

Mines and Minerals: A Treasure House of Latin American Research Topics

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ABSTRACT

A selective inventory of geographic literature pertaining to the petroleum, mine and mineral industries of Latin America was conducted for the 1980-1989 decade. Because this study was intended to review the interests and research activities of North American geographers only those materials published in English were considered. The methodology involved a series of computer searches through three databases: GEOREF, GEOBASE, and Dissertation Abstracts International. Because of the few entries accessed from these data sources a library search was conducted that involved several geographic journals, selected geographic indexes and other related published materials. The latter search confirmed what the computer search had indicated; that is, very few geographers had published during the 1980s the results of research that involved the petroleum, mine and mineral industries of Latin America. As a result, a virtual cornucopia of research opportunities exist for those who are so inclined and possess the requisite qualifications.

This paper addresses selected research interests of Latin Americanist geographers as reflected in literature published during the decade of the 1980s. More specifically, this study focuses upon research involving Latin America's mine and mineral industries. For the purposes of this study, the term "mine" also includes the extractive and refining aspects of the petroleum industry. The objectives of this study were three-fold: 1) to selectively inventory the geographic literature published during the 1980s that pertains to "mines and minerals" of Latin America; 2) to identify trends based upon the literature inventory; and 3) to offer comments on the prospect for future research.

BACKGROUND

Concern has been expressed by several Latin Americanist scholars who have monitored the research and regional interests of North American geographers during the past decade. In a recent study of membership directories of the Association of American Geographers and the AAG's *Guide to Departments of Geography* series, Robinson and Long (1989) found evidence that the number of geographers who declared overseas regional specialty interests has decreased since the 1970s; indeed, these authors carefully pointed out that what is generally happening throughout the discipline of geography is particularly true of the Latin American specialties. Others have also noted these trends. For example, Reboratte (1982) had suggested that gaps caused by the abandonment of their regions by our Latin Americanist colleagues had not been filled. The trend toward reduced research in Latin America was substantiated by Lee and Evans (1984) when they reported that the number of articles published by Latin Americanists in leading geographical journals had decreased over recent years. Based upon these reports, it would appear that the qualified optimism expressed earlier by Minkel and Smith (1981) regarding a resurgence of interest in Latin America may not have been justified.

THESES AND DISSERTATIONS

The decade of the 1980s can be best characterized as a period of decreasing interest among

geographers in Latin American research topics. In a review of completed dissertations listed annually in the *Professional Geographer*, Robinson and Long (1989) found that by 1987 less than 5 percent of those completed at North American universities dealt with Latin America. Data from the same source for 1988 revealed essentially the same results; however, in 1989 the percentage of dissertations involving Latin America had decreased to less than 3.5 percent. In an attempt to verify the 1989 results, additional data were acquired via computer (DIALOG) from the University Microfilms' *Dissertation Abstracts International* files. Analysis utilizing the GEOREF and GEOBASE data sets suggests that the downward trend is continuing and at an accelerated pace. For example, these two sub-files for geography listed a total of 224 dissertations for 1989. Computer printouts of these files identified dissertations completed, or in progress, at Universities in the United States and Canada. In addition, they also listed 20 dissertations completed [end p. 209] at foreign universities (i.e., in Australia 1, Finland 1, Spain 2, Sweden 11, and United Kingdom 5). Of the 224 dissertations identified, only six focused on Latin American topics. Even more distressing was the fact that for the entire 1980s decade only one dissertation was listed that related specifically to Latin America's mines or minerals. In that case, research on the relocation of the steel industry in the United States and Brazil was apparently still "in progress" at McMaster University when it was reported in 1988 (Foot n.d.). On the other hand, two additional dissertations, one dealing with miners and mining in Zacatecas, Mexico, completed by Sanchez (1989) at the University of London, and the other by Sosa-Iglesias (1988), focusing on petroleum in Venezuela, were not included in either of the primary data sources used for this section of the study. To summarize, it would appear that there was a strong aversion among geography graduate students at North American universities to becoming involved with research in Latin America during the 1980s. Furthermore, it would seem that those students pursuing advanced degrees abroad may be somewhat more inclined to conduct field research in Latin America on mines and minerals topics.

