

I. S. I. G.

**Institut of International Sociology
Gorizia**

**FROM BARRIER TO JUNCTION :
Towards a Sociological Theory of Borders**

Theories are cheap.

(D. Easton)

It is characteristic of all sciences
in the early phases of their development
to be both ambitious in the stating of
their aims and trivial in the handling of
details.

(A.N. Whitehead)

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FROM BARRIER TO JUNCTION:

A Sociological Theory of the Border

This paper argues for the opportunity to build a general theory of the boundary and presents a first trial sketch of such a theory. It is based on the assumption that it is indeed possible and relevant both to the social sciences in general and to the scientific endeavours for peace in particular.

The paper is organized in five parts. In the first a systemic approach to the problem is outlined. In the second there is a brief discussion of the relevance of a general theory of boundaries for science, for welfare and for peace. In the third some specialized disciplines are reviewed, that seem to provide concepts and facts relevant to the understanding of boundaries; in the fourth ideas and concepts gleaned from this interdisciplinary investigation are systematised in a first-attempt general theory of the border and the boundary. Finally, in the fifth part a brief list of the main directions of empirical research is presented.

PART ONE - SYSTEMS AND BOUNDARIES

The concept is used in the widest variability of contexts: geography, international law, international relations, political science, systems theory, cybernetics, mathematics, ethology, ecology, urban sociology, regional science, land economics, and other sciences, not to speak of the ordinary discourse, all make a frequent use of the words border, boundary, frontier, limit, threshold etc. So the first problem is the definition of the concept: is it really possible that a single concept can fit such a variety of contexts? If it is, then its semantic range seems to be comparable only to that other pass-par-tout word, system. And in fact the two are closely related: a system is defined by its boundary; boundary is a key concept of general systems theory, and boundary maintenance is a pre-requisite of the system (1). Wherever systems concepts are applicable, questions of boundary arise (2). In its most general meaning then the boundary is the criterion that divides what is in and what is out, what belongs to the system and what belongs to the environment; where by system we understand whatever collection of variables however interrelated that are submitted to inquiry. The criterion can be of several sorts; according to the kind of system investigated, it can be real or conceptual, concrete or analytical. The ambiguity of the general system theory, unable to decide whether it handles physical or conceptual systems (3), reflects on the uncertainty of the relations between the two kinds of boundary-criteria. To the real and concrete family of criteria belong the lines on surfaces, the surfaces in space, the moments in time (for systems are defined not only in the space, but also in time). To the conceptual or analytical type of boundary belong a variety of criteria, among which the most important are certain "critical values" or "breaking points" in the variables under consideration. Usually the system is made up of variables whose variation can oscillate between a "lower" and a "upper" point or value. (around a focal condition as Sommerhoff put it) (4). When these limits are transgressed, the variable falls outside the system which thus undergoes a more or less severe change. A good example could be the rate of compliance to the existing legal rules in a political system.

Physical systems are usually definable in space and in time; conceptual systems are to be defined by these critical values, breaking points or focal conditions which mark the range of variability assumed, conventionally, to limit the system.

But the dichotomy is unrealistic: there is a continuum between the more grossly physical systems like a heap of stones, a planetary systems or a clockwork and the more

school of thought, a government, a national economy, a collection of nations (5). This is not the place to go further in this issue, for basic concepts of system theory, like energy and information, should be involved. Suffice it to say that complex systems are usually made up of some physical, hard things like proteins, stones, gears, organs, human beings which occupy space and are therefore "locable" and definable according to their position; but these things change, display variations of state and mutual position, take up certain values as the time passes (although time can be also considered as a function of these variations). These variations are interdependent by definition; and what links together the varying physical elements of the system is an exchange of energy and information, which for our purposes can be considered to occupy no space and be therefore non-physical, non-locable, non-definable with geographical, geometrical, spatial criteria. (6)

So a complex system must be defined spatially not only by the space its physical elements are in, but also analytically by the range of variation, the focal conditions, the values and points within which its elements are allowed to change state and position, its variables can oscillate.

There is little point in arguing about which type of boundary-criteria, spatial or analytical, are more crucial. That depends on the nature of the system submitted to investigation, on the scope of the analysis, etc. But it is important to bear in mind that all complex systems, like the socio-cultural and the political ones have a physical-spatial-geographical dimension as well as an analytical one; their elements are in a certain place, move through places, are in the middle of other things, touch and rub other things because of physical proximity; there is a wealth of spatial relations among the elements of a system, and between the elements, the system as a whole, and its environment. Some systems, like the community and the nation-state, are characterized by a high concentration of their elements in a single geographical space; a region, a territory; but the concentration is never 100%, because some people and things belonging to the system are dispersed in areas occupied by other systems, and conversely in the community and nation-state considered there are persons and things (at least informations) belonging to other systems. So, while communities and nation-states can be defined geometrically, by a line on the map, or geographically, by a fence on the terrain, they must also be defined analytically: setting the "boundary conditions", the values which the elements have to show if they are to be considered as belonging to the system even if physically located outside the spatial boundaries. In the case of socio-cultural systems like communities or nation-states, these criterion-values are states like certain kinds of family connections, physical type, language, cultural traits like religion and ideology, or simple desire. (7)

But if stepping in and out a socio-cultural system were easy and uncontrolled, it would be extremely hard for it to adjust to its continually changing internal composition and match it to the environment. Socio-cultural systems are extremely delicate complex adaptive mechanisms (8) which sprung up in response to the challenge of a hostile environment; one of their first functions was the establishment of a satisfactory relation between demographic density and resources of the territory, which means primarily keeping foreigners' hands off the group's own sources of food. So the distinction between in-group and out-group, kin and enemy was crucial from the beginning; and the boundary-maintaining function of the socio-cultural system grew early and developed ever since in elaborated customs, institutions and rules. Fear of intrusion in the hunting and collecting areas was supplemented by fear of irmission of despised genetic or cultural traits, by hate of alien blood, values, ideas, practices. One of the functions, or consequences, of cultural differentiation of mankind was the growth of boundary-maintaining structures and activities in each human community. This process was accelerated by the discovery of agriculture and the settlement of compact territories, which promotes isolation and enhances whatever "territorial imperatives" may be innate in men; by contrast hunting and gathering communities, mostly nomadic, got along for millennia with little cultural differentiation and little elaboration of socio-political structures, because their way of life requires great expanses of territory, allows a certain overlap of the "home ranges", prevents the building up of a critical density of contacts necessary in tight socio-cultural systems, and prevents the growth

ble patches of land. Many self-sufficient agricultural communities can organize and develop along different cultural trajectories in a small area, just as animal species tend to differentiate rapidly when there is little interbreeding outside a particular habitat (9). This cultural differentiation in turn activates the building of boundary-maintaining structures and functions, of which the political organization of the community is the most conspicuous.

The development of political organization of course is due also to other sociocultural factors: no doubt however the need to set up mechanism to decide who is to be accepted as member of the group, and to resist violent attempts by foreigners to settle in the group's territory is one of the main feedback loops explaining not only the growth of such institutions as governments, armies and police corps, which is rather obvious, but also of institutions like religion, to the extent that it interferes with child-bearing and reproduction.

As it usually happens, structures devised for a very simple purpose like keeping the number of members of the group in a satisfactory relation to the resources available (10) take up a life of their own, and to control the admissions to the in-group becomes more and more remote ~~to~~ its biological basis and more and more concerned with cultural scopes. Rejection of foreigners is grounded no longer on the lack of available food, but on the lack of cultural traits required by the group; we have here a case of symbolic substitution. Something very similar happens to animals, when struggle over a territory becomes a symbol of fight over the food; in non-territorial animals, the foreigner is rejected not because of his intrusion in the territory of the group, but because he is recognized - physiognomically, chemically, or quasi-culturally - as an alien. While the maintaining of territorial boundaries, then, is something we have in common with many animal species and societies, the maintaining of boundaries by a rigid specification of the subjective and objective socio-cultural requirements for admission in the group, is something uniquely human. The need for boundary-maintaining structures and functions, subsystems and processes, based on socio-cultural criteria rather than on spatial ones grows as non-territorial (non-local) institutions grow. A socio-cultural system develops a variety of subsystems, some of which are territorial (local, horizontal) whereas other are non territorial, functional; often the former are all-purpose subsystems, and people belong to the merely by belonging to the place; so the only requirement of admission in the local subsystem is, in this case, the residence (11). There are special-purpose subsystems and people belong to them because of special characteristics, qualities, modes, features, traits, attitudes; these become the requirements of admission to such subsystems. Functional criteria for the maintenance of the boundary of a subsystem are by no means unknown to animal societies: sex, age, strength decide if the individual animal will belong to the group that lead the pack, or to the group that defend it, or to the group that reproduces it, or to the group whose business ~~is~~ to grow and learn how to behave. In complex insect societies the functional specialization of individuals has gone to grotesque lengths (ants, bees, termites) as it has been engrained in the genetic code and maintained chemically (12). In man, whose societies have only recently (5.000 years) begun to surpass the complexity of beehives, there are not (yet?) genetic criteria to recognize whether an individual belongs or should belong to the one or other special group. So, in addition or substitution to the general criteria of age and body constitution, socio-cultural systems have invented criteria like birth, kinship, former experience, trained abilities, ideas, ways of communicating, educational degrees, ownership of certain things, control of certain values. There can be ascriptive or achieved, objective or subjective, voluntary or forced criteria of admission and membership; admission to a certain subsystem, group or institution can be controlled diffusively by the whole system, or by another subsystem concerned, or by a sub-sub-system within it. The rules for admittance can be of several degrees of specificity and formalization (13). They may require many rituals, whose general function is to make sure that the new member shares the values, ideas, patterns of behavior and other cultural traits of the group. The quality of member is often displayed conspicuously, so that non-members will recognise easily the member and act accordingly: dress, props, behavior, language.

In conclusion, while the territorial boundary-criteria are related to the horizontal

...the cultural boundary-criteria are related to the vertical, functional, "organic" modern, human systems (14). All subsystems and groups having a territorial base have some way to maintain the territorial boundaries: so is the family, where the proximity of husband and wife, and of wife and child is essential (at least in the early reproductive years) and which has usually developed, and made the larger society accept, structures protecting its privacy: insulation of rooms, prohibition of unwanted intrusion, right to kill the intruder (15), legal machinery to do the punishing. So is the agricultural unit (and often also other primitive economic units), when there is something like a system of private property of the land: the borders of estates are, in agricultural civilization, of the highest importance; the Romans had a special god protecting them (16), a two special (named) types of lawsuit regarding them (17). So is the local community, even when its powers are largely absorbed by the State or other higher institutions: the importance of this level of sociocultural organization is such that even when its functions are reduced to mere housekeeping tasks (traffic, utilities, building regulation, "beautification", garbage collection) the maintenance of boundaries and their modifications are matter of hot debate and careful handling. So is the nation-state as a territorial political sovereign community, whose monopoly of organized violence makes it possible a relatively total control of its boundaries, at least in time of peace; and a precise definition of the boundaries is necessary to delimit the area in which its lawful violence can be legitimately transported and applied to transgressors (18). Finally, the political international system of the earth has, for the moment being, a frontier rather than a boundary, because its environment is void of counterparts (19).

On the other side, those groups, institutions, systems, organizations that have a functional, specialized base maintain their boundary by way of controlling both the conditions of admittance and the requirements of continuance in the membership: people who are not or do not behave as expected are either not admitted or expelled. These processes of control can give rise to specialized boundary-maintenance subsystems or organs, whose function is to see that the special characterizing features of the system are not lost because of the admission of new disrupting elements in it (while "pattern maintenance" can be defined as the control of disrupting elements emerging within the system)(20). These processes take place not so much as actual movement of persons and things, that is, with expenditure of energy, but mainly by way of symbolic communication and information: the use of space-based verbs like ad-mittance and ex-pulsion, coming to us from a primitive, metaphorical civilization of low systemic order, should not hide the fact that people become or cease to be members of organizations without moving from their armchair. The trend in advanced sociocultural systems is to substitute the flow of communications for the movement of people. A limit to this trend is need for face to face communication, for personal contacts, for real-time feed-back, for simultaneous discussion: which compells to provide places, spaces, rooms in which people belonging to a group can congregate. Another limit is that most human activities involve things, tools, machines or at least places where informations are stored and led, etc. These occupy place and must be put somewhere. Because of these two factors also "vertical" organization usually have to be "horizontalized", decentrated according to spatial patterns (21). So also this kind of organizations have territorial boundary requirements of membership: one belongs to the whole Catholic Church, but for many purposes he must belong to a certain parish. This phenomenon is the opposite to the one already mentioned, that even territorial systems like the nation states have to develop functional, or analytical, or cultural boundary criterion in order to recognise members from non-members, and treat them accordingly: the alternative is the indiscriminate murder or rejection of anybody who trespasses the boundary line and the expectation of the same treatment on the other side of the border. While this is apparently sometimes done in primitive cultures, it has clearly two draw-backs: it implies a continuous and tight watching of the boundary, which is difficult and expensive; and it implies a complete isolation of the community, which is also improbable.

It is not useful to consider the boundary only from the stand-point of its pattern-maintenance function, its defensive and insulating qualities. In this respect the most efficient boundary would be that which insulates the system completely. But the systems

we are particularly concerned with are the several psycho-socio-cultural systems, like individuals, families, groups, settlements, communities, nation states, which are all highly complex adaptive systems, in continuous dynamic relation with their environments; by definition, these are open systems. To them, boundaries are not so much barriers to exchanges with the environment, but much more junctions and node of communication lines, checkpoints at which exchanges occur, passages through which transactions flow, thresholds through which stimuli enter and responses exeunt, filters against which messages are screened, gates (22) through which demands are put in and decisions put out.

So the concept of boundary is ambivalent in this other way: it has two faces, one to the interior of the system and the other to the external environment; it is a shield that repels what is bad to the system and a porthole that sucks in what is good for it; it parts and connects. We have defined at the beginning the boundary as a criterion for dividing what is in from what is out; but this is a highly general abstract and static definition. Concretely and dynamically, in complex adaptive system the boundary is not a line and a point, but a structure with active functions, a subsystem which processes inputs and outputs according to certain rules, in order to attain certain goals: that is, to keep the relations between system and environment at focal condition, in accordance with the general principles of system-theory.

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The purpose of this discussion has been to show that the concept of boundary is co-extensive with that of system; where the latter can be usefully applied also the former can. We have as many types of boundaries as there are types of systems. In abstract, conceptual systems, the boundaries are critical values of the variables; in concrete systems, a topological dimension is added: the boundary is a line dividing things that are in and things that are out; in concrete open systems a dynamic dimension is added: the boundary is a structure, an organ, a subsystem actively processing things that come in and things that go out.

Given this immensely wide range of applicability of the concept, is it possible to build a general theory of boundaries? Is it useful? For the most part, such a theory would overlap with the general theory of systems, and the critiques levelled to this way of thought are relevant. Indeed, general systems theory can be seen essentially as a language (23); to this it can be replied that all science is a refined, controlled, formal language; moreover, it is useful to look at things, with a novel conceptual framework, and to describe and analyze them with a language different from the ordinary one; because everyday discourse is usually loaded with stereotypes, bad habits of thought and distorting metaphors that make many interesting phenomena go unnoticed (24). One of this is, for instance, the universal character of the boundary structures; what makes them similar in all systems is not a "vague and hazy analogizing" (25), but the performance of universal functions, according to universal "laws".

In the framework of general system theory, the study of the boundaries - that is, the singling out of boundary-maintaining processes and structures - could be a fresh way to tackle the basic problem of defining the system itself: if to define the environment is as difficult as to define the system (26), to define the boundary between them could be a useful approach.

But our interest in the boundary is by no means directed towards the development of GST. The foregoing discussion of the concept of border has been couched in that language because general systems theory, if it has no other merit (which we believe it has) at least provides an "orderly way to switch from one level of generality to the other". (27). We are interested, let's spell it, in political boundaries between nation states; but thought it useful to look at them as a particular class of phenomena along a typology of similar phenomena; in order that new insights in their features and workings can be gleaned, by analogy or homology, from the analysis of the higher - or lower - level phenomena of the same kind.

