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The Study of Boundaries:
A Systems-Oriented, Multi-disciplinary, Bibliographical Essay*

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The political scientist's new awareness of the spatial dimension of his subject matter has at least two implications, the reinforcement of the trend towards *interdisciplinarity* and the emphasis on *boundaries*. The former refers to the fact that, when projected on the spatial dimension, everything is interrelated; thus the spatialization of models in the behavioral sciences is strongly conducive to the unification of science. The second implication means that as soon as one starts to conceptualize human phenomena in a spatial framework, one finds and sets boundaries, since there is a logical and psychological necessity to break down the immense unbounded chaos of reality into a number of definite categories that are separated and distinguished by boundaries. Etymologically, to *define* means *to set boundaries*. Whenever social and political scientists have dealt with the spatial aspects of society, boundaries have been one of their main concerns. Witness the human ecologists and the geopoliticians, to name just two early abortive attempts to

build a socio-spatial science; and if we look to the newer syntheses, we find the concept of boundary equally prominent (Rokkan 1974; Merritt 1974; Soja 1974).

But there is another trend in the behavioral sciences that calls for renewed attention to this phenomenon, namely, the *systems* approach. To think in terms of systems is to think in terms of boundaries (and environment). This is logically built into all definitions of system (Buckley 1968; Singer 1972; Kuhn 1974; De Rosnay 1975) and distinguishes this concept from kindred ones, such as structure (Kolaya 1969). And, of course, the systems approach is interdisciplinary per se, striving towards trans-disciplinarity and, eventually, uni-disciplinarity (Kuhn).

Thus a paper on boundaries must be interdisciplinary. But, given the multitude of studies on boundaries and the limitations of space in the present paper, we must restrict ourselves to a brief review of the main approaches, concepts, names and titles — i.e., to a review of the literature. We have produced more substantial analyses elsewhere (Strassoldo 1970, 1977; Strassoldo and Gubert 1973). The material can be classified in several ways. One method is based on the established disciplines; another on the basic distinction between *functional* (analytical, conceptual) and *spatial* boundaries. A third useful scheme is based on the distinction between the related concepts of boundary, border, frontier and periphery; a fourth on the hierarchy of system levels; a fifth on the distinction between the subjective-conceptual-psychological, on the one hand, and the objective-material-systemic, on the other. The choice between these alternatives has both theoretical and practical implications. In the present circumstances, it seems advisable to define the basic theoretical principles on which our research is founded and then proceed to review the main contributions of a number of disciplines.

1. We are interested in the *spatial* boundaries of *any* social system. If we share the *concrete-system* approach of Singer, Kuhn and others and accordingly deal only with *real* systems, made of matter-energy and information, it follows that every system — from the dyad to mankind — is spatially located and *bounded;* any system then has boundary-maintaining mechanisms that keep it differentiated from the environment. Earlier concepts of unbounded "fields" that seemed so promising in the late forties and early fifties (Wright 1955) now seem outdated.

The study of systems from the point of view of their boundaries has been advocated as a new, potentially fruitful approach by J.G. Miller (1965a, 1965b) and other specialists in general systems theory. Sociologists such as Stinchcombe (1963, 1968) have demonstrated the usefulness of this approach in the study of urban-rural differentials in

delinquent behavior and in the study of power diffusion. Modern geographers insist that the boundaries of nation-states constitute only a special family of a wider genus and that the boundaries of local communities and regions should also be the object of careful research (Ad Hoc Committee on Geography 1965).

This principle clearly implies acceptance of the systems approach and especially of the usefulness of inter-level comparisons. It stands resolutely against a state-centered approach, typical of a "classical" tradition in the social sciences, according to which the "social system" is explicitly or implicitly equated with the nation-state (Parsons 1961, 1966, 1971) and according to which man's second most relevant boundary, after the skin, is the national boundary (Vickers 1970), all other groups, communities and systems being either subsystems of states or groupings thereof. Our approach claims that nation-states are but one level of human organization, with nothing mystical and definitive about them, a particularly successful species, indeed, and one still increasing in number, size and power — but destined to eventual extinction, like 99 percent of all biological species. (Present nation-states have also been characterized as the biological failures and monsters that synthesized and dissolved for eons in the "primordial soup" before the first viable cellular organization emerged; the complexity of one cell is of a magnitude comparable to that of the integrated world system [Morin 1973].) According to that view, it might even be advisable to focus on nation-states' most likely successors, the *regional* organizations (Dickinson 1964; De Rougemont 1968), both infra- and supranational, and to study how the smaller human groups and systems can defend and maintain their boundaries against encroachment and penetration by the state (Stinchcombe 1963).

2. We are also interested in the *non-spatial* boundaries of social systems. Systems are made up not only of material-energetic components but also of relations and interactions among them and their attributes. In simple mechanical systems these are embodied in material-energetic connections, depending on physical contact and proximity; as the level of complexity grows, the spatial arrangement, which is the primordial informational structure (see Monod 1970), becomes more fluid and the communication network becomes more extended, involuted and "ethereal" (Miller 1965a, 1965b; Simon 1969). Thus it is often better to focus on the behavior of the components themselves, leaving the causal network in a "black box," as it were; to focus on the information content and meaning of the messages, instead of the spatial structure of the communication networks. This is often advisable when dealing with sociocultural systems, where the behavior of components,

often involving great changes in the material-energetic posture, depends on very thin informational flows — images, ideas, attitudes, perceptions, expectations, etc. — within the individual organisms and between them.

