

Ernst Griffin

San Diego State University

Don Hoy

University of Georgia

Geographic Research on Commercial Agriculture in Latin America in the 1970s

In 1970 we wrote "the research topics pursued by United States geographers interested in Latin America fairly accurately mirrored most of the profession as a whole." That statement was prefaced by a brief summary tracing the importance of commercial agriculture as a research interest among American geographers. It seems fitting to begin this paper with essentially the same opening because it may serve as a partial explanation for what appears to be a significant decrease in the quantity of research conducted on the region's commercial agriculture during the past decade.

If American geography in the 1960s was characterized by a greatly expanded and broadened interest in topical areas, the 1970s can be viewed as the interval in which many Anglo-American geographers, among others, fully embraced the systematic and quantitative-theoretical trends that had been spawned previously. Many of the more fully formulated concepts and methods were concerned primarily with urban processes. As a result, studies emphasizing topical applications became dominant. This trend led to what might be termed "systematic regional geography" in which topical specialities were applied within a specific cultural context. In the United States the cultural context has been increasingly confined to Anglo-America. Simultaneously, the transformation of Latin America as a whole from a largely rural agrarian to a predominantly urban society over the past three decades shifted attention even more strongly toward the changing nature of cities and their associated problems. In combination, geographers working in Latin America during the 1970s paid relatively less attention to the spatial characteristics of commercial agriculture than they had in the past.

It seems ironic, somehow, that apparent interest in the commercial agriculture of Latin America is waning at a time when its spatial aspects are changing perhaps more rapidly than at any time during the past several decades. Since the mid-

1960s agrarian reform has drastically altered tenure systems and holding sizes in a number of countries. That, in turn, has affected production characteristics and efficiency. Introduction and diffusion of new and improved plant types has led to changes in land use in many areas and modifications in livestock production systems have brought about significant variations in distribution and intensity of ranching activities. Changing rural-urban relationships have modified demand characteristics and market values for a wide variety of agricultural products, thus modifying the economic rationality of production in numerous areas. In combination with changes in world market values for export commodities, these altered relationships represent but a few of the plethora of changes occurring in the commercial agricultural sector within the region. The opportunities for conducting meaningful, innovative research are enormous. To say that research in commercial agriculture in Latin America continues to be a fertile field for geographers is not only a bad pun but also understatement.

In this short review, we attempt two things. First, we will survey the research trends of the 1970s and compare them with earlier efforts. Second, we will examine how the research activities of the 1970s related to suggested avenues for fruitful investigations put forth previously by others (see Parsons, 1964; Hegen, Hoy and Griffin, 1971). We place no claim to having done a completely exhaustive literature review. Articles that appeared in several major journals, the *Annals of the Association of American Geographers*, *Geographical Review*, *The Professional Geographer*, *Revista Geográfica*, *Journal of Tropical Geography*, and *Economic Geography*, were used as the barometer by which to estimate the volume and direction of geographic research conducted during the 1970s. Additionally, a careful review of dissertation topics completed at North American universities during the decade was undertaken to determine the continuing degree of interest being expressed by younger geographers. In terms of what should be done, we are not clairvoyants nor omnipotent in our opinions, but we offer them for your consideration nonetheless.

Research Conducted In the 1970s

In the decade of the 1970s, studies by geographers on commercial agriculture focused almost exclusively upon analyzing the myriad of factors, social, economic, and physical, which influenced spatial patterns or efficiency of production. A much greater emphasis was placed on attempting to explain and analyze existing or emerging distributions through the interplay of a number of phenomena than had been the case in the past. Single factor explanations, such as the dominance

of physical characteristics, have been essentially abandoned. This analytical technique remained qualitative in nearly all cases. Relatively few studies were undertaken which employed sophisticated quantitative measurements and fewer yet were primarily designed to test models or theory. But the movement toward what might be called "qualitative multiple correlation" may have evolved in response to the stimuli provided from trends permeating other aspects of the discipline. Purely descriptive studies appear only infrequently, having become for all practical purposes unpublishable. This trend away from description is, in a sense, unfortunate since valuable baseline data are often not available elsewhere.

