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## RESEARCH REPORTS AND NOTES

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### URBAN CARTOGRAPHY IN LATIN AMERICA DURING THE COLONIAL PERIOD\*

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No history exists of the cartography of the countries that currently comprise Latin America. Nor is there a history of urban cartography, although there are excellent books containing collections of plans of the cities of that part of the world. No one should be surprised therefore to find that historians, geographers, architects, and other specialists interested in the evolution of Latin American cities have made scant use of regional and city plans in their studies. It is possible that the growing interest shown during recent decades in the regional and urban history of Latin America and in the conservation of its historical centers, cities, and towns may occasion increased interest in the kind of information that regional and urban plans offer to the researcher. Sooner or later, specialists involved in studying the process of urbanization and regionalization in Latin America will recognize the importance of studying the socio-historical process of structuring space and of analyzing the different cultural groups who occupied that space. Cartography, with its increasing precision through the centuries, its emphasis on distances, on geographical elements and direction, on the representation of some of the most important works of man—for example, the placement of cities, towns, roads, ports, bridges, and irrigation canals—ought to be an essential source of information.

\*Translated with funds provided by the Ford Foundation.

The number of plans of Latin American cities that I have found in the archives and public and private libraries of Europe, the United States, and Latin America is truly astonishing. Nearly twenty years ago, when I was beginning my studies in Latin American urban history, I began to look over these plans and to select some with no particular objective in view. In addition to the aesthetic pleasure that I found in the plans and views of a Vingboons and his collaborators, of a Gómez de Trasmonte, a Rugendas, a Vidal, a Barlaeus, and so many others, I quickly developed an interest in constructing sequences of plans of a particular city over time in order to be able to visualize its development, the lines of its growth, the placement of its access roads, the changing uses of its land, the mutual concerns of its inhabitants and of the European settlers in defending some of these cities, the characteristics of the site, and other elements of interest. Each plan, like a census of the population, represents a horizon in time, more or less accurate depending on the intentions of its author and his or her ability to benefit from developments in relief techniques used in determining distance and direction. The urban researcher who has access to a city plan and to a census or description of a city done at the same historical moment is thereby in possession of two variables basic to his or her analysis.

By about 1967, I had looked through several hundred city plans, and I began to recognize them with ease. Schools, dates, even authors unfolded before me as do pictures at an exhibition before the art historian. These plans, in their presentation of urban form and structure, revealed the origin of the idea of the city. Clearly, a Spanish American city plan was different from a Luso-Brazilian one, or from one of Dutch, English, French, or Danish origin. Even with plans brought to America by the same European power, the design of urban form and structure revealed in a variety of ways the origins and functions of the city: an international commercial port as opposed to an interregional commercial port; an administrative center as contrasted with an Indian town or a mining center. No single model of a city existed that embodied all colonial experiences. Urban theory and practice in Spain differed from that prevailing in Portugal, Holland, France, or England. Different theories and practices were brought to America—and were taken also to Asia and Africa at other times—when these European powers decided to intervene. Even the criteria for choosing the site for a new city were, in many cases, different.

Thus arose my idea of making a collection of Latin American city plans that through examples of cities established by those European colonial powers that played a role in American affairs between the sixteenth and the early nineteenth centuries would reflect the theory and practice of urbanization in Europe during that period as well as in the territories over which the European colonial powers subsequently ac-

quired complete control. This collection of Latin American city maps was also intended to illustrate the relationship existing between urban form and structure vis-à-vis functions that were accomplished in these new centers. This work resulted in two essays in which I embarked on a discussion of the subject: "Las formas urbanas europeas durante los siglos XV y XVII y su utilización en América Latina: notas sobre el trasplante de la teoría y práctica urbanística de españoles, portugueses, holandeses, ingleses y franceses"<sup>1</sup> and "La forma de las ciudades coloniales en la América española."<sup>2</sup>

With the aim of delving further into the ideas explored in those two essays, I began a more systematic search in 1968. I reviewed the collections of more than forty archives and libraries and examined thousands of original plans and dozens of collections of city maps, many of them published, others still unpublished or only partially published.<sup>3</sup> The results of that research and classification appeared in a succession of publications. In "La cartografía urbana en América Latina durante el período colonial: un análisis de fuentes," I offered a synthesis of the representative nature of urban plans over the course of time.<sup>4</sup> Some of the conclusions reached in that early work were the following. There are few extant examples or original hand-drawn or printed plans of Latin American cities made during the sixteenth century, and all those I have found deal with former Spanish colonies. The majority of the plans and views of the sixteenth century are of unknown authorship.