Thus the boundaries of social systems are not only spatial but also functional; a social system is said to exist as long as its components display certain behaviors, states, attributes; when its variations exceed certain critical values, or norms, the system is said to disappear or to have become something else (Buckley 1968). A family, a church, a corporation, a party and a state have a spatial boundary, i.e., a line circumscribing the localities in which their human (and material) components are placed. But they also have normative, functional or analytical boundaries, circumscribing the range of behaviors and attributes that are said to belong to the system. When we deal with abstract (or action) systems, it is possible to overlook the spatial dimension and boundaries completely; but this is merely a heuristic, methodological device to simplify concrete reality. Some models of the social system, the political system and the economic system are constructed not with concrete organisms but with roles and "persons," i.e., fictional disembodied characters ("homo sociologicus," "homo politicus," "homo oeconomicus"). This may be a necessary first approximation model, but, as science develops, the characters must be integrated, and this usually means meeting the physical, spatial constraints of human behavior (Miller 1965a, 1965b).

3. Spatial and functional boundaries interact and intersect each other in a complex and variable fashion (Landheer 1973). People group together on both functional and territorial bases. The family is bounded by certain norms regarding mutual cooperation, etc., but also by rules concerning residence, cohabitation, the right to privacy, etc. Many other important human groups are also basically territorial: the community and the nation-state (Hillery 1968). Others are basically functional: church, party, class, enterprise; but they too display some degree of territorial articulation and hence boundaries. The study of the interplay between these two basic organizational modes seems very productive. Territorial, bounded groups seem, in general, to command a deeper loyalty and to involve deeper emotions than do the merely functional ones (eliciting theories of the "territorial imperative"); but there seems to be a correlation between the processes of rationalization, modernization, technological growth, etc. and the development of more functional organizations, "communities without propinquity" (McLuhan 1964; Webber 1963). The theory, first propounded by the Belgian sociologist Guillaume de Greef (1908), says that as a society differentiates and internal division of labor grows, its external bound-

aries also become differentiated and, as it were, stagger and flake off, leading to growing interpenetration and interdependence between societies, which in turn should lead to the emergence of a single global society.

4. A fourth principle states that, since most social systems (and natural ones, for that matter) are complex and internally differentiated, their boundaries will likewise be numerous and vague. Sharp boundaries are rarely found in reality, although there seems to be a psychological necessity for man to draw them. Ecological forces result in *informal,* i.e., formless, fuzzy systems; human intentional forces strive for the creation of *formal,* i.e., sharply delineated, artifacts and systems. The corporation as it is represented in the organizational chart, the state as described in its constitution and laws and the prison as circumscribed by its walls are examples of this aspect of human rationality. There seems to be a constant dialectic between reason, which tends to super-impose sharp boundaries upon reality, both social and natural, and the blind working of ecological forces — indeed, of cosmic forces, as spelled out in the second principle of thermodynamics — all bent on the obliteration of formal boundaries and the blurring of distinctions.

5. A fifth principle refers to the open-systems theory, according to which the development of systems correlates with their ability to differentiate internally in order to cope with an ever widening range of variations in the environment; it correlates with their ability to control environmental disturbance not with closure but with ever finer selectivity of inputs — in other words, with more complex and differentiated boundary-maintaining structures and processes (Teune and Mlinar 1973; Baumgartner et al. 1976). The more open and developed the system, the more crucial its boundaries. Stones have almost no differentiation between internal structure and boundary structures, whereas organisms have a sophisticated, multifunctional set of boundary organs (skin, membranes, etc.). Human communities likewise develop many mechanisms to optimize their relations with the external environment, to protect themselves from it and to expand their control over it. The open-boundary strategy, coupled with internal development, seems to be the most rational choice in a world of increasing interdependence between persons and communities, caused by the technological erosion of distances and spatial barriers.

According to these principles, the study of boundaries is relevant not only to the development of science — social, political and ecological — but also to the formation of attitudes and values of political importance. At the first level, it points to the interdependence of the spatial and the functional aspects of reality; and the construction of an in-

tegrated socio-spatial theory has long been a cherished goal, now pursued with renewed energy from many quarters. At the second level, it destroys the closed-system approach, with its unavoidable overtones of conservatism and stagnation. It belongs to those new cultural streams that emphasize cooperation, association, openness and tolerance of diversity instead of competition, separation, closure and intolerance (Rattray Taylor 1972; De Rosnay).

Moreover, to focus on boundaries means to become aware of the fuzziness of social systems and groups, to become critical of the claim of "core areas" to partition all of reality among themselves, to become sensitized to the differentiation between centers and peripheries and to the epigenetic and random processes that result in the expansion of communities. It is a good antidote to any organismic view of society and of history as the inevitable evolution towards the nation-state. People largely agree in their identification of the core of things (Berry 1973); to find the boundaries is more difficult. Yet, according to some authoritative writers, it is in the frontier areas, where systems meet, that many creative social processes evolve (Sorokin 1937); it is the "non-overlapping character of societal boundaries that explains most of the tensions and dynamics of social life" (Mayhew 1971). This statement may be an analytical refinement of Boulding's (1953) old observation that "growth is often the result of an attempt to correct disproportionalities."