Several research trends, such as the interest in colonization that had developed in the late 1950s and intensified in the 1960s, were carried forward into the 1970s. Wood (1972) looked at spontaneous colonization of new agricultural land in Ecuador while Wesche (1974) reported on planned farming settlement along the Transamazonian Highway. Vining (1976) analyzed the relationship between site selection and the failure of organized colonization efforts in Guyana. Interestingly, more doctoral dissertations were completed which focused on colonization than any other agricultural topic undertaken during the 1970s, indicating a strong continuing interest which should carry over into the next decade.

A number of studies attempted to analyze production systems. Biechler (1970) studied the coffee production regions of Guatemala and suggested causes for their differences. Patten (1971) and Morris (1972) reported on dairying in Nicaragua and Argentina respectively, thus permitting some interesting comparisons to be drawn. Mexico's mezcal and tequila industries were investigated by Walton (1975) while Hansis (1977) drew attention to aspects of viticulture in Argentina. Kehr (1975) and Miller (1975) examined beef cattle production in Brazil and Central America and Dozier (1970) reviewed agricultural expansion into the Mexican tropics. The fascinating transhumance system of the highland Andes was reported on by Stewart, Belote, and Belote (1976) and Crist and Nissly (1973) wrote on the settlement of the South American tropics. Dissertations on individual agricultural activities covered a wide span during the 1970s, from beekeeping in Yucatan (Calkins, 1974), to citrus in Brazil (Pierson, 1972), to sugarcane in Argentina (Jones, 1975).

Attempts were also made to interpret broader land use relationships. Nelson (1973) reviewed the problems and prospects of development of tropical lands. Stouse (1970) examined stability problems of tropical agriculture in lowland Costa

Rica. Griffin (1972; 1974) analyzed the causal factors affecting agricultural location in Uruguay and Richardson (1973) focused on how spatial factors influenced rural activities in Guyana. Antonini (1971) analyzed the organization of peasant agriculture in the Dominican Republic. Dickinson (1972) put forth challenging proposals for alternative production systems for the humid tropics while Hoy and Fisher (1974) presented a method for measuring agricultural production potential in the Caribbean.

A growing interest developed around marketing activities during the decade. Driever and Hoy (1975) looked at the periodic marketing system of Guatemala during two distinct time periods. Smith (1975) reported on agricultural marketing in northern highland Ecuador which complemented the Britisher Bromley's (1973) study of market relationships between coast and highland. Surprisingly, not a single dissertation completed during the 1970s dealt primarily with agricultural marketing.

Studies of historical agricultural patterns and the impact of physical factors also continued to attract interest. Barrett (1974) wrote on the meat supply system for colonial Cuernavaca. Richardson's (1975) interesting article on rural livelihood in Trinidad in 1900 helps to better understand present patterns. Shlemon and Phelps (1971) reported on efforts by Colombians to reclaim dredge tailings for crops and Bounds (1974) described how mined lands were restored to farming in Jamaica. Both showed how radically altered environments could be successfully utilized. Johnson's (1979) innovative analysis of agroclimates for maize and sorghum should signal a new direction for combining physical studies and agriculture in Latin America.

New approaches were applied to the region's agricultural sector in the 1970s or expanded from their beginnings in the late 1960s. Diffusion studies increased in significance, as exemplified by Brown and Lentnek's (1975) mesoscale study of the spread of innovations in commercial dairies in Aguascalientes and Autry's (1975) microscale description of transportation improvements on a Caribbean plantation. Griffin's (1973) application of the von Thunen theory to Uruguay was the first attempt to validate a macroscale agricultural land-use theory in Latin America. Parsons (1970) examined the introduction of African grasses and Gade (1973) analyzed the relationship between land use and disease.

In addition to the work of Anglo-American geographers, research on various aspects of commercial agriculture was conducted by European and Latin

American investigators. Many of their interests paralleled those of their North American colleagues. Brazilian geographers, such as Hamnan de Figueirado, et al. (1978) and Pinto de Gusmão and Vianna Mesquita (1978) offered useful research on infrastructural diffusion and its relation to agricultural activities. Geiger, et al. (1974) reported on the distribution of agrarian production in and around Sao Paulo. Studies such as Zamorano's (1975) account of regional agricultural patterns around Mendoza, described the characteristics of farming in several areas. French and British geographers maintained a strong interest in Latin America, particularly within the Rimland. As examples, Maillard (1974) and Girault (1978) looked at individual crop types, bananas and coffee, in the islands. Smith's (1976) paper on the potential of the sugar industry in Barbados mirrors a similar interest, and Burrough's (1973) work on ethnicity and farming characteristics in Guyana is indicative of the breadth of research being carried out by the British.