ARTICLES

A survey of articles either published or reviewed in selected journals of interest to geographers was conducted for this report. Computer searches utilizing DIALOG to access the GEOREF and GEOBASE databases were employed to identify articles published during the 1980s that dealt with Latin America's mines and minerals. Surprisingly, none were found in the periodicals listed below. In order to verify this unexpected event, a library search of the journals listed below was conducted, and no relevant articles were found in these journals:

Annals, Association of American Geographers; Bulletin - Association of North Dakota Geographers; Canadian Geographer; Economic Geography; Focus; Geographical Review; Journal of Geography; Professional Geographer ;

Further search of the computer data bases as well as a library review of the *Geographical Abstracts* series and the *Current Geographical Publications* series revealed numerous articles, either written by or of interest to Latin Americanist geographers. Several articles were selected as generally representative of those found during the expanded literature review and are reviewed in the following paragraphs.

An historical perspective on copper and silver mining in Spanish America is the focus of articles

by Barrett (1981) and Garner (1988); Sanchez (1988) deals with contemporary Mexican mining themes. A series of three articles by Godoy (1985, 1987, 1988) addresses either the technical and economic efficiencies, production strategies or small-scale mining of Bolivian peasant or Indian miners. Whitehead's (1981) research is primarily concerned with the electoral process found in Bolivia's pre-revolutionary mining camps. Erickson (1983) reviews Chilean nitrate deposits in his discussion of that industry. Oil industries of Mexico and Guatemala are considered in articles by Sanchez (1983) and Byrd (1987). An excellent review of lateritic nickel mining in Latin American countries with special emphasis on Exmibal in Guatemala is presented by Driever (1985). The rapidly expanding Colombian coal mining industry is the focus of articles by Mower (1988) and Townsend (1988). Articles of a more general nature included Boraiko's (1981) treatise on silver, and a review of Chile's industrial minerals by Crozier (1988).

BOOKS AND OTHER PUBLICATIONS

In addition to dissertations and articles discussed in the preceding section, several books were published during the 1980s that are of particular interest to Latin Americanist geographers who specialize in mines and minerals. Selected topics are briefly discussed next. With regard to energy resources, Odell and Rosing (1980) deal with world oil production, Southgate and Disinger (1987) consider sustainable resource development in the third world, and Choucri (1982) addresses the public policy aspects of energy and development in Latin America. In a regional context, Sullivan and McBeth (1985) present a bibliography pertaining to petroleum in Venezuela. Randall's (1987) **[end p. 210]** work deals primarily with the political economy of Venezuelan oil whereas policy diversification is the theme of Wionczek and Mallakh's (1985) review of Mexico's energy resources. Colombia's developing coal mining industry, with a focus on bargaining and policy-making, is addressed by Kline (1987), and Colombia's colonial mines, merchants and farmers are the themes of Twinam (1982). Colonial Potosí is the setting for Bakewell's (1984) investigation of Indian labor in Bolivia's Red Mountain. Finally, the mineral industries of Latin America were reviewed in a special United States Bureau of Mines publication (1981).

DISCUSSION

Many factors have contributed to the observed decline in geographers' interest in the Latin America region. Merx (1983) suggested that a decrease in funding opportunities for foreign research was a likely cause. In another study published the same year, Gade (1983) commented that there is an "American predilection for remaining international mutes." Certainly, most would agree that "linguistic indifference" among emerging American geographic scholars would tend to discourage their specialization in non-English speaking, foreign regions. The inability of some individuals to deal rationally with foreign cultures is recognized by many who have observed their fellow countrymen at overseas locations. In this light, Fuller (1984) describes several potential crises, related to "cultural shock," that would tend to discourage foreign research activities. Lonsdale (1986), on the other hand, provided an impassioned argument indicting the "quantitative revolution" as a major contributor to the decrease in foreign-area specialization. Lonsdale's views are very much in concert with those expressed earlier by Hart (1982) and Johnston (1985) and subsequently by Goodchild and Janell (1988).

