The long road to Megalopolis

Megalopolis was certainly not a simple reflection of Jean Gottmann's biography, but rather a natural evolution of his theoretical work on political geography. The megalopolitan pattern of settlements was the expression of a megalopolitan process based on the priority of circulation flows. In this perspective it effected a transition from a political geography of nation-states to a new geography of nodes and networks at the scale of time.

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Origins and youth

The long road to Megalopolis began early in the life of Iona Jean Gottmann (1915-1994). He was born in Kharkov, in the Eastern Ukraine—then an industrial city of about 300,000 near the Donets Basin. His Jewish family, of Dutch and French origins, had been living in Russia for some time. Both his parents were killed in the turmoils that followed the October Revolution. Jean was the only survivor, with his grandfather Kelman – a partner in a large locomotive factory during the development of the Russian railroads – and Gottmann was adopted by a childless paternal aunt who lived in Moscow.[1]

On his fourth birthday they moved to Sebastopol, in the Crimea on the Black Sea, one of the last fronts of the White Russian army of General Wrangel. His grandfather had invested in the building of a railroad in the Crimea and was still hoping for a reversal of the conflict. There Emily Gottmann married a cousin, Michael Berchin, who, having renounced a rabbinical career, devoted his life to journalism and became an ardent supporter of the Zionist project.[2]

In the fall of 1920, with the collapse of Wrangel's army, the new family left Sebastopol on a Norwegian coal ship and fled to Constantinople, then under Allied occupation. In the great Mediterranean metropolis Gottmann had his first contact with exotic and diversified cultures and spent a few months there until a French ship gave the family a passage to Marseilles. Then he finally went to Paris, where he settled for some 20 years (fig. 1).

Paris was then the cultural capital of the Western world, and, as his adoptive parents were connected to the circles of the Russian intelligentsia in France, from Chagall and Miliukov, to Prince Volkonsky and Jabotinski, Gottmann grew up in a considerably intellectual and liberal environment: "Ours was a hospitable home with a great variety of guests: Russian emigré academics, writers, artists and aristocrats; American professors, brokers from Lloyd's of London, South African businessmen, even an Afghan exiled politician."[3]

Berchin worked as foreign editor at the *Poslednya Novosti*, which – under the direction of Paul Miliukov, a former foreign minister of the Czar – became the main Russian language newspaper outside of the Soviet Union. His engaged journalism became political militance, when Vladimir Jabotinski (1880-1940) resigned from the Zionist executive and Berchin convinced him to start a new movement: the Zionist Revisionist.[4]

Gottmann's education was entirely French, as were his main childhood friends, and he spent his summer holidays in Alsace, Vendée, Côte d'Azur, Préchacq, or Aix Les Bains. Yet his family insisted that he learn Russian and English too. They also introduced him to the Russian classics such as Tolstoi and Dostoevski – with injections of English literature, while he attended the Lycée Saint-Louis.

Fig. 1: Born in Kharkov, Ukraine, at the age of three Gottmann escaped the October Revolution first to Sebastopol, Crimea, then to Constantinople, Turkey, finally reaching Paris via Marseilles in 1921.

Selected to compete in French literature, history and geography in the national *Concours Général*, Gottmann won the second prize in Geography in 1931. This success had a decisive influence on his life, and in 1932 Gottmann enrolled at the Sorbonne in the faculties of both law and geography.

His former geography teacher, René Clozier, proud of his award at the *Concours Général*, introduced him to his own mentor, Albert Demangeon, professor of human and economic geography at the Sorbonne, then a recognized leader in the field, and the two developed a long and intense relationship.[5]

At the Institut de Géographie

In the French academic system during the 1930s, physical and human geography were equally part of the standard geographic curriculum – before their separation during World War II – and Gottmann studied both branches with many important scholars of the first generation of "Vidalians," such as Henri Baulig, Raoul Blanchard, Albert Demangeon, Émile-Félix Gautier, Emmanuel de Martonne, and Jules Sion.[6] Another important encounter of the 1930s was with André Siegfried.[7]

With his works on *peuplement* and *habitat,* Demangeon was then the leading scholar in human geography, and he soon convinced Gottmann to abandon the faculty of law and concentrate on geography and history.[8] When the time came for choosing a subject for Gottmann's thesis, Demangeon enumerated some topics that his generation did not have time to develop: the study of large urban agglomerations; the great masses of population of the Far East (China, Japan, the deltas of India, Vietnam); irrigation in arid countries; and the relationships between blacks and whites around the world.[9]

Gottmann was therefore aware of the importance of studying urbanization since the very beginning, but at the time he chose irrigation in Palestine for his thesis.[10] Indeed in this choice it is possible to see a reflection of his family origins and of his intellectual dialogue with Michael Berchin, as well as an excellent opportunity to conjugate the study of physical and human geography. Demangeon provided him with a scholarship to collect documents and information on the field in October 1933 (fig. 2).

At the time, the debate on environmental determinism was already opposing the French and the German schools of geography; and Gottmann wanted to prove that it was not the aridity of the region that determined the potential development of Jewish settlements in Palestine, but the culture through which the use of water was organized.

Through analysis of Palestine's orography, climate, hydrography, land use and cover, a hypothesis of regionalization in seven main agricultural areas was drawn. De Martonne's index of aridity was then applied to each area to determine where and how much irrigation was needed. Palestine's human geography was introduced in terms of the different perspectives that the struggle with nature took among Jewish colons, nomadic and sedentary Arabs, and the British administration.[11] Finally the partitioning of irrigated cultures was analyzed for each of the seven regions. In the conclusions, the limits defined by aridity or economy could possibly be overcome by the European Jewish pioneers' will to challenge nature, through capitals, technology and manpower.

The geographical debate on environmental determinism was certainly not the only focus of intellectual life in Paris. In fact, the development of human geography in the 1930s could be

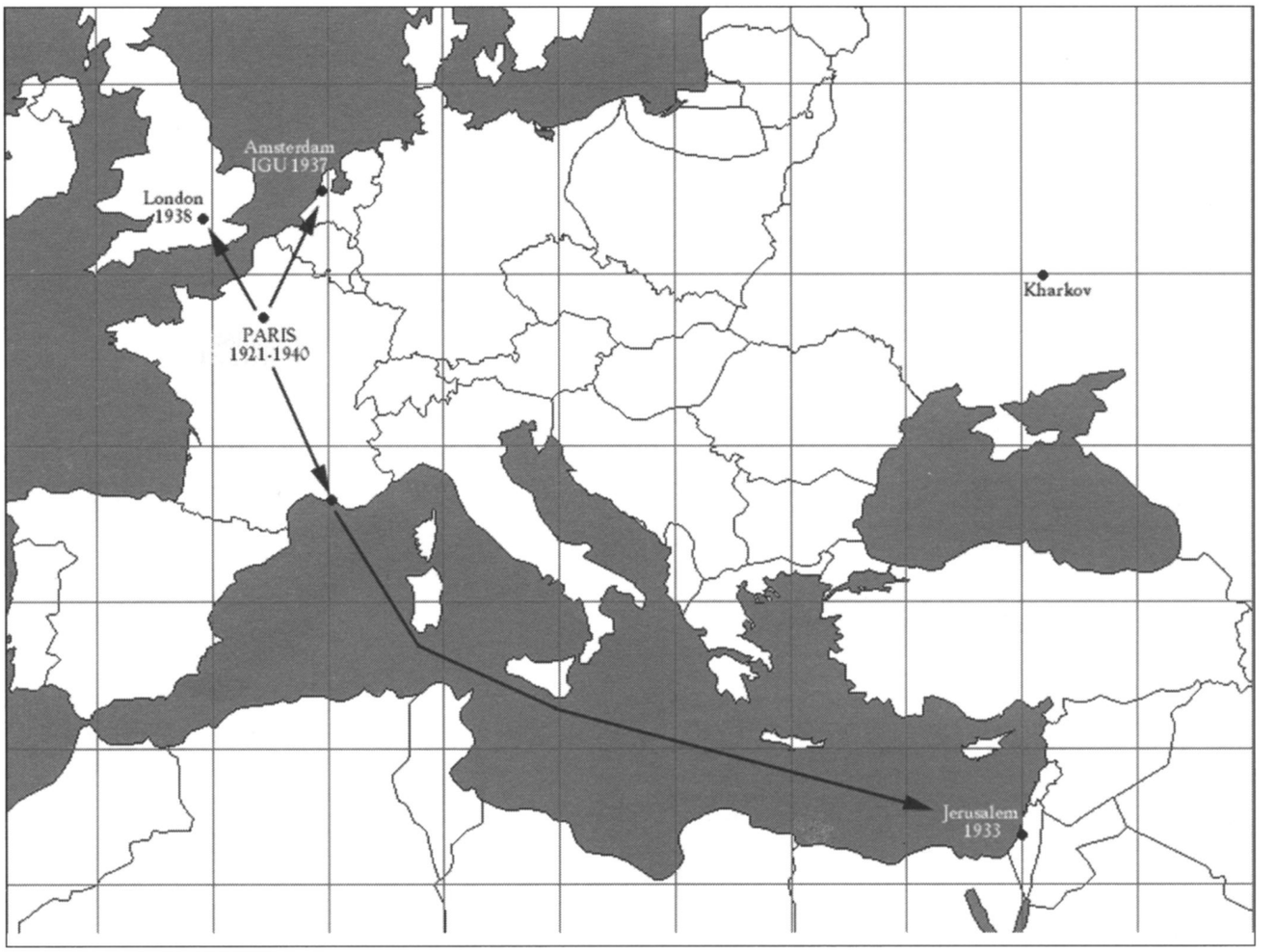

Fig. 2: While studying at the Institut de Géographie in the 1930s, Gottmann made three missions: to Palestine (1933), to the International Geographical Union conference in Amsterdam (1937) and to London (1938). A fourth mission to French North Africa, planned for 1940, was cancelled because of the war.

better understood through its relationships to history and the social sciences.