Although only an occasional article by German geographers, like Spielmann's (1972) description of beef cattle production in Costa Rica, appears in print in the major journals most commonly used by North American Latin Americanists, a large number of agriculturally oriented studies have been reported in major German language periodicals such as *Zeitschrift für Wirtschaftsgeographie* and *Geographische Zeitschrift*. Additionally, British and French journals publish articles on Latin American agriculture with roughly the same frequency as major United States publications, particularly *Cahiers d'Outre-Mer* and *Annales de Géographie*. Japanese geographers have paid increasing attention to Latin America especially Brazil, Peru, and Central America. Geographic journals within individual Latin American countries often contain articles on commercial production but publication is sometimes erratic.

Although the geographer's interest in Latin American commercial agriculture has declined, researchers in other disciplines have continued providing a fund of information on a variety of topics. For example, Barraclough (1970a, 1970b), Cehelsky (1979), Dorner (1971), Findley (1972), Foland (1977), Kirby (1973), Steen land (1977), Vertinsky (1972), Wilkie (1974), and Zuvekas (1976) analyzed rural land reform programs. The Land Tenure Center (1975) published an extensive bibliography on land reform. Land reform and productivity and income attracted the attention of Berry (1973), Burke (1970), Doving (1970), Griffin (1976), Muller (1970), and Thiesenhusen (1974). Thirsk (1976) identified the beneficiaries of land reform. Shaw (1976) looked at the exodus of rural population from the countryside. The impact of colonization attracted several researchers

such as Clark (1974), Goodland and Irwin (1975), and Kirby (1976). Overall disciplines as diverse as political science and management took an increasing interest in Latin American agriculture and filled some of the gaps left by geographers.

Graduate research, as gauged by completed Ph.D. dissertations, provides a useful insight into what may be an alarming trend in terms of future prospects for studies in commercial agriculture in the region. During the decade thirty-eight dissertations were completed on Latin American agricultural problems. For the first four years of the 1970s the rate of production remained stable, five or six studies were defended each year. A high point was reached in 1974 when nine dissertations were completed. Since that time the quantity of work has shriveled dramatically. For the three years 1977 through 1979 a total of two studies was defended. If this decline in Ph.D. output is an indication of the number of new researchers entering the field with an interest in Latin American agriculture, the future may indeed turn bleak.

As should be the case, dissertation topics are often on the cutting edge of the discipline's research frontiers in terms of problem orientation or methodologies. This circumstance is certainly true of the dissertations defended in the 1970s. While their more established counterparts all but ignored land tenure and agrarian reform changes, six doctoral students examined the relationships between productivity and changing tenure or size of holding. Three chose to analyze the impact of planned economic development programs upon the agricultural sector. Nine Ph.D. candidates looked at aspects of colonization and land opening. Others tested land use theories, attempted to quantitatively regionalize agricultural land use, or tried to systematically determine the ecological impacts of agriculture upon newly opened lands. In short, their research thrusts were often innovative and germane to problems inadequately treated by earlier research.

Sadly a high degree of attrition occurs between the dissertation's defense and publication of its most salient aspects in journals with wide circulation. The result has been that much needed and informative research has had too little exposure, thus seriously hampering its utility.

Some Things that Need to be Done

In 1971 (Hegen, Hoy, and Griffin) it was pointed out that most geographic research on commercial agriculture had centered on studies of agricultural

products and general descriptions of agriculture in the region. Studies on land use, agricultural systems, land tenure, agrarian reform, colonization, and food supply/population/nutrition were largely absent. While a number of efforts still stress single commodities or general description, these have become relatively less dominant than they were previously. During the last decade land use patterns and colonization efforts received greatly increased attention. Land tenure, agrarian reform, and the food supply/nutrition problems were studied but have not yet received the depth of treatment their importance merits.

Geographically major voids and hollows still exist, but notable efforts were made in the 1970s to lessen them. Mexico and the Caribbean islands still received the greatest attention, probably due to proximity, language, and amenity factors. Much more effort, however, has been extended to the inner tropics than in the past, although only tentative first steps have been taken in this environmental setting. Aside from Argentina little research had been conducted in the extra-tropical "southern cone" until the 1970s and while the situation is improved, much still needs to be done there. The Andean region has become a focus for agricultural studies for the first time, but a vast amount of information is required before we will be able to claim even a minimal understanding of that area's agricultural character.