Another possible cause for the observed decrease in the number of Latin Americanists was suggested by Hausladen and Wyckoff (1985). In their study of geography's demographic future they found that vacancies in the discipline created by retirements were not filled by regional specialists. Perhaps of more relevance during this era of environmental consciousness were remarks made by Gilbert (1983) and Sanchez (1983), who observed that the exploitation of mineral resources is viewed negatively by many. One would hope that geographers could be sufficiently mature to deal with sensitive research issues in any region of the world.

RESEARCH NEEDS AND OPPORTUNITIES

In the early 1950s, those involved in an exhaustive inventory of American geography recognized that "the geography of mineral production has attracted only a few American geographers" (James and Jones 1954). This study, of course, suggests that the same statement could be made for the decade of the 1980s and perhaps for the 1970s as well. In a chapter of the James and Jones book, entitled "The Geography of Mineral Production," Murphy (1954) identified seven potential lines of field research that are likely still appropriate, in a general way, for contemporary research in Latin America. Murphy's suggestions are as follows: 1) individual mineral industries; 2) mining regions; 3) changes through time; 4) mining settlements; 5) social problems of mining regions; 6) delimiting mineral producing regions; and 7) minerals in world affairs.

A careful review of the research needs presented by Minkel and Smith (1981) as they reviewed mineral research for Latin America reported during the previous decade reveals that the needs they identified continue to be valid today. Perhaps the major difference between today and ten years ago is a new sense of urgency. Major changes are impacting on older mineral industries and new developments are in progress in many regions. The opportunity for geographers to help the world understand and plan for these changes is there if they will but accept the challenge.

CONCLUSION

Foreign research interests among North American geographers appear to have been on the decline during the past decade. This fact is readily apparent for the Latin America region when one reviews the geographic literature published during the 1980s. The lack of research and publications by Latin Americanist geographers who have interests in the mines and minerals of Latin America is significant because the void thus created may be recognized and filled by those who are only peripherally interested. The geography of mines and minerals is under-represented in our discipline. As a result, a virtual untapped treasure house of opportunity is now available for those who wish to investigate topics involving Latin America's mines and minerals.

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The long history of mining and mineral-deposit research in southern Africa is reflected in overviews by Pretorius and Maske (1976) and Pretorius (1976) and a wide-ranging review of the region's metallogeny by Anhaeusser (1976). Crockett and Mason (1968) considered the evolution of mineral deposits in the region—in particular, diamonds and nickel deposits, in terms of mantle-disturbance events. Phosphate Deposits Phosphate deposits are mined extensively in north and west Africa and have been described from Morocco by Lawson (1931) and from Burkina Faso through to Benin by Trompette et al. (1980). Deposits of Neogene age have been described by Fuller (1979) from the continental shelf of southern Africa. Grade 11 Mining and Mineral Processing Resource Pack. © Creative Commons BY-NC-SA. Index. RESOURCE PACK. 1. Introduction 2. Getting Started. a. A Classroom Full of Resources b. Your House Comes from a Mine c. How Many Minerals do you Need to Make a Light Bulb? d. The Mill Baby e. Can Mining Make a Greener World? Give the learners the opportunity to work on their research projects in class while you spend some time with each group discussing their progress. This is an opportunity to guide and assist your learners if they are experiencing any difficulties. PRINTED FROM the OXFORD RESEARCH ENCYCLOPEDIA, LATIN AMERICAN HISTORY (oxfordre.com/latinamericanhistory). (c) Oxford University Press USA, 2019. All Rights Reserved. Near the center of the mountain, where temperatures were highest, tin minerals formed in abundance. Farther out from the core, where temperatures were lower, silver, zinc, lead, iron, copper, and other metals precipitated in various combinations, along with quartz, calcite, and other non-metals. The Incas inherited an ancient mining and metallurgical tradition, and the Spanish took full advantage of this fact after conquest began in 1532. Local peoples produced not only gold and silver ornaments and utensils but also copper and arsenical bronze tools.