BOUNDARIES, FRONTIERS AND PERIPHERIES

A conceptual mode with such wide theoretical and practical implications is bound to be referred to by several different terms. We find that three basic meanings are expressed by the words boundary, frontier and periphery. Terminological matters such as these are tricky, because no two languages have exactly the same terms with the same denotations and connotations, and there lurks always the danger of constructing metaphysical systems that are mere projections of language systems. With this in mind and with reference to a wide range of literature, mostly in English, we can state that:

1. There is a group of terms indicating simply the "ending" of a thing or a system – a static concept. *Limit, border* and *boundary* convey this basic meaning. The term boundary points to inner constraints and binding forces. The difference between border and boundary seems to lie in the fact that a border is usually *zonal* or areal, while a boundary is usually a *line.*

2. The basic denotation of *frontier* seems to be its *dynamic* quality.

...ference (11).

The Region, then, speaks of democratic involvement in societal decision making (participation) and in efficient societal control over the allocation of resources (planning). The Nation-State smells of rules, armies, history, blood; the Region recalls geography and rational administration.

7. Regionalism and Federalism in Europe

Western Europe is, in certain regards, the more mature of the world regions. Here national frontiers have become extremely permeable, as some States try to integrate in regional union. They might disappear completely; but if Europe develops as a new, improved model of the old war-machine, a giant Superstate motivated only by security and power, then not much will be gained for peace (12). Lacking that motivation, there is a distinct danger that national feelings will hinder the development of Europe. Many observers have emphasized the relationship between regionalism at the sub-national level and regionalism at the supra-national level; only a total reshuffling of state powers and their re-distribution to higher and lower levels of decision-making will make possible a democratic, yet efficient Europe (13). Thus Eurocrats in Bruxelles and regionalists all over Europe have been linked up across State boundaries (14).

8. The Cooperation of European Frontier Regions

In this process the most promising points of leverage seem to lie in border areas. European organizations are paying keen and increasing attention to the so-called Frontier Regions between Belgium, Holland, Luxemburg, Germany, France and Switzerland. These regions in the core area of western Europe are the most active supporters of European integration because they have suffered most from old hostili- ties and divisions and they have most to gain from unity. They were at the periphery of their national States, constrained by the defense needs and often ravaged by wars; but they are going to become the central places of the new Europe. Presently the persistence of national frontiers is widely resented here as an obstacle to commercial, industrial, urban development. This has activated a swarming of cooperative initiatives, spearheaded by chambers of commerce, local adminis- trations, planning bodies. Several European organizations have been involved in studying and supporting this process (15).

9. Border Regions: from locus of conflict to locus of cooperation

Essentially, what we see in this case is the transformation of border regions from locus of division, hostility, disputes and wars to locus of cooperation and integration; this process can be seen as "nothing but" the consequence of a wider, more important process of continental (supra-national) integration. But such linear reductionist thinking tends to forget the force of feedback processes; the initiatives, the doctrines, the examples emerging from European "Central" frontier regions can influence the situation elsewhere. In fact, when the Council of Europe promotes symposia for the study of European Frontier Regions, the main drive comes from the representatives of Central frontier Regions; but also the Peripheral Regions come to present their experiences and identified with the... This contributes to the development of the consciousness of

STATEMENT II

There are some trends in present society which give to "openness" the status of a relevant social value. We frown on secrecy, separatism, segregation, reserve, aloofness, exclusion, closure. We want "open" institutions, clubs, universities, classes, governmental agencies, mental hospitals, discussion groups, national economies, international organizations.

But openness can be compatible with the persistence of the system only if "closure" is substituted by more sophisticated mechanisms of "boundary maintenance".

The opening of social boundaries is a relevant social trend because it is connected with:
- *freedom and democracy*
- *affluence*
- *mobility*
- *development*

The more we emphasize "openness" as a social value, the more important becomes the problem of identification and analysis of the "boundary" processes and mechanisms in social systems.

DISCUSSION

2.1. Boundaries, communications and systems

The "systemic" approach starts from the premise that human societies are, with few exceptions, systems which are open to each other (16). Societal boundaries have the function of controlling, filtering and processing the inputs, not simply of rejecting them. The more complex a system the higher should be its capacity for adaptation to and control of the environment; the "law of requisite variety" implies that the higher, more complex and powerful a system is, the more elaborated and sensitive are its boundaries, i.e: its capacity to react appropriately to environmental stimuli (17).

The phenomenal increase in the means of communication (transport of things and persons, flow of information) has resulted in a corresponding increase in the systemic level of human societies. A system survives by patterned exchanges of energy and informa- tion (18).

2.2. Vertical and horizontal boundaries

The increased capacity for communication, induced by technology, increases the density of social interactions and leads to the evolution of new social structures, groups, organizations, systems.

As long as human communication was sense-based, it was land and distance-bound: a basic feature of social groups was their spatial, territorial dimension. The "tech- tronic" (19) era and the "mobiletic" (20) revolution have facilitated the emergence of organizations which are almost "a-spatial", and which can be called "vertical", "functional" or "analytical". They coexist on the same space.

Such organizations (industrial corporations, political and cultural associations, institutions and groups of all kinds) have often also a territorial dimension, and hence a geographical boundary; but this is not their essential boundary. Much more important are their "analytical" or "functional" or "vertical" or "normative" boundaries, which can be identified with the rules, norms and principles governing the identification of members, roles

terms of periphery, although substantively it seems to belong rather to the frontier plexus.

