
An Experiment in the History of Economy and Culture

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Introduction

In 1974 the authors of this article decided to collaborate on a history of Latin America, in which Slicher would study social and economic developments and van Oss the history of culture: religion, Church, education, science and the arts. From the beginning our foremost objective has been to integrate, as much as possible, the cultural and material aspects of life in the past: man and his activities seen as an entirety, approached according to its different facets. The idea is by no means new; nevertheless the results of past attempts to integrate economic and cultural history have been less than satisfying. Recent articles by Gorski and Bottineau express doubts as to whether there is any relation at all between the two.¹ If they are right, then the problem is insoluble. Nevertheless, we are not yet prepared to accept this fatalism. The result of our reflections on the relation between economic and cultural history is an experiment, the general lines of which are set down in the following pages. In formulating our ideas, we have tried to place them in the broad context of contemporary historical thought, this in the case of the more general considerations. In addition, more special attention is given to the peculiarities inherent to the study of Latin America,

¹ KAROL GORSKI, "Nécessités et tendances psychologiques et aspects de la consommation", paper presented at the *Sesta Settimana di Studio*, Istituto Internazionale di Storia Economica « Francesco Datini », Prato, 2 May 1974; YVES BOTTINEAU, "La méthode historique en histoire de l'art", *Revue Historique* CCLVIII, no. 1 (1977), pp. 131-139.

although here as well, many questions arise which may also be of interest for other regions.

It has been necessary to conduct a number of rather extensive preliminary studies. We are presently in the midst of this phase of the investigation. Van Oss has studied the influence of population distribution on the conversion of Indians in sixteenth-century New Spain, the distribution and chronology of expansion of secular and regular religious institutions in colonial Spanish America, and the chronology of colonial religious and civil building activity in Mexico and Peru. In the last two studies he has compiled data on the distribution of different types of colonial monuments, and the decades in which construction activity apparently took place. It has been possible to establish a connection between building activity, demographic trends after 1570, and the differentiation of economic production; these relationships were also affected by the existing system of roads. Slicher has published work on the historical demography of Spanish America between 1570 and 1800 and on European flora and fauna in colonial America. He has also studied the colonial transportation network, the market areas for different kinds of products, and the "structure" of Spanish America around 1600, with respect to trade, economic differentiation, demographic concentration, forms of agriculture, religious institutions, etc. It has been possible for him to distinguish a number of regions of intense activity, and a system of hierarchical links among them, according to a variety of criteria.²

I. General considerations

Integration versus specialization

There are two mutually opposed tendencies in all sciences: on the one hand an ever increasing specialization, in which the investigator concentrates on an ever smaller field of study, and on the other hand the inclination to widen the scope of research, seeking contact with other branches of science.

² B. H. SLICHER VAN BATH, "Capitalismo y feudalismo en América Latina", *Boletín de Estudios Latinoamericanos y del Caribe*, no. 17 (1974), "De demografische ontwikkeling van Spaans Amerika in de koloniale tijd", "De kolonisatie van het milieu: Europese flora en fauna in Latijns Ametika", "Het paradijs van Antonio Vázquez de Espinosa, O. Carm", in: B. H. SLICHER VAN BATH en A. C. VAN OSS, *Geschiedenis van maatschappij en cultuur* (Baarn: Ambo, 1978), "Spanish America circa 1600", *Jahrbuch für Geschichte von Staat, Wirtschaft und Gesellschaft Lateinamerikas* 16 (1979); A. C. VAN OSS, "Medicant expansion in New Spain and the extent of the colony (sixteenth century)", *Boletín de Estudios Latinoamericanos y del Caribe*, no. 21 (1976), "Architectural activity, demography and economic diversification: regional economies of colonial Mexico", *Jahrbuch für Geschichte von Staat, Wirtschaft und Gesellschaft Lateinamerikas* 16 (1979).

In the study of history we find both tendencies represented. Two relatively young branches are social history and economic history. Both disciplines came into being independently towards the end of the last century.³ In both, a process of further specialization quickly set in. An example is that of agricultural history, narrowing itself to the study of implements and tools, and subsequently to the history of the plough. The division, the disintegration, of historical study into smaller and smaller parts, is a pattern which may also be found in the fields of social history, history of the Church, art history, and so forth.

The opposite tendency, towards a greater integration of the various specializations, is perhaps weaker, but is nonetheless everywhere to be seen. If the development of economic-historical writing is seen in the light of a progressive movement towards further integration of the parts, four phases of the process may be distinguished.

During the first phase, economic history consisted of a collection of unconnected histories of different forms of economic activity: agriculture, industry, transport and commerce, banking and credit, labour and labour relations. That was the way the material was arranged in most texts and handbooks. The interrelations among the various sectors were customarily ignored. The value of this kind of economic history is descriptive: there was little explanation of the causes of economic developments. It is not surprising that economic history in its first phase was of little use to economists.

A second phase began when the different facets of economic life came to be seen in combination. Two factors which emerged as being of prime importance were those of population and conjuncture. Demographic questions mainly concern changes in size and composition: births, deaths, marriages, sudden declines caused by epidemics, migrations. Sometimes it is possible to reconstruct the family ties of a large part of an earlier population with the aid of church registers: the method of family reconstitution. The results of research into family structure are, at present, mainly of local and regional significance. The term "population" is used in this article in a larger sense; here it also includes diet, health conditions, hygiene, housing and urbanization.