Thanks to the efforts of the rector Charléty, in 1935 the University of Paris obtained from the Rockefeller Foundation – through the *Conseil universitaire de la recherche sociale* – a five-year funding plan to develop new research on contemporary social problems.[12] A new generation of social scientists – among whom were Gottmann, Aron, Dennery, Gourou, Levi-Strauss, and others -- could conduct research issues as diverse as rural geography; social psychology and changes in ideology; religious practices, quality of life, the middle class and the psychology of the working class; advertising; organization of consumption; the demography of French colonies; nomadism and Islam; legal ethnology.

Under this program Demangeon directed Gottmann in an enquiry on rural geography of France, Lucien Febvre directed a study on rural folklore, and Levy-Bruhl directed Claude Levi-Strauss' studies on ethnographic issues related to French colonization. The Rockefeller Foundation also funded a *Centre d'études de politique étrangère,* and Gottmann contributed to another chapter of this program with a study on France's raw material supply.[13]

Another intellectual community, which gathered around the journal *Annales d'histoire économique et sociale,* contributed to the development of economic and social sciences in France. According to Mazon (1985), its leaders – Marc Bloch and Lucien Febvre – promoted a deep interpenetration of disciplines to study the history of social groups and economic forces with a strong focus on contemporary issues. The analysis of contemporary society was based on contributions from different disciplines of the social sciences: economics, geography, sociology, psychology.

In fact, in an attempt to improve the field's scientific status relative to the natural sciences, Demangeon emphasized the importance of interrelationships in geography and underlined the role of those "hidden factors" that oriented the more visible and material phenomena in human geography. Those hidden factors were of a psychological nature. This interpretation of geography as a discipline that should focus not only on the material elements of the territory, but also on the ideal aspects that characterize its population, was to become a constant in Gottmann's scientific path.

If in Gottmann's thesis it is possible to read his early interest in the psychological dimension of a community – expressed in the ideals or in the form of a collectively shared project able to modify physical geography to the point of overcoming the limitations imposed by unfavorable environmental conditions – Gottmann soon also discovered Isaiah Bowman's theory of the

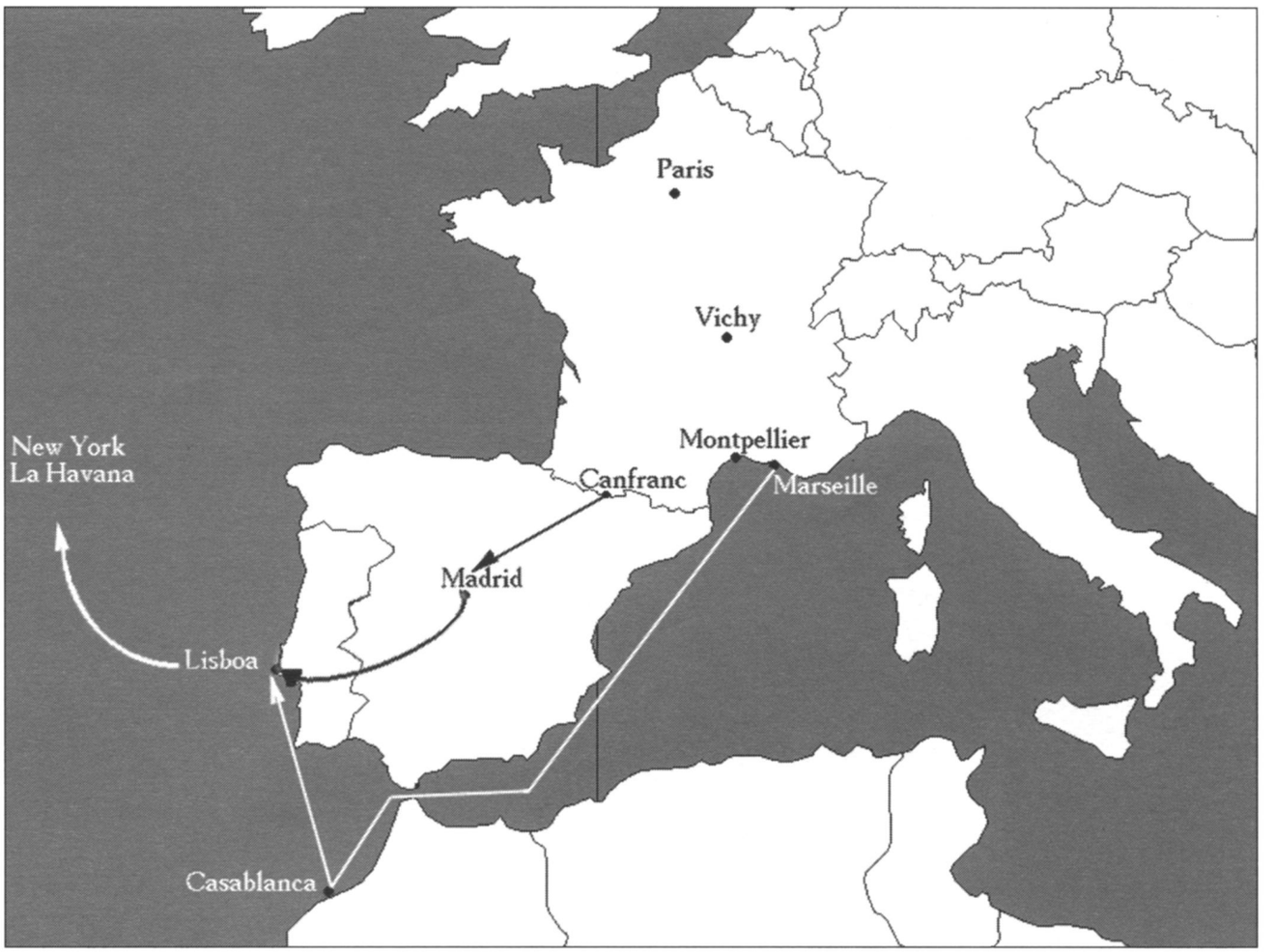

Fig. 3: Gottmann escaped from Paris to Montpellier in June 1940. Then he left France in October 1941 through Canfranc, Madrid and Lisbon, finally reaching New York via Cuba in early December. Since he was uncertain about obtaining a transit visa through Spain he had also planned an alternative route to reach Lisbon, sailing from Marseilles through Casablanca.

pioneer fringe.[14] According to Neil Smith, with this concept "Bowman sought ... to explicate the relationship between human settlements and the land under extreme environmental conditions."[15] Gottmann tried to apply the pioneer fringe concept to Palestine and the Near East.[16] Yet, when he confronted Bowman with it, he realized his attempt was too theoretical.[17]

A year later, Gottmann was again fighting environmental determinism. In his article "L'homme, la route et l'eau en Asie sud-occidentale,"[18] he refuted Ellsworth Huntington's hypothesis, according to whom the alternate fortunes of the great ancient civilizations could be explained as a consequence of climatic oscillations. Instead Gottmann explained the rise and fall of past civilizations in this region as a function of human circulation, in the French geographic tradition initiated by Paul Vidal de la Blache, also interpreting geography as a "connectionist" science, based on a collaboration between archaeology, geology and the social sciences.

Finally, Gottmann also worked on different aspects of the economic geography of the Soviet Union, thanks to his knowledge of the Russian language. Yet what was already a promising academic career in France was brusquely interrupted by the outbreak of World War II, the Nazi occupation of Paris, the sudden death of Demangeon, and the promulgation of the racial laws, which excluded Gottmann from any university appointment.

Gottmann left the family house in rue Ernest Cresson three days before the Nazi occupation, in June 1940, and fled to Montpellier, in unoccupied France, where he remained for about 15 months. Berchin managed to get immigration visas for the U.S. on the Russian quota, yet Gottmann, who thanks to the support of his teachers had become a French citizen in 1939, could not leave the country because of his age (fig. 3).

The escape was a complex matter in 1941 Europe, especially for someone who was at risk of the Holocaust.[19] Preparations involved contacts with the Jewish organization Hicem,[20] credit to buy tickets for the Lisbon-New York route, many trips to Vichy to obtain an exit visa (from the Petain government),[21] contacts with the French Resistance, which through its Spanish connections, helped him to get temporary visas to enter and exit Francist Spain,[22] and the support of his friend and colleague Orlando Ribeiro in Portugal.