Philological explorations are always a source of intellectual delight and often of useful insights (Demarchi 1972). It has, for instance, been pointed out that the "mark" as indicator, the "mark" as military frontier region and the "market" might all refer to a primordial institution still known as "silent trade," i.e., the practice of exchanging goods in the no-man's land between two different groups, while avoiding direct contact (de Greef); and a number of such relations have been suggested through the analysis of other boundary-related terms. But this mode of theorizing cannot be pursued further here. A large number of more empirical studies of frontiers, boundaries and peripheries await us.

CLASSIFICATION OF THE LITERATURE

The most obvious way to classify this material, as pointed out above, is by discipline, although this too raises a number of problems. Specialists in one discipline may have said important things on boundaries that fall outside their discipline; for instance, international lawyers dealing with geographical aspects of boundaries or historians having important insights into their psychological aspects. Another problem is that within any established discipline there are subfields relating it to other disciplines and making imputations difficult.

In addition, there are the new synthetic or interstitial disciplines that do not fit neatly into a traditional one-dimensional continuum of disciplines. Finally, there is the ranking problem, i.e., where to begin the presentation and by what criterion to order it. One alternative is to list disciplines according to their chronological priority in dealing with boundaries, in which case international law and political geography would certainly stand out. Another is the "existential" or "phenomenological" approach, that is, to begin with the contribution of psychology, and especially of child psychology, on the way the subject perceives or posits a differentiation between self and environment. A third approach is the objective or systemic one, which divides the universe into systemic levels, from atoms to galaxies (Buckminster Fuller 1972), and begins with the disciplines that study the most simple systems and boundaries, working its way up to more complex ecological, social and cultural systems and progressing from single human organisms to the international systems.

Any ordering has theoretical and practical implications, and any choice is bound to hurt somebody. Thus we shall not try to marshal more justification for our own classification, presented below. It is

most random, combining, almost unconsciously, a degree of historical iority, of phenomenological outlook and of systemic hierarchy.

1. *International law.* Historically, it was state boundaries that first tracted the attention of those early social scientists, the lawyers. At ast since Grotius and Pufendorf, every work on international law has cluded a chapter on the functions, structure and typology of state undaries. Among the most common discussions are those concerning e "optimum" type of boundary, its spatial extent and its demarca- on. Many of these discussions draw heavily on Roman civil law and its ethods for dealing with the boundaries of private property (Soja). ternational lawyers must also be credited with making the first ex- orations into the boundaries of more primitive sociopolitical organiza- ons and with writing some of the most informed and comprehensive xtbooks on boundaries (see Lapradelle 1928). Moreover, the legal proach is well represented in the work of "limologists," specialists in undary studies, who often are diplomats or other government ficials (Curzon 1908; Dorion 1963).

2. *Geography.* The second major approach to the study of bounda- es is the geographical one. Even lawyers have to rely heavily on the aterial collected, described and classified by geographers. It was one the founding fathers of modern geography, Friedrich Ratzel, who oposed one of the most celebrated "theories" of boundaries, which considered to be an "organ" of socio-territorial organisms and one at specializes in offense as well as defense − not only the skin but so the claws of the state. Specialists in boundaries must have a solid ographical background; it is no coincidence that among the most illiant scholars of boundaries are military geographers (Adami 1927; oldich 1916; Haushofer 1927).

Geography encompasses many different subdisciplines, and most of em are concerned with boundaries. First and foremost is political ography; it is within this framework that some of the most important bates on boundaries have taken place. See, for instance, the "sep- atist" strategy of Holdich and the "associationist" one of Lyde eattie 1944).

Political geography degenerated into *geopolitics* around the turn of the ntury, in the hands of Ratzel's followers, some of whom were Anglo- mericans, others Swedes or Germans. The vicissitudes of this field of udy are well known: the grand deterministic theories, the identifica- on with some national ideologies, the fall into disgrace with World ar II and the re-evaluation of the late fifties and early sixties (Aron 62; Cohen 1963). The geopoliticians produced a wealth of papers id books on boundaries − not only empirical-descriptive, like the

works of most geographers, nor mainly normative, like those of the lawyers, but purportedly "theoretical."

The revival of interest in political geography, witnessed by the publication of many excellent readers on the subject (Weigert 1957; Kasperson and Minghi 1969; Jackson and Samuels 1971; de Blij 1973), produced a wealth of material, and some very judicious theorizing, on the topic. Another rich and updated bibliographical source on international boundaries can be found in number 18 of the *Cahiers de Géographie de Québec* (1974), edited by Dorion. Monographs on boundaries form one of the largest sections of geographic studies — too large to be dealt with here. Some bibliographies of this material can be found in the above-mentioned sources. Several recent boundary studies are more socio-economic and political in nature, such as those of Moseley (1973), Kruszewski (1972) and Shears (1970). One of the current foci of scholars interested in political boundaries is Africa (Widstrand 1969; Bono 1972).

Modern political geography differs in many ways from the "classic" one. It is less pretentious in its claims to be the most "general" and "synthesizing" of the human sciences and is more ready to learn from the developments of sociology, economics, political science and psychology. One consequence of these new attitudes is the loosening of the Hegelian fixation on the nation-state as the only political organization worth studying, and hence new attention to the boundaries between other human groupings — urban and regional communities, etc. (Ad Hoc Committee on Geography; Prescott 1965; Minghi 1963).