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From the foregoing cursory review of what boundaries are in different kind of systems the following general statements ^{can} be made:

- 1) "all physical systems have both a physical, spatial, geographical, geometrical or territorial boundary and an analytical, functional, conceptual one"
- 2) "the physical, spatial, geometrical, geographical, territorial boundary is a line, a band, a set of points or a region dividing the physical elements that are inside the system from the ones that are outside"
- 3) "the analytical, functional or conceptual boundaries are the values of the variables composing the system which are defined as critical values, or breaking points or limit-conditions of the system; these variables can be related with states of the physical elements, or their mutual position and relation"
- 4) "the importance of a particular type of boundary is the degree to which the flow of inputs and outputs, i.e. the relations of the system with the environment depends (is regulated by) on that type of boundary"
- 5) "the first type of boundary is more important in systems where the crucial variable is the topological relation of the elements of the system"
"the second type of boundary is more important in systems where the crucial variables are the states (qualities, modes, conditions, values) of the elements"
- 6) "closed systems have boundaries of the "all-or-nothing" type: under normal conditions they are impenetrable, rejecting all would-be inputs and sealing in all would-be outputs; under extreme condition, they break up completely destroying the system as defined"
- 7) "open systems have boundaries which in normal conditions process the inputs, rejecting what is obnoxious, and admitting what can be useful; and the outputs, keeping inside what is useful, rejecting what is obnoxious"
- 8) "the functions performed by the boundaries give rise, in complex adaptive systems, to ever greater complexity of boundary-maintaining subsystems" (28)
- 9) "the features of the boundary-maintaining subsystems depend on the type of system, that is to what is considered to form the system, what is considered to form the environment and what is considered to be the relations between them"
- 10) "every system has as many types of boundary-maintaining mechanisms, and as many types of boundaries, as it has types of environments and consequently types of relations with them"
- 11) "every socio-cultural system, being composed both of physical and of socio-cultural elements, can be viewed as having two main types of environments: the physical and the sociocultural one. Activities, like a) economic production and technology, concerned with the processing of physical things and their transformation in goods and resources; or like b) the maintenance of a focal condition in the relations between density and environmental resources can be seen as intended to maintain the boundary between the system and the physical environment. The boundary between a socio-cultural system and the physical environment is called frontier (29), in English usage. Historically, the success of these activities and subsystems has been such that today almost all physical environment has been internalized by socio-cultural systems; there are no frontiers left, save than in the outer space"
- 12) "every sociocultural system keeps itself differentiated from its basic types of environments with a combination of the two basic types of boundaries. There are physical, spatial, geographical boundaries, but there are also analytical, conceptual, functional boundaries between a sociocultural system and its physical environment; just as there are both types of boundaries between such a system and its sociocultural environments"
- 13) "sociocultural systems can be predominantly territorial or predominantly functional, according to whether location in space of the individual members or some personal characteristics thereof are the criteria of membership"
- 14) "no existing sociocultural system is wholly territorial or wholly personal"
- 15) "the trend towards increasing complexity and magnitude of such systems is a trend toward increased fluidity: individual members have less and less need to come into personal contact; interactions are mediated not by movement of members, but by flows of communications, messages, informations. This trend therefore enhances the

devaluates the spatial kind of boundaries" (30)

16) "the nation-state, as the most important existing sociocultural system, is characterized in a very important way by its territorial dimension, because its main feature is the monopoly of legitimate violence; the exercise of violence involves physical means applied to physical things and persons, and all these things are spatial. In the same area there cannot coexist two analytically separate armed organizations; systems using force, violence and weapons must be spatially separated; such coexistence means that the area does not constitute a state, defined as above. This is so because each armed organization is insecure as long as the other organization exists, and must either destroy it or merge with it" (31)

17) "all political systems wielding monopolistic violence are territorial, including those where membership to the system is based on personal, rather than locational, requirements; the distinction merely rules out from membership, and from use of violence, those who do not have those personal requirements, though living in the territory of the state" (32)

18) "the monopoly of force, involving an exclusive sovereignty over a territory and what is contained therein, implies armed control of the boundaries with other states, if the sovereignty and the monopoly are to be retained by the political system"

19) "the loss of monopoly over armed force means a loss of importance of territorial dimension and of the strategic boundaries of the political system. The loss can occur in several ways: a) because the territorial boundaries are no longer impenetrable, due to technological improvements (firearms in late middle ages, which put an end to the political independence of such political systems as were contained within city or manor walls; nuclear weapons and missiles, which put an end to the actual independence of all states, but especially of those not having them (33); b) because the monopoly over armed force is challenged from within, through rebellions and guerrillas stirred up by ideas, men and war material smuggled through the borders (34); c) because of alliances and coalitions, that put a degree of control over the armed forces in the hands of partners" (35)

20) "the devaluation of military and political borders is a function of the decline of their impenetrability to violence; the devaluation of the nation state as the only legitimate user of force is another aspect of the same phenomenon" (36).

PART TWO - A STATEMENT OF INTENTIONS:

What is the use of a general theory of the boundary?

Hitherto our purpose has been to sketch a line of thought such that from the more abstract and general statements on boundaries we could come down to what really interests us, i.e. the political and strategic borders between nation-states. We wanted to put our object-matter in a systemic and systematic perspective, look at it as a phenomenon of a class, in a typology going from the more simple general and abstract to the more complex and concrete and particular. Now it is time to cut across this typology, and single out two types of boundaries: I) boundaries that divide all sorts of socio-cultural systems having a territorial dimension; II) all sorts of boundaries between a particular type of socio-cultural units, the nation-states.

These two focuses of interest seem relevant because though our purpose is to build a general theory of the boundary - as already emphasized - it is not our intention to contribute to the general theory of systems; we merely want to build a tool that can be used in the solution of problems springing from the fact that all over the world we find territorial boundaries. The problems are of several sorts: from wars over bits of land to hindrance to economic development of border regions; from the severance of communications between members of the same family living across the border, to chaotic cultural intermingling; from ethnic tensions to displacement of whole population, from

special patterning of the settlement and of the communication networks near the border to political separatism of border regions; from smuggling to glorifications of the sa cred borders of the motherland; from the tendency toward the dismantlement of border control machinery to the deepening of other kind of divisions between people; from the tightening of the control of the collectivity on the individual, via personal files, identification systems and so on, to the encouragement to horizontal mobility; from the questions over administrative delimitation of planning areas to the decentralization of government departments and the regionalization of international agencies: these are some of the problems that arise out of the territorial character of sociocultural systems, and the ensuing necessity of drawing boundary lines all over the earth.

Can we hope that a body of general concepts, principles and propositions be found, ^{ENOUGH} 1) which have some degrees of logical interrelation sufficient for deserving the name of "theory", 2) which are general ~~enough~~ ^{enough} to be applicable to these wide variety of problems, 3) and which are yet specific enough to be somehow useful in their conceptual solution? X

The building of a "theory of borders" or boundaries is an awesome task. Is it worth the effort? Theories are relatively cheap (37). The real problem is the lack of ready-made relevant data. At this phase of theory-building, we must content ourselves to devise a logical framework, a set of pigeonholes with labels; this will suggest us what kind of data to look for, in order to fill that box. If we can find no data to put in, the particular box (concept, proposition, theorem) can be discarded. This is what heuristic theories are for: to stimulate research in certain directions. A heuristic theory of the border will tentatively offered in part three.

The main criticism against such theory is that it focuses on a mere epiphenomenon, thus missing the real thing which determines the characteristics, features and structure of the border and its problems. If we want to know what a boundary is, how it functions, how it changes, so the argument goes, it is more relevant to look at the structure, functions and dynamics of the nation states; and the same goes for other sociocultural systems in whose boundaries we are interested.

The criticism is partly right, save that it overlooks 1) that an absolute distinction between phenomenon and epiphenomenon is metaphysical; that is not an healthy scientific attitude which discourages research on such grounds; 2) empirical science is concerned also in epiphenomena; 3) the relations between phenomenon and epiphenomena are not one-way: there usually are all sorts of feedback processes between examining the influences of boundaries on the systems bounded. ?

Sure, political boundaries between nations are the result of many factors, like their power, their influence, the wars they waged, their ability of acculturating people, their ability in diplomatic bargaining, the transportation technology, the will of their rulers, etc. But once established, a certain border influence^s the human-geographical character of the border region, the defense system; the communication network, the economy, the culture, the foreign policy of the state. In a word, boundaries are both determinants and resultants of foreign policy of nations. X

Should they be mere consequences, investigation on these problems would be largely irrelevant if the purpose of scientific inquiry is not merely the collection and classification of data but also the advancement of man's control on himself and his creations.

The practical purpose of a scientific theory of the border is twofold: to lessen the economic, cultural, psychological drawbacks of partitions between men; and to shake the war-engendering aura of sacredness of national boundaries; that is, to speed up the process of devaluation of political borders (38). So one purpose is about welfare, the other about peace; both are expression of a desire - nay, a necessity - to rationalize the patterns of cohabitation of the human community.

PART THREE - THE BOUNDARY IN SOME SPECIAL SCIENCES

1) INTERNATIONAL LAW

We have observed at the beginning that a number of sciences are concerned with the concept of boundary. Now it is time to review some contexts in which the concept or the word have been used by some writers. By far the disciplines which have treated boundaries in the most extensive way are international law, geopolitics and human geography. This is because the most conspicuous manifestations of the genus boundary are the ones between sovereign states; and international law is much concerned with the definition of sovereignty, territorial or otherwise. How territories are acquired, how boundaries are drawn, how border disputes are settled is an important part of international law, and the body of publications on such issues is impressive (39). In fact, almost all informations about borders, their structure, their function, their development and their conceptualization in earlier times comes from such literature.

2) GEOPOLITICS

The other discipline concerned with borders is - or was - geopolitics. Some exaggerations of McKinder, Ratzel, Mahan and especially the ideologization of this discipline in the hands of general von Haushofer gave to this discipline a lasting bad name, in spite of recent attempts of rehabilitation (40). The fault of the discipline, of course, is an overstatement of the case for territorial factors as determinants of foreign policy. The shape, quality and geographic features of borders played a prominent part in these theories.

3) GEOGRAPHY

More modestly but more soundly, political and human geography describes border lines and border regions, focusing on the consequences of this phenomenon - or symbol - on the human landscape. From our point of view, one of merits of this approach is the demythization of the uniqueness of political borders: geographers study all sorts of borders between jurisdictions, administrative and political; the boundaries of the nation states are seen merely as the strongest case of a typology (41). They inquiry on the structures, functions and degree of borders, in order to explain their different consequences on the landscape. Another merit is the shattering of the myth of "natural frontier"; which has been occasion of so many troubles throughout history (42). They make clear that the surface of the earth can be divided in infinite manners, according to whichever physical feature is taken as criterion; that nature makes no jumps, and that all variables move more or less evenly from one degree to the other; that therefore the linear conception of border, so dear to our rational civilization, cannot fit the natural landscape, where one can only speak of border zones, bands or regions ("linbar" conception of the border)(43). Even when people and human artifacts are taken in consideration, from a geographical point of view, it is usually impossible to draw a clean and reasonably straight line between one value and the other of the variables considered.

4) LIMOLOGY

With elements drawn from these two disciplines, international law and human geography, Dorion has recently attempted to sketch the outlines of a "LIMOLOGY" i.e. an "étude systématique des frontières". The nature of its case-study, the boundary between Quebec and Newfoundland, almost empty of people and with little history, makes him overlook somewhat the economic, cultural, human factors involved in the drawing of boundary lines; but his terminological precision, his definition of concepts and some fragments of theories makes his study a capital reference point for everybody interested in the building of a theory of the border.

Some achievements of his effort are: the acknowledgement of the need of an independent and autonomous systematic study of the border; the integration in principle of formal, natural and behavioral disciplines; the distinction between the

the notion of natural frontier; the concepts of structure and function of the boundary; of the hierarchy of boundaries; of the linear development of boundaries; the emphasis of the effects of the boundary on the landscape of border regions; the distinction between linear and limbar boundaries; between border lines and border regions; between the regional and the systematic perspective in boundary studies; the outlining of a procedure for the (geographical) study of the border; definition of frontier, border, boundary, their type and degree; the distinction between juridical and political border disputes; the definition of the optimum boundary; the distinction between delimitation and demarcation of boundaries, and a model of the decision making process leading to them; the relationship between degree and function of the frontier, as a function of the differences between the bounded jurisdictions; and an extensive bibliography.

5) INTERNATIONAL RELATIONS

The discipline of international relations, concerned specially with the human, political, psychological, social factors in the relation between nations, has hitherto paid little systematic attention to the border problems. This is probably to be explained by the genetic history of the discipline, related to history, philosophy and political doctrine rather than with the behavioral sciences; and thus more sensitive to questions of "will to power" "honor" "prestige", to the working of decision-making processes and the impact of decision makers; in this perspective, the importance of factors like the features of the borders are played down and considered a mere input, a raw material, a part of the environment of the political system. The two recent revolutions in the study of international relations, the systemic and the behavioral, had yet little time to tackle the particular problems of borders in their own perspective. So far the border of states has been treated simply as a neutral "thing" through which relations between states occur; there have been no attempts to analyse the type of borders according to the type of states, of transactions, of communications media and to assess the different impact on the transactions by these varying conditions; that is, the boundary has not been examined as a determinant of international relations (44). Except, some times, in a cursory manner as a token of international disputes. We think that the border is more than a neutral object, and more than an occasional bone of contention; the theory of the border assumes that international relations as a whole are shaped, among other things, also by factors related to the structure, function and other characteristics of the boundaries.

6) STRATEGIC STUDIES

A discipline related to international relations comes nearer to analyse in depth the concept of border, boundary and frontier: strategic studies, from Clausewitz to Beaufre to Schelling, have noticed how the type of border is an important factor in the setting up of strategies: different kind of frontiers require different planning; for instance, a populous and rich border region requires to be defended by a "forward defense", while in sparsely populated and agricultural lands, like Russia, the best defense is the retreat into the heartland. Border regions, like Germany in respect to the Nato alliance, strongly request forward defense, and strategy like that of "massive retaliation"; while heartland regions favor "flexible response" (45). This basic divergence between the subsystems of a military organization is an example of how important considerations related to border positions are important to strategy.

7) PEACE RESEARCH

That other offspring of international relations, Peace Research, has apparently failed so far to appreciate the potential importance of this vein of research. Of course, the main roots of war are to be looked for elsewhere: in the minds of men, in the structure of modern societies, in the structure of the international system; but in all these fields border consideration play their role: borders hinder the intercourse among men, facilitate the sclerotization of stereotypes, build up misunderstandings and distastes that can grow into suspicions and hate and make war possible; borders, to the extent that they divide...

along dangerous and evil trajectories; finally, the types of borders shape to some extent the type of international systems. An investigation in these directions discloses interesting perspectives for peace research.

8) SOCIOLOGY

Another discipline which has shown some interest for borders between nations is sociology; and as borders between nations divide cultures and ethnic groups, also cultural anthropology and ethnology (46). Surace has noted how ethnic minorities resist assimilation when placed close to the border of their national state; the same has been found by Form and d'Antonio in their study on the Border City (47).

But sociology in its more extensive meaning, as a discipline sensitive to the system approach, has long adopted the boundary concept in a more general manner. Talcott Parsons places the "boundary maintenance" among the basic functions of the structure; what is meant by boundary depends of course on the nature of the system considered: a socio-cultural system will have a mainly sociocultural boundary to maintain, i.e., crucial difference with the socio-cultural environment; but to the extent that the system has a spatial dimension, it will also have a territorial boundary (48). Parsons also gave a masterly and classical expression to the "articulation" between the system considered by the sociologist and its physical environments: that is, he sets the criteria for drawing the analytical boundary of the system: the physical borders are not simple reflections of physical factors and needs that influence behavior, but are points of articulation between the physical requirements and the non-physical aspects of the social system. The socio-cultural meaning of a physical boundary is never definable as such in geographic terms. Parsons also introduced the concept-elements of which he undoubtedly drew from Weber - that territoriality is an inherent feature of any political entity which uses force and violence, like the state, because of the spatial dimension of the means of violence and because of their distance-bound applicability (49).

Along this line of thought several social scientists speculated on the function of strategic boundaries; Herz treated in an historical fashion what Boulding analyses formally: strategic, or military, boundaries ^{are} those which are impenetrable to violence from without. The increased range of armaments has brought about historically a corresponding expansion in the size of "viable" political units. Collective security and the military blocs were a logical response to the increased range of weapons, especially the airplane. Medium sized national states were as obsolete, from a military point of view, as castles and walled cities in the era of cannons. Nowadays, the global range of missiles and the terrific power of warheads have made it possible the delivery of unlimited violence over an unlimited range; from this point of view, then, there can be ^{no} real military borders on the planet; the normal number of legitimate states is one (50). This unprecedented situation helps explain many things, like the cold war, the diffuse feeling of insecurity, the obsolescence of open war between nuclear powers, the spread of other types of international intercourse, like armaments race, economic competition, psychological, revolutionary and guerrilla warfare, and so on.

Reflections on the difference among the several types of boundaries, "legal" and "critical", "natural" and artificial, cultural and economic, and so on, introduce the second approach to the problem of boundaries. Attention is here focused not on the generic characteristics, structure functions and consequences and evolution of legal recognized borders of nation states, but rather on the several types of borders which are empirically founded. Apart from the formal sciences like mathematics, topology and geometry, there are two branches of scientific inquiry which are new, important and fashionable and which display some interest for the concept and problems of boundaries and which deserve some deeper discussions. One is ethology; the other is ekistics.

9) ETHOLOGY

The study of animal behavior has shown that animals have a patterned relationship with their territory. Some are wholly unconcerned with territorial "ownership"; other have vague and widely overlapping "home ranges" around a central site; still others, living in communities, hold communal territories; and some, notably birds, maintain an impenetrable personal territory (51). Territorial behavior can be exceptional, occasional, seasonal, or constant, even in the same species; among the different species

it varies greatly. In face of this variability, dozens of functions have been attributed the animal territoriality: Maintenance of a proper ratio between density and resources, diffusion of the species, selection of the fittest, regulation of sexual competition, protection of nest and offsprings, imposition of monogamy, control of epidemics, etc. (53). Ardrey has reduced them all to the three principles of security, activity, identity. The territory provides a living area whence the animal draws food and which is so well known as to facilitate both hunting of victims and flight from predators; this is security. The constant relationship with a certain territory, its physical features, its rocks and trees, its water holes and climate provides a sense of belonging; the self is mirrored in these things. It is the uniqueness of one's territory that provides the sense of identity. Finally, what interests us most, the holding of a territory results in extensive activity for the maintenance of the boundaries: every day the bird must sing, and the monkey howl, to make everybody know who is the sovereign; and keeping intruders off provides an unending occasion for fights and especially debates (53). This territory, and more specifically boundary maintaining, is the source of stimulation, exercise, activity; the two focal points of territory are its center, heartland, or nesting site, where the animal reproduces and rests, and the periphery, where the animal develops those social skills so important for the successful evolution of the species.