In November 1941 Gottmann boarded the "Colonial," a Portuguese ship used in pre-WWI Africa's circumnavigation routes, which after some readaptation and loaded with passengers was on its first Atlantic crossing. After 22 days of sailing, and eating the same kind of fish, a feverish Gottmann arrived in New York, where he was put in quarantine at the Coast Guard hospital on Ellis Island, finally entering the United States in the same week as the Japanese attack on Pearl Harbor.

Living and working in Megalopolis in the 1940s

Gottmann never had the opportunity to know the United States before the war. Once in New York, he wrote to many American scholars with whom his teachers Demangeon and de Martonne had been on good terms – including Bowman – in the hope of getting recognition for his pre-war work at the Sorbonne. Thanks to his pre-war contacts in Paris and to new ones in the U.S., he succeeded in getting a fellowship from the Rockefeller Foundation to work in the seminar of Edward Earle, a military historian who directed the School of Economics and Politics at Princeton's Institute for Advanced Study.[23]

Despite its continuous exchanges with Princeton University, the Institute was not a college or university or research foundation. Nor did it have a specified program of research, and all regimentation was absent. As its bulletin stated: "the scholars thus brought together are so much interested in their respective tasks, in their own development and in the advancement of knowledge, that the usual academic arrangements such as regular courses, required attendance, degrees, examinations and administrative supervision can be dispensed with as superfluous."[24] Therefore, for about two years Gottmann had the support of a unique institution that provided him with a stipend, a status, and an extremely stimulating international, interdisciplinary and free environment. It is thus not surprising that he maintained his relationship with the Institute for a long time even after the war, and that the Institute became his reference model of a research institution.

Like most of the top U.S. universities, the Institute was deeply involved in the war effort. It was not only its physicists and mathematicians that contributed to important classified programs, such as those on ballistics, cryptography, and the Manhattan project. But the social scientists were also very active: economists, sociologists, demographers, psychologists and political scientists served the armed forces or other branches of government to study resources, manpower, public opinion and propaganda, or worked for military intelligence.[25]

According to Neil Smith, while Bowman worked mostly for the State Department, "an estimated 225 geographers were drawn to Washington to work on behalf of the war effort. They populated the Office of Strategic Services, where Wisconsin political geographer Richard Hartshorne headed up the Research and Analysis Branch; the War Department; the Office of Economic Warfare; the U.S. Board on Geographic Names."[26]

Edward Earle, in particular, was consultant to the Office of Strategic Services, the War Department General Staff, and the headquarters of the Army Air Force. Because of Gottmann's knowledge of Mediterranean geography and of the Russian language Earle soon sent Gottmann to consult in Washington for the Board of Economic Warfare. In that position, between 1942 and 1943, Gottmann wrote numerous memos and reports on a variety of applied matters: from two brief reports on the role of unoccupied France in the German war economy and on the approach of propaganda in unoccupied France; to the memoranda on Syria and the Lebanon, and on Madagascar (both June 1942), on the strategical routes of the Sahara (July 1942); on French Morocco, and on the Arab problem (both August 1942). He also researched the Caucasus' energy resources, the vulnerability of dams and hydroelectric plants, and other topics. Thanks to Earle's many contacts in Washington, these reports were distributed to a variety of offices, including the Military Intelligence Division G-2 of the War Department, the Naval Intelligence Division of the Navy, the Office of the Coordinator of Information, the Department of State, the Western European Section and the Board of Economic Warfare. And despite being a foreigner in a country at war, Gottmann quickly commanded universal respect in Washington, Princeton and Baltimore.[27]

If in the early days of his American experience Gottmann had felt the difference between the French and the

American schools of geography, in the lack of a general research framework and "in the strict specialization that cut geography into a dozen disciplines separated by closed partitions,"[28] throughout the war not only did he manage to explore a wide range of applied subjects, but he deepened his knowledge in economic and political geography. He discovered Tocqueville, wrote a book on France's commercial relations (1942), and a few articles on different subjects such as the ongoing debate on German *Geopolitik* (1942), North Africa (1943), the development of French colonial warfare (1943) and Vauban (1944).[29] Moreover he started to teach courses in the Army Specialized Training Program (ASTP) to the officers that were soon to guide the reoccupation of Europe. And in 1943, Bowman negotiated with the president of Princeton University and the Rockefeller Foundation the services of Gottmann, who started to teach at Johns Hopkins University, first part-time and then, after 1944, on a full-time basis.

If in the prewar years his life and work took place entirely within Paris, with just a few missions abroad, within six months after his arrival in the U.S., Gottmann managed to have such a busy schedule that he had to commute weekly between three or four different cities of the northeastern seaboard of the United States. In New York there was his family, the Rockefeller Foundation, the American Geographical Society, the *Geographical Review*, and at the Ecole Libre, where he taught. In Princeton he was a fellow at the Institute (1942-1944) and also taught at the University (1943); in Washington, he consulted for different branches of the U.S. government (1942-1944); and in Baltimore, he taught at the new institute of geography founded by Bowman (1943-1948).

It is considering this continuous commuting on the Pennsylvania Railroad between the many great cities of the Atlantic coast – in the common war effort that unified them all – as opposed to the monocentrism of his French experience in Paris before the war, that it is possible to see how the original concept of Megalopolis took shape (fig. 4). What, a few years after the war was to become Gottmann's future object of study, during the war was the very context in which he operated. This is confirmed by Gottmann himself,[30] who recalled a curious episode dating back to 1942: "(Bowman) was going downtown and he drove me in his car back to the Pennsylvania Railroad Station where I was taking the train back to New York. And he asked me what had impressed me the most on that first trip in America from New York to Washington. And I said without hesitation 'the density and vicinity to one another of great cities'. So he laughed. I think that's when the idea of mgalopolis arose"[31] (fig. 4).

Yet, if the future megalopolis was the hinge between the regional and international scales, Gottmann's wartime work was not limited to his contributions to the American government. Disrupting the preceding social order, the war had multiplied his professional and political relationships, and Gottmann, who adhered to *La France Libre* of De Gaulle after March 15, 1942, was in touch with many exiled French intellectuals who gathered in New York at the Ecole Libre des Hautes Etudes, within the New School for Social Research, among whom were many former Parisians, such as Raymond Aron, Roman Jakobson, Alexandre Koyré and Claude Levi-Strauss.

After the reoccupation of France, the U.S. government had new direct sources of information and Gottmann started to consult with the French government, through his relationship with Henri Laugier[32] (fig. 5). First he was sent by the Ministry of Education to the French Antilles on a university mission (1944); then, while Roosevelt, Churchill and Stalin were meeting in