The study of conjuncture rests upon research into fluctuations in the relative prices of different goods and wage levels. Since the pre-industrial European diet was mainly made up of grain products, the relation between wage levels and grain prices was crucial. Population levels help to determine wages and prices. Population increase means greater demand for goods, usually leading to higher prices; at the same time it means an increased supply of labour, which can depress wage levels. In societies where money is used as a medium of exchange, prices are also influenced by the amounts

³ B. H. SLICHER VAN BATH, "Theorie en praktijk in de economische en sociale geschiedenis", *Geschiedenis: theorie en praktijk* (Utrecht, 1978).

of money in circulation, the production and inventories of gold and silver. Turning the relationship around, relative price levels certainly influence population trends, primarily by affecting mortality rates.

The term conjuncture is used in this article to mean a whole complex of activities, all of which have to do with the production and distribution of goods: agriculture, industry and handwork, mining, capital and the lending of credit, the many forms of free and forced labour, and further everything which contributes to the distribution of goods, including trade, markets, market areas for different products, and transport, both by water and by land.

The key to this second phase of integration is the connection made between population changes and economic activity. How do population size, composition and distribution respond to expanding or contracting economic possibilities, and how is conjuncture influenced by demographic fluctuations? Aside from factors which may be thus distinguished as being fluctuating or variable, it is also possible to identify those which remained more or less constant, rigid, over long periods of time.

The third phase of integration involved forging a link between the fields of economic and social history, or in any case certain aspects of social history. For a long time both had developed independently of each other. The link could be made via the study of social stratification, the different layers which make up a society. In the present context, occupational structure, the working population (producers), the poor, slaves, and persons of differing ethnic extraction are considered under the heading of social stratification, as are problems having to do with racial mixture, racial conflicts, and resistance and rebellion of certain social groups.

Although social stratification can undergo swift and drastic upheavals resulting from great changes in social and spiritual attitudes — one has only to recall the consequences of the Reformation, or of such revolutions as those which took place in France in 1789 and Russia in 1917 —, such rapid transformations are rare. Of more lasting significance is the close connection which may be established between economic activity and social stratification via occupational differentiation. Here we are concerned with those gradual shifts in social stratification which accompany demographic changes and conjunctural fluctuations. While such changes alter social relations, an existing social stratification may also act to stimulate or retard conjunctural developments. The problem of many developing countries now is their rigid social structure, especially in the rural areas. On the other hand, the great importance of the mercantile class in the Netherlands during the sixteenth and seventeenth centuries certainly had a salutary effect on the Dutch economy.

A recent study by van Oss⁴ dealing with Mexico indicates that the degree of economic differentiation in a given area is especially important.

⁴ A. C. VAN OSS, "Architectural activity...", *op. cit.*

A distinction is made between, on the one hand, areas where a variety of crops are grown, or where various forms of industry are to be found, and, on the other, areas where a single crop, such as sugar cane or cacao, or a single industry, for example mining or textiles, dominates (monoculture or mono-industry). By considering the whole of economic production from the perspective of the degree of economic differentiation instead of the different kinds of economic production separately — e.g. arable farming, cattle-raising, industry, trade and transport, mining, fishing — the relation between conjuncture and social stratification becomes much clearer. Differentiation of economic production leads inevitably to a differentiated occupational structure. Moreover, in colonial New Spain at least, variety of racial composition, and thus of racial mixture, was also related to the degree of economic differentiation.

A further conclusion of the above study is that there is a connection between economic differentiation and population concentration. In general, greater density of population is accompanied by a greater variety of economic activities and professional specializations. Geographically, there are centres with high concentrations of population, differentiated economies, and long "social ladders". Surrounding the centres are less densely populated areas where the range of economic activities is more restricted. Still further from the centres are peripheral regions, characterized by labour-extensive agriculture and monoculture. Population growth goes together with a lengthening of the social ladder, but also with an increasingly differentiated economy. When population levels decline, the social ladder becomes shorter, and there is a retreat in the degree of economic differentiation. Levels of religious and cultural activity follow the same pattern. In the population centres of colonial Mexico a wide variety of religious institutions were to be found: schools, universities, cathedrals, parish churches, hospitals, the convents of a variety of men's conventual orders, nuns' convents. At an intermediate distance from the centres one still finds parish churches, hospitals and convents of the regular orders, but the periphery, far from the centres, belonged almost exclusively to the regular orders.

The correlation between population density, economic and cultural differentiation and social stratification cannot help but recall the concentric circles of von Thünen. Nevertheless, von Thünen only applied them to the incidence of intensive forms of agriculture. Moreover, the model of concentric circles is too simple; the Mexican study shows that the network of roads and other connections radiating from the centres is of importance for the areas it serves. The circles are interrupted at a number of points: instead of a system of concentric circles, the pattern looks more like a series of roughly parallel contour lines which sometimes follow capricious paths.

While research in the third phase of integration is still only really beginning, there are indications that a fourth phase has already begun, embracing not only social and economic history, but cultural history as well.

Indeed, that is the subject of this article. In the fourth phase, the question centres, on the relationship between what might be called, in the interest of brevity, spiritual and material culture.⁵ Material culture is taken here to include the whole of the economic life of a society.

The intertwining of the different branches of historical research requires that we study how changes in one sector (for instance, in social stratification) affect other sectors (such as conjuncture). The formulation of such questions would be impossible if broad comparisons could not be made according to the assumption that similar developments follow similar courses at different times and/or in different places. There are historical processes which, at least in broad lines repeat themselves. Only after comparison of the commonly shared, i.e. repetitive, elements, do the local, idiosyncratic ones appear.