In this way, it seems that also for animals, competition between individuals and groups is a basic feature of sociality; and some stretch the point into saying that even for animals war (territorial competition) promotes progress (evolution), because the elaboration of social structures is undoubtedly an adaptive mechanism (54).

What is the relevance of these ideas to social scientists interested in boundaries between men? First, the question must be raised whether man is a territorial animal; which implies to admit that man has "drives" (another less emotionally loaded name for instincts) (55) different from the suckling, grasping, sneezing and sexual ones. Our closest relatives, the apes, show a certain variability: chimps, orangutangs and gorillas display very feeble territoriality; gibbons, on the other side, hold definite communal territories (56). Anyway, several million years have elapsed since the hominid branch parted from the primate common ancestors; so there can be no homology, only analogy, between modern primates and modern man's patterns of behavior (57). What is more important is that man has been for tens and hundreds thousands years a predominantly cultural animal, evolving and adapting via cultural means instead of the genetic ones like other animals. There can be no man without culture, and every culture is unique, arbitrary and conventional. It is not possible to observe man's pre-cultural behavior (see the case of the ferine children). It is therefore impossible to ^{prove} ~~say~~ whether man, taken "in nature" is territorial or not. from

So we are left with speculations. It can be admitted that man has a predisposition to grow an attachment to the place where he satisfies his needs, where he feels warm, replete, relaxed and secure from intrusions and cozy. It usually grows attached to his "home" where these needs are satisfied. It can also be admitted that man likes to socialize, to belong to a group, to be with friends: so he usually grows an attachment to the place where the group lives.

Can these predispositions be extended to the "fatherland" or "motherland"? We believe it can, but with several qualifications.

1) A nation-state constitutes the "place where the group lives" only for those individuals which have a very wide perspective, people whose mental horizon encompasses the whole country and the neighbouring ones: that is, people that travel, read, look at maps or are otherwise aware of the existence of a "group" strong in the millions and a "place" stretching for thousands of miles. That is to say, only the mobile and cultivated elite can grow, initially, a sense of territoriality extended to great regions.

2) The mechanisms through which this extended sense of territoriality, conceived in the upper echelons, is (in certain circumstances) spread to the masses are a factor of distortion. Preindustrial, pre-urban, pre-literate populations have little sense of "national" membership. Nationalism is taught in the schools, by the parties, by the churches, by the military service; and is usually inculcated in a highly emotional, irrational, ideological fashion, through primary symbols: the nation is seen as the mother, the territory as her beloved body; the borders as her most sacred skin. It is through such symbols that the masses are drawn to feel the

they otherwise cannot know, see, touch and enjoy, because they are bound, by poverty and ignorance, to their acre and to their bench. The sense of territoriality displayed by the masses in the regards of the whole nation, where present, is often highly cultural, artificial and "spurious": that is, it does not spring up through the normal mechanisms that account for territoriality in the animals and nationalism in the élites.

3) This mechanism does not work only at the "national" level: as the dwellers of city states and villages had some difficulty and resistance in adapting to the wider dimension advocated by the enlightened élite who strove for national unity, so the mass of dwellers of nation states, inasmuch they have no perception of the international system they are already engrained in, show a considerable difficulty in accepting international integration, envisioned by the cultural and economic air-borne élite (58).

4) Only by way of analogy it can be said that borders of nation states have, among others, the function of providing exercise. This was the case of Louis XIV, who, being the state, used to start a war to round off the borders of France whenever he began to feel bored in Versailles (59); another mechanism, which accounted for wars was the "exportation of internal troubles", which seem to point to the opposite; unless one says that as border disputes keep the individual animal fit and the group together (60) the launching of aggressive foreign policy keeps the political unity in tight shape (61).

5) The pre-industrial mechanism to secure the loyalty of the masses to the political unity is not identification with the fatherland (territoriality) but personal fealty to a man (symbolic father) whose right to rule is sanctioned by the deity (or who is a se-migod himself). Nationalism only developed as industrial urban society dispelled the religious charm and brought about mass literacy (62).

6) In conclusion, most macroscopic expressions of territoriality in man are cultural determined by political and social circumstances which appeared only a very short time ago and which are liable of intentional modification.

The discussion of the relevance for the student of border phenomena of the findings of ethology has gone to some length because of the relative novelty of the subject and the immense interest it has excited among social scientists; not to speak of its popularity with the general public. There is a widespread feeling that it enjoys a strong explanatory power in face of such phenomena as the continued paramount importance of the national, territorial state, in spite of the end of the era of impenetrability; just to make one instance relevant to our subject. But ethology and the new biology has many more things to say on aggression, stratification, social structure, family structure, etc. (63).

10) EKISTICS

The other discipline concerned with territory and boundaries is planning-town-and-country, physical, comprehensive planning. Indeed, this can be hardly called a discipline. It is rather a strategy to apply scientific knowledge drawn from all natural and social sciences to the rationalization of the human settlement; in other words, to the ordering of the spatial aspects of society - Raumordnung, as the Germans put it.

Human settlement can be conceptualized as a system made up of several human (individuals, groups) and non-human (buildings, networks, energy, nature) elements (64). The whole earth, to the extent that there are connections between all its parts, is one settlement, one ekistic system: an ecumene growing into an ecumenopolis. This huge system is made up of billions of lesser sub-systems, from the continental regions, to the national systems, from the internal regions, to the city regions or metropolitan areas, from the towns and neighbourhoods to the individual homes and rooms. What links all these systems together are networks through which energy, informations, people and goods flow.

Until recently the planet could not be reckoned as a single system. There were at least three centers of civilizations in classical times - the mediterranean, the asian and the central american, plus many thousands of lesser tribal or semi-tribal isolated systems. Also in the agricultural civilizations the single villages could be considered largely autonomous and isolated - their contacts with the larger society being quite scanty.

In the industrial and technological civilization the growth of mass media of communication and transportation has linked all settlements via roads, media and distribution

networks. The older transportation network, the rivers, gave rise to riverine civilizations and the early empires; some of these spread out from their centers a spiderweb of land roads which were the first artificial networks.

The second major technological innovation was the railroad, which spread from the industrial centers; it rapidly linked all urban centers of the single nations, and later international lines linked the national systems. This was not achieved without suspicion and difficulties: strategic considerations often supervised the lying down of railroads in border regions; and up to now the periphery countries of Europe, Spain and Russia, stress their marginality with a different track width, which makes much easier the control of the rail traffic across the border.

Then came the electric communication networks (telegraph, telephone) and the networks for the distribution of gas and electrical power. But it was only in the last decades that the car made rapid private transportation possible and a radical growth of the land road network necessary.

The construction of these networks (as well as the traditional ones, like water works and sewers) requires a massive concentration of investments of the resources of the community in artifacts that will take decades to amortize, and which will last for a long time: that is, decisions must be taken in the present which will affect heavily the future; the variables to be taken in the consideration to reach rational decisions are extremely numerous and uncertain, the decisional centers are many and scarcely coordinated, the needs and demands of an urbanizing population complex and contradictory.

One way to attack the problem is functional specialization: a centralized agency, in every political unit, takes care of a particular need, function or type of activity: one for the roads, another for water-works, a third for power, etc. Another way is regionalization: the territory is broken up in manageable, comprehensible, analysable administrative and planning units, or regions; within them a single decision making body takes care of all needs and functions.

Here we come to border problems: regionalization means the definition of territorial subsystems within the system; this is a special case of the principle of progressive systematization of systems (65). The setting up, by the large system, of regional self-governing subsystems means an increase in the degree of automatization of the system, because many problems are solved, and many decisions are taken, without disturbing the centre of the system; that is, without making it spend energy and without normally making him really aware of what is going on; which is the principle of automation. Automation is a general principle and a general trend of complex systems (66); and regionalization is a special case thereof. It implies an ever increasing complexity of subsystems, in order that the system as a whole can be simplified. Subsystems are provided with an increasing number of structures and functions, they evolve and differentiate: so they develop the need of boundary maintenance, and in the case of regions a need of steady borders. If decision are to be made that affect a region, decision makers must know what is precisely the area that is going to be affected by it. If a town council plans a rapid transit network, it must know what areas are to be served, who will be the customers and what commercial activities will be favoured, in order to plan the redemption of the plant, by tickets and taxes. If a province plans an industrial park, it must know what area is going to be affected, where the workers will come from, where will the new incomes be spent; so that the investment will result in economic gain to the taxpayers of the administrative body who made it. This is the problem of internalization of the profits and the externalization of the losses (67); and it is basically a problem of rational and cunning drawing of the boundary-lines of territorial administrative, economic and political units (68).

The main problem met in drawing boundary lines are four:

- 1) Networks do not overlap. An ekistic system is composed of several networks, each of which coincides only roughly with the others. So a boundary line inscribing one network will leave out parts of others, and will include parts of networks belonging to other systems. ~~So~~ every ekistic system is defined by a stripe, a band, into which fall more or less the boundaries of the main networks. Ekistic systems can very seldom be defined by a single boundary line.

- 2) All ekistic systems are interconnected by some network; that is, there is always some network which stretches from one system to another; in still other words, the bound

daries of the system are always cut across by some type of networks and flows. Radio waves are the most pervasive of all; then come paths, roads and other land-bound means of transportation. Water and air transportation networks, due to their "discrete" characteristics (they hop from port to port) pose special problems.

The interconnection of networks means that they must be artificially, analitically cut at some "breaking point". The customary criterion do decide what are to be conside red as "divides", where to put the sign that says that a network belonging to a system ends and a network belonging to another system begins, is the criterion of minimum flow: where the traffic dies out, or changes direction (punto morto). This usually varies very widely, depending on the type of network.

3) The same network can service different areas at different moment of time, according to daily, weekly, seasonal, ciclical pulsation; in consequence, the borders of that par ticular ekistic region also pulsate (instability of the system, nobility of the borders).

4) Different networks have highly different importance for the people settled in the region. Some networks serve basic physical needs; other convey cultural information, mes sages, symbols. People have varying emotional attitudes to the ekistic system they live in, and to the single elements thereof. This means, in other words, that there are i) ob jective ekistic systems, objective regions, which can be defined by such things as road and railroad networks, commuting areas, economically integrated areas, geographical are as, type of dwelling and of settlements, etc.; and there are ii) subjective ekistic sys tems and regions, which are in the minds of the individuals who live in them. These sub jective regions are defined a) by the experience a person has of the region, in conse quence of his personal horizontal mobility; the possibility to sense the region directly; b) the places where the group to which he belongs live; that is, the area where his com munity (69) is settled; c) whatever images or pictures are in his head about what his region is, or what it should be according to some criteria of value. As each individual has a different experience, a different set of communities and different images, the sub jective ekistic system or region is something like the statistical resultant of all the subjective regions of the single individuals.

A third, intermediate sort of region is the resultant of the interplay of the former two: this is the ecological region iii) where the human, voluntary, subjective factors are combined with the objective, ekistic ones. This obviously means a further step in the process of blurring the boundaries of the regional system.

Finally there are iv) the administrative and political regions, whose borders ^{are} arbi trarily drawn, by some decisional process involving or not involving consideration of the objective and subjective factors, through the maze of the infinite boundaries of the regional system, for some practical purpose of defining areas of defense, jurisdiction, intervention, tax-collecting, fund-investment and so on.

Another basic problem for planners is the trend toward centralization, which leaves empty areas around the borders of the region concerned. Because of such phenomena as the economies of concentration and agglutination, the friction of space, the costs of trans portation, the easement of communications, settlements usually show a trend to grow in the middle at the expenses of the periphery. Networks tend to be developed in a radial pattern, with nodes that control the flows and radii that dye off gradually in the hin terland. People tend to settle more densely towards the control centers than in the ill-served periphery. So border regions tend to be less densely populated and less prosperous than the core, the node, the heartland of the country.

An exception to this occurs where neighbouring regions have some "difference of poten tials" between them, like a difference in prices, in patterns of behavior or in culture, that make certain feature of each region interesting to the other: so that a flow of traffic is established because of these differences(70). In this case border zones are more favored, in some respect, than the other zones; but if the boundary is a relatively closed one, open only at particular points of passage, the advantage is restricted to these points, which become more densely settled than the rest of the border zone, and become "border towns". These can be classified as specialized, one-industry towns becau se their fortune and development are linked with the difference of potential between the areas and the permeability of the border at that particular point.

by writers in town planning such as Kevin Lynch and Jane Jacobs (71); and they have also observed that the only way to redeem them is to transform them from barriers to junctions. At the regional level Egerstrand has worked on the "barrier effect" which certain geographical features comport on the diffusion of innovation, thus affecting the economic development (72); the whole theory of central place implies that people, buildings and activities concentrate in the middle of the area and leave the periphery empty (73).

This natural trend is based on objective laws of all systems and all process, like that of the least effort, the minimization of costs and the centralization of control; but it leaves the settlers of the borders rather unhappy, because it implies the underdevelopment of the periphery in relation to the growth of the center, and the activating of the spiral of depression. So border people either just complain or migrate or ask special provisions to offset their locational handicaps or favour a policy of open border and increased traffic with the neighbour country or show centrifugal tendencies specially if they see that the sister regions on the other side of the border is better treated by their governments, and have no strong cultural dislikes. The loyalty of border regions is often shaky.

Another situation related to the border is the "frontier". We have already defined it as the kind of border of the sociocultural system which is not confronted by a similar system, but is open to unsettled land (Stinchcombe). Drawing on the American experience, regional scientists and planners like Alonzo and Friedmann (74) call frontier the areas where rapid and intensive settlement is determined by the exploitation of special local resources, and look like enclaves (or exclaves) at great distance from the metropolitan areas. If for local resource we mean the ease of transactions with a neighbouring country, we fall in a preceeding case and the concept of border city and of frontier overlap.

Usually though to be a border city is no great resource. Characteristically, when Margaret Mead makes a parable of two communities, she calls the prosperous and happy one Central City, and the miserable one Border City (75). In the U.S., the Border States are proverbially poverty-stricken. There was a province, between the Augsburg and the Ottoman empires, which was called Military Borderland: it was a wasteland. The practice to waste the border regions with fire and wilderness was widespread among African kingdoms. For some times, the borders between the Celestial Empire of China and the kingdom of Corea was marked by a stripe of more than a hundred kilometres in which it was forbidden, under death sentence, to settle, build, till, plant or cut (76). These are extreme, intentional cases, where the wilderness of frontier zones had a function; but the fact is all too common even now, because it results from general principles of the distribution of settlements and activities in the space.

Again we must emphasize that these kind of processes are present at whatever scale we consider the ekistic systems; but whereas at the subnational levels they used to generate dissatisfaction, unrest, hostility, political opposition - as when the expenditures of the city council favour those located at the center of the municipal area, leaving the suburbs badly serviced; at the national level they can be occasion of international conflict, when a border region becomes disloyal, and seeks independence or annexation to another country. Nowadays economic marginality has become so important a factor of popular concern and the recourse to urban violence so ordinary a means of political struggle that a marginal city like Reggio Calabria has kept for months on the barricades in order to draw industries and economic aid.

If Peace Research is concerned also with the causes of internal violence as well as of external war, then the urban revolutions sparked off by relative deprivation due to a marginal spatial location are also a matter of interest for it.

We have so far assembled a number of concepts, facts and theories focused on the spatial boundaries and border regions. From ethology we have drawn insights into the nature of man's relationship to territory and the biological function of peripheries; from ekistics and other planning disciplines, like economic geography and regional science, we have understood something about the processes which give border regions peculiar economic and ekistic features.

The two approaches are not un-related: a bridge is provided by the fact that usually central governments favour the natural tendency to the desertification of border regions.

for military reasons: border regions are perspective battlefields, and it is less costly to wage wars in the wilderness—one spares the destruction of settlements, the suspension of economic activities, the seizure of resources and depots. War-oriented politics encourage centralization of economies and populations. Another motive could be that the prosperous border regions excite territorial appetites of the neighbour state. Now if war is really for human societies what territorial fights are for animals, the underdevelopment of border areas is the fac simile of the path of trodden hearth on the periphery of the territory patrolled by some mammal.

Now all this is slightly outdated, since war over territorial bones has been made obsolete between major powers, for a number of reasons, and is only possible in more primitive international subsystems; although, even here it is not frequent (77). But if borders are no longer cause of war, they do have influence on the features of the general international system (78). Moreover, marginal situations are causes of internal unrest, as we have shown. Border problems do have relevance, therefore, to Peace Research.

Before closing this section of review of the scientific literature concerned with boundaries it seems interesting to note some other, lesser but very interesting contribution. As they deal with the symbolic meaning of boundaries, we will comprise them both under the name of Culturology.

11) CULTUROLOGY

Edward T. Hall (79) has observed the cultural meaning of space relations. Just as they have territories, animals also have personal distances; this can be called a very peculiar kind of territory (or viceversa). Proxemics is the science that investigates the meaning of proximity; in man it has been elaborated culturally in different ways. It is as if in each culture every individual were circumscribed by a series of bubbles, each of which corresponds to some type of "distances". Trespassing of these imaginary boundaries is loaded with cultural meanings - it is a silent message. Space relations are a silent language, a hitherto hidden dimension of culture. One of the most important and characteristic "bubbles" among animals is the one that defines the "critical" distance: the isoline that releases the mechanisms of flight or fight, retreat or attack against the intruder.