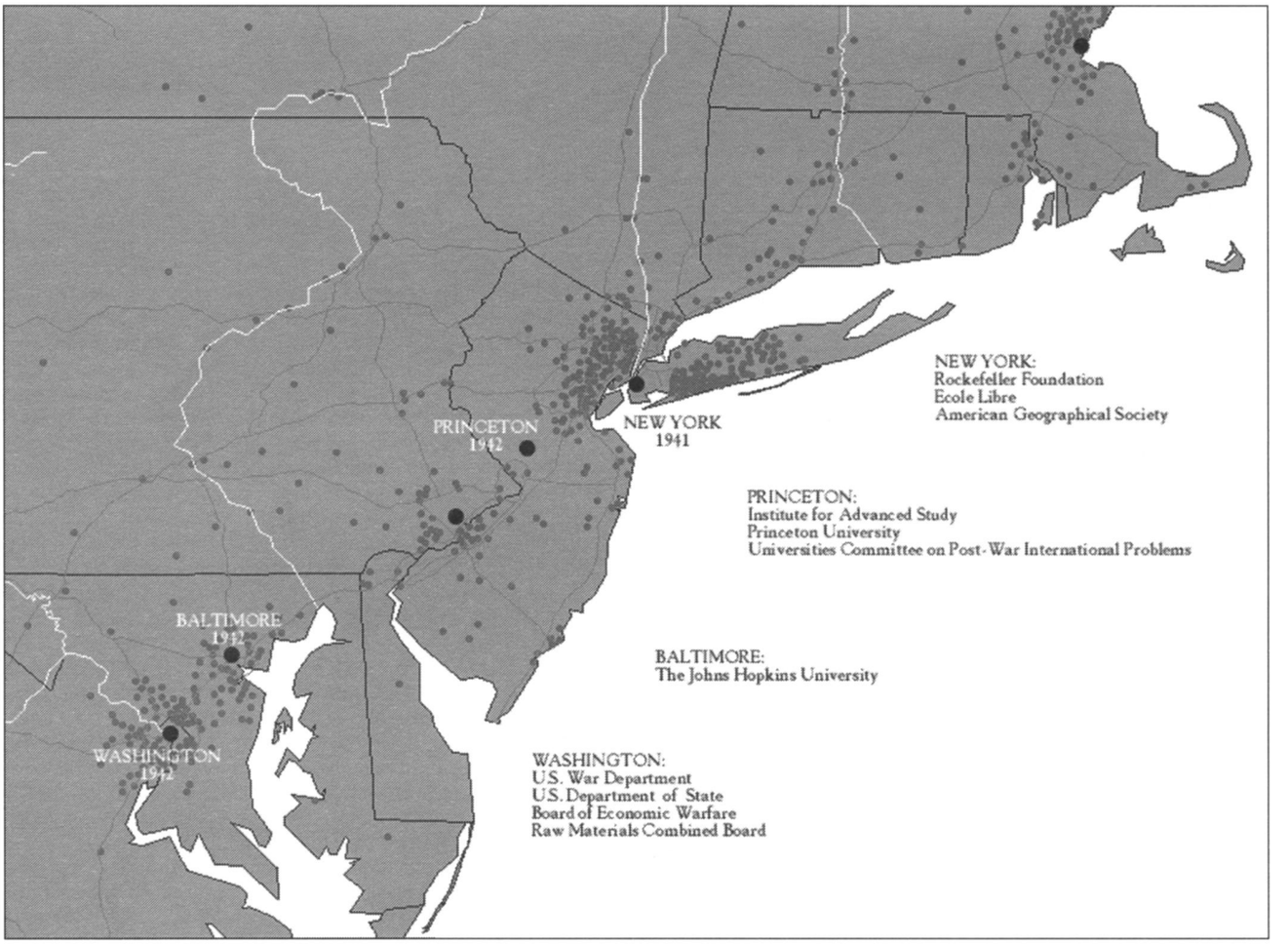

Fig. 4: Once in the U.S., during the war Gottmann travelled regularly on the Pennsylvania Railroad between New York, Princeton, Baltimore and Philadelphia. In this experience is the origin of the concept of Megalopolis.

Yalta, he returned to France for six months on a mission to consult for the French Ministry of Economy (1945) under Mendes-France and Pleven, with field surveys in northwestern France and other work for the Bureau du Plan.[33] In Paris, he saw many old friends and colleagues at the Institut de Géographie and in the governement, and some publishers. His American experience gained him recognition in a contract for a book with Hachette, explaining America to the French public.[34]

Yet, Gottmann could not be away from *Megalopolis* for too long, his aunt in New York was sick; and in July 1945 he resumed service at the Raw Materials Combined Board, a large economic mission in Washington preparing the reconstruction of France, headed by Jean Monnet, where he worked until the beginning of 1946. He then returned to Johns Hopkins.

Social sciences and international organization after the war

Thanks to the reputation Gottmann had acquired both in Paris and Washington, the French Ministry of Foreign Affairs again asked for his services, this time as an officer at the newly founded United Nations. Henri Laugier, then adjunct secretary general of the U.N., was also the head of the Department of Social Affairs. In April 1946 Gottmann started to direct its office of studies and research, where a small group of scientists was gathered (among whom were the French anthropologist Alfred Métraux and the French historian Louis Gros). Gottmann wanted to return to New York to be closer to Berchin, as his aunt had just died. And in this position, he was the main promoter of Laugier's enquiry on the creation of U.N.'s international research laboratories.

The importance of this experience is not to be underestimated. The war had finally come to an end, and in the ferment of reconstruction and the creation of an international organization, the role of science – and especially social sciences – was thought to be both a key to guarantee peace and security, and the way to solve the many problems perceived as global: population and settlements, soil erosion and urbanization, water conservation and hunger, astronomy and tuberculosis. In this context, the focus was placed on the social and economic function of science rather than on its military function. The need to overcome the pre-war gaps through an effort of coordination and information among scientists was to be pursued with the creation of a network of U.N. international research laboratories in the general interest of humanity.[35] The enquiry involved an international number of scientists, and Gottmann interviewed many scientists worldwide, including Albert Einstein.[36] Still, the project first was opposed by the Soviet Union, and then clashed with Unesco's concurrent projects, raising a dispute of competence between the latter and the Department of Social Affairs. Despite two missions to Latin America (on urbanization and

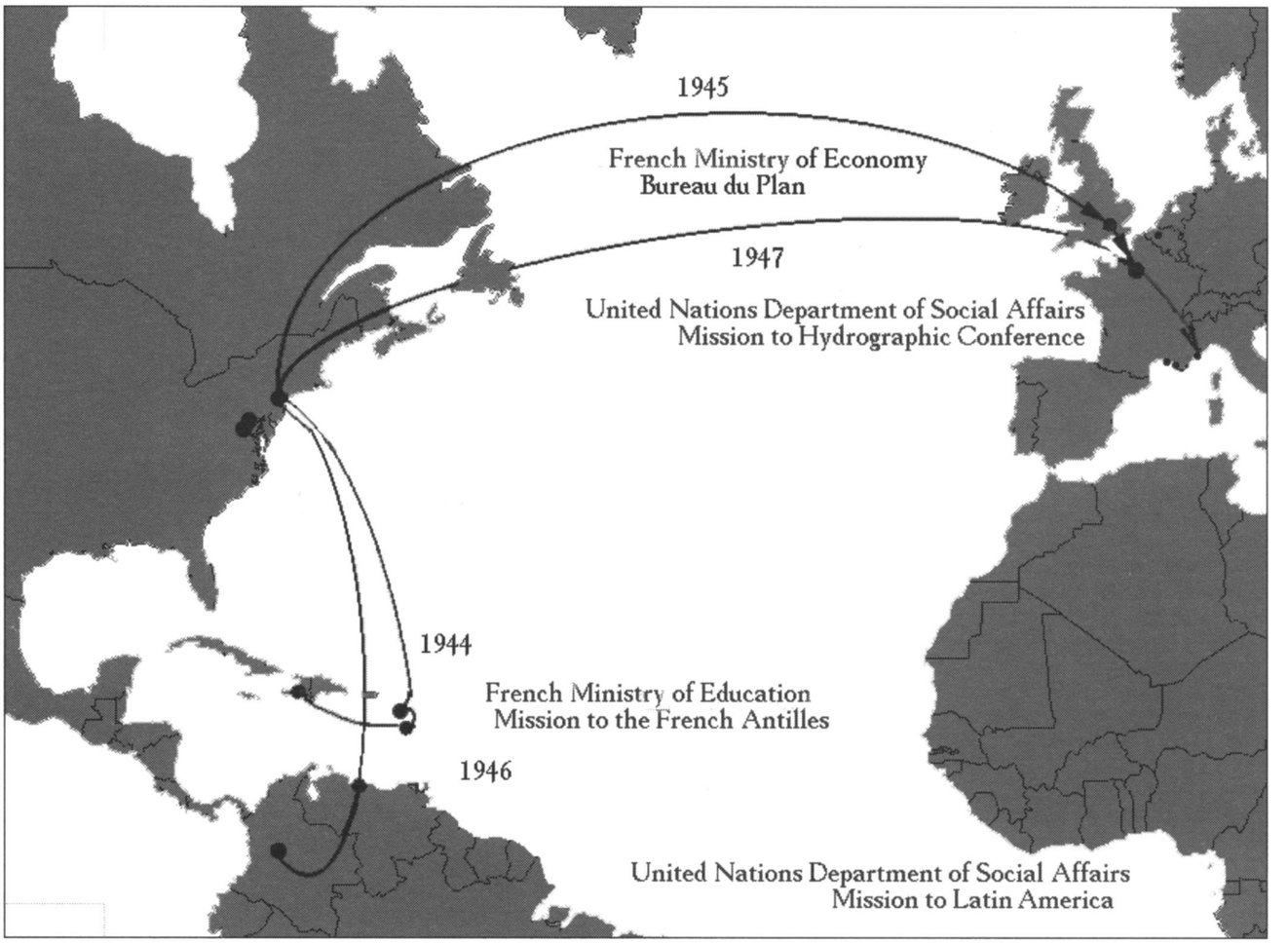

Fig. 5: Aside from a few trips to Canada, between 1944 and 1947 Gottmann made four missions abroad: the French Government sent him to the French Antillles (1944) and to Paris and Britanny (1945). The United Nations sent him to Venezuela and Colombia (1946) and to Monaco's Hydrographic Conference (1947).

planning) and to the Hydrographic Conference in Monaco (for the purpose of international coordination of cartography, hydrography and oceanography), Gottmann soon realized that the U.N. was already too bureaucratic, and decided to renounce his post and return to full-time academic and scientific research at Johns Hopkins, where he had kept his job on a part-time basis. Still the 18 months spent at the U.N. during its inception gave him the opportunity to review his postwar "map of the world," to expand his network of contacts, to benefit from the cosmopolitan atmosphere of the international organization, and to dream of a world government inspired by the ideas of social scientists.

Influenced by philosophical as well as physical and biological ideas, Gottmann recognized in this paper the extreme fluidity of human geography and the corresponding importance of circulation as the most important legacy of the historic canon. In fact, circulation was reconsidered in the light of French philosopher Henri Bergson's *L'Evolution créatrice*, which pointed out the limitations of language in capturing the dynamism of life and posited the reciprocal implication of antagonist tendencies in all living species. Inspired by these ideas, Gottmann realized that they could also be applied to analyzing the geographical dynamism of human circulation through crossroads and their chains, echoing the frequent exchanges he had with prominent physicists at Princeton's Institute and foreshadowing his future studies of urbanization and the megalopolis. Since circulation was assumed to be perhaps the most important tendency in human geography, Gottmann started to search for its Bergsonian "opposing trend." In this investigation, another extra-geographic insight came from 19th-century French experimental physician Claude Bernard, who, in his *Introduction à la Médicine expérimentale*, postulated a biological relative balance between two milieux: the inner environment (the body) and the external environment (the cosmos), in a modern holistic and ecological perspective. Gottmann projected Bernard's theory from the individual to the collective scale. In this case the inner environment of the human body was substituted with that of the collective body, composed of political, religious, social, economic, and cultural elements. Therefore Gottmann imagined drawing a curve out of the changing relationships between human society's cultural environment and its hosting physical environment to explain the fluidity of human geography.

