of increase of scale.

Webber, in fact, shares Scott Greer's opinion to a large degree: activities will be more dispersed, and interactions will be less focal. 84) This amounts to the situation, that the processes of centralization and con-centralization will have a decreasing importance, that the process of proximation will have lost its importance, in short that the spatial component of the geographical complex will have been devaluated. In contrast, the environmental component may regain its vigour, for relative accessibility to the interaction realms will be an ubiquitous quality thus placing at the foreground environment as the only factor influencing location.

Some comment, therefore, appears to be necessary.

83) Scott Greer, op.cit., p. 41 and p. 201 f.f.

84) Webber's contribution in the collective publication, edited by L. Wingo Jr., Cities and Space, the future use of urban land, Publ. for Resources for the Future, 1963, bears the characteristic title: "Order in diversity: community without propinquity" (p. 23-57).

We must begin to establish the fact, that the process of increase of societal scale in fact is a general geographic process, which in our time acquires only a specific vigour.

In consequence, this process should be regarded as one of the main processes, to which geographers should pay particular attention.

The effects of this process should be studied in connection with the different levels of geographical order, for those effects may be different on a local, regional or national level.

Perloff and Wingo are of opinion, that "the key to an effective model of metropolitan development lies in the matter of the 'scale' of analysis". 85)

We want to generalize this statement as follows: "the key to an effective model of geographical analysis lies in the matter of scale". Perloff and Wingo distinguish three levels: the suprametropolitan, the metropolitan and the intrametropolitan level. Each level refers to a socio-spatial context, and with each socio-spatial context corresponds respectively a distinctive requirement of milieu-conditions, distinctive needs for both proximity to internal and relative accessibility to external activities, facilities and amenities, and a specific degree of relative autonomy with regard to the management of own affairs.

History has shown a continually changing process of increase of societal scale with effects which differ with regard to the different levels of socio-spatial context.

Old civilizations already were characterized both by world-wide interactions (although less frequent and of a specific nature) and by settlements of a small extent due to a severe restriction of radii of daily interaction, among others caused by the absence of technical media of communication and transportation adequate to frequent and urgent contact.

The increase of societal scale in a distinctive stage of technological development did begin on a large-scale level, and the lack of a follow-up of short-range communication- and transportation-technique thus was responsible for an intense urban concentration. Urban concentration partly may be contributed to the lags between technological equipments with regard to short-range and long-range communication.

Recent technological developments have contributed firstly to a broadening of large-scale interaction to such a degree that the term increase of scale has become less adequate, and should be replaced by the term "enlargement of societal structure", and secondly have affected short-range communication and transportation to a large degree. The well-known urban sprawl and development of metropolitan regions are generally regarded as a direct consequence of the freedom of "auto-mobility". Nevertheless a more refined approach appears to be necessary.

85) Perloff and Wingo, op.cit.

G.J. van den Berg earns the high merit to have made already in 1957 a more adequate attempt of distinguishing the several relevant socio-spatial contexts in urban society, starting with the highest level, the megalopolis (for example Gottmann's Megalopolis, the West-European Megalopolis) and descending respectively to the socio-spatial contexts of the "conurbo-province" (macro-regional linkage of metropolises), the conurbation or metropolitan region (a regional linkage of agglomerations), the agglomeration (an urban complex of settlements with mostly a large central city) and the several settlements constituting the agglomeration. These socio-spatial contexts have primarily a functional meaning and correspond in a way similar to the scheme of Perloff and Wingo with different degrees of autonomy, and social-economic and artificial equipment, and with a different allocation of functions. It is impossible to summarize the rich content of his study. 86).

Of particular interest, however, for our discussion is the fact, that the starting-point of van den Berg's conception has been a problem of applied geography: the problem of new towns. The question he immediately put to the fore was: what is the meaning of the term town, and which scale is the relevant one for answering this question. What in earlier times might be termed settlement, now in fact corresponds with a larger socio-spatial context termed conurbation, which shows the same socio-economic interdependence as the urban settlement in earlier times (for example a common shared and used public equipment, an integrated labour-market and market of jobs), but which now is characterized by a much larger extent and by a dislocated pattern of establishments and residences, grouped in separate aggregates. The small-scale aggregates, forming part of the "conurbation", lost a great deal both of autonomy and diversity, and they have endured the processes of territorial specialization and segregation, but they still function as the relevant context for a distinctive group of activities. Both Perloff, Wingo and van den Berg stress the importance of the small-scale aggregates for the individual, not as closed social realms but as the immediate living-milieu, which presents the services and opportunities for social contact, still needed near at hand, and the protection of privacy.

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Van den Berg also anticipated upon the dislocation of central activities which takes such a large place in Webber's argumentation. He relativates the hierarchial pattern of Christaller, who identifies centralization with nucleation, and expects in future an increasing de-concentration of central activities within the context of the "conurbation", thus allocating to the different parts of the urban complex different groupings of central activities, without however, eliminating the existence of a highly specialized central core.

86) G.J. van den Berg, *Op zoek naar een kader, and: De mensen en de nieuwe steden*, both published in: "Nieuwe steden in Nederland?", Alphen aan de Rijn, 1957, p. 7-36, 37-78. This study has, in our opinion, not been given the attention of the geographic academic world, which it definitely earns.

If we finally bring into consideration whether the processes of centralization and proximation will still apply, the answer should be a positive one when taking into account the change of spatial context. A more detached pattern of location within the urban complex does not deny the fact that the milieu-conditions of the complex still are highly influential.

The specialized urban realms of Webber are still linked with metropolitan complexes, although the location in the central core of those complexes may be no longer compulsive. The metropolitan complex still offers the best opportunity for interaction in all the realms. It is true, however, that its internal dislocation and external sprawl gives rise to a new problem, the problem of urban form which, however, is also connected with the structure of communication and transportation. 87)

Our final conclusion therefore is evident. The essential principle of geographical order is the principle of differential accessibility and thus is closely connected with communication. The processes of geographical structuring all apply to the differentiation of accessibility.

The fundamental contribution of geography is connected with its analysis of the relations between location and communication which generate together with the diversity of natural and man-made environment the differential geographical order of civilization-realms.

Geography studies "systèmes de mouvement et de systèmes de résistance au mouvement", for "le milieu géographique est un système de relations qui s'inscrivent dans l'espace différencié et organisé accessible aux hommes".

"Localiser dans l'espace les phénomènes consiste à les places dans les systèmes de relations que la circulation anime". 88)

If we may expect - and we do this definitely -, that the increasing integration of the social sciences will result in a common conceptual frame of reference, then the recently developing communication-theory will play a focal role, in our opinion, for the different social entities which constitute the objects of study for the several social sciences, are in fact communication-systems.

The systematic-social sciences like economy and sociology study categorical communication-systems, history and geography study inter-categorical communication-systems presenting the time-space-situational contexts for human transaction.

The recent work of Richard L. Meier, therefore, must be considered, in our opinion, however hypothetical some of his statements may be, a valuable stimulation for the development of a more communication-oriented geography. 89)

87) Compare W. Steigenga, *Moderne Planologie*, 1964, p. 175-194

88) J. Gottmann, *La Politique des États et leur Géographie*, 1952, resp. p. 214, p. 15 and p. 215

89) Richard L. Meier, *A communication theory of Urban Growth*, 1962. He stresses among other things the importance of the concept of transaction. The economist Roland Artle does the same (*Public Policy and the space Economy of the City*, in L. Wingo (ed.), op. cit. p. 158.