Recent cultural historiography is greatly indebted to the synthetic works of Burckhardt and Huizinga, among others. Millard Meiss' book on painting in Florence and Siena after the Black Death may be placed in the same line.⁶ These works succeed in evoking the special flavour of a past moment in the life of a chosen place — northern Italy or the Burgundian court. One finds in them not only the splendour, but also a darker undercurrent: Orcagna's Strozzi altarpiece shines against the horror of the fourteenth-century plagues in the work by Meiss. Not the least of their many virtues is that they avoid theorizing. Nevertheless, since they are meant primarily to illuminate precisely those special qualities which set their subjects off from others, they are less useful in arriving at comparisons.

There are also writers who choose a more theoretical approach. For them, history is an interplay of economic and cultural forces which influence each other in a predictable way. When carried to an extreme form, this — deterministic — attitude seems diametrically opposed to the more humanistic one of a Burckhardt or a Huizinga: the character of the individual of the past runs the risk of being sterilized, robbed of vitality. The present authors wish to avoid this extreme, conserving humanistic values while adopting a generalizing, comparative method.

Among the more theoretical historians, two sharply opposed points of view may be distinguished. According to one, culture, science and religion are overshadowed by economic interests. According to the other, the relation is exactly reversed: economic conditions faithfully respond to the tides of cultural change. In a more subtle way than can be sketched here, one finds these ideas represented in the writings of Karl Marx and Max Weber. The historiographic continuation of these viewpoints has sometimes degenerated into ideological polemic. A solution may possibly be found

⁵ Although the term "material culture" is often used in a more restricted sense, as used here it should be interpreted very broadly.

⁶ MILLARD MEISS, *Painting in Florence and Siena after the Black Death: The Arts, Religion and Society in the Mid-Fourteenth Century* (Princeton, 1951).

somewhere in the middle, the assumption being that spiritual and material culture influence each other, without assuming the primacy of either one or the other.

If a connection does exist between spiritual and material culture, then the two great questions which must be faced are:

(1) how does culture — religion, science and art — respond to great changes in the areas of economy, social structure and population?

(2) what influence do religion, science and art have upon economic and social attitudes and circumstances?

We might illustrate the questions with an example. Since the publication of the works by Burckhardt and Huizinga, a great number of books and articles have appeared — in the field of economic history as well as in that of cultural history — which deal with the late Middle Ages and the Renaissance. Still, one seldom finds a study encompassing both fields. The catastrophic mortality of the fourteenth and fifteenth centuries and the late medieval depression of c. 1300-1450 certainly influenced the spiritual life of those times, religious attitudes, literature (*Elkerlyc*), painting (the *danse macabre*) and sculpture (representations on tombstones). The connection with high mortality is quite clear, but the conjunctural decline together with shifts in the social structure must have made their influence felt as well. In the other direction there was also an influence. Theologians occupied themselves with economic questions, such as the paying (charging) of interest, and the just price, considered from the perspective of Christian principles. Little is known about the extent and depth of the influence of the Church upon daily economic practice. We do know, however, that many violators of Christian precepts came to introspection and repentance on their deathbeds.

A recent development in the historiography of spiritual culture is the *histoire des mentalités*. Its intention is to sense the world of thought of a bygone time through the cultural expressions of the common man, his testaments, his prayer-cards, the inscriptions on his tombstones. The premise is that man's spirit itself is subject to historical change, and that the key to his spiritual history lies in such manifestations. We find a certain contradiction in this aim. After all, if man's spirit is changing, then the modern historian will stumble over his own, present-day, preconceptions, which may well blind him from the way of thinking of his forefathers; its history is probably closed to us anyway. If, on the other hand, one assumes the essential sameness of the human spirit, in different ages and lands — world literature seems an adequate testimony to this sameness, at least over the last 2,700 years⁷ — then we will be speaking of man's eternal hopes and worries, expressed in forms which merely adapt themselves to mutable surroundings. In that case our task is to place what is essential

⁷ JORGE LUIS BORGES, "La Metáfora", *Historia de la eternidad* (Buenos Aires: Emecé, 1969; 6a. ed.), pp. 69-74.

and unchanging in man against the backdrop of his changeable surroundings: to these surroundings belong not only economic fortunes, but all religious and artistic conventions.

It also seems improbable to us that the connection between spiritual and material culture can be made directly, via the lives of individuals in the past. The methods used by sociologists and psychologists are hardly applicable; the attitudes and motives of the people of the past are not directly visible. It will be necessary to direct attention to the ebb and flow of the great cultural institutions: the churches, schools and universities, and to the convents of the religious orders.

It is especially important to discover what shifts took place within the Church during times of economic and demographic expansion and contraction. The native depopulation of New Spain in the sixteenth century worked to the detriment of the mendicant orders there, while the relative position of the secular clergy was improved. Of equal importance are the economic roles of the various branches of the Church: for the colonial period, at least, it is not possible to generalize about the economic role of "the Church". One must distinguish among the different kinds of Church institutions. The role of the women's convents of New Spain as lending institutions was quite different from that of the Jesuit reductions of Paraguay as agrarian innovators among the Indians. Above all, one must see "the Church" in her worldly surroundings, often limited in her freedom of movement by lack of economic possibilities, often hindered by internal bickering. The Church was a collection of institutions, always less perfect than the message it brought.

Especially in earlier times — in Latin America certainly until the end of the eighteenth century — the Church was the focus of cultural development. Architecture, painting and sculpture are secondary fields of study which should be considered in the light of the history of the Church. The Church, in all her divisions, was by far the greatest source of commissions for artists; artistic representations dealt with religious themes. Science, literature and education were also united under the umbrella of the Church. Schools and universities came under the care of friars and priests. Most poets and teachers shared a monastic existence. The link between spiritual and material culture is embodied in the Church.