Boundaries are also a basic problem in regional geography, the branch specializing in the determination of "regions," i.e., the basic unit — the "atoms" — of geographical studies. In most attempts to partition the surface of the earth into homogeneous (or polarized) regions, while it is possible to agree on the "core," it is usually much more difficult to find objective and sharp boundaries because *"natura non facit saltus"* and geographic features usually shade gradually into one another. Modern regional geography thus tries to develop sophisticated statistical techniques to sort and classify data so that objective discontinuities can be identified (Haggett 1972).

Barriers are one of the main foci of *diffusion* studies, one of the liveliest subfields in modern human geography (Hägerstrand 1968). The influence exerted by national and administrative boundaries on the economic activities, and hence on the patterns of settlement, has also been studied by economic geographers (as well as by spatial economists, by regional scientists and by "ekisticians") (Lösch 1954; Morrill 1970; Lundèn 1973; Doxiadis 1968; Dickinson). It should be noted that one of the weaknesses of the central-places theory, the basic theory in the

study of human settlements, has been found by Rodwin (1970) to lie precisely in its inability to take into account the boundaries of the settlement.

3. *Urban and regional studies.* A new, synthetic discipline has been emerging in response to urban problems in our society. It is composed of elements of architecture, town planning, geography and the urban-related subfields of several behavioral sciences, such as sociology, political science, economics and so on, with a massive injection of ecology and systems theory in more recent years. Students of human settlements meet with boundary problems at many levels. In the first place, defining the settlement is often difficult, given the very loose structure of modern urban spread, conurbations, metropolitan regions, megalopolises, etc. Yet, definition is basic, not only from a theoretical point of view but also from practical and political ones; it defines the area and range of operations of the planner and policy-maker (Cox 1972; Dickinson; Ardigò 1967). In the second place, it has been found that all social groups grow very attached to their boundaries and resist change. Third, physical barriers in the city have depressing effects on the adjoining area; this "halo effect" works at every level of bounded areas (Cox 1972; Lynch 1960; Jacobs 1961).

Geographical-historical approaches to urban studies point out that many important cities have arisen in former frontier areas (Smailes 1966) and that military frontiers have mixed, but always important, effects on urban growth (Whittlesey 1935; Gutkind 1964; Strassoldo 1973b). Other students, of a more "culturological" bent, note the fundamental importance, in early civilizations, of the building of city walls — the urban organism's outer boundary. In many cases the walls were built before the city itself was, and there was a host of related ritual celebrations and symbolic meanings, some of them cosmological in nature (Eliade 1949; Sica 1970).

Di Sopra (1975) develops a socio-spatial theory of settlement systems in which the setting of the boundary, with the ensuing distinction between center, periphery and external area, is the fundamental act; the center really develops as a consequence of the need to maintain the boundary. This view seems to agree not only with Eliade's anthropological interpretations but also with some insights of cybernetic theory (Ashby 1962).

4. *Economics.* Economic theory does not seem to have dealt much with the problem of boundaries, although classical liberal economists would decry the existence of national frontiers as a barrier to free trade, and Adam Smith himself praised the activities of smugglers, who are forced to break the laws of the state in order to obey those of

economics. Economics also provides the conceptual tools for Boulding's (1963) work on state size and on boundaries as equilibrium lines. Scholars of such disciplines as regional planning, regional science and economic geography have sometimes concerned themselves with the economic problems of frontier regions (Dickinson; VV. AA. 1971, 1975; Rodwin; Malchus 1975).

Another economic contribution to the study of boundaries is the theory of optimum size of service areas, and the problem of "internalization of positive spillovers and externalization of negative spillovers," which gives administrators some guidelines on how to draw the boundaries of their jurisdictions (Cox 1974).

5. *Psychology*. There are two main contributions from psychology to the understanding of boundaries. One concerns the development of the subject, the other the identification of the object. Child psychologists have observed that the self emerges through a dialectical process of identification of the "other" (Piaget and Inhelder 1948; Mead 1934) (which is the old Fichtian intuition on the ego positing the non-ego and developing in confrontation with it, and the position of symbolic interactionism in sociology). This means creating a fundamental boundary between "me" and the "world," inside and outside, etc. This boundary line remains fragile throughout one's life (Morin). It seems to form the basis of important later dichotomies, of which the one between "we" and "they" is the most important, separating as it does the "community" from the larger society, the primary group from foreigners and friends from enemies, actual or potential. It divides the world's surface into halves: the *inside* − our land, our civilization − and the *outside* − the barbarous wilderness abroad (Buckminster Fuller; Sombart 1973). In more primitive cultures, and in modern barbarian ones, this dichotomizing attitude results in the refusal to grant outsiders human status. Most primitive groups call themselves "men" and think of outside people as non-men, beasts to be hunted down (Benedict 1934; Mead 1964; Lévi-Strauss 1966). According to Schmitt (1932), the enemy, the outsider, the other-than-us is the basic political concept; one cannot act politically unless one has an enemy against which to pit oneself. Another facet of this basic dichotomization is that being "abroad" means freeing oneself of the normative constraints of the ego, the we, the community; it means freedom of the id to expand broadly; it means giving free rein to one's basic impulses. This is certainly one of the motivations of tourism and probably one of the forces behind the colonization fits of Victorian Europe (Kiernan 1969).