Beginning with the early seventeenth century, however, as the Dutch, English, and French demand grew for plans for commercial (and therefore military) reasons, the production of plans—especially of ports, landing places, and coasts—increased noticeably. Most of the authors of plans dating from the eighteenth century on are identified.

Surprisingly few maps of mining centers have been found. The cartography of Potosí, Guanajuato, Huancavelica, San Luis Potosí, and other important colonial mining centers is really poor, and I have found no plans of Taxco, Fresnillo, Saltillo, Zapotecas, and Castrovirreina, for example, that were drawn in the period between the sixteenth and eighteenth centuries. There is no logical explanation for this lack of plans of mining centers unless the plans were part of a now-missing section of some Spanish archive, or unless they were intentionally never drawn. In contrast, numerous examples exist of plans of some ports of international commerce, such as Havana, San Juan (Puerto Rico),<sup>5</sup> and Cartagena.<sup>6</sup> Less representative, but equally important, are the series of plans that can be assembled of Santo Domingo,<sup>7</sup> Veracruz, Campeche and Acapulco,<sup>8</sup> La Guaira,<sup>9</sup> Callao, Montevideo,<sup>10</sup> Buenos Aires,<sup>11</sup> Salvador,<sup>12</sup> and other ports.

Also important are the series of maps of those administrative centers that were the seats of viceroalties and *audiencias* during the colonial

period. Notes 7 and 11 list the most accessible sources on Santo Domingo and Buenos Aires. Good published collections exist of plans of Mexico City,<sup>13</sup> Lima,<sup>14</sup> and Quito.<sup>15</sup> On the other hand, cartography relating to Santiago de Chile is scarce, and that relating to Guadalajara and Bogotá is recent as well as scarce. I know of only one plan of Old Panama (that of Cristóbal de Roda, dated 1609), but there are several plans of New Panama that I believe have never been gathered together in a single published volume. I know of only one plan of La Plata (Bolivia) and of one nineteenth-century copy of a lost eighteenth-century plan of Antigua, Guatemala. Cartography relating to minor administrative centers is very uneven. There are two good publications done on Caracas,<sup>16</sup> another on São Paulo,<sup>17</sup> and still another on Salvador and Rio de Janeiro,<sup>18</sup> but I have not found a single plan relating to other centers that were important during the colonial period, including San Cristóbal de las Casas, León, San Salvador, Granada, Mérida, Pátzcuaro, Toluca, Vélez, Pamplona, Santiago del Estero, and Santa Cruz de la Sierra, for example.

The guide to map collections relating to Latin American cities, which I prepared with the collaboration of Dr. Francisco Solano of the Instituto Gonzalo Fernández de Oviedo in Madrid, analyzes 103 titles arranged in three sections.<sup>19</sup> The first section, consisting of fourteen titles, groups together those manuscript collections formed between the sixteenth and eighteenth centuries. Outstanding among the manuscript collections is the splendid series of plans and views by Iohannes Vingboons that comprises the *Atlas Vaticano*,<sup>20</sup> and also the imprecise, but equally interesting, plans of the principal ports of the Caribbean, Central America, and New Spain drawn by Nicolás de Cardona.<sup>21</sup> The second section is comprised of thirty-four titles printed between the sixteenth and the eighteenth centuries. Outstanding among these are the city plans and geographical charts or maps of coastal areas that illustrate the works of Bellin,<sup>22</sup> Charlevoix,<sup>23</sup> Frezier,<sup>24</sup> Juan and Ulloa,<sup>25</sup> Barlaens,<sup>26</sup> Santa Teresa,<sup>27</sup> and Tomás López.<sup>28</sup> The third section consists of fifty-five titles printed during the nineteenth and twentieth centuries. This last group is heterogeneous, including everything from collections of city plans preserved in archives to collections specializing in a particular city or colonial administrative area or in the cartographic output of one European country. The best collection of plans of cities in the former Spanish colonies remains the one published by the Instituto de Estudios de Administración Local of Madrid in 1951,<sup>29</sup> and for the Portuguese colonies, the one prepared by Luis Silveira for the Junta de Investigações do Ultramar.<sup>30</sup> The student interested in the history of cartography undoubtedly will find a rich source of well reproduced and annotated maps in two fundamental works: the *Monumenta Cartographica* of Frederik Wieder and the *Monumenta Cartographica Vaticana* of