Until now, attempts to establish a relationship between economic cycles and stylistic innovations in art have proceeded by looking for a direct connection between the two, forgetting the intermediary role of ecclesiastical, public and private commissioning bodies. Thus Kubler and Bottineau, referring to Spain in the sixteenth to eighteenth centuries, conclude that stylistic cycles are not related to economic ones, but "obey autonomous conditions of the history of forms".⁸ But if it is admitted that economic

⁸ GEORGE KUBLER, *Arquitectura de los siglos XVII y XVIII*, *Ars Hispaniae*, vol. 24 (Madrid, 1957), p. 8; YVES BOTTINEAU, *op. cit.*, pp. 136-139.

trends do not affect everyone everywhere in the same way, and that the different branches of the Church and the various civil bodies have different artistic "personalities", then the question as posed by Kubler and Bottineau is too simple. It will be necessary to examine the relative levels of artistic production among the various commissioning bodies. For colonial Mexico there are indications that such an indirect relationship may exist, between demographic trends and stylistic periods, via shifts within the Church.

In colonial Mexico, the main ecclesiastical division was between the secular Church and the evangelizing mendicant orders (Franciscan, Dominican and Augustinian). Among other differences, the former branch concentrated its greatest architectural activity in and near the urban centres, where European population concentrations were to be found. The mendicant orders, by contrast, were heavily engaged in the conversion of Indians to Christianity; their churches were located in the Indian settlements, in the majority of cases in rural areas.⁹

The sixteenth and early seventeenth centuries saw a drastic decline in Mexico's Indian population; at the same time, immigration from the Old World, and the process of racial mixture, led to a slow but steady rise in the non-Indian component. After about 1645, Indian population levels recovered slowly, but by 1800 had still not reached their original heights. A parallel development was the increased relative demographic importance of the urban centers.

The different branches of the Church responded to these demographic shifts in a predictable way. The building activities of the mendicant orders declined sharply towards the end of the sixteenth century, along with the Indian population. Seen over the whole colonial period, on the other hand, the secular Church's building activity seems more to reflect the non-Indian population trend. Whereas the sixteenth century belonged, architecturally speaking, almost wholly to the mendicant orders, the secular Church reached

TABLE 1

ESTIMATED POPULATION OF NEW SPAIN, 1570-1800¹⁰

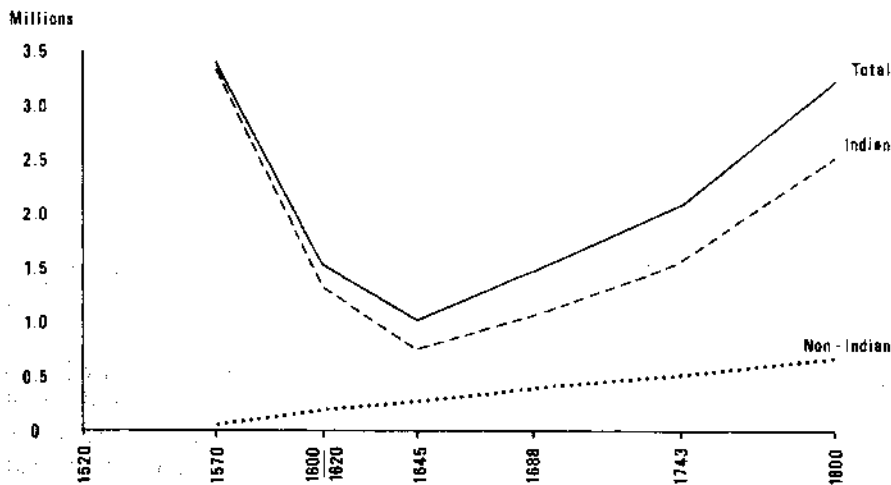
Year	Indians	Non-Indians *	Total
ca. 1570	3,344,000	48,000	3,392,000
1600/1620	1,329,000	204,000	1,533,000
ca. 1645	754,000	280,000	1,034,000
ca. 1688	1,073,000	400,000	1,473,000
ca. 1743	1,569,000	520,000	2,089,000
ca. 1800	2,530,000	681,000	3,211,000

* Spaniards, mestizos, mulattos, blacks.

⁹ A. C. VAN OSS, "Mendicant expansion...", *op. cit.*, pp. 39-41.

¹⁰ Data from B. H. SLICHER VAN BATH. "De demografische ontwikkeling...", *op. cit.*

GRAPH 1.
Estimated population of New Spain, 1570-1800.



its apogee in the eighteenth century. During the eighteenth century, the other predominantly urban religious bodies, the women's convents and those of the other men's orders (San Juan de Dios, Belén, Merced, etc.), also experienced a period of prosperity, reflected in high levels of building activity. The two opposed trends in building activity, which reflect demographic differences (Indian vs. non-Indian, urban vs. rural) as well as a religious one, may be illustrated by means of a table and a graph.¹¹

It is possible to distinguish five periods, on the basis of the relative intensity of architectural activity between the two religious groups (see table 3).

The most recent general style periodization for Mexican colonial architecture is that of Baird.¹² He discerns six periods between 1530 and 1790; the comparison of the style periods as proposed by Baird and the shifts in the relative building activity within the Church are in close agreement. The shifts within the Church are, in turn, related to demographic developments, especially the heavy mortality among the Indians and a movement of population from the countryside towards the towns.

The great stylistic transition occurs towards the end of the sixteenth century, from gothic and plateresque towards a classicizing "baroque", the further development of which lasts for the rest of the colonial period. The

¹¹ A. C. VAN OSS, "Architectural activity...", *op. cit.*

¹² J. A. BAIRD, JR., *The Churches of Mexico 1530-1810* (Berkeley and Los Angeles, 1962), p. 57.