As we shall see, these ideas were developed further in Gottmann's political geography. His article concluded with an appeal to the importance of the psychological and "spiritual" in human geography, considered the underlying basis of the inner environment and therefore a possible opposing or regulating tendency in the drive of circulation.

Ironically, the psychology of the Cold War was soon to have an impact on his own geography. In fact, once returned to Johns Hopkins, he did not remain there for long. George Carter, an ambitious colleague in the Department of Geogra-

phy, complained to Bowman about Gottmann's prolonged absences, leading to the end of his relationship with Baltimore in 1948. The Cold War system was just starting to take place when Gottmann lost his main connection with the American academic system, but he could not have known that his departure was a sign of a more general deterioration. Entering what Neil Smith (2003) defined as the "bitter end" of his life, Bowman then also decided on the closure of the Geography Department at Harvard University, which represented a terrible blow to the discipline. And a year later when the Chinese Revolution happened, the same Carter supported Senator MacCarthy's accusations against Owen Lattimore – Gottmann's former office mate – who was accused of using the darkroom of the Geography Department for spying, in the first case of a witch-hunt.[37]

The North Atlantic transhumance

The years 1948-1952 were a turning point in Gottmann's life and an extremely fertile period. His frequent "transhumance" across the Atlantic was mirrored by his attempts to explain one side of the North Atlantic to the other.[38]

Gottmann decided to return to Paris in June 1948 to resume his French academic career which had been interrupted by the war eight years earlier. Yet he soon found out that the possibilities of re-entering the Sorbonne were very limited.[39] For better or worse, seven years of "Americanism" had made a difference. But he obtained a three-year fellowship at the *Conseil Nationale de la Recherche Scientifique* (CNRS) as *chargé de recherche* for a study of the Boston-Washington region (1948-1951). The faculty members approving this project were Max Sorre, Roger Dion and Emmanuel de Martonne, then president of CNRS; the idea was also supported by Pierre Gourou and Lucien Febvre. André Siegfried, who had written a few books on America,[40] also approved Gottmann's research, observing that if in the days of Coolidge American unity was complete, the situation then was much more diversified and complex.[41] Gottmann recalled him also saying at a later date: "It seems that what you are historically describing has been a hinge of America's economic history."[42] The only opposition – to Gottmann's surprise – came from Henri Baulig, who countered the idea as too distant from the classic regional monograph. In October 1948, de Martonne proposed Gottmann for a promotion to first-class researcher from third, and a raise of ten thousand francs in his monthly stipend. Chabot was to be the tutor of the main thesis, and Cholley of the secondary thesis. Meanwhile Gottmann was also invited to teach at the Institut de Science Politique (Science Po) in Paris, whose president was Siegfried.

At the time, and especially after his international experience at the U.N., Gottmann's scientific interests were focused on an area between political and cultural geography: the attempt to define the "personality of a nation," a concept that Vidal had already tried – somewhat vaguely – to capture with his ideas of "genre de vie" and of "esprit d'une nation," and of his own interpretation of Bernard's "inner environment" as a collective body composed of political, religious, social, economic, and cultural elements.

In fact, in the summer of 1948 Gottmann returned to Europe with a new fellowship from the Rockefeller Foundation for an enquiry on the "European zones of civilization."[43] Inspired by historian Arnold Toynbee's diachronic study of civilizations – in this project Gottmann planned to analyze synchronically the simultaneous co-existence of different civilizations or cultures in Europe at the time of its reconstruction.

This field enquiry brought him to travel during the summer of 1948 from Sicily to Scandinavia, allowing him to research the psychology of the different national communities surveyed. He found that all the countries seemed to share not only the post-war drive for reconstruction, but also – in varying degrees – a deep moral crisis which was probably more evident in comparison with his U.S. experience (fig. 6).

The data and observations gathered during that summer gave birth to *A Geography of Europe*,[44] written while Gottmann was a visiting professor at Columbia University in the summer of 1949. There, in order to frame geographically the different cultures or civilizations, he introduced his concept of iconography for the first time. "The results of this research emphasize the role of the spiritual factor in the creation of cultural regions and national differences, leading to the concept of iconography … To be distinct from its surroundings, a region needs much more than a mountain or a valley, a given language or certain skills; it needs essentially a strong belief based on some religious creed, some social viewpoint, or some pattern of political memories, and often a combination of all three. Thus regionalism has what might be called an iconography at its foundation" (p. 70).[44] Iconography served to identify for Gottmann that historical, distinctive, and individualizing character of a community in relation to its neighbors, beginning with the densely populated and highly differentiated territory of Europe.

This concept was to be developed further.[45] While teaching at Science Po, in the summer of 1951 he wrote his first theoretical book: *La politique des États et leur géographie*, where he explained the genesis of regional divisions through an heuristics based on the dynamic interplay between two antagonist tendencies, as in the Bergsonian scheme already announced in his methodological article (1947). Two such tendencies or forces – circulation and iconographies – would be responsible for the political partitioning of geographical space and for the cultural differentiation at the regional scale.

Circulation – whose effects could be understood in terms of physical displacement – would naturally improve accessibility, opening the inhabited space to movement and producing cultural change. Iconographies, as we have seen, were defined as abstract sets of symbols that moor a community to its territory, sometimes in relation to the same landscape. In contributing to the definition of a group territorial identity, iconographies acted as a system of resistance to circulation and change. The action of iconographies on circulation flows and accessibility would be particularly visible on borders, as Plato had suggested in order to maintain the *polis* stability, and could reach the extreme of dictating the total closure of national space to external influences, as exemplified by Japan during the Tokugawa era. Finally, Gottmann pointed out that circulation and iconographies are not always in opposition: they also find forms of coordination through the action of carrefours, where "circulation, iconography, and politics" are reunited.

In *Elements de Géographie Politique*, the concept of iconography was developed further through its opposition to that of iconoclasm and he explored its role in terms of the self-defence of a community.[46] This was probably the result of an exchange of views on the interplay of circulation and iconographies he had had with Toynbee himself a year earlier.

"I wonder how much the crumbling of the old 'geographical barriers' as a result of technological progress does not provoke in the minds of most of the peoples on earth a movement of resistance that wishes to compensate for the trends of uniformization and standardization imposed upon us by technological progress. In other words, I wonder whether a great deal of the strength of contemporary nationalisms is not due to such a response to the new challenge of uniformization. It always seemed to me a striking and important characteristic of geographical space, that is space accessible to men, that they were partitioned in some way (political, legal, economic, etc.) very soon after they became accessible. If this kind of partitioning could be accepted as the product of something inherent