Roberto Almagià.<sup>31</sup> The first of these includes the best extant collection of reproductions of the work of Vingboons and his collaborators as well as several maps of interest to the student of Latin American urban history, like the map of the Straits of Magellan by Cavendish (1588) and a copy of the famous planisphere of Johannes Blaeu (1648), considered in its time to be the standard map of the world. Also important are the collections published by the Servicio Geográfico e Histórico del Ejército de España.<sup>32</sup>

The original plans and engravings of cities included in the published and unpublished collections described in my guide<sup>33</sup> constitute a small percentage of those extant. The best collections of original plans are to be found in the Archivo de Indias of Seville, in the Servicio Geográfico e Histórico del Ejército and the Biblioteca Nacional (both in Madrid), in the British Museum in London, in the Bibliothèque Nationale in Paris, and in the Library of Congress in Washington. The collections of atlases in the Vatican Library and in the British Museum are excellent.

Latin American sources would begin with the Archivo General de la Nación de Mexico. Under its new administration, the Archivo launched a special effort to inventory the plans, maps, and illustrations it held. Most of the maps are originals and many of them were drawn in the sixteenth century. In this archive appeared or reappeared plans of cities that are scarcely represented in the collections already published.<sup>34</sup> As to Brazilian sources, I would recommend two works. Nestor Goulart, in his *Evolução Urbana do Brasil*, and Paulo Santos, in his *Formação de Cidades no Brasil Colonial*, include a good selection of plans, but the reproductions, especially those contained in the latter work, are of poor quality.<sup>35</sup>

In 1979 I completed an essay entitled "Planos de ciudades y cartógrafos de las antiguas colonias de España en América durante el siglo XVI."<sup>36</sup> My purpose in writing it was to analyze the development of the technique of urban cartography in Latin America during the century of discovery and conquest. My aim was also to prepare a list of the most important charts, maps, and plans for a history of city plans during those fundamental decades, when the system of urban centers that still endures took shape. In the appendix to this essay, I included a list of fifty-five plans and views of cities and parts of cities (originals or printed versions) that were drawn during the sixteenth century. It is the most complete list that I have been able to compile, although the most recent catalogues of the Archivo Nacional de México are not included. I was surprised by the scarcity of plans dating from the sixteenth century for two reasons: first, because between 1519 and 1600, hundreds, perhaps thousands, of cities and towns of all kinds were founded from Mexico to the south of Chile; second, because of the tenth question of the fifty-item

questionnaire that Philip II ordered sent to the overseas colonies in 1577. This item was to be completed by the highest authorities or by those with the best knowledge of each center of population and its surroundings; the item requested that a plan of the particular center of population and its surrounding area be attached. Many of the responses to the question have been lost, but at least seventy-five plans or paintings of various types have been registered. Not all of them, however, have been published, and many are regional plans of no interest from an urban standpoint.

In a recent study entitled "Apuntes para una historia de la cartografía urbana en América Central durante el período colonial," I attempted to synthesize, century by century, the development of knowledge on the subject and the information now available concerning a specific geographic area.<sup>37</sup> Because I limited myself to an area of secondary importance during the colonial period, and one that was poorly represented in urban cartography, I was able in this essay to examine in greater depth the development of the technique involved in surveying and drawing plans. I was also able to explain a group of plans in greater detail and to describe more precisely the work of a number of cartographers whom I consider to be key figures in this region.

The next step in this research is to publish an atlas that would include some 250 plans and an introductory essay. In this work, I intend to present in greater detail the fundamental ideas of my work. Essentially, these ideas have to do with the differences to be found among the types of cities built by the five principal European powers involved in the colonization of America between the sixteenth and eighteenth centuries and the relationship that in many cases obtained between the shape taken by the cities and the functions that they fulfilled. The plans will be organized into five sections devoted to Latin American, Luso-Brazilian, Dutch, English, and French examples. The first section will be subdivided into category I administrative centers (seats of viceroalties and *audiencias*) and category II administrative centers (seats of *gubernaciones*), as well as into international and interregional commercial ports, mining centers, *presidios* and frontier centers, Indian towns, agrarian centers, and others. In the case of plans from Brazil, the classification will be limited to administrative centers, ports, and others. The city plans corresponding to the former colonies of Holland, England, and France in America will not be classified according to a functional criterion because of the small number of cities founded and the consequently few cartographic examples.