This relates to some observations over the symbolic meaning of all sorts of borders, boundary and thresholds. One has been called the "California principle" by Thomas Schelling (80). It goes something like this: if we do not stop the Communists in Viet Nam, why should we stop them in the Philippines, in the Hawaii, in the shores of California itself? Boundaries provide a conventional marking point whose trespassing is the signal that the unit involved is willing to go to open war. This symbolic meaning is not unique to land boundaries. In this perspective, land boundaries are but one category of thresholds (81). In competitions between nation states, there are silent bargaining processes, in the course of which each contentent makes proposals and counter proposals through ostensive actions rather than detailed verbal communications. The proposals have to be simple; they must form a recognizable pattern; they must rely on conspicuous landmarks; and they must appeal to whatever distinction are known to appeal at both sides. National boundaries and rivers, shorelines, the battle line itself, even parallels of latitude, the distinction between air and ground, all have these obvious qualities of simplicity, recognizability and conspicuousness" (82). Elsewhere Schelling has some other interesting observations on the spontaneous genesis of "thresholds": "they are conventional stopping places and dividing lines. They have a legalistic quality, and they depend on precedents and analogy. They have some quality that makes them recognizable, and they are somewhat arbitrary. These characteristics are not unique to warfare and diplomatic relations. They show up in business competition, racial negotiations, gangwarfare, child discipline, and all kind of negotiated competition. Apparently any type of restrained conflict needs a distinctive restraint that can be recognized by both sides, conspicuous stopping places, conventions and precedents to indicate what is within bounds and what is of bounds" (83).

These are not just brilliant intellectual speculations looking upon

is an equivalent to a formal declaration of war (84); why nations feel obliged to keep a military defence machinery on the border line, even if it is well known that the border region is strategically and tactically quite indefensible and that the real war, the real all-out clash of arms will occur in the interior of the attacked country; why a few shells are always fired on the intruding army, before the strategic retreat to the defensible heartland; why the Allies keep in Berlin a few thousand soldiers, who are obviously inadequate actually to defend the city: "what else then can they do? bluntly, they can die. They are a token of the American commitment, a token of the power, the prestige and the honor of the entire American armed forces" (85).

The same mechanism underlines most national frontiers, except those which coincide with battle fronts. It is so because the borders are a "tripwire", fire signals that spark off a state of war. In this aspect they are by no means unique: rather they belong to a whole class of symbolic thresholds, of the most different nature, but performing the same function.

We have hitherto employed a variety of conceptual frameworks in which the terms and concepts of border, boundaries and frontier had some relevance. From each of them we have drawn some insight in the nature, structure, function and evolution of this phenomenon. We have examined discipline after discipline, in a rather cursory and disorderly manner, with little attempt to bridge the different theoretical fields, to carry on the results of one investigation into the other and to link the different insights in a systematic, coherent, orderly whole.

This we will now attempt, sketching the outlines of an integrated and general "theory of the border".

It is understood that such theory is still at its more primitively heuristic stages, because the amount of data and facts on actual border situation we have is absolutely negligible. But such systematization, hopefully, show us what, how, where to look for facts (86).

PART FOUR - SOME BUILDING BLOCKS OF A THEORY OF THE BORDERS

A - Some definitions: boundary, border, frontier; theory.

1) The concept of boundary belongs to the general system theory. It relates to what divides what is in from what is out of the system concerned. It has a linear, one-dimensional quality.

The term border is applied to boundaries that have a spatial quality; it refers to physical, topological, geometrical, geographical, territorial boundaries. It also has a zonal, strip-like, band-like or "limbar" quality: it implies usually the connotation of a surface.

The term frontier has two main meanings: one refers to the boundaries of socio-cultural systems which confront a system of different kind or level (physical, primitive); which confront a socio-cultural void. The other points out the military quality of borders: frontier is a border where the military structures of two systems confront each other (87).

2) There can be a (i) general theory of boundaries, as a section of the general theory of systems. It refers to all phenomena relating to all types of boundaries. There can be a (ii) general theory of borders, which focuses on the borders between all kinds of spatial, and especially of geographical, territorial systems.

If the collection of facts encompassed by the theory of the border is restricted to facts of the human realm, studied by all behavioral sciences, we have a (iii) sociological theory of the borders or border-sociology; where by sociological we mean "human". A more restricted usage of the term sociological would indicate that the sociological theory of the border is concerned only with those border phenomena related to strictly sociological determinants and consequences.

Finally we can have a (iv) sociology of the border if we limit the study to the mere sociological consequences of the border: the way that a fact, the border, affects socio

logical elements like families, groups, socialization, opinions, roles, institutions, attitudes, values, norms, patterns of behavior, etc.

B - Boundaries and systems

3) A general theory of boundaries, like all General Systems Theory, would have a mainly heuristic scope.

The purpose of a general theory of the borders is the explanation of border phenomena, the understanding of border problems and the suggestion of solutions.

4) There is no sharp distinction either between the two kinds of general theories or between the two kinds of scope. All systems, save the purely conceptual (and the metaphysical?) (88) ones have a physical dimension: they are placed in space, and therefore have spatial borders as well as analytical boundaries. Socio-cultural and ekistic systems, with which we are concerned, have both a spatial dimension and an analytical one; so they have both territorial and analytical boundaries.

5) Boundaries can be of two sorts. A) There are physical, spatial, topological, geometrical, geographical, territorial boundaries: they are a line, set of points or stripes that separate those physical elements which are topologically inside the system from those that are out.

B) The analytical, functional or conceptual boundaries are the values of the variables composing the system which are defined as critical values, breaking points or limit-conditions of the system: they refer not to the physical position of the elements of the system, but to their state, modes, qualities and mutual relations.

6) Socio-cultural systems have both kind of boundaries. An element belongs to a system because it is located in a certain place and/or because it has certain characteristics. Inasmuch an ekistic system is composed also of a socio-cultural system, it has both kinds of boundaries.

7) A system is said to exist if it is distinguishable from the environment; that is, if a boundary can be drawn between elements and variables belonging to the system and those belonging to the environment. Hence, the maintaining^{or} the distinction of the difference, of the boundary is a prerequisite of the system and a primary function of its structure. Systems that elaborate boundary-maintaining structures evolve; the others are destroyed. Boundary-maintenance is a structure-elaborating process. Complex systems like the socio-cultural ones, have complex, socio-cultural boundary-maintaining structures and functions, sub-systems and processes.

8) Complex systems are made of many functional-conceptual-analytical-"vertical" subsystems as well as of many spatial "horizontal" subsystems. The two kinds of subsystems are interwoven.

9) Socio-cultural - ekistic systems are made up of both vertical and horizontal subsystems. The former can be called simply subsystems; the second can be called "regions" or "zones" of the "territory" of the system.

10) Vertical subsystems, inasmuch as they are composed also of physical elements, like human being, tools, objects, etc., have both analytical and spatial boundaries. By the same token, horizontal systems, being composed also of analytical variables, have both spatial and analytical boundaries. For instance, the economic activity, the governmental organization and so on are also articulated in spatial terms; there are regional subsystems of the whole economic sector of a system; just as the regions of a territory comprise sections of vertical subsystems.

C - Environments and inputs

11) Complex systems, like the socio-cultural-ekistic ones are held together by flows of things, of persons, of energy and of informations. Being open complex and adaptive, these systems are in continuous dynamic relationship with the environment; they are a response to evolutionary environmental pressures. These pressures are inputs into the systems. But open complex adaptive systems are living systems: as such they do not react blindly, but can select the inputs, allowing some in, looking for others, rejecting still others. This basic life processes of selection occur through the boundaries of the system. In other words, the function of the boundary is to filter the exchanges (of

This holds true for every level of living open complex adaptive systems, like the socio-cultural ones, and for every level of subsystems.

12) The function of boundary maintaining structures is to filter the exchanges in ways beneficial to the system.

13) The more highly evolved a system is, the more elaborated and efficient are its boundary-maintaining structures. One characteristic is a prerequisite of the other.

D - Some types of boundaries and of boundary-maintaining structures

14- The boundaries of the closed systems are of the "all or nothing" type: under normal conditions the boundaries are impenetrable, rejecting all would-be inputs and sealing in all would-be outputs; under extreme conditions they break down completely, destroying the system. Higher level systems are much more powerful in that they can select the inputs (89); the more evolved socio-cultural systems can exercise an extremely fine-grained control on what comes in and what goes out of the system.

15) Filtering, selection and control are performed in ways which are a function of a) the type of system, b) the type of environment, c) the type of exchange or input.

16) Every socio-cultural system being composed of many types of vertical subsystems it has many types of boundaries. Some boundaries are more important than others, according to the degree to which the flow of exchanges, that is the relation of the system to the environment, depends on (is regulated by) them.

17) In highly evolved sociocultural systems, the viability of the system (existence, development) depends on all types of exchange; - flows of things, persons, energy and information. So all of them must be controlled, but the development of the communication structure tends to lessen the importance of the movement of persons. So the structures controlling, filtering and selecting the movement of persons through the boundaries tend to be replaced by information structures controlling their states wherever the persons might be.

18) Vertical (functional, analytical, conceptual) systems, like organizations, institutions, sectors of activity, etc. rely much more on the efficiency of informational structures controlling the states than of spatial, physical structures controlling the movements. Admittance or expulsion in such systems usually depend in a more important fashion on qualities, modes, states of the individuals rather than on their physical location. So the analytical, conceptual boundaries of such systems are more important than the spatial ones; the boundary maintaining structures of such systems are information-processing structures.

19) On the other hand, the spatial aspect of horizontal systems, like regions, communities and nation states, is crucial, because admittance and membership depends on the location of their members; so their boundary-maintaining structures control and filter the physical movements of things, persons, energy and information on the territory.

20) Socio-cultural-ekistic systems, being complex systems with both vertical and horizontal subsystems, dealing with a wide variety of different environments, and a corresponding wide variety of inputs (exchanges, flows, etc.) must have a highly organized boundary maintenance subsystem, able to control, in the appropriate way, such inputs as: immigration of people, importation of things; importation of energy (most important is the control over the importation of military violence); intrusion of information, through media such as persons themselves, written words, symbols, signs, radio waves, etc. The more the operation of the system depends on information, communication, symbolism and ideas, the more crucial is the control over this sort of inputs (90).

21) Each socio-cultural system has many types of environments from which these inputs come. One is the physical, natural environment. This is confronted by the economic-technological subsystems of societies; historically it has been mastered to a very far extent, and the inputs from it are fairly well controlled, at least by advanced industrial societies (91).

The other is the socio-cultural environment, over which each socio-cultural system, and man in abstract, has very little control. To each system, the socio-cultural environment is, for historical-evolutionary reasons, a given.

maintain the boundaries in face of the socio-cultural environment, whose most important elements are other socio-cultural systems.

22) To a socio-cultural-ekistic system the most important boundaries are those that keep it different from adjacent such systems.

E - Political boundaries

23) The most important socio-cultural-ekistic systems are the political units, because they enjoy sovereignty over a territory: that is, they have a monopoly of the legitimate use of force. So the most important boundaries are those between political units. Nation-states are political units formally recognized by others as their peer; but every organization enjoying a monopoly of force over a territory is a political unit. An area cannot be considered to constitute a political unit as long as there is no monopoly of force over it. Armed organizations have most pronounced monopolistic tendencies.

24) The boundaries of a political unit are of several types, according to the type of input they control: some, like citizenship, bind to the state its members even when they are abroad; others, like physical boundary-lines, set the limits of sovereignty, i.e. the legitimate use of physical violence; others, like customs and immigration facilities, control the input of persons and goods, wherever it is more convenient—just on the borderline, on road border crossing, in internal customs areas, between railroad stations across the borders; post and letters are controlled through censorship offices somewhere in the country, telephone and telegraph communications at special switchboards while radio waves are the more elusive of all inputs and can be controlled only through selective jamming and control over the individual receiving sets.

25) The amount of energy and resources required for the operation of the different boundary maintaining structures is a function a) of the quantity and quality of the inputs, i.e. the degree of interdependence of system and environment; b) of the difference between system and environment.

A socio-cultural system which has a high level of exchanges with the (socio-cultural) environment but is very different from it employs a great deal of resources and energy in the boundary maintaining function; if it is rather undifferentiated from the environment, the amount is rather smaller. If the rate of exchanges is low, but the difference high, the amount is greater than when the difference is also low.

26) Nation-states and other political units maintain their borders mainly by means of the threat of military violence and by means of bureaucratic structures operating under the shelter of this threat. The armed forces are the most conspicuous boundary-maintaining structure, and absorb sometime a large rate of the energies of the system.

F - Boundaries as tokens of international status

27) Differences between socio-cultural environment and system can be conceptualized as differences between two adjacent, bordering, neighbour systems. Sometimes the differences are more subjective than objective; that is, they exist mainly as ideas, images, stereotypes, conception in the heads of people, rather than in actual structural characteristics. In this case, the boundary-maintaining structures might be abnormally developed: that is, they might absorb a greater amount of energy and resources than is actually needed. This might happen for a number of reasons: one is that the boundary-maintaining structures displace their goals; their function is no longer conceived as the maintaining of the crucial differences, of the focal conditions; but in maintaining whatever difference, and even creating unnecessary ones, in order to legitimate their own existence, operations, and resource appropriations. Militaristic nationalism belongs to this kind of processes (92).

28) Socio-cultural systems see their monopoly of legitimate violence, i.e. their control of the armed forces, as the crucial difference between themselves and their neighbours; such control indeed is the prerequisite for every self-governing, self-determining operation of the system. What distinguishes a political unit is a structure of authority, influence and power which ultimately rest on the control of the armed forces. So the armed forces are not only a boundary-maintaining structure, but also a token of international status.

maintaining structure, a basic element of the internal organization of the system.

29) Because of the physical quality of the means of violence delivery, sovereignty has a spatial dimension. States give the greatest importance to the line that limits their sovereignty, i.e. their range of legitimate use of violence. The legal boundary line of states is their most important boundary.

30) As the military viability of most but the biggest states has become a conventional fiction, because of technological, economic, organizational (etc.) developments, which have greatly increased the penetrability of boundaries to foreign violence, legal boundaries have assumed an increasingly conventional, symbolic value. In earlier times, when the connection between boundaries and capability of use of violence for defense and offense war clearer, the boundaries of a political unit were marked by military structures like walls and strongholds. The undefensible open territory was not crossed by boundaries. The land around the city-states in Classical Greece and Medieval Italy was under the jurisdiction of the political unit to which its proprietors, or fief holders, belonged. Medieval political units had little territorial unity. The map of medieval Europe is a spread of confetti-like enclaves and exclaves.

This lack of concern for territorial continuity is possible only in agricultural societies, where each settlement is largely self-sufficient (closed economy) and people stable. But it is also related to scarce perception of the territorial dimension of the political system, which was seen eminently a spiritual, personal affair; and also to the little use of maps, that is to the unfamiliarity of the symbolic, cartographic visualization of human settlements.

31) With increased traffic, increased bureaucracy, increased skill in map-drawing and reading, increased formalization of legal institutions, increased rationality, the importance of territorial continuity rose, and with it increased the importance of precise, rounded, useful, efficient borders. The concept of "frontière naturelle" sprung up in the first large scale unified territorial political unit: the French nation-state. Here for the first time the boundary became clearly a myth, a symbol, an ideological element used for very practical purposes (93). Since then the legal, internationally-recognized boundary line enclosing sovereignty became a prime concern for statesmen, diplomats etc. : countless wars and peaces, disputes and treaties were enacted in the name of natural frontiers.

32) Legal boundaries have become a symbolic token of international intercourse. The symbolic quality is evident especially where there are no factual grounds to prefer a border rather than another, where there is no real difference between the unit and the environment, and where there is no military impenetrability whatever. Legal boundaries symbolise the prestige of the political system. Through a symbolic process they are "anthropomorphized" as the skin of the fatherland.

As this symbolization is common to all units of the international system, boundary lines are recognized by everybody as the skin of a nation-state; they are recognized as symbols of national unity, independence, sovereignty; and are used to convey messages. Intentional trespassing of national borders by a regular army is an equivalent of declaration of war. Although, then, the symbolic uses of the legal boundaries is a cultural convention, fiction, myth, it is extremely real in its consequences: as are all strongly and widely believed myths.

33) The semantization of the national boundaries as symbols of national prestige has reached sometimes a very high pitch of emotivity. To reach "natural" or "just" frontiers was a national goal of prime importance, that mobilized innumerable quantities of men and resources in wars over bits of territories. Because it has become a socio-cultural fact, through general acceptance, the symbolic connection between boundaries and national prestige has two consequences: that nations often seek to expand, "round off", "rectify" their boundaries because this means a gain in prestige; and, more commonly, they resist with all their powers unfavourable modifications of legal boundaries, because this involves a loss of prestige in face of other nations (94).

34) The myth of legal boundaries being so important in international politics, is extremely important also in internal politics. Some groups are more attached to this ideology than others; governments and oppositions use ^{boundary} issues to rally up public opinion.

35) This mental, psychological, subjective, emotional, cultural, political reality

(meaning, importance) of legal boundaries often hides their factual reality as limits of jurisdictions. This is indeed a most important function, when there is a great difference between the system and its environment, or between the two systems; but the importance declines with the difference. For instance, the factual (socio-cultural) difference between most western-european, or most equatorial-African or most Latin-America systems is slight; nevertheless the importance of legal border - at least officially - seems disproportionate. This is so because of their symbolization, and because of their use as tokens of national prestige. Nationalism is a very important force in the mobilization of the human resources of a collectivity; so the ruling élite, specially of the newer, poorer states, make wide use of nationalism in order to organize and guide their societies (95).