Many rationalizations can be put forward to explain the limited amount of agricultural research conducted in Latin America. A small number of researchers working with limited financial backing, great distances, a lack of basic data sources, the complexity of the problems identified, all of these factors and more hamper the quality and quantity of our investigations. Lamentably, these problems are compounding themselves and show no signs of lessening in the near future. Additionally, new topics of interest are attracting young geographers, both those who might have been intrigued by Latin America but are lost to other pursuits and those who opt for a Latin American emphasis but choose a topical specialization unrelated to agriculture.

As geographers continue to become more involved with predictive analysis and social relevancy, both admirable traits which merit encouragement within the discipline, they may be pulled toward the problems of migration, urbanization, housing, nutrition or disease. Hopefully they will see the need to develop an understanding of the relationship between the many facets of the agricultural sector and elements of socioeconomic change.

Geography appears to be pursuing two major goals simultaneously but at different rates. One is the traditional analysis of spatial phenomena, the other the creation of predictive geographic theory. Geographers have made major strides in attaining the first objective, but it is, in fact, never really attainable except in an absolutely static world. Hence, an infinite number of studies can contribute creatively toward reaching the goal of increased spatial awareness. We have barely begun the march toward predictive geographic theory, even less so in relation to Latin American agriculture.

So much remains to be done, studies humble and grandiose. But isn't this also the common problem of physical geographers working in Latin America, or urban geographers working in Latin America, or any of the other subsets of the discipline working in the region? Isn't the real problem too few people spread too thinly over a massive area? But isn't that also the glory of it? Being able to investigate something no one else has studied and to make a real contribution to understanding, even if that understanding is fragmentary, incomplete, and temporal. Let us not delude ourselves: we are working toward an unattainable goal. Yet it is one that brings out the Quixote in most of us.

References Cited

Alderman, R. "A Geographic Analysis of the Beef Cattle Industry of Honduras." (Doctoral Dissertation, Michigan State University, 1973).

Allerdice, W.H. "Expansion of Agriculture along the Belem-Brasilia Road in Northern Goias, Brazil." (Doctoral Dissertation, Columbia University, 1972).

Amiran, D.H.K. "El Desierto de Suchura, Peru: Problems of Agricultural Use of Deserts," *Revista Geográfica (Mexico)*, Vol. 72 (1970), 7-12.

Antonini, G.A. "Peasant Agriculture in North West Dominican Republic," *Journal of Tropical Geography*, Vol. 32 (1971), 1-10.

Autry, R.M. "Technological Change in Plantation Transport Systems: A Caribbean Example, 1930-1970," *Journal of Tropical Geography*, Vol. 41 (1975), 1-8.

Bahre, C. "Relationship Between Man and the Wild Vegetation in the Province of Coquimbo, Chile." (Doctoral Dissertation, University of California, Riverside, 1974).

Barraclough, S. "Agricultural Policy and Land Reform," *Journal of Political Economy*, Vol. 78 (1970), 906-947.

Barraclough, S. "Alternative Land Tenure Systems Resulting from Agrarian Reform in Latin America," *Land Economics*, Vol. 46 (1970), 215-288.

Barrett, E.M. "Land Tenure and Settlement in the Tierra Caliente of the Tepelcatepec River Basin, Michoacan, Mexico." (Doctoral Dissertation, University of California, Berkeley, 1970).

Barrett, E.M. "Colonization of the Santo Domingo Valley (Baja California)," *Annals of the Association of American Geographers*, Vol. 64 (1974), 34-53.

Barrett, W.J. "The Meat Supply of Colonial Cuernavaca," *Annals of the Association of American Geographers*, Vol. 64 (1974), 525-540.

Bein, F. "Patterns of Pioneer Settlement in Southern Mato Grasso." (Doctoral Dissertation, University of Florida, 1974).

Berry, R.A. "Land Distribution, Income Distribution and the Productive Efficiency of Colombian Agriculture," *Food Research Institute Studies*, Vol. 12 (1973), 199-232.

Biechler, M.J. "The Coffee Industry of Guatemala." (Doctoral Dissertation, Michigan State University, 1970).