## NOTES

1. Third Symposium on "El proceso de urbanización en América desde sus orígenes hasta nuestros días," coordinated by Jorge E. Hardoy and Richard P. Schaedel, in *Actas del XXXIX Congreso Internacional de Americanistas*, Volume 2 (Lima: Instituto de Estudios Peruanos, 1970), pp. 9–404; and in *Urbanización y proceso social en América* (Lima: Instituto de Estudios Peruanos, 1972), pp. 157–90.
2. *Revista de Indias*, Nos. 131–38, Madrid (Jan. 1973–Dec. 1974):315–44.
3. The list of archives and libraries consulted comprises Appendix A of "La cartografía urbana en América Latina durante el período colonial. Un análisis de fuentes," in *Ensayos histórico-sociales sobre la urbanización en América Latina*, compiled by Jorge E. Hardoy, Richard M. Morse, and Richard P. Schaedel, pp. 19–58 (Buenos Aires: Ediciones SIAP, 1978), and in *Actas del XLII Congreso Internacional de Americanistas*, Volume 10, pp. 273–367, abridged version (Paris, 1979).
4. Hardoy, "Cartografía," pp. 19–58.
5. Rafael M. Ramírez de Arellano, *La capital a través de los siglos* (San Juan, Puerto Rico: privately printed, 1950). This work provides a good selection of plans and views, but they are badly reproduced and interspersed with trivial texts.
6. Enrique Marco Dorta, *Cartagena de Indias* (Cartagena: Alfonso Amado Editor, 1960).
7. Erwin Walter Palm, *Los monumentos arquitectónicos de La Española* (Santo Domingo: Universidad de Santo Domingo, 1955).
8. José Antonio Calderón Quijano, "Nueva cartografía de los puertos de Acapulco, Campeche y Veracruz," *Anuario de Estudios Americanos* 25 (Seville, 1968).
9. Graziano Gasparini includes plans and views of La Guaira (almost all of dating from the eighteenth century or after) in his recent book on the preservation efforts in that city and port.
10. Carlos Travieso, *Montevideo en la época colonial: su evolución a través de mapas y planos españoles* (Montevideo: 1937). Also, *Iconografía de Montevideo* (Montevideo: Consejo Departamental, 1955).
11. A. Taullard, *Los planos más antiguos de Buenos Aires (1580–1880)* (Buenos Aires: Peuser Editores, 1940); and Guillermo Moores, *Estampas y vistas de la ciudad de Buenos Aires, 1599–1895* (Buenos Aires: Peuser Editores, 1945).
12. Joaquim de Sousa-Leão, *Salvador da Bahia de Todos os Santos: Iconografía Seiscentista Desconhecida* (The Hague: Kosmos, 1957).
13. Manuel Carrera Stampa, "Planos de la ciudad de México," *Boletín de la Sociedad Mexicana de Geografía y Estadística* 68, nos. 2–3 (1949):265–427.
14. José Barbagelata and Juan Bromley, *Evolución urbana de la ciudad de Lima* (Lima: Concejo Provincial de Lima, 1945).
15. Luis T. Paz y Niño, *Apuntes para una geografía humana de Quito* (Mexico: IPGH, 1960).
16. Irma Sola Ricardo, *Contribución al estudio de los planos de Caracas: 1567–1967* (Caracas: Dirección de Cartografía, Ministerio de Obras Públicas, 1967); also, Graziano Gasparini and Juan Pedro Posani, *Caracas a través de su arquitectura* (Caracas: Fundación Fina Gómez, 1969).
17. *São Paulo Antigo: Planos da Cidade* (São Paulo: Comissão do IV Centenário da Cidade de São Paulo, 1954). This collection consists of eleven nineteenth-century plans.
18. Gilberto Ferrez, *As Cidades do Salvador e do Rio de Janeiro no Século XVIII* (Rio de Janeiro: Instituto Histórico e Geográfico Brasileiro, 1963).
19. "Guía de colecciones de planos de ciudades iberoamericanas," *Revista de Indias*, nos. 153–54 (July–Dec. 1978):791–851 (Madrid).
20. Iohannes Vingboons, *Atlas Vaticano*, in the Biblioteca Apostolica Vaticana, Reg. lat. 2105–6. Drawn in the mid-seventeenth century.
21. Nicolás de Cardona, *Descripciones geographicas e hydrographicas de muchas tierras y mares del Norte y Sur de las Indias*, in the Biblioteca Nacional de Madrid, manuscripts 2468. The collection was completed before 1632.
22. Jean-Jacques Bellin, *Le Petit Atlas Maritime* (Paris: Par ordre de M. le duc de Choisseul, Ministre de la Guerre et de la Marine, 1764). It contains good plans of Caribbean and Atlantic ports as well as of Lima and Quito.