The second main contribution comes from Gestalt psychology, but it also draws on earlier and more general psychological observations. It

concerns the categorization process, the way perceptions and observations are more or less automatically organized into patterns or "entities." The recognition or imposition of boundaries is a fundamental activity of the human mind (Katz 1951; Campbell 1958). Some scholars of the Gestalt school have made profound analyses of boundaries (Ruesch 1956) and have regarded "barriers" and limits as one of the most common features of the individual's "life space" (Cartwright 1948). The consequences of this characteristic of the human mind in spatial behavior have been analyzed by urban theorists and regional planners (Hägerstrand 1970); the intolerance of ambiguity and overlapping of spatial patterns engenders a drive towards artificial order, strict separation and sharp boundaries (Alexander 1965). This explains very well both the rationality of private property and of the modern state, in contrast to the less clearly defined methods of dealing with territory in more "primitive" systems (Soja; Miroglio 1969).

Another contribution of psychology to boundary problems stems from the theory of the "marginal man," the "member of two (or more) worlds." Not everybody is in a position to distinguish sharply between in-group and out-groups; not everybody has only one membership and reference group. The marginal man is in a peculiar psychological and social situation, one favorable to both mental illness and personal development (Stonequist 1937). Innovators and intellectuals are usually marginal men (Mannheim 1929). This could be seen as the psychological interpretation of the "synthesizing" and "creative" characteristics of the "frontier situation" (of Toynbee) and of the "dynamic consequences of the non-overlapping of boundaries" of de Greef and Mayhew. Darlington (1969) suggests a genetic interpretation of these characteristics of "great men," usually "bastards" of mixed breeding.

6. *Ethology.* It seems proper to assign the question of territory to the discipline of Konrad Lorenz, who originated the debate on the subject, although scholars of many other disciplines — biology, psychology, anthropology, political science, sociology, etc. — have joined in. It is well known that Ardrey, on the basis of Lorenz's and others' concept of "territorial instinct" in many animals and Maslow's hierarchy of human needs, imputes to the boundaries of territory the function of providing stimulation and exercise, by means of a conflictual social relationship with other individuals of the same species. In Ardrey's (1966) scheme, the "core" or nest provides security and the territory itself identity; in more physiological terms, the nest assures the reproduction of the species and the territory assures the maintenance of the individual. Apart from undue exaggerations and generalizations, this theory seems to explain fairly satisfactorily the deep emotions that

humans attach to the home, the territory and the sacred frontiers of one's group. Moreover, it seems to be compatible with some of the historical and psychological interpretations mentioned above.

Less famous ethological studies that seem relevant to our problem concern the emergence of center-periphery patterns in both the social and spatial dimensions in primate groups. It has been observed that the leader, whose behavior commands attention from the rest of the group, tends to sit in the *visual center,* where he can watch and be watched more comfortably by all. The more marginal members tend to be located, not surprisingly, along the physical margins (Jolly 1972).

More psychological and anthropological in nature are Hall's studies of the meaning of *distance* to animals and men, which gave rise to the science of "proxemics." According to Hall (1966), every organism carries along a series of portable territories, "bubbles" marked by critical distances and boundaries, infringement of which carries various meanings, often culture-bound in humans, and elicits appropriate responses. Territorial boundaries are thus considered to be a projection of such mental boundaries. This concurs perfectly with Simmel's socio-logical view (see below).

7. *Anthropology.* Physical anthropology, as a branch of biology, is relevant to the study of boundaries only insofar as it deals with the role of physical separation, isolation and barriers in population dynamics. Variations, subspecies and eventually species develop when a popu-lation is physically separated by another and is subjected to selective adaptation to a particular ecological environment. On the other hand, within a single species, new varieties can emerge from the cross-fertilization that may occur between different populations. In both cases the role of border zones and areas of contact is evident.

Some cultural anthropologists rely *partly* on analogous models; ideas and cultural traits behave in ways not completely different from genes (and viruses) (Morin). Thus cultural differentiation is favored by iso-lation, i.e., by closed boundaries and steep barriers, while cultural dif-fusion and synthesis require, above all, the zones of contact (Sahlins and Service 1960; Mead 1964; Bastide 1970; Balandier 1971). Wissler and Kroeber have analyzed the characteristics of the borders of cultural areas (Dickinson).

Anthropologists do not seem to have placed much emphasis on boundary problems, although some of them have focused on the prob-lems of marginality and cross-cultural influences, to the point that they have been labelled "sociologists of the frontiers" (D'Epinay 1974). Studies of primitive political organizations cast light on the different boundary concepts held by man in different times and places.

The main boundary-related problems encountered by anthropologists and kindred scholars (ethnologists, etc.) concern ethnic minority groups, which are often found on the peripheries and in the border areas of nation-states, for at least three reasons. First, the historical vicissitudes of war and treaties and the subsequent changes of boundary lines often detach "national minorities" from the main body of their cultural areas. Second, state boundaries tend to run through areas of uncertain and mixed national membership. Third, closed boundaries tend to create peripheries, areas of isolation and stagnation, where traditional cultural traits have a better chance of surviving. Thus in relatively modern societies, such as Europe, it is in the more remote, outlying, peripheral regions that the anthropologist can find interesting ethnic groups. Moreover, these regions lend themselves well to cross-cultural studies and studies of cultural interpenetration and diffusion (Cole and Wolf 1974; VV. AA. 1969a).