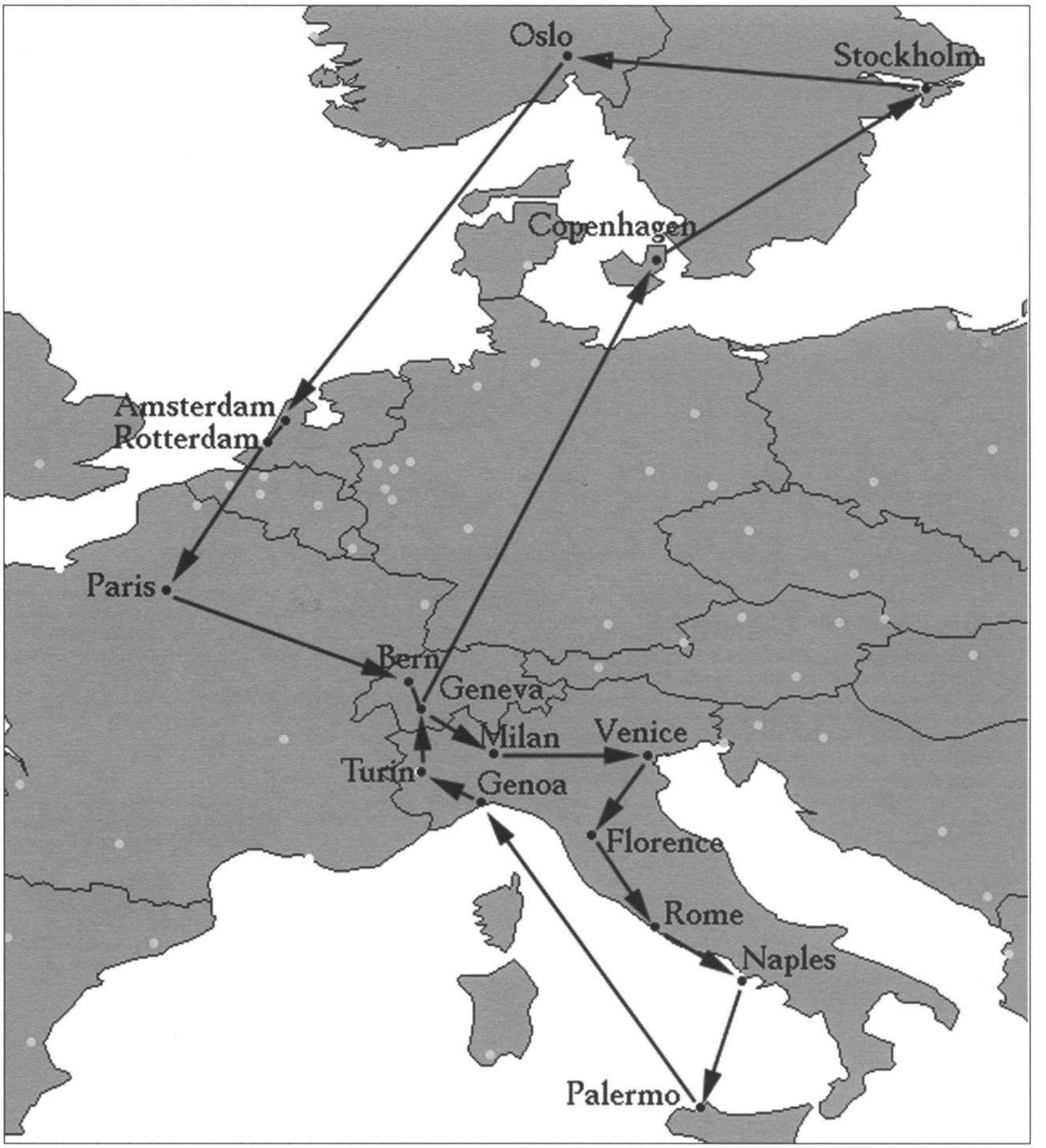

Fig. 6: Between August and October 1948, Gottmann was on a mission to study the "European zones of civilization," during which he travelled from Paris to Switzerland, Italy, Denmark, Sweden, Norway, and the Netherlands.

to collective psychology or to the organization of society, and perhaps to both, would it not be logical that our present period, endeavoring to erect new geographical barriers based on local beliefs, does so with increasing enthusiasm in order to avoid too much uniformization and unity?"[47] Toynbee agreed: "The breaking down of barriers makes people re-erect them, for fear of losing their local heritages. Iron curtain and air travel bang together. For this reason, I believe, the future organization of the world will always have to combine local variety and autonomy with standardization and central control in order to satisfy psychological needs, and unless it does that, it will not last. I think our object should be, not to try to iron out the differences,

but to try to understand and sympathize with one another's different outlooks and ways of life."[48]

Circulation and iconography were therefore thought of in terms of systems of movement and systems of resistance to movement, the latter conceived as a factor of political stabilization, deliberately manipulated by political powers for their aims. In an ulterior conceptual articulation, the possibility of circulation of iconographies was also considered, as exemplified by the different layers that with every migration wave structured the iconography of the New World.[49] In this perspective it was also possible to conceive an American iconography of circulation,[50] represented by the concepts of the frontier and of the "permanent revolution" of American society. With the predominant role of the United States during the 20th century, this type of iconography soon became part of an iconography of globalization, which promoted in the West during the Cold War a geopolitical era of international integration.

Gottmann's reflections on circulation and iconography, which had already led him to emphasize the importance of crossroads, evolved into the study of the Megalopolis of the Northeastern seaboard of the United States, a perfect symbol of America's Prometheism and at the same time a tangible geographic reality, which was now confronted in systematic terms. Although Gottmann never explicitly mentioned his heuristics of circulation/iconographies to explain the partitioning of space in Megalopolis, it is exactly in this perspective, in light of how much urbanization in the modern world is one of the basic trends affecting national and international structures, that it is possible to gain a better understanding of it.

On the origins of Megalopolis

Two articles published in 1951 summarize some of the scientific findings of Gottmann's thesis on the Boston-Washington region,[51] and allow one to see how many of the ideas of Megalopolis were already developed ten years before the publication of the book. The subject was introduced first in terms of an extraordinary change in land use and an unmatched density of great cities along the North Atlantic coast. The scale of this phenomenon was unprecedented: 600 km long, 50,000 sq.km of area, 25 million inhabitants (1940 Census) growing to 30 million 10 years later, representing about one-fifth of the entire U.S. population. While such a concentration of people was possible thanks to an impressive industrial, commercial, financial, administrative and communications infrastracture, the ordinary distinction between town and country was lost. Comparing this development to a new Rome of the 20th century, Gottmann analyzed the phenomenon in terms of the history of the circulation flows, and theorized a "circulation equation" in the partitioning of people, resources and forms of habitats to explain it.

A further development of this research was delayed for a few years by a chain of events. When that year Gottmann came to discuss the terms of his promotion to *maître de recherche* at the CNRS, he refused to submit to the limitations of physical and intellectual movement imposed by the Paris faculty in order to renew his fellowship, and decided to return to the United States.[52] Then, at the beginning of 1952, Gottmann broke his neck and suffered a quadriplegia that required many months of rehabilitation. During his stay at Mount Sinai Hospital, he received many visits from Abraham Flexner, former head of the Institute for Advanced Study. Flexner later introduced Gottmann to philanthropist Paul Mellon, Later, through the Old Dominion Foundation, Mellon sponsored a three-year research on Virginia – a general historical, economic, social, and political survey of the state – which ended with a report and the publication of a book.[53]

Virginia at Mid-Century was the first attempt of a regional monograph in the French geographic tradition for a region of the U.S. Virginia was also the southern tip of the megalopolitan region, and for the preparation of the monograph, Gottmann worked at the Institute in Princeton and often in Washington, where he improved his knowledge of the metropolitan area. In its conclusions it is possible to find, published for the first time, the idea of megalopolis on the Northeastern seaboard, anticipating that "northern Virginia, and ultimately the whole of Virginia would be greatly influenced by their position ... at the tip of megalopolis."[54]

The Institute and Oppenheimer played an important role in starting the Megalopolis project.[55] Since 1947, Robert Oppenheimer had become the director of the Institute for Advanced Study, and he granted Gottmann single-term membership for nine consecutive years between 1949 and 1958 (and a few more times in the 1960s).[56] Oppenheimer was a trustee of the Twentieth Century Fund, which sponsored this project from 1956 for five years. He supported Gottmann, especially at the beginning, when, once the project had been already agreed upon, the trustees tried to reorient it towards a general study of the "Metropolitan Areas in the United States." Gottmann stuck to his original plan, but some tension remained until the name "Megalopolis" was found.

In his *Reminiscences,* Gottmann recalled a discussion at a luncheon during which Oppenheimer proposed the term *megapolis* to identify the phenomenon. Since there were also some classicists, they protested that the correct Greek word should have been megalopolis and later provided him with information about an ancient city of the Peloponnese with that name. The final choice was apparently influenced by the fact that "a number of Greek philosophers used the word 'megalopolis' to mean the great city of ideas which determines the city we build for ourselves on earth."[57] It seems that Lewis Mumford, who had used the term in his book on the culture of cities, cautioned Gottmann against its use, and Gottmann believed he never forgave him for not following his advice.[58]

In the proposal for a survey on the Megalopolis prepared for the Twentieth Century Fund, many of the main ideas were already in place.[59] From its pioneering role both as a laboratory to study urban growth, and in the organization and management of urban life; to the understanding that its growth – more rapid and continuous than that of most other urban areas in the world – summed up a good part of the economic history of the United States; from its polynuclear origin, beginning to be repeated in other regions, to "the part played by the series of northeastern seaboard cities as a hinge of the American economy serving both as an oceanic facade for relations abroad and as a springboard for the settlement and development of the continent inland"; from its crucial role in determining national trends, to its weight in the political life of the country.

Its main functions were summed up as the maritime facade, the manufacturing, the commercial and financial and the cultural leadership functions. The primary problems considered were traffic and slums, like in all downtown sections of modern cities then, but also water supply, and local (megalopolitan) government. In fact Gottmann understood that if the growth of such an enormous urban territory had been rapid, the evolution of its laws and customs would take much longer, not least because of the psychological problems involved in adapting to its needs, huge scale and accelerated pace.

When considering the research methodology, a strong accent was placed both on the variety of interrelated fields involved, and on the need of gathering, processing and coordinating huge quantities of data, while the constant use of cartographic methods was to help clarify the meaning of the data and the trends in the study area.

Beyond Megalopolis

The production of Megalopolis took two years longer than the originally planned three years. An office was set up in Manhattan to coordinate the effort and a small team of researchers helped Gottmann manage the massive and complex work. Meanwhile, in 1957, Gottmann married Bernice Adelson, with whom he had been acquainted as a family friend since his arrival in New York. An editor at *Life* magazine, Bernice had tended him while he was suffering from quadriplegia, before becoming his life partner and worldwide traveling companion.