TABLE 2

NUMBERS OF RELIGIOUS MONUMENTS UNDER CONSTRUCTION
PER DECADE, MEXICO 1520-1800

Decade	Mendicant orders Number Index (1560s=100)		Secular Church and other ^a Number Index (1750s=100)	
1520s	11	13	1	3
1530s	45	52	5	17
1540s	46	53	4	13
1550s	77	90	4	13
1560s	86	100	5	17
1570s	69	80	6	20
1580s	49	57	15	50
1590s	23	27	18	60
1600s	15	17	13	43
1610s	11	13	9	30
1620s	9	10	14	47
1630s	8	9	5	17
1640s	2	2	10	33
1650s	5	6	10	33
1660s	3	3	12	40
1670s	8	9	17	57
1680s	7	8	19	63
1690s	8	9	20	67
1700s	6	7	16	53
1710s	6	7	18	60
1720s	6	7	15	50
1730s	7	8	24	80
1740s	3	3	21	70
1750s	7	8	30	100
1760s	9	10	22	73
1770s	5	6	24	80
1780s	5	6	15	50
1790s	4	5	13	43

^a Secular Church, secondary men's conventual orders, women's orders.

great religious transition is from the mendicant orders towards the secular Church: expressed in terms of architectural production, the critical moment in this transition coincides precisely with the stylistic transition. The decline of the mendicant orders in favour of the secular Church is connected to the native depopulation which took place at the same time.¹³

¹³ A. C. VAN OSS, "Mendicant expansion...", *op. cit.*

GRAPH 2.

Indices of building activity, colonial Mexican religious monuments, per decade. Mendicant orders as opposed to secular Church, women's orders and secondary men's orders, 1520-1800. Peak decades = 100.

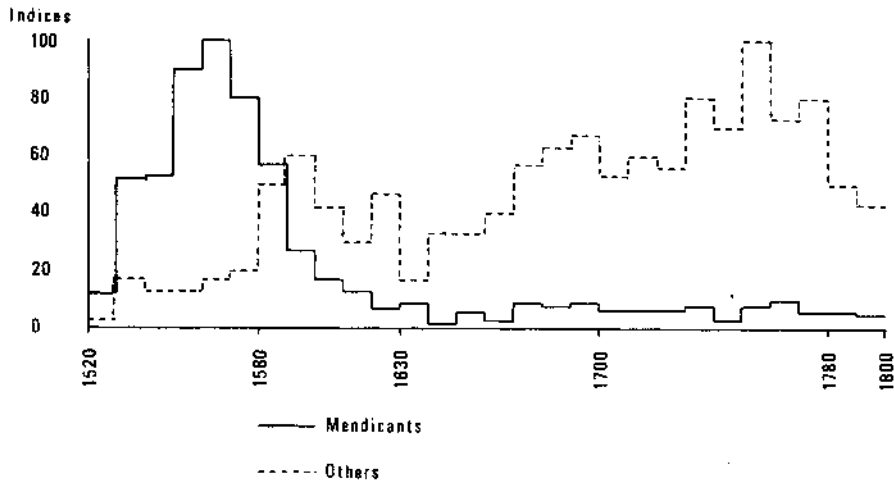


TABLE 3

RELATIVE LEVELS OF BUILDING ACTIVITY, MENDICANT ORDERS AS AGAINST SECULAR CHURCH, WOMEN'S ORDERS AND SECONDARY MEN'S ORDERS (SEE GRAPH ABOVE), AND COMPARISON WITH BAIRD'S STYLE PERIODIZATION

Period	Relative level of building activity		Style period according to Baird
	Regular	Secular	
1530-1580	high	low	"Gothic survivals and plateresque" (1530-1580)
1580-1630	falling	moderate	"Herreran and early baroque" (1580-1630)
1630-1700	low	rising	"Assimilation of baroque" (1630-1680)
1700-1780	low	high	"Baroque developments (<i>salamónica</i> era)" (1680-1730) "Late baroque (<i>estípita</i> era)" (1730-1770/80)
1780-1800	low	falling	"Late baroque with rococo elements" (1770/80-1790)

The diagram

Taking the whole range of man's activities in the past testifies to a holistic view of history. The objection to histories written from this viewpoint is that their theoretical bases threaten to come into conflict with their practical execution. What do we see happen? The deductive method is applied, in which one begins with a central idea of the nature of man, whom the author wants to describe in all his aspects. In the execution of the idea, each aspect of life comes up separately in the hope that the reader will be able to fuse them back together again, like Humpty Dumpty, to arrive at the author's original intention. In practice, the application of the deductive method often leads to a pronounced analytical disintegration.

There is also another, more pragmatic approach. Different facets of material and spiritual culture are related to one another by means of the inductive method. One tries to arrive at a synthesis on the basis of a number of essential and characteristic phenomena. We may contrast the deductive-analytical and the inductive-synthetic method. For the Latin American study we have chosen the second approach.

In order to group the data and to formulate questions, a diagram has been set up. Later we discovered that it was similar to the division followed by Burckhardt in his *Weltgeschichtliche Betrachtungen*.¹⁴ According to Burckhardt, three *Potenzen* are active in history: state, religion and culture. Between these forces there are six possibilities of interaction (*Bedingtheiten*): culture-state, culture-religion, state-religion, state-culture, religion-state, religion-culture. Theoretically, Burckhardt is perfectly correct in speaking of six *Bedingtheiten*. In practice, however — and this turns out to be the case in Burckhardt's work as well — there is a great deal of duplication. Three *Bedingtheiten* would have sufficed:

culture-religion and vice versa,
religion-state and vice versa,
state-culture and vice versa.