Another approach to "ethnic groups and boundaries" has been suggested by Barth (1969), who deals with the mechanisms by which such groups maintain their boundaries, i.e., group consciousness, cultural traits, etc. Territorial separation, the marking of spatial boundaries, is only one such mechanism. A second one is *ecological specialization,* whereby different groups live spatially intermingled but functionally separated, with little contact and communication. A third mechanism is *symbiosis,* in which there are functional exchanges but not cultural, normative, "expressive" ones.

8. *Sociology.* This discipline boasts a wide range of contributions to the study of boundaries. One of its founding fathers, Durkheim (1897), called attention to the "form of frontiers" as one of the basic "morphological" characteristics, and, as is well known, he ranked social morphology very high on his roster of sociological subfields, as the point of departure and arrival of all sociological "physiological" (i.e., functional) analyses. His Belgian contemporary, Guillaume de Greef, whose main ideas have already been mentioned, wrote a sizeable volume on the theory of frontiers and classes. Max Weber studied the process of Polish settlement of East German rural areas, showing how the short-term economic interest of German landlords undermined the longer-term interest of Germany's claim to those borderlands. He also makes many observations on the relationship between territory and political power that touch on boundary problems. Georg Simmel has analyzed, in several places, the function of social boundaries and their relationships to spatial ones. His insights are among the most brilliant on this subject (Spykman 1964; Simmel 1957).

The sociologists of communities face the preliminary problem of

identifying the boundaries of their objects. One of the early works of American rural sociology attempts to define the boundaries of low-density communities (Galpin 1915). The brand of urban sociology cultivated at the University of Chicago, under the leadership of R.E. Park, has employed the concept of "natural area" as one of its basic working tools, and one of its main concerns has always been the determination of the boundaries of such areas as well as of urban communities in general. The contemporary exponents of this tradition – from Janowitz (1952) to Hawley (1971), to Gibbs (1961) – have all made notable contributions in this field. Suttles (1968, 1972) has combined insights from the ethological theory of territory with observations on the social organization of Chicago residents. One of his most important ideas is that the boundaries of communities are largely imposed from the *outside:* it is the hetero-identification that gives rise to the self-identification; the urban sub-community is largely created by the urban context. This recalls some of the psychological theories that have been mentioned above. A second series of observations concerns the structure and function of the boundaries of the urban sub-community.

The concept of boundary finds a place in modern sociological theory, but Talcott Parsons (1961, 1966) did not develop his concept of "boundary maintenance" sufficiently to differentiate it significantly from "pattern maintenance," one of the main functions of the social system. The concept has been revitalized by the influx of the systems approach, particularly evident in the sociology of organizations. The analysis of boundary-maintaining functions is presented here as a fresh approach to the study of these social systems (Aldrich 1971; Matejko 1973).

Like anthropology and ethnology, sociology is interested in ethnic problems, and, for the same reason, the "sociology of frontiers" often ends up simply as a sociology of inter-ethnic relations (Rose 1935; Surace 1969; Gubert 1976).

An interesting category is studies of frontier communities, such as those conducted on the U.S.-Mexico border (D'Antonio and Form 1965; Price 1973). Social geographers have also produced a number of such studies. One of the peculiarities of the frontier situation is the rise of twin cities, settlements with parallel or complementary functions on each side of the boundary. These offer a particularly appealing opportunity for cross-national and comparative study. But the "frontier situation" has been the object of careful empirical sociological surveys also in cases where it was not possible to make the study cross-national (Gubert 1972).

Sociology has also dealt with the center-periphery conceptual couple. This crucial antinomy is discussed in the recent volume of essays by Shils (1975).

In closing this section, it must be emphasized that, numerous as the scattered contributions are, the concept of boundary and related concepts have not found their proper place in most sociological handbooks and standard reference works. One notable exception is Janne (1968), a Belgian sociologist of an interdisciplinary background; but he does not cite even his compatriot de Greef, the founder of the sociology of boundaries. We must turn to Mayhew to find a sociological framework that focuses on the concept of boundary.

9. *Political science.* The contributions of political science to the theory of boundaries are of special relevance for two reasons. First, political science, as the science of the state and other political-territorial organizations and, especially, as the master science of international relations, has always been quite sensitive to problems connected with frontiers and boundaries, both as limits to effective power and as loci of contact, exchange and especially *conflict* between political organizations. Second, political science has been powerfully influenced by the communication, cybernetic and systems approaches; and, as we have seen, these approaches lean heavily on the concept of boundary.

As an "architectural" science, political science has manifold connections with the other human disciplines. Many authors rightly avoid being pigeonholed and move freely across the boundaries between the social, political and economic systems; some extend also to the ecological, physical system and across system levels, from local to global communities. Boulding, Deutsch and Etzioni are some examples. It is not by chance, we suspect, that they are among the most creative contemporary social scientists and that all of them are systems oriented.

The "classical" concern of political science with boundaries falls within the framework of interstate conflict. Borders are considered mainly as sources of tension (Gross 1966). Their strategic and geopolitical functions are considered. Some scholars have conducted comparative research on boundary tenure and concepts (Little 1960, 1961a, 1961b). Many textbooks on political science and international relations consider the structure and functions of boundaries when speaking of territory as an element of the state, but otherwise mention them only in connection with local conflicts.