When the book was finally published, a press conference was organized for its launch, and a year later, a richly illustrated abridged version was produced by Wolf von Eckardt. Megalopolis gained immediate success worldwide, and distinguished urban scholars discovered and analyzed more megalopolises in other parts of the world in the following years.[60] Given the scope of this work, some controversies were inevitable, especially with Mumford and others who, more or less conscious of following the biblical condemnation of urban growth, were concerned by the problems related to the urbanization process and pressed – somehow regressively – for a return to a Platonic small scale in urban matters. Others, like Hans Blumenfeld, feared Gottmann as an outsider invading what they thought was the exclusive field of urban planners. In fact, Gottmann's analysis is today confirmed by the spectacular rate of urbanization at the global scale of the last five decades, as well as by the recent studies on "global city-regions."[61]

Moreover, at the time, few were aware of the long process that brought Gottmann to Megalopolis. Only the singularity and variety of Gottmann's biographic and scientific experience could have allowed one to foresee the novelty that this densely urbanized region represented. It was the same circulation flows on which Megalopolis was based that brought Gottmann in the turmoils of the century from Eastern Europe to "the main street of the nation." During the War he experienced there the new scale, morphology, and functions of human settlements and their political dimension. And during his Atlantic transhumance, he traveled along its "weave of relationship wrapping around the twentieth century world"[62] and centered from there.

Yet, Megalopolis was certainly not a simple reflection of his biography, but rather a natural evolution from Gottmann's theoretical work on political geography. The megalopolitan pattern of settlements was the expression of a megalopolitan process, based on the priority of circulation. In this perspective it opened the transition from a political geography of state-nations to a new geography of nodes and networks, at the scale of the time.

The analysis of circulation flows through carrefours and their chains allowed Gottmann to understand the physical, economic, social, political and administrative mosaic of the Megalopolis and its many challenges.

The Megalopolis was never just an updated version of the American frontier's myth or a new icon of America's Prometheism in the Cold War era, as some interpreted simplistically. The fact that the Megalopolis eventually became an icon in itself does not diminish or contradict its scientific value; rather it allows us to see how deeply Gottmann understood the psychological role of iconographies in the creation of territorial identity.

Megalopolis represented a mutation in the geographic scale of human settlements that became a prototype at the global scale, not only for its material infrastructure, or for its anticipation of the 'white collar revolution' in the division of labor, but more importantly, as an *incubator* of a new geopolitical order. In this perspective, since Gottmann had a "communitarian rather than a statist or liberal conception of the political"[63] (or, we may add, a cosmopolitan one), the very acknowledgment of its existence contributed to expand the same geographic limits of a community's identity, which is not to be seen as simply regional, but, through the bonds of international interdependence and diasporic networks, as part of the process of creation of a world community.[64]

Ten years after his death, the creation of a world community endowed with a global territorial identity still seems to have a long way to go, not least because, as Gottmann anticipated, a certain degree of territorial separation is a necessary condition for a peaceful cohabitation based on tolerance. Still, the recognition of the "psychological underpinning of territorial sovereignty," which leads to his interpretation of territory as a "psychosomatic device,"[65] in the framework of an ever accelerating world urbanization, allows us to explain why the emergence of international terrorism is not a national but a megalopolitan phenomenon, and therefore throws some light on how current politics could be improved, through the development of feelings of mutual belonging to megalopolitan communities, whose hinges strengthen bonds and linkages across iconographic boundaries.

Notes

1. Biographic information collected from David Hammack (ed.), 1987. *The Reminiscences of Jean Gottmann* in the Oral History Collection of Columbia University.
2. Since the time of the Paris Peace Conference, Berchin's adhesion to the Zionist project was critical of the ways in which the leadership of the organization had intervened in the treaties and invoked the necessity to obtain larger support in the public opinion of the Great Powers through the action of the media. *Source:* Jean Gottmann, 1952. "Michael Berchin (1885-1952)," typescript, Fonds Gottmann, BnF, Paris.
3. Jean Gottmann, "Jean Gottmann's youthful period of development" (document A), unpublished typescript approx. 1990, Fonds Gottmann, BnF, Paris, p. 1.
4. In the same document Gottmann explained the militarism of his stepfather with his personal experience in the Russian Army: Berchin was convinced that military life provided both an adequate discipline and a "spirit of corps."
5. See: Jean Gottmann and Pierre Gourou, "Albert Demangeon (1872-1940)," *Bulletin de la Société Languedocienne de Géographie*, 2e série, Tome XII, premier fascicule, Montpellier, 1941, pp. 1-15; see also: Jean Gottmann, "L'oeuvre d'Albert Demangeon (1872-1940)," typescript dated August 1972, Fonds Gottmann, BnF, Paris.
6. For a detailed account of the French school of geography during the war, see Jean Gottmann, 1946, "French geography in wartime," *Geographical Review*, 36, pp. 80-91. See also: Anne Buttimer, 1971, *Society and Milieu in the French geographic tradition.* Published for the Association of American Geographers by Rand McNally, Chicago, IL; Olivier Soubeyran, 1997. *Imaginaire, science et discipline*, L'Harmattan, Paris, p. 230; Paul Claval, 1998. *Histoire de la géographie française de 1870 à nos jours*, Nathan, Paris.
7. Gottmann attended a full class on the crisis of Europe taught by Siegfried at the Collège de France in 1934. See Gottmann (1989), "En travaillant avec André Siegfried," in *Etudes Normandes,* Rouen no. 2, 1989 (André Siegfried, la politique et la géographie), pp. 13-16.
8. Since the end of the 19th century, and thanks to Paul Vidal de la Blache, history and geography are integrated in the French academic curriculum. This endured until 1943. Gottmann's secondary thesis is dedicated to the study of diplomatic relations in the Balkan wars.
9. *The Reminiscences, op. cit.*
10. J. Gottmann, 1933-34, La culture irriguée en Palestine. Thesis. Institute of Geography, Hebrew University of Jerusalem and Fond Gottmann, BnF, Paris.
11. His thesis contains also a useful reconstruction of the recent history of Palestine: from the beginnings of Jewish settlements, to the formation of a Muslim solidarity progressively opposing European colonization and the Jewish state, to the ambivalence of the British

administration, which started the first cadastre of the region. The analysis of Jewish migration flows is possible thanks to the existence of a detailed register, while there were obviously no data available for Arab movement to and from Transjordan.