In our diagram, three sectors are distinguished: the social-economic, the political or administrative, and the cultural. As has already been explained, we distinguish seven *Potenzen*: demography, conjuncture, social stratification, government, religion, knowledge (science, communications, education) and the arts:

Theoretically, there are 21 or 42 possibilities of direct interrelation. In the text of this article, a number of concrete examples are to be found which illustrate their nature. As we have also seen, in the case of Mexican architecture, there are also possibilities of indirect, or combined interaction, e.g. Demography-Religion-The arts.

¹⁴ J. BURCKHARDT, *Weltgeschichtliche Betrachtungen* (Leipzig, 1955), "Von den drei Potenzen", pp. 27-68; "Die Betrachtung der sechs Bedingtheiten", pp. 81-156.

Social and economic sector	Political/administrative sector	Cultural sector
1. Demography (population, diet, hygiene, housing)	1. Government (bureaucracy, politics)	1. Religion Church
2. Conjuncture (prices, wages) Economic differentiation (agriculture, industry, mining, money and credit, labour) Communications (transport)		2. Knowledge (science, education, communication)
3. Social stratification (castes, classes, professions, races, slaves)		3. The arts (architecture, literature, music, theatre, sculpture, painting)

II. Practical applicability of the diagram, Latin America

The sources

Generally speaking, sufficient sources are available for the nineteenth and twentieth centuries in Latin America. The situation with respect to the colonial period is more difficult.

With some effort, the size of the populations of New Spain (Mexico) and Peru between 1570 and 1800 can be calculated. For these regions, demographic data are relatively abundant.¹⁵ Unfortunately, however, we know next to nothing about developments in the other Latin American countries. A consolation is that in the sixteenth and seventeenth centuries, more than half of the total native population under Spanish dominion lived in New Spain and Peru.

The problems with conjunctural data for the colonial period are even worse. In Europe, grain and grain products were the most important source of alimentation. In Latin America, maize was certainly of great importance, but there was a wider variety of staples than in Europe, since potatoes, beans, manioc (cassava), quinoa (Peruvian rice) and yams were also eaten. There was no international market for the most important foodstuffs, as Amsterdam was once the international grain market for Western Europe. In Latin America there were local and regional markets. Large price differences could exist among the different markets because of the

¹⁵ B. H. SLICHER VAN BATH, "De demografische ontwikkeling...", *op. cit.*

difficulties presented by enormous distances and primitive means of transportation. Study conducted until now suggests that it may be possible to fill in our lack of knowledge of conjunctural trends by examining fluctuations in building activity at the sites of colonial monuments. A good example is that of church-building activity at the mining sites, where there is a connection between architectural activity and the introduction of gunpowder for blasting. At Real de Catorce (Mexico), each new wave of *bonanzas* in the mines resulted in a flurry of new construction: houses, bridges, churches.¹⁶

Much research has been done on the position of Indians, blacks and slaves in colonial society. In recent years studies have also been done on the role of creoles in colonial administration. In general, there are few quantitative data on social stratification. Only slight attention has been paid to occupational structure, although scattered data are available.

Although historians have shown a good deal of interest in local, regional and imperial administration, here as well quantitative studies are lacking.

The sources for the cultural history of the colonial period are also uneven. While it is possible to assemble lists of religious institutions — parishes, cathedrals, *doctrinas*, convents, hospitals, etc. — existing at a certain time, for example the year 1628, the data show gaps, and are often ambiguous. It is often impossible to say when such institutions came into being, and in some cases, when they were abandoned. Once we have the lists, it is hard to evaluate their importance: in 1603 the Franciscan convent at Coro (Venezuela) "tiene un fraile; es convento de seis".¹⁷ Chronological developments are often shrouded in mystery. Colonial artists and architects, even of the most sumptuous cathedrals, are usually all but unknown to us.

The lacunae in the written sources make a more archaeological approach to colonial cultural history necessary. After all, many buildings, paintings, sculptures, prints, books, etc. still survive. We often know where and when such works of art were made. By assembling inventories of colonial art works whose temporal and geographic origins are known, it is possible to arrive at graphic representations of artistic production over longer periods. All places show times of especially intensive activity, but also of stagnation. The travels and ultimate destinations of moveable works of art (books, paintings, sculptures, prints) are clues to the location and relative importance of cultural centres.

Fluctuations in architectural production have shown themselves to be of special importance. Not only do they afford a means of judging the

¹⁶ SALVADOR DÍAZ-BERRIO FERNÁNDEZ, *Real de Catorce, SLP* (México: Instituto Nacional de Antropología e Historia, 1976), pp. 7-13.

¹⁷ LINO GÓMEZ CANEDO, ed., *La provincia franciscana de Santa Cruz de Caracas: Cuerpo de documentos para su historia*, 3 vols. (Caracas: Academia Nacional de la Historia, 1974/1975), II, p. 68: Información sobre la provincia de Santa Cruz de Caracas... Con una lista de sus conventos (1603).

ebb and flow of the cultural institutions; they are also related to conjunctural and demographic cycles. To some extent it is possible to reconstruct the economic situation at a given place from data on its population and the intensity of architectural activity.