This lack of concern for our theoretical problem is evident also in two such masters of modern political science as Friedrich and Dahl. The former argues that boundaries are not very important since there are

political communities and nations without them (Friedrich 1970). The latter recognizes that every political community has a set of different, and frequently non-overlapping, boundaries, but he maintains that for most purposes the scholar may content himself with the national, legal boundary (Dahl 1963).

One figure who occupies a key position between "classical" political science, with its emphasis on state and conflict, and modern political science – quantitative, behavioral, systems oriented, interdisciplinary, sociologizing, etc. – is Quincy Wright, who treats the problem of boundaries in *A Study of War* (1942), arguing for a policy of "separation" and, implicitly, of closure. Kenneth Boulding has developed a formal theory of critical boundaries in *Conflict and Defense* (1963), while Herz (1957, 1959, 1968) was among the first to study the consequences of the utter vulnerability and penetrability of the boundaries of modern territorial states.

The most brilliant pages written in recent times on the boundaries of sociopolitical systems are perhaps those of the pioneers of the systems approach in political science: Deutsch, Easton and Almond. Easton (1965) and Almond (1965) deal especially with the analytical boundary between the political systems and the other systems in which reality can be abstracted. Their observations are most lucid. However, the basic weakness of this approach – its abstractness, the failure to take into account that concrete systems are, at one and the same time, social, political, economic, ecological, etc. – emerges in some passages, as when Almond, after a detailed and suggestive treatment of the boundaries of the political systems, states that all this might be just a metaphor, an analogy by which one should not be misled. Deutsch's approach is more concrete, more realistic, as we may expect from an author who started his career with what is, in effect, a study in cultural and political ecology and who, thereafter, always demonstrated an active interest in the problems of space, distance, territory, urban regions, settlements and environment. His works on international transaction have much relevance for the student of boundaries (Deutsch 1953, 1963, 1964a-d, 1968, 1970), as does his work devoted specifically to this concept (1956).

Close to Deutsch's approach is that of Russett (1967), who deals with the problem of boundaries in his study of international regions, where he tries to delineate the objective, empirical discontinuities between the larger human groupings, disregarding official, legal boundaries. Such work is also being pursued by "global sociologists," who are trying to compile an atlas or handbook of the world in which political boundaries are disregarded (Kriesberg 1974). Burton devoted many

pages of his introductory handbook, *World Society* (1972), to attempting to persuade us that we should unlearn to look at the globe in terms of states and boundaries and instead learn to see it in terms of flows and systems. C. Alger (1974) is conducting a program to emphasize that international relations are not a monopoly of states and that *territorial* boundaries are not their only regulators.

Another author who has incorporated the concept of boundary into his work is Etzioni, whose studies on the sociology of organizations have sensitized him to analytical systems boundaries, while his interest in international relations, peace research and the integration of communities has helped him to focus on the meaning of territorial boundaries. In the grand sociological tradition, Etzioni (1968) links internal differentiation with the multiplication of outer boundaries, technological progress with the enlargement of the "security community" and international integration with the processes of interpenetration.

Some political scientists have proposed a typology of political organizations in terms of boundary congruence and have identified the political process as an attempt to minimize the discrepancy (non-overlapping) between the system's boundaries (Kaufman 1974). We are thus very close to Mayhew's general theoretical statement on social boundaries.

The center-periphery antinomy is closely connected with this "problematique," because the periphery is where one finds a closed boundary. It is not surprising that the center-periphery model has come into fashion when the "frontiers of the world" have been exhausted (Mumford 1944; Herz 1959; Haas 1968; Taylor 1973; Mayhew), when there is no more room for the outright territorial expansion of powerful states at the expense of others, when there are no empty quarters left to colonize and to which to ship excess populations, when we are fairly certain that there are no more Eldorados to be discovered and when we sense that our resources are finite.

The world has become a closed system, from which there is no escape (the space frontier has, for all practical purposes, been closed for the time being). The dynamics of the single, closed world system tend to show the usual asymmetry of positive feedback, of self-amplifying processes: cumulation at the center and depletion at the periphery — what has also been called the "vicious circle of poverty." The accumulation of power and energy at the center is a process that repeats itself chainwise across the different systemic levels, irrespective of state boundaries, following Christaller's "central place theory" or Zipf's "least effort principle." These processes are called imperialism and neo-colonialism by some, and uneven or dual growth by others. The details of these processes are presently being scrutinized by a great many

scholars: the theorists of "dependencia," the propounders of the "structural theory of imperialism" (Galtung 1971), sociologists turned historians so as to see how this closed world system came about (Wallerstein) and the students of modernization (Nettl and Robertson 1968).

In facing these problems, it is essential to focus on the emergence of the subsystemic boundaries. Colonies, states and nations, with their respective boundaries, are often created by the same international system — basically European — that is later seen as oppressive and exploiting; quite normally, creatures revolt against their creators. Boundaries drawn in European capitals to partition the rest of the world become the cherished marks of new states and nations striving for equal rights. At the same time, the socioeconomic forces in the center area press for transnational integration, the transformation of formerly hard-and-bloody frontiers into simple internal administrative boundaries. As always, the expanding forces decry national frontiers, while the weaker nations seek protection behind them.

To a large extent, how these matters are viewed depends on the evaluation of the *inevitability* of the processes and of the importance of the *nation-state* as the basic form of human territorial organization. The issue is much too large to be dealt with here. We mention it only to suggest that an increased awareness of the way systems' boundaries emerge, develop and disappear might help to bring a fresh approach to large and relevant modern political problems.

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