Biechler, M.J. "The Regionalization of Coffee Culture in Guatemala," *Revista Geográfica (Mexico)*, Vol. 77 (1972), 33-56.

Bloom Jr., R.J. "The Influence of Agrarian Reform on the Small Holder Communities in Chile's Central Valley, 1965-1970." (Doctoral Dissertation, University of California, Los Angeles, 1973).

Bounds, J.H. "Restoration of Mined Land to Farming in Jamaica," *Revista Geográfica (Mexico)*, Vol. 80 (1975), 105-109.

Bromley, R. "El intercambio de productos agrícolas entre la Costa y la Sierra Ecuatoriana," *Revista Geográfica (Mexico)*, Vol. 78 (1973), 15-34.

Brown, L. and B. Lentnek. "Innovation Diffusion in a Developing Economy: A Mesoscale View (Commercial Dairying in Aguascalientes, Mexico)," *Revista*

Geográfica (Mexico), Vol. 82 (1975), 109-129.

Burke, M. "Land Reform and Its Effect Upon Production and Productivity in the Lake Titicaca Region," *Economic Development and Cultural Change*, Vol. 18 (1970), 410-450.

Burrough, J. "Ethnicity as a Determinant of Peasant Farming Characteristics: The Canals Polder, Guyana," *Journal of Tropical Geography*, Vol. 37 (1973), 1-8.

Calkins, C. "Beekeeping in Yucatan." (Doctoral Dissertation, University of Nebraska, 1974).

Cehelsky, M. *Land Reform in Brazil: The Management*. (Boulder: Westview Press, 1979).

Clark, R. "Land-Holding Structure and Land Conflicts in Bolivia's Lowland Cattle Regions," *Inter-American Economic Affairs*, Vol. 28 (1974), 15-38.

Crist, R. and C. Nissley. *East From the Andes: Pioneer Settlements in the South American Heartland*. (Gainesville: University of Florida Press, 1973).

Cruz, A. "Export Agriculture Under Economic Development: A Geographic Analysis of the Decline of Sugar Cane Production in Puerto Rico." (Doctoral Dissertation, University of Wisconsin, Madison, 1977).

Darnel, B. "Land Settlement in Northeast Brazil: A Study of Some Projects." (Doctoral Dissertation, McMaster University, 1973).

Daum, M. "Land Amalgamation in Government Colonies in the Aroa Valey and Varinas Piedmont Region of Venezuela." (Doctoral Dissertation, University of Wisconsin, Madison, 1979).

DeWitt, J. "Food Production and Regional Development in Bahia, Brazil." (Doctoral Dissertation, University of Florida, 1973).

Dickinson III, J.C. "Alternative to Monoculture in the Humid Tropics," *The Professional Geographer*, Vol. 24 (1972), 217-222.

Dorner, P. (ed.) *Land Reform in Latin America: Issues and Cases*. (Madison: University of Wisconsin Land Tenure Center, 1971).

- Dovring, F. "Land Reform and Productivity in Mexico," *Land Economics*, Vol. 46 (1970), 264-274.
- Dozier, C. "Agricultural Development in Mexico's Tabasco Lowlands: Planning and Potentials," *Journal of Developing Areas*, Vol. 5 (1979), 61-72.
- Driever, S. and D.R. Hoy. "Periodic Markets in Southwest Guatemala: A Comparison of the Spatial System in the 1930's and 1960's," *Revista Geográfica (Mexico)*, Vol. 85 (1975), 133-148.
- Dudley, L. and R. Sandilands. "The Side Effects of Foreign Aid: The Case of Public Law 480 Wheat in Colombia," *Economic Development and Cultural Change*, Vol. 23 (1975), 325-336.
- Duncan, K. and I. Rutledge. (eds.) *Land and Labour in Latin America: Essays on the Development of Agrarian Capitalism in the Nineteenth and Twentieth Centuries*. (Cambridge: Cambridge University Press, 1977).
- Findley, R. "Ten Years of Land Reform in Colombia," *Wisconsin Law Review*, Vol. 3 (1972), 880-923.
- Fisher, G. "Frontier Settlement in Eastern Bolivia." (Doctoral Dissertation, University of Florida, 1974).
- Floyd, B. "Agricultural Innovation in Jamaica: the Yallahs Valley Land Authority," *Economic Geography*, Vol. 46 (1970), 63-77.
- Foland, G. "Changing the Agrarian World: Focus on Latin America," *Common Ground*, Vol. 3 (1977), 53-70.
- Gade, D.W. "Environment and Disease in the Land Use and Settlement of Apurimac Department, Peru," *Geoforum*, Vol. 12 (1973), 37-46.
- Geiger, P.P., M.S.N. da Motta Lima, and M.E. Abi Abib. "Distribuidio de atividades agropastorais em torno da metropole de São Paulo," *Revista Geográfica*, Vol. 80 (1974), 35-70 (also published under the same title in *Revista Brasileira de Geografia*, Vol. 36 (1974), 3-36).
- Girault, C. "La comercialización de café en la República Dominicana: Un enfoque geográfico," *Revista Geográfica (Mexico)*, Vol. 88 (1978), 9-60.