36) Elsewhere the myth of the boundaries has lost force. This is related to phenomena like a) the loss of prestige of old-fashioned nationalism (96) (which is in turn connected with a host of other factors) b) the decline of the territory as a factor of national wealth, power and prestige. Territory meant wealth, and consequently power and prestige, in agricultural civilizations, where production was proportional to the surface of the land; but in industrial and post-industrial civilizations, ^{these} things are the output of a very different set of factors, like technological ability and organizational skills; c) the decline of the boundary-maintaining function of structures related to the defense and control of the legal boundary lines. This decline is related to the development of alternative methods of controlling exchanges, based mainly on information processes, rather than on physical processes like halting persons and goods right on the boundary line and inspecting them.

37) The process of symbolization might have been catalyzed as a biological predisposition to territoriality that is programmed in man's genetic heritage, according to some "new-biologist". Even if this is so, however, it would hold only in the case of the relationship between the individual and the perceived, sensed territory: that is, where there is a physical, biological relationship between man and territory. The relationship between citizen and national territory and boundaries is mediated through cultural symbols and social mechanisms (save in very few cases of widely-traveling, mobile and educated people). The crucial factor in determining the attitude between man and the boundaries of his nation is not the biological but the socio-cultural-political mechanism; any biological instinct of territoriality would be only a facilitating, catalytic factor.

38) The military impenetrability of borders to foreign violence, i.e. the end of military defensibility of boundaries and territories has little to do with the decline of boundary-maintaining function of legal boundaries. In time of peace, in fact, legal boundaries are conventionally regarded "as if" they were military impenetrable. As long as the territorial state survives, because it is psychologically, emotionally, culturally, socially, politically important to men (97), even in face of its, in most cases very obvious, military unviability, the legal boundaries, i.e. the limits of sovereignty do not lose their functions (98). They lose it only because of the other processes, indicated in c).

G - Boundaries of economic, cultural and ekistic system

39) The nation state, physically defined by its legal boundaries, is only ^{one} of the several socio-cultural systems. For our purpose we can distinguish two types of such systems: a) those belonging to the same "class" as the nation state, in that they are defined by legal, formal boundaries. These are the infra-national territorial political communities, like the township, county, province, region etc. (according to national terminologies) and the supra-national regional organizations.

b) The other class is a very large and heterogeneous one, comprising the major "vertical", functional systems, like economy, culture, ideology, profession, kinship, armed forces.

40) We have seen that all these systems have factual borders, both of the physical and of the analytical type. We can now add the legal boundaries as a special type of boundaries, referring both to the spatial and to the analytical dimension, and characterized:

- who do not accept them;
- c) their symbolic nature (they are usually not drawn on the terrain);
- d) their usually linear quality.

41) The economic subsystem, for instance, can be seen as having three kinds of boundaries: a) the analytical one, defining what belongs to the economic sector of society from a scientific point of view; in other words, what it is scientifically useful to consider as having economic relevance; b) the spatial boundaries, defining the region where the elements of the economic subsystem, defined analytically as above, are placed; c) the legal boundaries, defining formally both what is to be considered as having economic relevance, and where the territorial boundaries of the subsystem and its parts are. Likewise, the cultural system can be seen as having three kinds of boundaries. The first single^s out what is scientifically useful to take as a cultural element: language, religion, values, artifacts, patterns of behavior, functions, processes etc. The second defines the area where these elements are found: that is where the people (speaking, believing, sharing, making, acting, behaving, interacting) live. The third defines both what the political body regards as a cultural element, and the legal territorial subdivisions of the area where they are found.

E- Legal-political and other boundaries: results of the cross-cutting

42) The legal boundaries of socio-cultural systems can be internal or international in character. In the first case, the political unit (nation-state) can regulate, define and set them autonomously; in the second case, an international decision making process is required. The most important legal boundary, for most socio-cultural systems and subsystems, are the legal-international ones. As most socio-cultural systems have rather hazy, vague, blurred, limbar borders, the legal-international-territorial boundaries often cut across sociocultural systems, delivering to different jurisdictions and sovereignty parts of the same socio-cultural system.

43) The same international boundary cuts each socio-cultural system in different ways, according a) to the relative importance of the parts divided, which is connected to the form, extension, functions etc. of the system; b) to the degree of penetrability of the system to the particular type of exchanges, transaction, flows and inputs that make the system work. So, an international boundary drawn across a former political unit usually affects very seriously its military system, because international boundaries are most impenetrable (officially and in times of peace) to means of violence such as soldiers and weapons; but it can affect very slightly the cultural systems, if peaceful exchanges of persons, goods and ideas are allowed to continue through the borders.

44) Usually the drawing of an international boundary through a formerly integrated socio-cultural-ekistic system has a differentiating effect in the long run. The parts tend to readjust to the new factor developing separate nodes and giving rise to separate subsystems; eventually, if the line set by the boundary becomes impenetrable to that particular kind of exchange, two systems emerge. The international boundary defining a political unit has two main consequences, then: it tends to integrate, homogenize and unify the parts of socio-cultural-ekistic systems encircled by it; and it tends to differentiate them from the parts which are left outside it.

45) These processes occur spontaneously, as an automatic reaction to the new input - the international boundary, and its filter-effect. But they can be accelerated by unintentional cumulative, feed-back circuits, and/or by a conscious policy of the political body.

46) The building of nations is largely a process of unifying and integrating those parts of socio-cultural systems which are left within whatever boundaries chance and necessity produced, and differentiating them from the parts left out.

I - Internal and international boundary-shaping forces

47) International boundaries are the result of forces operating at the level of the international system. Broadly speaking, they are the result of the balance of power. They define points of equilibrium between the pressures stemming from the interior of a political unit - an actor - and the counteracting pressures of the environment - the

other actors. In many cases, the boundaries are ^{at} the battle line, where two opposing armies came to a stand-still, because of exhaustion of forces or some other strategic reason involving power (99). In many other cases, boundaries were drawn through peaceful diplomatic intercourse. But as peaceful foreign relations are also ultimately based on power (security) factors, also negotiated borders have a root in the power situation.

48) Not only the demarcation, but also the structure and function of boundaries are the resultant of international forces, or by the interplay between internal and international forces. According to general laws of systems, whether a boundary between two nation-states is open or tight, what kind of exchanges are filtered more selectively, what structures do this selecting, depends from the "differences" between system and environment: differences in economic, cultural, political, ideological and similar factors. Moreover, the characteristics of a particular boundary are not only the resultant of the differentials between the two neighbouring systems, but of the relationship between the system considered and the international environment as a whole.

L - Up-and down-grading of boundaries

49) In the international system operate both a) forces that build nations, create boundaries and multiply socio-cultural systems of national size, and b) forces that demise nations, devalue boundaries and integrate systems.

50) Some borders between former infra-political units, like colonies, are up-graded in international, political boundaries; other boundaries, between former national units as some western european states, are being downgraded (hopefully) to infra-political, administrative, planning boundaries.

51) Though the international boundaries are the most important in absolute, because they mark the most important human institution, the one that has right of life and death on individuals (and some of such units have a capacity of life and death over most of mankind) and the one that most heavily affects all other socio-cultural-ekistic systems, and hence their boundaries, they are but a kind in a class and they are not only determinant, but also resultants of other socio-cultural boundaries.

M - State and Nation^{al} boundaries

52) Political systems have a very complex relationship with socio-cultural-ekistic factors and with the systems these factors are organized in. Nation states, international actors, political units as we know them can be seen as the result of the interplay of internal forces that pressed from within and international forces that pressed from without. Among the first the most important are: 1) the military organization, evolving in the bureaucratic and political subsystem striving for power, prestige and glory; 2) the economic system, looking for wider markets and surer exchanges; 3) the cultural complex, looking for autonomy, security, self-determination, solidarity. Among the second set of factors, the international ones, the most important is the balance of power, with the opportunity and necessity it provides for the creation, incubation, protection, aid, etc. of new states, as buffers, friends, allies, neutrals, countervailing forces etc.

53) The internal factors seem to have been most important in the rise of the earlier states, in medieval europe as elsewhere; the balance of power factor seems to have been important in such periods as after-Napoleonic Wars, and after the two world wars (with "litters of new states" laid down more or less artificially in Latin America, in eastern-Europe and in ex-colonial areas respectively). (100).

54) According to the operation of the first set of factors, the Nation-State tended to be a military-political organization superimposed to, and overlapping, a largely pre-existent socio-cultural-economic unit, the "Nation". The State can be seen, and has in fact been seen, as the political expression of an underlying socio-cultural unit; the legal, just, natural boundaries of the state where thought to be those coinciding with the boundaries of the Nation. While this is obviously a gross anthropomorphic misconception, and cause of many sorrows, it can be applied to the political organization of socio-cultural systems at the lower levels of the small local community, and wherever integration can be based on the simple mechanisms of personal, face-to-face, primary communications, cultural homogeneity, consent, tradition etc. But at higher

levels of human organization the intervening integrating mechanisms play a so important role as to be taken, themselves, the real basis of political organization: that is, the political organization is less and less a product of socio-cultural-economic community and increasingly becomes a self-organizing system of higher order.

55) At the level of modern industrial, technological societies then the existence of an efficient political system becomes the basic prerequisite for the building of national cultures, societies, economies, etc. In other words, culture (religion, education, literature and all other means of manipulation of values, symbols, norm and behaviors) social organization (institutions, associations, parties, etc.) and economy all become a tool in the hands of governments, designed to create and integrate a socio-cultural and economic basis for their power; just as armies were in the earlier stages of civilization (101).

56) The effort to create a set of subsystems - cultural, social, economic, ekistic - neatly coinciding with pre-existent given political boundaries is carried out by economic, social administrative and ekistic planning. This is often designed to destroy those systems or fragments of systems incongruent with the characteristics of the dominating socio-cultural political system, and occurs in the form of de-nationalization of cultural, ethnic and language minorities; with forced displacement; with reorientation of the networks of communication in a centripetal direction; with settlements of economic activities of interest to the rulers; with the violent enforcement of compliance etc.

N - Incongruence and non-coincidence of boundaries

57) The incongruence between characteristics and goals of the political system defined by the international boundaries and the pre-existent social, cultural, ekistic and infra-political systems is likely to be greater around the edges of the "national" (statual) territory, because political systems, when not rooted in outright recent military conquest or in wholly artificial (external) balance - of - power circumstances, are usually in fact the expression of a socio-cultural group in some way central to what has become the "nation state". (There are notable exceptions to this, though, like Prussia, Piedmont, Ile de France, etc.).

58) The incongruence between the characteristics of the political system and those of the social, cultural, ekistic subsystems can be both analytical and spatial. In the first sense, there are differences in values, goals, interests, patterns of behavior, loyalty, ideology, etc.; in the second, there is non-coincidence of boundaries. That is, the subsystems are geographically smaller, larger or differently placed than the political system, leaving blank areas inside it or extending beyond it.

59) The more a nation-state strives for independence, autonomy, isolation, the more disturbing such incongruences and non-coincidence are to it, and the more hard it tries to force all subsystems to take on the analytical and spatial characteristics of it self; that is, to have a politically and ekistically integrated set of subsystems.

O - The pressure on boundaries because of cross-cutting memberships

60) Some vertical subsystems, like the economic and the cultural ones, are highly complex and organized on world wide basis; in some respect, only a world-wide political organization can encompass the economic system within its boundaries. This is the international system. Within each vertical subsystems several levels of second grade subsystems can be distinguished, according to levels of organization, integration, systematization; so one can distinguish, in economy, a capitalist subsystem and a socialist one; in culture, the several cultural areas, like the Western European, the German, the Slav, the Latin, the Arabian, etc.

61) The portion of economic, social, cultural, military, political subsystems enclosed by the legal boundaries of a nation state can be seen as belonging to these higher-level systems. The pressure of the international environment on the "national" system can be seen as the resultant of forces, flows of energy and information linking the several vertical systems to their portions or subsystems bounded by legal international borders. Each vertical system has its characteristics, its typical ways of operating, its inner logic; such characteristics, ways and logic can be at odds with the

scopes of the nation-state. These considerations point to a first source of tension between the "interests", i.e. the tendencies of the international and national communities. Another source of tension is the opposition between the tendency of vertical subsystems-like of all systems - to evolve towards increased integration, organization, and sistematization of all their parts, and the tendency of ^{the} political territorial systems - as of any system - to stress the difference between itself and the environment, to emphasize the internal organization and integration.

P - Competition between sub-supra- and - national systems

62) Because all socio-cultural systems, cross-cutting vertically and horizontally, conform to the same general laws of evolution of systems, there is a continuous outgrow of tensions and conflicts between all systems, each competing for the same "goal"-maximum internal adaptive complexity (102). In this struggle for survival and in the long run, the traditional nation-state seems to be an evolutionary failure on its way to extinction (because of the well known factors). The two heir systems seem to be for the foreseeable future -, the sub-national region (region in the European sense) at the lower level, and the supra-national region at the upper level (region in the Anglo Saxon sense).

63) In face of these two tendencies, boundaries dividing one nation from the other are being devalued; the importance of boundaries between regions increases. The former are being de-politicized; the latter are being politicized.

Q - Two basic boundary processes

64) The two basic trends concerning boundaries then are: a) the trend toward the loss of importance of spatial boundaries, especially those drawn on maps and terrain, and the increasing importance of functional, i.e. of analytical and conceptual boundaries; in other words, the increasing reliance in the control of states (qualities, modes, characteristics, attributes) through information processes, and the decreasing importance of the control of actual physical energetic movements through boundary lines, in order to carry out the boundary-maintaining function; this trend is ⁱⁿ connection with the evolution toward increasing fluidification of socio-cultural systems; b) the trend toward the depoliticization of traditional national boundaries among some mature nation-states and towards politicization of boundaries between regions, both at the sub and supra national levels. This trend is related to the evolutionary failure of the traditional (centralized and sovereign) nation-states of medium size, unable to cope and adapt to the changed technological (and hence cultural, political, ideological) environment, and giving way to the more vital regional systems.

R - The promises of regionalization

65) The trend toward supra-national regional integration and organization can be considered as but a special case of the already examined nation-building process. The trend toward sub-national regional organization and boundary setting is, however, a very different phenomenon than the breaking up of empires and federations, because the main force underlying it is economic and technological, rather than political and cultural; the values behind regionalization are productive efficiency and welfare, rather than cultural autonomy and political "freedom" or self-government. The crucial difference is that while in the first case there is a military logic behind integration (nation-states of middle size are utterly unviable and undefensible in front of super-powers; only military units of continental scale can claim real sovereignty, are a independent actor of the international arena) in the second case such military considerations, and ambitions to sovereignty, are wholly absent.

66) Sub-national regions organize themselves in order to realize a special goal-value, i.e. more welfare; in this sense they can be considered as specialized, functional systems, even if their territorial dimension is a basic element. They are no full-fledged political systems because they can give their members no security from foreign attack (their boundaries are very penetrable shelters) and can claim (which is partly a consequence) no right of life and death over their members. The latter is partly

67) The nation-state must then struggle on two new fronts to maintain its boundaries. In addition to the usual pressures coming from the interference of conflicting supra- and sub-national vertical systems claiming the allegiance and part-ownership of elements of its own system, the nation-state must hold his ground in face of two powerful horizontal systems, the regions, which appeal to much of the same kind of considerations that made the nation-state so spectacularly successful-the capacity of providing more welfare and more security than other socio-cultural systems. The regions challenge the state so effectively because they are but an improved model, a fitter and more up-to-date version of the same explosive combination-territory plus community.

68) The emergence of sub-national regions forces the state a) to set up internal boundaries filtering the exchanges from central decision making nodes; b) to match the characteristics of state boundaries to the need of marginal regions. On the other hand, the emergence of supra-national regions forces the state mostly to weaken the selective and filtering, differentiation maintaining function of boundaries; that is, to surrender part of his controlling power over the inputs.

S - Marginality and other characteristics of border regions; states and processes

69) It has been already observed that marginal regions of nation-states are often less integrated in the social, cultural, economic subsystems of the state to which they belong. Cultural systems usually do not fit neatly to political boundaries. Border territories are often of more recent conquest than the heartland; populations are not yet well acculturated. Often there are ethnic minorities. Ethnic minorities along the borders are harder to assimilate because they have easier communication with other cultures (103). Frontiers are usually an incoherent collection of cultural groups, in the first place because of minorities, in the second place because of the people drawn from interior to operate the boundary-maintaining institutions; in the third place because the frontier situations offer opportunities to odd occupations, appealing to diverse categories of people, like import-export, smuggling, etc.

70) There are also cumulative processes keeping the border regions differentiated from core areas. These are the laws of least effort, of economic efficiency. Inasmuch as a political unit influences the economic subsystem, it tends to develop it according to considerations like optimum location of the industrial centers with respect to a) accessibility from the rest of the international economic system; b) accessibility from the whole national territory. These second considerations lead to a concentration of the economic nodes at the center of the national territory, according to the more general laws of central place theory. This leaves border regions, specially those placed on borders opposite to the general orientation of the nation with respect to the international system, as dead corners. Military (tactical and strategical) considerations also favour the desertion of the border regions, their economic lag-behind.

Relative deprivation, or outright economic frustration, give rise to a border-regional subculture; dissatisfaction, migration, deviance, disloyalty might be the consequences; cumulative back-feeding processes might spark off and deepen whatever basic, static, cultural differentiations there were. So border regions are a potential source of trouble for nation-states.