12. B. Mazon (1985), "La Fondation Rockefeller et les sciences sociales en France, 1925-1940," *Revue française de sociologie*, XXVI, pp.330-331; See also: B. Mazon (1988), *Aux origines de l'EHESS, le rôle du mécénat américain*, Cerf, Paris; E. Loyer (2001), "La débâcle, les universitaires et la fondation Rockefeller: France/Etats-Unis, 1940-1941," in *Revue d'histoire moderne et contemporaine*, no. 48, pp. 138-159.
13. See: J. Gottmann, 1938, "Le problème des matières premières: l'approvisionnement de la France," *L'Information Géographique*, 2 , (4), pp. 155-157. This line of research was then developed at the European (1939) and global scales (within the Paris-based Institut International de Co-opération Intellectuelle of the Society of Nations). After the war, Gottmann also consulted for the Raw Materials Combined Board, and finally synthesized those experiences in a publication: Jean Gottmann, 1957, *Les Marchés des Matières Premières*, A. Colin, Coll. Sciences Politiques, Paris.
14. Isaiah Bowman, *The Pioneer Fringe*, American Geographical Society Publication, no. 13, (New York: AGS, 1931).
15. Neil Smith, 2003. *American Empire. Roosevelt's Geographer and the Prelude to Globalization*, California University Press, Berkeley, p. 213.
16. J. Gottmann, 1937, "The pioneer fringe in Palestine settlement, Possibilities South and East of the Holy Land," *Geographical Review,* 27, pp. 550-565.
17. Gottmann to Berchin, 22 July 1938, Fonds Gottmann, BnF, Paris.
18. *Annales de Géographie,* 47, 1938, pp. 575-601.
19. Back in Montpellier at the end of the war Gottmann discovered that the Germans came to look for them in their former home in rue Lepic. Gottmann to Berchin, 5 May 1947, Fonds Gottmann, BnF, Paris.
20. HICEM was an international Jewish organization founded in 1927 to support Jewish migration. The name was derived from the three Jewish organizations of which it was constituted: HIAS (Hebrew Sheltering and Immigrant Aid Society, a Jewish American organization based in New York); JCA (Jewish Colonisation Association, founded by Baron de Hirsch in 1891, in Great Britain); and Emig-Direkt (founded in Berlin in 1921). Its activities, largely funded by the American Joint Distribution Committee (AJDC), allowed about ninety thousand Jews to flee during the Holocaust. Based in Paris, it helped the refugees with information, visas, transportation, credit, etc. In 1940, before the Nazi occupation, it moved to Lisbon, where it operated undercover from within the local emigration office.
21. According to a private conversation with Bernice Gottmann.
22. *The Reminiscences*, *op. cit.*
23. The Institute for Advanced Study was founded by Louis Bamberger and Caroline Bamberger Frank Fuld after advice from Dr Abraham Flexner. When Gottmann arrived, it consisted of the prestigious School of Mathematics (opened in 1933) which had among its permanent staff Albert Einstein, Kurt Gödel and John von Neumann; of the School of Humanistic Studies, with classicists like Ernst Herzfeld and E.A. Lowe, and art historians like Erwin Panofsky; and of the School of Economics and Politics, directed by Edward Mead Earle, both started in 1935. It also hosted a mission with many members of the Economic, Financial and Transit Department of the League of Nations, including Martin Hill and Frank Notestein and a temporary members flow from a wide range of disciplines and countries.
24. The Institute for Advanced Study, *Bulletin no.11 1941-1944*, Princeton, NJ, March 1945, pp. 3-4.
25. See letter of Earle to Admiral Wilkinson, 16 May 1942. Courtesy of the Archives of the Institute for Advanced Study.
26. Neil Smith, *op. cit.,* p. 294.
27. See Earle to Bowman, 25 March 1942, and Bowman to Earle, 26 March 1942. The Johns Hopkins University, Milton S. Eisenhower Library, Department of Special Collections and Archives, Inventories of the Ferdinand Hamburger, Jr. Archives, Isaiah Bowman Papers Ms. 58, Series 2 Correspondence Box 2.17, Gottmann file.
28. Gottmann to Gourou, 15 octobre 42, Fonds Gottmann, BnF, Paris. Curiously Gourou never received this letter as the mail service was suspended and it was returned to the sender.
29. The above mentioned works are: 1942: *Les relations commerciales de la France*, (vol. I of the Collection France Forever), preface of Prof. Henri Laugier, Montreal, Les Editions de l'Arbre; "The background of geopolitics," *Military Affairs, Journal of the American Military Institute*, 6, (4), pp. 197-206. 1943: "Nature and men in French North Africa," *The Yale Review* , 32 (3): 474-492; Bugeaud, Galliéni Lyautey, "The development of French colonial warfare," in: *Makers of Modern Strategy: Military Thought from Machiavelli to Hitler* (ed. E.M. Earle), Princeton, Princeton University Press, pp. 234-259. 1944: Vauban and Modern Geography, *Geographical Review* , 34 , pp. 120-128.
30. See Neil Smith interview to Gottmann (1982); *The Reminiscences...*, op. cit.; also M.-C. Robic and J.-L. Tissier, 1993, *Entretiens d'Oxford*, Laboratoire E.HGO, CNRS Paris.
31. *The Reminiscences...*, *op. cit.* p. 24.
32. Henri Laugier was the president and co-founder of the French CNRS between 1936 and 1940. During the war he was director of cultural affairs at the Ministry of Foreign Affairs after 1944, adjunct secretary of the United Nations from 1946 to 1951, and member of the executive board of Unesco from 1953 to 1957.
33. Between March and August 1945 Gottmann reported on a variety of subjects such as: The USA and the French colonies; French aeronautic industry and strategic bases, the perception of French space; The Rhenan problem and French economic policy towards Germany; The geographical framework of the economic plan, Rural planning in the Toulouse region; The crisis in the hydroelectric power production, the international controls on raw materials.
34. Jean Gottmann, 1949. *L'Amérique* [Vol. I of the collection "Les Cinq Parties du Monde"], Hachette, Paris.
35. See Patrick Petitjean: "L'Onu a-t-elle voulu dominer la science mondiale? Les projets de laboratoires internationaux entre 1946 et 1949," *Proceedings of the XXI International Congress of History of Science*, Mexico, July 2001. (Universidad Nacional Autónoma de México), *forthcoming.*
36. Albert Einstein: "The idea of international scientific research, which is interesting in principle, has to be considered with great care and caution. All the history of science shows that it is not through organization and planning that the great advances were achieved: the mind of some individual must get the spark, and, finally, the freedom of work of the individual scholar is the main condition of scientific progress. Organization is a poor instrument to find out new ways and means." Courtesy United Nations Archive, Department of Social Affairs, DAG -18/ 1.4.1 E/620 (1946).
37. Owen Lattimore was Roosevelt's ambassador to Chiang-Kai-Shek's China and was sharing his office at the department of geography at Johns Hopkins with Gottmann since 1944.
38. See L. Muscara (1998), "The Atlantic transhumance of Jean Gottmann and the development of his spatial theory," *Finisterra,* vol. 33, no. 65, pp. 159-172.
39. This discovery must have been very hard to face in view of his aspirations to re-enter the Sorbonne, and given the harsh judgments expressed in the following letter as opposed to his usually very well-balanced style: "Hier soir j'ai eu des nouvelles intéressantes sur les plans de mes préoccupations d'avenir. Il y a eu une grande élection à la Sorbonne dont voici les résultats: Gurvitch a été élu à la chaire de sociologie (succédant à Albert Bayet). George (hélas!) a été élu à la chaire de géographie économique (Sorre). Perpillou à la chaire de géographie humaine et politique (Dion). Dresch à la chaire de géographie nord-africaine (Larnaude). George et Dresch sont tous deux officiellement communistes et font partie de la bande Cholley. Dresch a de la valeur scientifique mais George ... tu sais. Bien, me voici dans une situation où l'Institut de Géographie de Paris va cesser de m'interesser beaucoup. Il va degringoler. De plus tous les 3 nouveaux elus sont des partisans de la géographie classique, traditionelle, sans grand changement. Dommage. Il va falloir bien réflechir à la situation mais ça n'est pas très favorable. Décidément il sera dit que je n'irais pas à la Sorbonne. Il y a d'autres possibilités, me diras-tu. Oui, mais c'est encore une illusion qui s'envole. L'équipe actuelle est surtout faite de médiocres: Cholley, Chabot, Perpillou, même Robequain, qui est mieux mais pas formidable. Un bluffeur: George. Un sérieux mais conservateur en science: Dresch." (Gottmann to Berchin, 13 July 1948, Fonds Gottmann, BnF, Paris.)
40. André Siegfried, 1927. *Les États-Unis d'aujourd'hui*, and 1938, *Qu'est-ce que l'Amérique?*
41. Gottmann to Berchin, 24 October 1948, Fonds Gottmann, BnF,

Paris.
42. *The Reminiscences* ..., *op. cit.* pp. 55-56.
43. Courtesy Rockefeller Foundation Archives, R.G. 1.1, Series 500. Centre d'Etudes de Politique Etrangère, Paris, Box 21, Folder 212.
44. J. Gottmann, 1950. *A Geography of Europe*, New York, Henry Holt.
45. J. Gottmann, 1951, "Geography and international relations," *World Politics* 3, (2), pp.153-173. J. Gottmann, 1952. *La politique des Etats et leur géographie* (Coll. Sciences Politiques), Librairie Armand Colin, Paris. J. Gottmann, 1952, "The political partitioning of our world: an attempt at analysis," *World Politics,* 4 (4), pp. 512-519.
46. J. Gottmann, 1955. *Eléments de Géographie Politique* (Cours de l'Institut d'Etudes Politiques 1954-5), Paris, Les Cours de Droit, 2 fascicules, April/May.
47. Gottmann to Toynbee, 27 July 1954, Fonds Gottmann, BnF, Paris.
48. Toynbee to Gottmann, 30 July 1954, Fonds Gottmann, BnF, Paris.
49. This subject was already dealt with in his 1949 *L'Amérique* and elsewhere.
50. J. Gottmann, 1963, "La politique et le concret," *Politique Etrangère* 28, (4-5), pp. 273-302.
51. J. Gottmann, 1951, "La région charnière de l'économie américaine," *Revue de la Porte Océane* (Le Havre) 7 (71-72), pp. 9-14, (73-74), pp. 11-20.
52. *Entretiens d' Oxford* , *op. cit.,* pp. 21-22.
53. J. Gottmann, 1955. *Virginia at Mid-Century*, Henry Holt, New York.
54. *The Reminiscences* ..., *op. cit.,* p. 59-60.
55. See: Gottmann to Oppenheimer, 15 April 1956, IAS Archive, Princeton.
56. Gottmann file at the IAS Archive, Princeton.
57. *The Reminiscences* ..., *op. cit.,* pp. 55-56.
58. *Ibid.*
59. "Note on a Survey of Megalopolis, prepared by Jean Gottmann for the Twentieth Century Fund," IAS Archive, Princeton.
60. By the mid-1970s, the megalopolis of the Great Lakes had been studied by C.A. Doxiadis and Alexander Leman; the Tokaido megalopolis in Japan was studied under the direction of Eiichi Isomura; the megalopolis of England was analyzed by a team directed by Peter Hall; the megalopolis of Northwestern Europe, that spans from Amsterdam to the Ruhr and the industrial agglomeration of Northern France, was described by I.B.F. Kormoss. See Gottmann (1976), "Megalopolian systems around the world," *Ekistics,* vol. **41**, no. 243, pp. 109-113.
61. Scott, A.J. (ed.), 1999. *Global City-Regions*, Oxford University Press.
62. *The Reminiscences...*, *op. cit.,* p. 61.
63. J. Agnew (2003), *Making Political Geography* (London, Arnold), p. 98.
64. J. Gottmann (1994), *Beyond Megalopolis, Towards a World Community?* The Community Study Foundation, Tokyo (reprinted in *Sistema Terra,* **5.1** (June 1996): 82-84, and **5.2** (December 1996): 4-8.
65. J. Gottmann (1973), *The Significance of Territory* (Charlottesville, VA, University Press of Virginia), pp. x, 7 and 156.