The analysis of the artistic representations themselves, and the models upon which they are based, gives insight into the sources of Europe's cultural legacy. Some sixteenth-century windows, balconies and ceilings show a clear Moorish influence. The French influence on late colonial architecture in Lima and Mexico City is equally obvious. According to Toussaint, the paintings of the sixteenth-century cloister at Epazoyucan echo Flemish and Italian (Giotto) models.¹⁸ José Simón Díaz has established that the medieval peninsular practice of long explicative book titles persisted in Mexico until the end of the seventeenth century.¹⁹

Temporal application of the diagram

History presents us with an interplay of continuity and change. Especially in pre-industrial societies, one is faced with many stubbornly static features; on the other hand, there are also certain elements which tend to be variable, either evolving slowly or fluctuating rapidly.²⁰ A great problem in the history of Latin America, both during the colonial period and thereafter, is the apparent lack of dynamism which characterizes Latin American societies. To a large degree, this inherent conservatism is explained by a predominance of static, as opposed to fluctuating or variable factors. Colonial society moved within narrow, uncompromising limits.

Some of these limits were geological. It is odd that both Mexico and a large part of the South American continent suffer from the same hydrographic malady: the rivers are in the wrong places, flooding some areas and leaving others without a drop. Great *cordilleras*, especially in a country like Colombia, made communications between the population centres difficult or impossible.

Other constrictions were economic in nature. There were few sources of energy: horses, mules, oxen; there were also watermills, but the most important source of energy was still human muscle. Capital was available only in limited quantities. Mineral resources were a great potential source of wealth, but lack of capital and manpower, and difficulty of transportation

¹⁸ MANUEL TOUSSAINT, *Pintura colonial en México* (México: Universidad Autónoma de México, 1965), p. 39.

¹⁹ JOSÉ SIMÓN DÍAZ, "Algunas peculiaridades del libro barroco mejicano", paper presented at the XVII Congreso del Instituto Internacional de Literatura Iberoamericana, Madrid, March 1975.

²⁰ See B. H. SLICHER VAN BATH, "Constance, fluctuerende en variabele factoren in de productie en consumptie van agrarische goederen in de pre-industriële maatschappij", *Bijdragen tot de agrarische geschiedenis* (Utrecht, 1978).

retarded and sometimes prevented their exploitation. Many regions depended for their livelihood on the cultivation of a single crop; the plants were sensitive to blight from any number of diseases. Social structures were perhaps less rigid than was once thought, but colonial administration was bureaucratic and uninventive. Few initiatives could flower. Too much had to be decided in Spain, and the delay of governing over great distances was a crippling defect. There was a notorious gap between the — often good — intentions of the Spanish authorities and the practices of local officials. Low pay and the system of selling official positions led to corruption. The system of taxation was especially grievous for great parts of the Indian population, which became the victim of colonial officialdom.

Spiritual life also suffered under all kinds of constrictions. Some were economic, and had to do with the possibilities of cultural development for the whole society. The tempo of the mixture of native and Old-World cultures was dependent upon the general demographic and economic climate.²¹ Language differences were a stimulus leading to the writing of many grammars and dictionaries, but were also a stubborn barrier between cultures. Often cultural development was frustrated by religious institutions themselves. One has only to think of the Holy Office and the censorship of books (however ineffectual), or the prohibition in Buenos Aires at one point of the fandango under penalty of excommunication, to appreciate the self-imposed strictures. Church and religion are, by nature, static elements in all societies; really great changes seldom take place. The transcendental innovation in America was the introduction of the Christian faith, through the baptism of Indians. The most important work was done early in the colonial period in most areas.

Spatial application of the diagram

Latin America consists of a Spanish and a Portuguese part. Both seem, each for each, to conserve an essential unity. They preserve and continue their respective Hispanic cultures. Spanish and Portuguese are the official languages. In both, the Christian faith is practiced in the Roman Catholic form. Spanish America's political unity was destroyed by the wars of independence, which gave rise to a number of smaller national states. In certain Latin American circles, the loss of the political unity of the colonial period is mourned. Nevertheless, this unity was a façade, hiding, but not eliminating a great degree of pluriformity. At the beginning of the seventeenth century, Brazil consisted of a number of captaincies, all of which lay along the coast, but were separated by vast uncolonized stretches. They were harbours and ports with only small cultivated territories around them.

²¹ For Central America see MURDO J. MACLEOD, *Spanish Central America: A Socioeconomic History, 1520-1720* (Berkeley and Los Angeles, 1973), p. 308.

In reality they were islands in an immeasurable and still little-explored wilderness. From one captaincy to the next there were no land communications; there was only the sea.

The dependency of Spanish America upon the sea was less pronounced, but it was hardly a single, unified area either. Here a number of relatively isolated centres came into being. One can distinguish a kind of — sometimes landlocked — archipelago of centres with high densities of population, some of them highly hispanized, others with a heavy Indian majority. There are administrative and ecclesiastical centres; often one finds them in the same places. At and near the administrative centres one finds heavy concentrations of population. There are cultural centres with *colegios* and universities; there are focal points of science and the arts. Style in art and architecture is bound to certain geographical areas. Markets are found at strategic points: each serves a given area, buying and selling within its boundaries. In the vicinity of the great concentrations of population we find forms of intensive agriculture, sometimes with irrigation. A lovely example of intensive agriculture is that of the *chinampas*, the floating gardens, of Xochimilco, just outside Mexico City. In agrarian history, such centres are called *Intensitäts-inseln*. The concept can also be applied to administrative, cultural, economic and social centres.