71) But there are counter-acting tendencies. If the border region happens to be located near a state or area with which the exchanges are intensive, due to the openness of the frontier and the high level of complementarity (high difference of tension and high conductivity) it may prosper more than other national areas. If the two neighbouring nations tend to merge, the border region tends to become the central place of the integrated area. Border regions usually favour international integration.

72) A very different process is the hardening of cultural boundaries, due to unpleasant precedent experience. Two neighbouring ethnic groups may develop a tradition of hostility and hate, because of a self-generating spiral of hostile encounters (often involving alternate periods of mutual oppression). In this case, there is exaggerated national feeling and differentiation across the border.

T - Border policies and issues

73) Usually however border regions are marginal regions, on ekistic, economic and cultural grounds; they can be less - than average in income, nationalism, loyalty. Nation-states always had this problem, and devised a variety of counter measures, from extermination of border population and their replacement with more loyal ones, to massive colonization of border territories; from intensive, forced acculturation to the provision of economic privileges in order to offset the handicaps of marginality.

74) The provisions the states issue in favour of border regions are subordinate to overall national interests. The border politics of the state does not usually clash or interfere with foreign policy considerations, by which the characteristics of the boundaries - openness and closeness, degree of militarization - are regulated. The border policy is usually subordinated to foreign policy.

75) Benevolent as the state may be towards the border region, there is a fundamental potential opposition of interests. The border region is always favored by permeability of the border as well as the maintaining of economic, cultural and other differences between the two neighbouring countries; the nation-state is always in favour of the maintaining of focal differences, but only in special conditions favours a policy of open borders.

U - The impact of borders on international policies

76) As the regional systems grow in importance, the nation-state must take into greater account the will of the border populations, also in the formulating of the overall foreign policy: the border becomes a determinant of the political system and process. The relevance of this factor, the roles and functions of border regions in shaping the international system is as yet unknown.

77) The myth of the sacredness of national boundaries, the heated nationalism connected with the conquest and maintenance of the "just, natural frontier" is undoubtedly a factor hindering the analysis of the potential role of border regions in promoting a progressive and human relationship between neighbouring nations. Usually border regions of opposite states are reciprocally more similar than the mother countries are; sometime, each of them is more similar to the neighbouring region than to the mother country in general. These similarity usually makes for easier and better mutual understanding; neighbour regions can be a mediating agent between countries, if they are endowed with enough powers. To promote regionalism is then, in any case, to promote a fluidification of international relations, the breaking up of ancient sclerotization of mutual positions. Regionalism, we have seen, can hardly develop to a new local-level nationalism, because it lacks completely the militaristic outlook, ambition, attitude and capacity.

78) Ekistic (i.e. planning- and administrative-) regions can hardly be expected to evolve into full-fledged political bodies, as they are not likely to develop a control over military force and the real sovereignty connected with it; so the basic weaknesses of international functionalism - the failure to recognize that there is no easy continuity between the technical, economic, even cultural integration and the political one; that a "jump of level" is required to pass from the functional to the political plane - also affect sub-national regionalism. Planning and administrative region can only develop in the framework of a large political, that is, sovereign and armed systems, be it the nation-state or the supra-national region (104).

79) Traditional political and military boundaries that run across humanity will not then be abolished because of such ekistical considerations, i.e. because they are obnoxious to the development of economically sound, rational, functional, efficient, beautiful, secure, happy regions. Such values are only part of man's cultural heritage; he also covets other values like power, prestige, ethnocentrism, cultural pride, self-determination, race superiority, self-reliance, philosophic dogmatisms, cognitive consonance etc. that are conducive to political differentiation, that are the force by which international boundaries are drawn, upon which political and military organizations are build and from which wars usually start.

As there is no scientific motive to say that the values of the first set are all per se good and those of the second set are all per se bad...

a-priori basis to say that political-military boundaries ought to be abolished. As Hegel said, the real tragedy of man is not to be obliged to choose between the good and the evil, but between one good thing and another equally good thing (105).

80) What regionalism can do is to decrease the number of political and military boundaries by disgregating old political bodies like nation-states and integrating them in supra-national continental organizations; this process however seems to have three basic weaknesses: it is exceedingly long and difficult; it seems to be possible only after a nationalistic phase is superated (with all that has historically meant, in Europe); it is motivated, to a great extent, by a political and military logic. This is the crucial objection: if regional integration is suggested by considerations of security or power, it cannot, logically, proceed further than a bipartition of the world in two huge blocs. There will be only one boundary left, but a monstrously armed, rigid, sensitive, instable and dangerous one: whether dividing the East from the West or, more probably, the South from the North of the world. This is hardly a more appealing picture of the world than the present one (106).

81) The main link between the ekistic perspective and international peace lies not at the micro level, of the organization of efficient, functional and economic regions across the boundaries; but at the macro level, of the organization of the "world city" (107): it will take many generations to superate nationalisms and come to a world federation; many generations are also likely to be needed before the processes of regional and functional integration reach their final stadium; but it will take very few decades before the population explosion will fill the world, before living space will be the scarcest resource, before urban areas will grow into necropolises, before basic natural resources like water and air will be wholly wasted and before the natural environment will be polluted to the point of no return. In a short time, the most dangerous threats to man's survival will come from the physical environment; so the boundaries within humanity will obsolesce and be replaced, as the crucial strategic frontiers, by the boundaries between the socio-cultural system and the physical one. Men unite in large political organizations only to meet external threats; so up to now world political unification could not be reached because the United States of the World had no common enemy (108). Now we have it: the States must integrate in a world wide organization to fight population explosion, pollution and depletion, since these problems cannot be solved but in a planetary scale. The world city can only be build if man does not fall, in the next decades, in the "ecological trap" (109); and he can avoid this catastrophe only by planning-family planning, technological planning, physical planning, comprehensive planning. Planning is a scientific endeavour, but it involves political attitudes, institutions, organizations in order to be implemented; the building of planetary planning bodies is going to be a necessity in the near future, if the impending ecological disaster is to be averted (110).

82) There is no royal road to peace. Some go through the heart of men, some in the structure of the social institutions, some in the structure of the relations between them; some go through the people and some through the statesmen; some are to be trodden by education, some by manipulation, some by picketing and demonstrations; some require a conscious rational decision based on a real and rationalistic attitude, some require a degree of force; some are based on humanitarian emotions, some are based on interest and necessity; some are motivated by the desire of material comfort and security, some by love and justice.

The need to make the habitat of man more rational - or just viable - is one of these roads; and the planning disciplines, under the name of Ekistics, are a vehicle. At the micro level, they show the advantages - in relations to such values as economic efficiency, prosperity, welfare and "happiness" - of by-passing political and military boundaries and organizing the ekistic regions inside traditional political units and among them; at the macro level they warn that only the political organization of the whole mankind can make comprehensive planning ultimately effective, avoid the ecological disaster and make the coming world city possible; they warn that the military and political boundaries that divide mankind are not only becoming irrelevant, but positively dangerous, because the crucial and strategic frontier for socio-cultural

orientation of efforts in this direction.

83) "We have to act before we find ourselves confronted with terrifying prospects of a 'World City's' coming to birth in an administrative chaos. This means, in the first place, that the 125 sovereign independent states that now divide between them the land surface of our planet will have to reconcile themselves to entering into a world-wide federation" (111).

PART FIVE - WHAT TO LOOK FOR NOW: Some relevant variables

We tried so far to develop a coherent framework in which several apparently discrete informations and intuitions could fit meaningfully. There is no doubt that the whole could have been organized in different ways, that diverse lines of reasoning could have been followed further, that other connection between terms, correlations between concepts could have been pointed out.

The basic weakness of this framework however lies elsewhere. It is in the paucity of data on which it has been built. It is a predominantly speculative and impressionistic body of theories.

This is inevitable. As far as we know, there are no ready-made storages of facts and data on borders, boundaries and frontiers. This preliminary piece of desk research has precisely the function to direct further, empirical research.

In this conclusive fifth section we will list the kind of data, that are to be looked for, the variables that are to be measured if the theory has to be substantiated.

1. Data on structures and subsystems whose function is to maintain the boundary between the system and environment, at different levels of systemic complexity: from the small group and the family to the most important communities and institutions.

This type of data is basic in order to plot a trajectory of relating the evolution of the system (in terms of size, complexity, and other characteristics) and the evolution of the boundaries and to extrapolate the prospective evolution of boundary-maintaining structures.

2. Historical and anthropological data on the boundary-maintaining structures in political-territorial systems, in different cultures and different historical periods. This should enlighten the different types of boundaries man has devised, the different patterns of behavior related with the boundaries and the several ways men have thought of, conceived and attached symbolic connotations of value to, the boundaries. This research is aimed at shattering unconscious culture-bound stereotypes we may harbor about boundaries and boundary maintaining and which keep us from looking at the problem in a fresh and imaginative way.

3. Data on present day borders and patterns of boundary maintaining structures at the nation-state level. How states organize, de jure and de facto, the surveillance and protection of their border, both geographical and analytical; what are the legal international conventions about these questions; what are the prevailing ideologies and mythologies behind such regulations and operations. These are the ground data against which an eventual new cultural approach to the problem of maintaining boundaries should be matched. These data aim at giving a picture of the status quo possibly needing modification.

4. Structural-functional analysis of boundary-maintaining structures: both mental, symbolic - like ideologies and stereotypes - and concrete, institutional structures like bureaucracy organizations. This should give us a social-scientific typology of boundaries. to

Some variables of this typology could be:

a) Degree of importance of the boundary: that is, the ratio to which the maintenance of the focal conditions of the system depend on the efficiency of the boundary; also, it relates with the importance of the system bounded.

b) Nature: the type of inputs it is intended to select. The inputs move through different media; so we have boundaries dealing with flows of people, things, energy and informations moving through roads, waters, wires and electromagnetic waves.

daries are clearly delineated in the space or unambiguously set analytically. Natura non facit saltus: most division between natural phenomena, socio-cultural systems included, are not clean and sharp but gradual along a gradient or continuum. The delineatedness of legal boundaries is a source of incongruences and tensions. Even if the boundaries of each "pure" system can be drawn unambiguously, complex systems like the political, socio-cultural and ekistic systems are likely to have several types of non overlapping and non coinciding boundaries.

d) Permeability: the degree to which the inputs are screened, filtered and selected. It can be defined the ratio between the total amount of potential inputs and those that are allowed in. A boundary can have different permeability ratios according to different kinds of inputs, of conveyors, etc. The two polar types of boundaries according to this variable are the closed and the open one.

e) Effectiveness: the degree to which the boundary can be regulated by the decision-makers i.e. the degree to which the government is able to control the inputs, the pressures from the environment, by varying the degree of permeability. Some boundary-maintaining structures are primitive, rigid and poorly adaptable to variations in the environment. Others are sensible only to gross variations and operate by thresholds.

f) Stability: the ratio between the age and the spatial or analytical variations of a boundary.

5. Data on border regions. This applies specially to territorial political systems and to those where a regional compartmentalization is distinguishable. These data should concern the geographical, ekistic, economic, socio-cultural realms; special attention should be given to the political, administrative and legal organization of border regions.

The data should be arranged along variables as:

- A. Homogeneity of the border region with respect a) to the mother country, b) to the neighbouring border region and c) to the neighbouring country.
- B. Conflictuality, due to any kind of traditional, psychological, economic or political reason, between the border region on one side and the mother country, the neighbouring region and the neighbouring country on the other side.

6. Data on the impact of the type of boundary tenure, boundary regime or boundary policy on the foreign policy of a country. For instance, the reliance of defensive methods like walls, moaths and no-man's land can encourage isolationist policy, decline of adaptivity and resilience, scorn of aliens, mistrust or other cultural characteristics that may in turn affect foreign policy.

7. Data on the decision-making processes concerning issues in boundary tenure - regime or-policy; specially to single out the degree and the forms by which the demands of border populations are taken into account.

8. Data on decision-making processes concerning issues in the administration of border regions; especially to point out the degree and the forms by which foreign policy considerations interplay with internal policies, i.e. interfere with the interests of local populations.

9. Data on the way the several characteristics of the boundary, the several patterns of boundary maintaining structures affect border regions, from an economic, cultural, psychological, political point of view; how different boundary regimes affect the institutions, the attitudes, the values and the behavior of local population; especially in relation to the international issues (sociology of border).

These seem to be, on first sight, some of the most relevant areas of research if the purpose is to develop a theory of the boundary that is not merely heuristic, but also socially useful in the long run. Along these lines the Institute of International Sociology of Gorizia has just started working, looking for results that would prove that the Theory of the Boundary is no sterile intellectual speculation leading to the collection and re-arrangement of a mass of data, a scientific dead end; but yet another cultural tool, among many others, to the understanding of the international arena and the pursuit of a viable world.

- 1) Buckley, 1968, p. xi; id., 1967, p.7; Diebold, in Dechert 1968, p.31. It is surprising (and alarming?) that K.E. Boulding does not include the concept of boundary in his list of the general phenomena found in all disciplines, like populations, individual, growth, communication. (Boulding, General Systems Theory. The Skeleton of Science, in Management Science, 2, 1956). The role of the parsonian theory in introducing the concept of boundary and boundary maintenance is acknowledged below, p. 33 and notes.
Our sources for general systems theory and concepts are: Ludwig von Bertalanffy, General System Theory, 1968, pp.289; Walter Buckley, Sociology and Modern Systems Theory, 1967, pp.227; Walter Buckley (ed), Modern Systems Research for the Behavioral Scientist, 1968, pp.525 (specially the essays of Rapoport, Boulding, Bertalanffy, Redfield, Rapoport and Horvath, Hall and Hagen, Ross Ashby, von Fürster, Maruyama, Deutsch, Easton, Buckley); Charles R. Dechert (ed.) Cibernetica e Società, 1968 (1966) pp.127; Pierre de Latil, Il pensiero artificiale, introduzione alla cibernetica, 1962 (1953) pp.394. General systems theory is also more or less extensively treated in other works by Boulding, Rapoport, Parsons; in the field of politics and international relations, a system approach has been introduced by Kaplan, Easton, Karl W. Deutsch, McClelland. In planning Theory, a systems approach has been recently formulated by Brian McLaughlin, Urban and Regional Planning. A Systems Approach, 1969.
- 2) On the conventionality of the distinction between system and environment, and hence of the drawing of boundaries, see A.D. Hall and R.E. Fagen, Definition of System; reprinted in Buckley, 1968.
- 3) Ross Ashby, in Buckley 1968, p.110.
- 4) Sommerhoff, in Buckley 1968, pp.112,113.
- 5) Boulding, in Buckley 1968, p.6; also Buckley 1967, pp. 41,44,48.
- 6) The definition of cybernetics as a dynamics superimposed to a topology (Rapoport and Horvath, "Thoughts on Organization Theory", in Buckley 1968, p.74) seems relevant to general systems theory too.
- 7) The attribution of citizenship is formally regulated by internal laws and international agreements. The usual criteria are place of birth, citizenship of the parents or of the husband. Many states then recognize other categories of membership to the nation, based on language, culture, national feelings.
- 8) See Buckley, Society as a Complex Adaptive System, in Buckley 1968, p.514 f.
- 9) Desmond Morris 1969, p.136.
- 10) This is C.V. Wynne-Edwards's central thesis on the origins of society, in Animal Dispersion in Relation to Social Behavior, 1967, p. 14, 142.
- 11) On territory as a defining element of the community, there is wide agreement; for more recent statements of this established thesis, see Margaret Stacey, The Myth of Community Studies, in British Journal of Sociology, June 1969; George Hillery, Communal Organization, a Study of Local Societies, Univ. of Chicago Press, 1968.
- 12) Insect complex societies have been characterized as meta-organisms (La Barre, 1961) in that the individual members are tied together and act as a coordinated unit to an important extent via exchanges of food in which chemical (hormonic, endocrinic) information is encoded; the circulation of food, from mouth to mouth among bees and ants (social stomach), and from anus to mouth among the termites, is in principle not different from the circulation of blood among the cells of metazoa.
- 13) The analysis of social institutions under the perspective of their boundary-maintenance structures and functions is, to our knowledge, much less developed than the analysis of pattern-maintenance structures and functions; for the time being therefore there is not enough ready-made material to substantiate these concepts and systematize them in typologies. This will be the task of further research aimed at the construction of the theory of the boundaries.
- 14) The distinction between "vertical" and "horizontal", to connote respectively the social-cultural and the spatial aspects of society is traditional in sociology; and applies to mobility, stratification, control, etc. "Mechanic" and "Organic" are the well known durkheimian attributes. Parsons and others (Levy, McClelland)

distinguish between analytical and concrete structures. Finally, the distinction between animal and human should not be taken as an absolute.