23. Pierre François Xavier Charlevoix, *Histoire de l'isle espagnole ou de S. Domingue* (Paris: Chez Hippolyte Guerin, 1730), 2 vols.
24. Amadée François Frezier, *Relation du voyage de la Mer du Sud aux côtes du Chily et du Perou* (Paris: J. G. Nyon printer, 1716), 4 vols.
25. Jorge Juan and Antonio de Ulloa, *Relación histórica del viaje a la América Meridional* (Madrid: Antonio Marin, 1748). The maps and plans are very precise and detailed.
26. Gaspar Barlaeus, *Rerum per octennium in Brasilia* (Amsterdam: Ex typographeio Ioannis Blaeu, 1647). Excellent collection of plans of northern and northeastern Brazil.
27. Giovanni Giuseppe di Santa Teresa, *Istoria delle guerre del regno del Brasile accaduta tra la Corona di Portogallo e la Repubblica di Ollanda* (Roma: Nella Stamperia degl'Eredi del Corbelletti, 1698).
28. Tomas López, *Atlas geográfico de la América septentrional y meridional* (Madrid: A. Saenz, 1758).
29. *Planos de ciudades iberoamericanas y filipinas existentes en el Archivo de Indias* (Madrid: Instituto de Estudios de Administración Local, 1951), 2 vols.
30. Luis Silveira, *Ensaio de Iconografia das Cidades Portuguesas do Ultramar* (Lisboa: Junta de Investigações do Ultramar, 1956), 4 vols. Volume IV is devoted to Brazil.
31. Frederik Wieder, *Monumenta Cartographica: Reproductions of Unique and Rare Maps, Plans, and Views in the Actual Size of the Originals, Accompanied by Cartographical Monographs* (The Hague: Martinus Nijhoff, 1925–33), 5 vols. The twenty-five plates devoted to the work of Vingboons are included in Volumes I, II, and IV. See also Roberto Almagià, *Monumenta Cartographica Vaticana* (Vatican City: Biblioteca Apostolica Vaticana, 1944–55), 4 vols. Volume I includes reproductions of the famous planispheres of Diogo Ribeiro (1529), of Girolamo da Verrazzano (1529), who first represented Tenochtitlán in a planisphere, and the anonymous planisphere of 1530 that gives the precise location of Cuzco (not yet visited by the Spaniards) and of Tenochtitlán. These planispheres can be seen in the galleries of the Vatican museum.
32. *Cartografia de Ultramar* (Madrid: Servicio Geográfico e Histórico del Ejército, 1949–58), 4 vols. Volume I is devoted to America in general and Volume II to the United States and Canada. Volume III covers Mexico and includes several plans of Acapulco, Veracruz, and Mexico City, as well as plans of several minor towns that are seldom represented cartographically. Volume IV covers Central America.
33. Hardoy and Solano, "Guía."
34. See the catalogue of the exposition of plans prepared by the Archivo and exhibited in October 1978 at the Instituto Nacional de Bellas Artes in Mexico City.
35. Both works, but especially the first, are essential for the scholar interested in the urban history of Brazil. Nestor Gonlart Reis Filho, *Evolução Urbana do Brasil* (São Paulo: Livraria Pioneira Editôra, 1968), and Paulo F. Santos, *Formação de Cidades no Brasil Colonial* (Coimbra: V Coloquio Internacional de Estudos Luso-Brasileiros, 1968).
36. This essay was published as "Planos de ciudades y cartógrafos de las antiguas colonias de España en América durante el siglo XVI," in *De historia e historiadores: homenaje a José Luis Romero* (Buenos Aires: Siglo Veintiuno, 1982), pp. 197–224.
37. This essay was prepared for a book to be published by Duke University Press. It is to be presented, with the coordination of Dr. Duncan Kinkead, to Professor Sidney Markman on the occasion of his retirement. Professor Markman is a well-known specialist on the history of the art and architecture of the old *Audiencia* of Guatemala. The geographical area to which he gave most emphasis in his studies partly determined the subjects covered by the authors of the essays that comprise the book.