There exists a certain threshold of population concentration or density which must be passed in order to reach the status of centre. There are no centres in areas with a sparse population. A simple example will illustrate this. Slicher has tabulated the minimum number of *vecinos* in places with different types of religious institutions, for 1574 and 1628. The results are as follows:

TABLE 4

MINIMUM NUMBER OF "VECINOS" IN PLACES WITH CONVENTS AND OTHER SELECTED RELIGIOUS INSTITUTIONS, 1574 AND 1628 (SPANISH AMERICA WITHOUT MEXICO)

	1574	1628
<i>Convents, mendicant orders</i> (<i>Franciscan, Dominican or Augustinian</i>)		
1 convent in one place	17	40
2 convents in one place	60	80
3 convents in one place	100	100
4 convents in one place	300	2,000
<i>Mercedarian order</i>		
1 convent	17	40
<i>Jesuit order</i>		
1 house	800	40
<i>Women's orders</i>		
1 convent	130	200
<i>Other</i>		
1 <i>colegio</i>	100	360
1 hospital	30	80

We see that nunneries and colegios are only found in relatively large towns. A large population is also a condition for the establishment of three or more men's convents.²²

Individual towns or centres of importance tend to form clusters. Clusters tend to group into complexes. On the basis of data gathered from López de Velasco and Vázquez de Espinoza²³ regarding the incidence of economic activities, market areas for different products, routes of transportation and religious institutions around 1600, Slicher has arrived at 36 clusters, of which 25 are grouped into four complexes of five to eight clusters each. Within each complex, the clusters are roughly ranked according to criteria of economic importance and differentiation: either central, middle or peripheral (1, 2 or 3 in the table below).

TABLE 5

ECONOMIC COMPLEXES, LATIN AMERICA, ca. 1600

Complex I

1. México
2. Tlaxcala/Puebla
2. Michoacán
2. Oaxaca
3. Yucatán
3. Nueva Galicia

Complex II

1. Guatemala
2. Nicaragua
2. El Salvador
3. Honduras
3. Panamá
3. Costa Rica

Complex III

1. Quito
2. Nueva Granada (Bogotá)
2. Popayán
3. Cartagena
3. Santa Marta

Complex IV

1. Los Charcas
1. Lima
2. Cuzco
2. Trujillo
2. Arequipa
3. Tucumán
3. Huamanga
3. Huánuco

Eleven clusters or isolated centres remain outside the identified complexes: Española, Puerto Rico, Jamaica, Cuba, Venezuela, Trinidad, Margarita, Northeastern Brazil, Chile, Paraguay and Buenos Aires.²⁴

The regions can gain (Buenos Aires) or lose (Santa Marta) in relative importance. Their centres may shift (Tlaxcala, Michoacán, Venezuela) or dissipate (Imperial, Chile). Colonial Spanish America was a collection of

²² B. H. SLICHER VAN BATH, "Spanish America circa 1600", *op. cit.*

²³ JUAN LÓPEZ DE VELASCO, *Geografía y descripción universal de las Indias* (Madrid: Atlas, 1971), Biblioteca de Autores Españoles 248; ANTONIO VÁZQUEZ DE ESPINOSA, O. C.A.R.M., *Compendio y descripción de las Indias Occidentales* (Madrid: Atlas 1969), Biblioteca de Autores Españoles 231.

²⁴ B. H. SLICHER VAN BATH, "Spanish America circa 1600", *op. cit.*

loosely bound regions, each with its own particular character. Considered in this light, it is a wonder that the disintegration resulting from the wars of independence did not go much further than it did, except in Central America, where the early seventeenth-century clusters correspond to the modern states. It need not surprise us that in the nineteenth century separatist movements surfaced in some Latin American countries. In a number of cases, national unity could only be preserved through the formation of federal republics.

Methods and techniques

The usual expedients are used: graphs, diagrams, photographs, maps and plans of cities and buildings. Numerous maps have been made which show the distribution at different times of all kinds of things: numbers, of inhabitants, convents of the various orders, universities and *colegios*, hospitals, textile factories, means of transportation, mineral resources, cultivation of such crops as vegetables, wheat, maize, the keeping of horses, cattle, sheep, etc.

Other maps show percentages and indices: age groups, masculinity indices, indices of building activity, population increase or decline. The maps are compared with one another; two or more are superimposed and viewed against a light. In this way it is sometimes possible to discern unexpected patterns. The maps form the basis for defining the regions of importance (*Intensitätsinseln*), and for following their development over longer periods of time. Special attention can be given to those cases which differ widely from the usual pattern. It is possible that in such cases something unusual is happening, but it is also possible that the sources are incomplete or erroneous.

It will be readily understood that in an investigation of this nature, we are confronted with a great deal of quantitative material. Adding machines and computers have greatly facilitated quantitative research, and have thus encouraged its spread. This in itself is a fortunate development. Statistics are part of the total of all historical sources, and must not be neglected or excluded, as sometimes happened in the past. But now there is a certain danger that historical research may rush to the other extreme. For some historians, the collection of quantitative data is no longer a means, but an end in itself. However useful the compilation of quantitative data for historical research may be, there remain limits, both intellectual and technical. Numbers are not a duplication of the world on paper. They are only — at their best — an indication of underlying problems. Fluctuations in building activity or food prices may betray economic and social difficulties, but they do not explain or clarify those difficulties in the least. They are like a thermometer, which can indicate the presence of a fever, but by no means tells us the nature of the disease. For that a diagnosis is needed.

Statistics also quit us when we take up ethical or aesthetic questions. History, aesthetics and ethics are closely bound. We find them difficult to separate, since historical explanations often involve implicit ethical norms, and the subjects we study usually first captured our interest because they pleased us aesthetically. Art, ethics and history involve a dialogue between remote interlocutors: the contribution of one of them may lie graven in the past, but a second voice remains to be heard. History is not only what past generations did, said and ate; it is also the intellectual activity by which we speak with the dead. The limits of the quantitative approach to history are reached when ethical values come into question, or when it threatens to encroach upon the dignity of the individual person. The non-quantifiable factor is, in the end, the determining one.