- 15) The Roman "Pater familias" had the right of life and death on everybody inside the house.
- 16) The god Terminus; the protecting god of political boundaries was Silvanus, as most boundaries were marked by no-man's woodlands (Arnold Toynbee, Cities on the Move, London 1970, p. 33).
- 17) The named lawsuits are in limited number, and that two of them regard borders is an indicator of the importance of the problem.
- 18) T.Parsons, Structure and Process in Modern Societies, 1960, pp. 261,270; the idea goes back to Max Weber and the close connection he posited between state and territory; and has recently been taken up and elaborated by K.Boulding, in Conflict and Defense, 1963; (also in "The Meaning of the XX Century", 1964) more recently still, by Arthur Stinchcombe, 1968. See, further, p.11 and notes.
- 19) On the difference between Frontier and Boundary, see Dorion, La Frontière Quebec-Terre-Neuve. Etude systematique des frontieres, 1963. The anglo-saxon usage of the word, from Turner on, has a peculiar connotation: frontier is the border region between human society and natural wilderness. For some instance of this peculiar denotations, see Hoffman, Contemporary Theories in International Relations, 1960, p. 180; Friedmann and Alonso (ed.s), Regional Development and Planning, introduction; Stinchcombe, 1968, pp. 222,291, see also, further, p. 18 and notes
- 20) Parsons (in Theories of Societies, 1961, p. 36) seems to suggest such a definition: the boundary is seen as the external aspect of the system, the face toward the environment; whereas the pattern is the "absolute" aspect of the system, taken per se, without specific reference to the environment. In Parsons' work, however, there is no discussion of the relation between boundary-maintaining and pattern-maintaining structures. See further note 48, for Buckley's discussion of this aspect of Parsonian theory.
- 21) Tonybee has some interesting observations on the role of files in determining the "immobilization" of previously itinerant institutions, like the courts and other administrative bodies (Cities on the Move, 1970, p. 122). A thorough computerization of the information processes will no doubt greatly reduce the need of spatial segmentation on these grounds. Very recently however two authors, Manfred Kochen and Karl W.Deutsch have evidenced that there are other very important factors that point to increased decentralization in spite of technological developments in the handling of communications. See their paper, Toward a Rational Theory of Decentralization: some Implications of a Mathematical Approach, in The American Political Science Review, Sept. 1969.
- 22) Gates and gatekeepers are the well-known metaphors used by D. Easton in his classic, A System Analysis of Political Life, 1965.
- 23) For this and other critiques to General Systems Theory, see General System Theory - a Critical Review, by Ludwig von Bertalanffy, in Buckley 1968.
- 24) That language aims not only at communicating but at hindering true communication, and that it shapes the world more than reflects it is a well known fact at least since the Sapir-Whorf "hypothesis" was formulated.
- 26) Hall and Fagen, in Buckley 1968, p. 84.
- 25) Von Bertalanffy, 1968, passim.
- 27) Charles McClelland, Theory and the International Relations, 1968, p. 92.
- 28) We are not here taking side with the old chicken - or - egg argument, about the primacy of the structure or of the function. Deviation-amplifying processes satisfactorily explain the mechanisms of structure-elaboration. See M.Maruyama, The Second Cybernetics, Deviation-amplifying mutual causal Processes, in Buckley 1968.
- 29) See note 19.
- 30) Buckley repeatedly remarks (1967, p. 48, 1968, p. 496) that the fluidification of higher systems implies the replacement of symbolic interactions and information transfers for physical events and energy exchanges; to the point that at the higher levels of ecological, social and socio-cultural systems, the individual components

- need to get together (like mechanical systems) only or mainly for sexual union and for fight. Some practical and political consequence of this trend on the structure and function of international boundaries will be explored in the fourth section.
- 31) This is the two-gangster and the civil-war situation, in which the two armed actors are not territorially separated and compete for the same territory; each of them is forced to deny legitimacy to the competitor's use of violence. Recent increases in the range of military vulnerability have extended some features of this situation to the whole of the planet.
 - 32) The examples that come more readily to mind are the Spartans and the Helots, the Lombards and the subjected Italian populations; but the situation is all too frequent, wherever there is a disenfranchised stratum of the population.
 - 33) See the classical essays of John E. Herz, Rise and Demise of the Territorial State, in James N. Rosenau, ed., International Politics and Foreign Policy, 1961, and the treatment of the same subject by Kenneth E. Boulding, Conflict and Defense, 1963; the importance of the thesis is acknowledged by all leading textbooks-writers in International Relations, like Aron, Hoffman, McClelland, Frankel, Schleicher, etc.
 - 34) On the penetrability of borders to the psychological, revolutionary and guerrilla forms of warfare, see, besides the authors listed above, Jacques van Doorn (ed.), Armed Forces and Society, 1968, and Samuel P. Huntington (ed.) Changing Patterns of Military Politics, 1962; here, especially the essay of Girardet. Some keen observations of the strategic role of borders in these kinds of warfare are made by Walker F. Connor, Myths of Hemispheric Continents, Regional and State Unity, in Political Science Quarterly, Dec. 1969, p. 568.
 - 35) At least when they are motivated by collective-security motives, and give rise to more or less integrated military blocs.
 - 36) John E. Herz, op. cit.: the nation state loses in function, importance and legitimacy to the degree that it cannot secure military defense. In a later essay, however (The Territorial State Revisited: Reflections on the Future of the Nation-State reprinted in James N. Rosenau (ed.) International Politics and Foreign Policy, 1969) Herz acknowledges that there are some counteracting trends, like the ever-increasing role of the state in economic and social life, and possible innate human drives, that make for an enduring vitality of the territorial state, even in face of the loss of its defense functions.
 - 37) D. Easton, 1965, p. 3.
 - 38) On the concept of devaluation of borders, Hoffmann, 1960, p. 184; on the related concept of defunctionalization, see Witternore S. Boggs, International Boundaries: a Study of Boundary Functions and Problems, 1940; also Dorion, 1963, p. 137, on the depolitization of frontiers. Lapradelle (La frontière, étude de droit international, 1928) also uses the same concept.
 - 39) Some classics were published around the first world war: Curzon, 1907; Holdich, 1916; but it is no use to list all international-law textbooks which deal with boundary problems. See Dorion, p. 42. On international law as basically concerned with delimitation of boundaries, Herz, in Rosenau 1961, p. 82; also id., in Knorr and Verba, 1961, p. 212.
 - 40) Aron, 1962, p. 202. Also Schleicher, 1962, p. 236.
 - 41) Dorion, 1963 p. 140.
 - 42) Quincy Wright (A Study of War, 1942, 1965) notes in several passages the role of the "natural frontiers" in eliciting wars (pp. 360, 772, 850). Also Aron, 1962, argues strongly for the same case (pp. 203 and following, p. 163, p. 713). Dorion also attacks the notion and emphasizes its ideological character (p. 14, 158, 160, 164).
 - 43) Dorion, 1963, pp. 32, 211, 297.
 - 44) The works on international relations that have been ^{re}viewed in preparation for this paper are: Raymond Aron, Paix et guerre entre les nations, 1962, p. 794; Karl Deutsch, The Analysis of International Relations, 1968, pp. 214; Joseph Frankel, International Relations, 1969, p. 175; Louis Halle, Men and Nations, 1962, p. 228; Frederick Hartmann, The Relations of Nations, 1967 (1957) p. 701; Stanley Hoffmann (ed.), Contemporary Theory in International Relations, 1960, p. 222; M. J. Cresswell, The Philosophy of Language, 1968, p. 100; and J. R. Searle, Speech Acts, 1969, p. 100.

Kaplan, System and Process in International Politics, 1967 (1957) p. 283; Klaus Knorr and Sydney Verba (ed.s) The International System, 1969 (1961) p. 237; Charles McClelland, Theory and the International Relations, 1968, p. 138; James N. Rosenau, International Politics and Foreign Policy, 1961, p. 511; 1969, p. 740; Charles Schleicher, International Relations, 1962, p. 651; Kenneth Waltz, Man, the State and War, 1968, p. 263; Quincy Wright, A Study of War, XLII+1637. Wright has the more extensive and interesting notations on boundaries as artificially maintained barriers, against a "natural" tendency to their devaluation (p. 906) and on their function for the stability of the international system (p. 755). He develops the important concept of military separation (753); alludes to the war-generating process of "rounding-off" of frontiers (p. 360; also, 850), inquires into the relationship between cultural pattern and boundaries (p. 76) and is rather pessimistic on the possibility to permanently settle border disputes in the present international system (p. 772). Other authors writing on borders and territory are Aron, McClelland (pp. 48-49) and Frankel (pp. 58, 135-6), George Modelski (Agraria and Industria; Two Models of International System, in Knorr and Verba, p. 122) makes a fundamental distinction between the geographical, the political and the substantive boundaries of the international system; Hartmann (p. 5) uses the term frontier in the definition of International Relations. Schleicher observes that the contour, i.e. the form of the boundaries of a state influences its power (p. 236). All authors agree on the "explosive artificiality" (Hoffmann) of many frontiers of the new states. Samuel P. Huntington, the sociologist, notes that with the decline of inter-state war and the growing popularity of intra-state wars, territorial boundaries are no longer the foci of conflict, but its parameters (Changing Patterns of Military Politics, 1962, p. 19).

- 45) Although the current popularity of Clausewitz is a cultural fad based more on Lenin's and Chairman Mao's appreciation of his thought rather than on his relevance to the present situation, as André Beaufre (Introduzione alla strategia, Bologna 1966) has shown, Clausewitz is correct in arguing that the snatching of border territories is more often a pawn of international diplomatical game (or blackmail) than a real goal of wars. (Karl von Clausewitz, Della guerra, Milano 1970, p. 9); also his characterization of the function of forward line border defenses (p. 592) seems correct, in the light of modern strategic theories; he states a relationship between the location of "strategic frontier" and the type of overall strategy of defense: in the heartland if the strategy is based on external aid. For small states, he observes, the issue is meaningless, since their whole territory is a strategic frontier (p. 513). Beaufre notes that a forward defense means a rigid "massive retaliation" strategy (p. 65); the same observation is made by the studies on European security, issued by the Institute of Strategic Studies in London, the Centre de Politique Etrangère in Paris, the Forschungsinstitut der Deutschen Gesellschaft für Auswärtigen Politik in Bonn, and the Istituto di Affari Internazionali in Rome; Stefano Silvestri, La Sicurezza Europea, Bologna 1969; R. Aron, Il Grande Dibattito, Bologna 1965.
- 46) Since the age of nationalism, the borders between ethnic groups and nations have been a most important category of boundaries, because of the incongruence between the linearity of political boundaries and the "blurredness" of cultural borderlands. Most anthropologists and ethnologists agree with C. Darrill Forde (Habitat, Economy and Society, 1963 (1934) p. 467) on the fact that sharp boundaries can never be drawn between culture areas (the opposite remarks of Stinchcombe, 1968, p. 229, need further elaboration before they can be used as a proof to the contrary). It has been also observed that the area of contact between different cultures often is the more lively and interesting one; many cities developed in such contact regions (Vienna between Germans and Hungarians, Berlin between Germans and Poles, Bruxelles between French and Flemish, Paris between Neo-latin and Franc cultures. For further examples, see Franco Demarchi, Società e Spazio, temi di sociologia urbano-rurale, Trento 1969. The opportunity for cultural contacts provided by border regions have

paper of Abel Miroglio, Reflexions sur l'importance des frontières des états et des ethnies. Of great relevance to the subject of the present paper, but appearing too late for full utilization, is the work edited by Fredrik Barth, Ethnic Groups and Boundaries, the Social Organization of Culture Difference; Bergen-Oslo, Universitetsforlaget, London, George Allen & Unwin, 1970. The coauthors take the boundary, the boundary-maintaining structures and the patterns of cross-cultural, i.e. cross-boundaries contacts as the focus of attention; wherefrom exciting considerations, suggesting a minor revolution of many established concepts and theories of cultural anthropology, ensue. Is something similar liable to happen to international relations? It should be stressed however that the problems raised by political and military borders involve much more than ethnic and cultural issues: the problems of boundaries are not only problems of boundaries between national groups.

- 47) Samuel J. Surace, "Per una sociologia delle frontiere: il caso Stati Uniti-Messico", in Rassegna italiana di sociologia, aprile-giugno 1969; William V. D'Antonio and William H. Form, Influentials in two border cities, 1965 (for another study dealing with border situations, see R. Frankenberg, Village on the Border, West & Cohen 1957).
- 48) In his introduction to Parsons'-Shils'-Naegle's-Pitts' reader on "Theories on Society, the Foundations of Modern Sociological Thought", 1968 (1961), Kaspar Naegle hints that "The social 'takes place' in time and space. As an alive phenomenon any social arrangement has, in fact, a boundary. This idea is stated much more systematically in the second part of this introduction" (p. 14). But alas, if Parsons does mention the idea again, it can hardly be said that he treats it in a more systematic fashion than he had already done - which is far too little. p. 36: "The concept of an open system interchanging with environment systems also implies boundaries and their maintenance a boundary means simply that a theoretically and empirically significant difference between structures and processes internal to the system and those external to it exists and tends to be maintained. In so far as boundaries in this sense do not exist, it is not possible to identify a set of interdependent phenomena as a system". This is something as a final statement, because Parsons goes on with another line of thought: "besides identifying a system in terms of its patterns and boundaries, a social system can be analyzed in terms of three logically independent axes or bases" (etc.). Boundary-maintenance as a basic prerequisite of social system is mentioned - or paid lip service to? - in some other places; but from page 38 on the focus is on pattern-maintenance; and, given the abovementioned definition of boundary, there is no clue to distinguish the two.

The concept of boundary is resumed at page 70, in reference to the problem of structural change; and though some basic statements on the boundaries of social systems with their personality, organism and cultural envioning systems are given, little light is shed on the distinction, if any, between pattern and boundary maintenance: "the process of structural change may be considered the obverse of the equilibrating process; the distinction is made in terms of boundary maintenance. Boundary implies both that there is a difference of state between phenomena internal and external to the system; and that the type of process tending to maintain that difference of state is different from the type tending to break it down". The boundary is here defined by a metaphor: "a boundary is thus conceived as a kind of watershed". The metaphor of watershed however fails to demonstrate the complexity of the series of control levels and, hence, of the boundaries of subsystems within larger systems (p. 70). As hinted earlier, we think that the distinction between boundary and pattern maintenance can be utilized to part the exogenous from the endogenous sources of structural change, referred to in the following pages. Otherwise we see no other use for the concept of boundary maintenance than to acknowledge the assumption of the system-theory conceptual framework (see note 20). Buckley however (1967, p. 28) relates Parsons' failure to develop the concept of boundary maintenance to his disclaimed but very real commitment to a static, conservative perspective. See, for further discussion Buckley 1968, p. 496.

- 49) See T. Parsons, Introduction, in Theories of Society, op. cit.: also, idem Struc-

- 50) The subject has also been treated in notes 33 and 36. The last remark is by Stinchcombe 1968, p. 229, footnote.
- 51) Wynne-Edwards, 1967, pp. 98-99 and following. Another classification is given by John H. Crook, The Nature and Function of Aggression, in M.F. Ashley-Montagu, ed., Man and Aggression, 1968, p. 157.
- 52) Wynne-Edwards 1967, p. 162; Crook 1968, p. 159. H. Heidiger, in Edward T. Hall, La dimensione nascosta, 1968, gives another list of functions of territoriality; perhaps the most complete one (32 items) has been given by Carpenter (1938).
- 53) On the role of the periphery of bird territories, see the classic theories of Frank Fraser Darling; reported in Ardrey, 1967, p. 139. See also Crook, in Montagu 1968, p. 156.
- 54) These evaluations of the role of war in the evolution of species and societies is, together with the "philosophy of real estate" one of the main reason of the popularity of Ardrey's work and of the heavy attacks he has been subjected to from many scientific and political quarters. See Montagu's little reader, and also several articles like the one by Timothy Colton, The New Biology and the Causes of War, in the Canadian Journal of Political Science, Dec. 1969. Anyway, that society is characterized both by inward solidarity and outward hostility, both by cooperation and competition, is a widely accepted theory among ethologists as well as among sociologists, from Sumner on.
- 55) Cyril Burt, quoted by Ardrey, 1967, p. 35. Montagu (p. ix) states flatly that the notion of instinct has no scientific validity whatever in human sciences, at least since Knight Dunlap's article of 1919, and certainly since Bernard's book of 1924; but the assertion seems unduly dogmatic, as the other one that "certainly the views of Ardrey and Lorenz concerning man's nature have no scientific validity whatever" p. xiv.
- 56) Weston La Barre, The Human Animal, 1961, p. 57. For territory in other apes, see Crook, in Montagu, 1968, p. 167.
- 57) Crook, in Montagu 1968, p. 172.
- 58) Easton, 1965, p. 486 f.
- 59) Stanislaw Andreski, Military Organization and Society, 1968 (1954) p. 190: "Louis xiv - to mention one of innumerable possible examples - used to start a war whenever he was bored Unlike contemporary despots, he was quite frank about it".
- 60) That sociality is closely linked with the necessities of war is an old idea of sir Henry Sumner Maine and William James, among others; Ardrey has extended it to animal groups, called "Noyeaux", held together only by the cooperation in the defense of the territory, the hate for the common enemy (p. 152).
- 61) Sure, the ethologists' views on the cause of war are far from being watertight; but also some critiques levelled to them misfire, to the extent that they do not recognize that war belongs to the level of the political organization, and not of the individual. It is said that war is uniquely human in that only men fight to the point of killing each other, whereas animals almost never fight to kill (save for rats). But if the states, not the individuals, are taken into consideration, it appears that states too follow this pattern: when they make war, they usually do not kill (destroy, annihilate) each other, although innumerable individuals might be massacred in the encounter. See Morton A. Kaplan's third rule of the balance of power system, in System and Process in International Politics, 1967 (1957) p. 23. This amounts to say that war is not a psychological phenomenon, but a sociological-political one.
- 62) Nationalism has been very extensively studied; for a recent approach from an academic quarter different from political science and social psychology, see L. Reissman The Urban Process, 1964, where alphabetization is taken as an indicator of nationalism. How the media of mass communication stimulate nationalism and put an end to the age of assimilation is shown also by Walker Connor, op. cit. 1969, p. 580.
- 63) The preceding discussion of the contribution of biology and ethology to social sciences has been conducted on the basis of such works as: Robert Ardrey, Le Territoire, 1967, pp. 299; Theodosius Dobzhansky, Mankind Evolving, 1967, p. 381;

William Etkin, Social Behavior from Fish to Man, The University of Chicago Press 1967 (1964); Edward T. Hall, The Silent Language, 1967, pp. 192; id., La dimensione nascosta, 1968, p. 258; Weston La Barre, The Human Animal, 1961, p. 386; Konrad Lorenz, Das sogenannte Böse, zur Naturgeschichte der Aggression, 1963, p. 416; Desmond Morris, The Human Zoo, 1969, p. 256; Ashley Montagu, Man and Aggression, 1968, p. 178; Jacob v. Uexküll, Ambiente e comportamento, 1967, p. 228; V.C. Wynne-Edwards, Animal Dispersion in Relation to Social Behaviour, 1967, p. 653; and the article of Timothy Colton, The New Biology and the Causes of War, in Canadian Journal of Political Science, Dec. 1969.

Acknowledgments to the role of the new biology and ethology to the understanding of international phenomena are made by R. Aron, who after having hinted to it passim closes his monumental treaty with a quotation from Lorenz; John D. Herz, who in re considering his thesis about the demise of the territorial state recognize that among the counteracting forces there can be man's innate territoriality; already in the thirties Quincy Wright had perceived the close affinity between territoriality and other man's basic drives, such as towards food and sex (p. 76).

- 64) In this section we rely heavily on Costantino A. Doxiadis' treaty on Ekistics, the Science of Human Settlements, which is recognized as the most systematic and extensive, as well as the more original, work in planning theory. Such acknowledgments come from as diverse authorities as the Journal of the American Institute of Planners May 1969, p. 200, and Arnold Toynbee, in Cities on the Move, 1970. Certainly Doxiadis sums up and organizes theories drawn from many other authors, notably from the central-place-theory school of thought, with Christaller, Lüscher, Ullmann. Urban, human and economic geographers also deal with the phenomena of interest to town-and-country planners; but we could hardly refer to any single work as comprehensive as Doxiadis'; moreover most of the other literature we examined on the subject is Italian, and hence of little use to most readers of this paper: Franco Demarchi, Società e Spazio, temi di sociologia urbano-rurale, 1969, p. 729; Siro Lombardini, La programmazione, idee, esperienze, problemi, 1967; Giuseppe Saroni, L'urbanistica e l'avvenire delle città negli Stati Europei, 1967; Francesco Compagna, La politica delle città, 1967; Piero Maria Lugli, Storia e cultura della città italiana, 1967; Giulio De Luca (ed.) Problemi delle nuove realtà territoriali, 1966; VV.AA., La provincia nella regione, 1968; A. Ardigo, La diffusione urbana, 1967. Among the English works, reference can be made to Harvey S. Perloff, (ed.), Planning and the Urban Community, 1961; Maynard Hufschmidt (ed.) Regional Planning, Challenge and Prospects, 1969; Derek Senior, The Regional City, 1966; Lloyd Rodwin (ed.), The Metropolis of the Future (Italian translation 1964). Also the works of Pierre George and Jean Gottmann have been considered. For the German school of "Raumordnung", we refer to Edgar Salin, ed., Polis und Regio, von der Stadt- und Regionalplanung, 1967; and VV.AA., Die Methoden der Regionalplanung, 1967.
- 65) Open complex adaptive systems are, by definition, self-organizing systems (although the phrase has been sternly reprimanded by Ross Ashby): Buckley, 1967, p. 51; id. 1968, p. 496; the principle of progressive systematization, as one of the main laws of systems, is discussed by Hall and Fagen, in Buckley 1968, p. 85; see also, in the field of international relations, the list of system processes given by McClelland, 1968, p. 22; Charles R. Dechert, Cybernetics and Politics, Sociologia, Maggio 1968, p. 62.
- 66) John J. Ford, Cibernetica e sviluppo internazionale, in Charles R. Dechert, ed., Cibernetica e Società, 1968 (1966) p. 117.
- 67) The principle of internationalization is well known by land economists and regional scientists. See Giancarlo Mazzocchi, in La provincia nella regione, 1968; it has been recently treated in a very fresh although cursory manner by Stinchcombe, 1968.
- 68) Among writers in regional planning and "horizontal sociology" (Margaret Stacey, The Myth of Community Studies, in British Journal of Sociology, June 1969, p. 137) who have complained about the problems of boundary-drawing, see Derek Senior 1966, p. 11 and 20; A. Ardigo, 1967, p. 30; S. Lombardini, 1967, p. 202; René Künig, Die Gemeinde, 1958, p. 61; and Margaret Stacey herself, who claims that properly spee

king only the international system can be said to have geographic boundaries.

- 69) This is not the place to raise the question on what a community is, probably one of the most vexatae et tritae questions in sociology. What is meant here is simply the collection of all individuals with which a person is in some degree of personal (even if symbolic) contact and communication. This includes relatives, friends, acquaintances, associates, etc. Of course every individual, in this sense, has his own personal, subjective community. An objective community would be a significantly recognizable territorial cluster of such subjective communities.
- 70) One example is the crop of gambling, amusement and prostitution establishments around the borders of counties with stricter official moral codes than their neighbours: as between U.S. and Mexico (D'Antonio and Form) and Italy and Yugoslavia.
- 71) Jane Jacobs, Vita e Morte delle Grandi Città, 1969, pp. 241, 247, observes that border areas tend to transform the streets into blind alleys, thus creating functional vacuums which have the tendency to spark off feed-back processes; the knowledge of such border-created dysfunctions should warn against the building up of unnecessary barriers. She also quotes Kevin Lynch (p. 249) on the relationship between junction and barrier, and on the way to transform the latter into the former.
- 72) Torsten Hagerstr nd, Innovation Diffusion as a Spatial Process, 1967 (1953), p. 320.
- 73) See note 64. An extended but questionable treatment of the "teoria duale del processo urbano, energia informazionale e teoria urbanistica" (dual theory of the urban process, information energy and urban theory) has been given by Luciano di Sopra, in a "quaderno della rivista urbanistica", 1968; the dual theory states that the development of the center is build on the relative underdevelopment of the periphery.
- 74) See note 19.
- 75) Margaret Mead, The Crucial Role of the Small City in Meeting the Urban Crisis, in Walton and Bells (ed.s), Man in the City of the Future, 1968.
- 76) Abel Miroglio, Reflexions sur l'importance des fronti res des  tats et des ethnies, in Kontakten und Grenzen, 1969, pp. 23-29.
- 77) The reasons of decline of border disputes more commonly referred to are: 1) decline of traditional, extensive agriculture as main source of wealth and power and, respectively, rise of industrial, technological, organizational, psychological factors; 2) decline of European ethnocentrism, and respectively rise of egalitarianism at the international level, i.e., recognition of international status to cultural groups different from the Europeans, spread of non-european nationalism and end of the frontier, home or colonial (Hoffmann, 1960, p. 180); 3) rise of the ideologies of national self-determination; 4) moral obsolescence of war as a social institution, which involves its territorial consequences too.

It has been observed that, though the new states inherited "explosively artificial" boundaries (Hoffmann, in Knorr and Verba, 1961, p. 230; Frankel, 1969, p. 135) and though many observers include the boundary disputes among the oncoming "conflicts of modernization" (Linda Miller, quoted by Wayne Wilcox in The Protagonist Powers and the Third World, in The Annals, Nov. 1969) up to now the regional organizations have fared remarkably well in settling peacefully such disputes.

As for Europe, Frankel notes that a certain congruence between national and political systems has been achieved only through the cruel means of extermination and/or displacement of populations; his list of actual and potential residual disputes seem far too short (1969, p. 135). Walker Connor (Myths of Hemispheric, Continental Regional and State Unity, 1969) thinks that everywhere nationalism is increasing; but Huntington rightly states that "in the past interstate wars were almost always associated with changes in control or influence over territory. They were the natural concomitant of the 'territoriality' of the nation-state. In the mid-twentieth century, however, prospective gains in territorial controls began to decrease compared to the risk and cost involved in procuring them. Governments became more willing to live with disputed boundaries, unsettled claims, and irredentist hopes" (1962, p. 18). How long will this willingness last? In what conditions are irredentisms and border claims liable to spring up again? Many analysts, and notably R. Aron, think that the "appetites for space" still are the most fundamental of all (1962,

- pp. 84, 87). Quincy Wright too shares this opinion (1965 (1942), p. 137 and special ly 772).
- 78) We are aware that this statement has been already repeatedly made, but never fully substantiated. It is the basic assumption underlying all the present theoretical enterprise; only a great deal of further research can test the extent of its validity and use.
 - 79) See note 63.
 - 80) Thomas Schelling, Arms and Influence, 1966, p. 159.
 - 81) id., *ibid.*, p. 132 and following, 155, 158.
 - 82) id., *ibid.*, p. 137.
 - 83) id., *ibid.*, p. 132.
 - 84) Aron, 1962, p. 187.
 - 85) Schelling, 1966, p. 47.
 - 86) For this function of heuristic theories, see Morton A. Kaplan, 1967 (1957) p. 1.
 - 87) See note 19.
 - 88) On the concept of "Transcendental systems", see K.E. Boulding, in Buckley, 1968, p. 8. Also Pierre de Latil, Il pensiero artificiale, 1962, develops logically a similar systemic level.
 - 89) For the conceptualization of power in terms of amount of information see Stinchcombe 1968, pp. 9, 152, 164-7.
 - 90) On the non-observable nature of socio-cultural systems, see Buckley, 1968, pp. 496, 497; Ross Ashby (*ibid.* p. 111) states that neither energy nor matter are an essential component of machines (systems). In some other place (p. xxiv) Buckley observes how organization, rather than matter, is the fundamental scientific reality; also Buckley 1967, p. 48.
 - 91) On the boundaries between socio-cultural systems and the natural, physical reality, see T. Parsons, Structure and Process in Modern Societies, p. 275, 278 (also Theories of Society, introduction). The problem of the control of man on his natural environment, and the consequent building up of a man-nature megamachine enjoys currently an immense popularity, under the catchwords "ecology" and "pollution". See Robert Kates "Doomsday Theory", in Maynard M. Hufschmidt (ed.) Regional Planning, Challenges and Prospects, 1969.
 - 92) Wright, 1965 (1942) p. 906: "in the past, natural barriers of geography and language have assured (a) separation of many populations, but in modern times education and communication have tended to strike down these barriers unless they have been buttressed by artificial devices. Devices for preserving isolation-such as the maintenance of war fears, militarism and armed frontiers; policies of migration restrictions, protective tariffs, monetary autonomy, and economic self-sufficiency; propagandas of pseudo racialism and extreme nationalism; and education and assumption on national cultural superiority- have maintained barriers, but they have also generated wars". On the almost universal connection between army and nationalism save perhaps Cromwell's Old Ironsides and Trotzky's Red Army, see Finer, The Man on Horseback, 1967, p. 9.
 - 93) R. Aron, 1962, pp. 203, 7.
 - 94) On the process of "arrondir", see R. Aron, 1962, p. 163; Wright, 1965 (1942), p. 360; on the territorial "sensitivity" of states, see Wright, p. 770. That the territory is a basic element of the "national interest" or prestige is noted by most analysts.
 - 95) "We can find countless instances in our anthropological literature of whole peoples lacking a sufficient sense of authority to insure domestic peace and collective action - the basic minimum of both a state and an army ... But ... we have steadily lost all sense of man's ungovernable dimensions ... perhaps only the pathetic picture of confusion in to-day's so-called underdeveloped nations will finally enable us to define once again the psychological essentials of organization" David C. Rapoport (in A Comparative Theory of Military and Political Types, in Samuel P. Huntington, 1962, p. 78) places war and the army as phenomena leading to such psychological essentials, as common hate of an external enemy; nationalism is often but a milder degree of the same attitude. Schleicher, p. 63: "It must be realized

- that nationalism is a potent force in mobilizing the power of states; until some substitute for state power is found, therefore, states will dare not undergo a process of psychological demobilization by diluting the force of nationalism".
- 96) This is a highly controversial issue. Do ideologies really cut across national boundaries? Is the current contempt for patriotism and flags among many young people something more than a fad? Are the trends toward supranational integration and organization an enduring phenomenon? Will functional integration really lead to emotional, psychological unification? Do increased cultural contacts improve the relations between nations? Is European-style nationalism a necessary phase of nation-building in the third world? There seems to be no established answer to such questions. All we can say is, when and if nationalism is devaluated, the myth of boundaries is likely to be also devaluated.
- 97) Most scholars agree on the enduring vitality of the national, territorial state: and not only representatives of the "realist" school, as, to some extent, Aron (a foremost defender of the goodness of the nation-state arrangement), or Waltz, who is a shade more pessimistic in his conclusions (Man, the State and War, 1968, p. 238) McClelland (1969) notes the emotional reluctance to admit the impracticability of nation-states, and the objective impossibility to replace them; indicators of their continuing vitality are, besides their dramatic fortune in the ex-colonial world, their "increased metabolism": nowadays nations are more pervasively administered, and the activities of the state are more numerous than ever. Rosenau (1961, p. 78) thinks that several decades will pass before they ^{be} come really obsolete and are replaced by some other form of political organization. Hartmann too implies the continuing vitality of nation-states.
- 98) Aron: "l'impénétrabilité des frontières, la cohérence du corps politique on pour condition le consentement général des Etats à la légitimité des régimes et à la légalité des gouvernements" (p. 393). This is the only prerequisite to the functionality of legal boundaries.
- 99) An author who makes this observation is Frankel, 1969, p. 136. Also Bertrand Russell writes somewhere that the boundaries of nation-states are the result of contrasting pressures between the state and the international system.
- 100) Wayne Wilcox, The Protagonist Powers and the Third World, The Annals, Nov. 1969.
- 101) That war and armies make nations is a traditional notion, since Montesquieu, Bagehot, James and the classic sociologists. Almost "pure" examples of this process are states like Switzerland, Paraguay, Israel (David C. Rapoport, op. cit., p. 85); Nisbet (Community and Power, formerly In Quest of Community, 1967, p. 164) forcefully states that "The modern State is not the offspring of the nation. It is far more correct and relevant to say that the nation is the offspring of the state. Nationalism is no mere development... of folk ties of tribe, locality or region". Wright, 1965 (1942) points out, quoting Merriam, that nations are consciously created by civic education and other means (p. 994) as military service, rituals and ceremonies, etc. (p. 998). But he also notes that sometimes the state is the offspring of a nation, although his examples do not all fit very well; he notes a positive and a negative process of nation-building (p. 1002). Many other authors recognize that sometimes the state precedes the nation, sometimes the nations are their expression (Frankel, 1969, p. 13). Louis Halle 1962, p. 30, rightly argues that there is mutual interdependence, and a feedback process between the two entities, so that it is meaningless to speak of absolute primacy, temporal or otherwise.
- 102) The anthropomorphic expressions should not mislead into thinking that systems have "will". As Ross Ashby has shown, such competition and evolution is a necessary consequence of physical forces working on many elements for a sufficiently long time under unchanging "laws" like gravity, thermodynamics, etc. (in Buckley, 1969, p. 115-6)
- 103) See note 47.
- 104) On the "International functionalism" as a way to peace and integration, see David Mitrany, A Working Peace System, 1946. For a critical evaluation of regionalism and functionalism as the pathway to world federation, see Deutsch, 1968, p. 166, 198; Hartmann, 1967 (1957) p. 36; Schleicher, 1962, p. 184 and foll.; Aron, 1962, p. 733.

Most authors are rather sceptical on the automaticity of the passage from the technological level to the emotional-political one.

- 105) Quoted by Nisbet, 1967, p. 212.
- 106) Most authors share Morton A. Kaplan's opinion that a bipolar international system is highly unstable; game theory seem to avail this thesis.
- 107) For the vision of the world city, Ecumenopolis, see the works of Constantinos Doxiadis and specially his Ekistics, An Introduction to the Science of Human Settlements, 1968.
- 108) This is a fairly common observation and is a corollarium of the axiom that socio-cultural organizations are a response to an external threat.
- 109) Kenneth E. Boulding, The Meaning of the XX Century, 1964.
- 110) It has already been observed (Lynton Caldwell, in The Annals, May 1970, p. 112) that the environmental problem is the road by which the necessity of community, i. e. collectivistic control over the economic activities will be made evident even to the most ideologically individualistic cultures like the North American. Socialism will be accepted not because it grants more consumer goods but because it promises a better environmental quality. Also international individualism - i.e. the anarchy of the sovereign states - will evolve into an international community because of the need of a rational management of the natural environment. International agencies for the conservation of nature are already called for (Caldwell, op. cit., pp. 113).
- 111) Although Toynbee is probably wrong - according to most political analysts - when he restates the old federationist argument "the fact that federation has already been achieved on a less than global scale is fair evidence that it can also be achieved on a global scale" (Cities on the Move, 1970, p. 216), he is certainly right when arguing that "The coming of the world-City is a certainty, but the creation of a world-government is not; and, if we allow ourselves to be overtaken by the arrival of the World-City without having set up, to manage it, the world government that it requires, we shall bring catastrophe on ourselves for certain" (ibid.).
- 112) For the concepts of delineatedness and blurredness, see Stanislaw Andresky, Military Organization and Society, 1968, p. 31. Elsewhere, though, he apologizes for his habit of introducing neologisms.

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