Goodland, R.J.A. and H. Irwin. *Amazon Jungle: Green Hell to Red Desert?* (New York: Elsevier, 1975).

Griffin, E.C. "Agricultural Land Use in Uruguay." (Doctoral Dissertation, Michigan State University, 1972).

Griffin, E.C. "The Agricultural Land Use Regions in Uruguay," *Revista Geográfica (Mexico)*, Vol. 76 (1972), 121-148.

Griffin, E.C. "Testing the Von Thünen Theory in Uruguay," *The Geographical Review*, Vol. 63 (1973), 500-516.

Griffin, E.C. "Causal Factors Influencing Agricultural Land Use Patterns In Uruguay," *Revista Geográfica (Mexico)*, Vol. 80 (1974), 13-34.

Griffin, K. *Land Concentration and Rural Poverty*. (New York: Holmes and Meier, 1976).

Gunn, R. "A Land-Use Study of Commercial Agriculture in Chiapas, Mexico." (Doctoral Dissertation, Michigan State University, 1976).

Hamnan de Figueirado, A., et al. "Difusão das Industrias de Beneficiamento, Fiação e Tecelagem de Algodão na Região Sudeste," *Revista Geográfica (Mexico)*, Vol. 88 (1978), 89-102.

Hansis, R. "Ethnogeography and Science: Viticulture in Argentina." (Doctoral Dissertation, Pennsylvania State University, 1976).

Hansis, R. "Land Tenure, Hazards and the Economy: Viticulture in Mendoza," *Economic Geography*, Vol. 53 (1977), 368-371.

Hegen, E., D.K. Hoy and E.C. Griffin. "Commercial Agriculture," in B. Lentnek, R.L. Carmin and T.L. Martinson (eds.) *Geographic Research on Latin America, Benchmark, 1970; Proceedings of the Conference of Latin Americanist Geographers, Vol. 1*. (Muncie: Ball State University, 1971), 182-208.

Henkle, R. "The Chapare of Brazil: A Study of Tropical Agriculture in Transition." (Doctoral Dissertation, University of Wisconsin, Madison, 1971).

Hiraoka, M.A. "Pioneer Settlement in Eastern Bolivia." (Doctoral Dissertation, University of Wisconsin, Madison, 1974).

- Hoy, D.R. and J. Fisher. "Primary Production and the Measurement of Agricultural Potential in the Caribbean," *Revista Geográfica (Mexico)*, Vol. 80 (1974), 71-88.
- Johnson, D. "Agroclimatological Zonation of Maize and Sorghum in Northeast Brazil," *Revista Geográfica (Mexico)*, Vol. 89 (1979), 37-44.
- Jones, M.D. "Shifting Patterns of Sugarcane Production in Northwest Argentina." (Doctoral Dissertation, Michigan State University, 1975).
- Kehr, J. "Cattle-Raising in Brazil: An Overview," *Revista Geográfica (Mexico)*, Vol. 83 (1975), 95-108.
- Kirby, J. "Venezuela's Land Reform: Progress and Change," *Journal of Interamerican Studies and World Affairs*, Vol. 15 (1973), 205-220.
- Kirby, J. "Agricultural Land-Use and the Settlement of Amazonia," *Pacific Viewpoint*, Vol. 17 (1976), 105-132.
- Kreisman, A. "The Numerical Regionalization of Agricultural Land: A Chilean Example." (Doctoral Dissertation, University of Pittsburgh, 1972).
- Kus, J.S. "Selected Aspects of Irrigated Agriculture in the Chima Heartland, Peru." (Doctoral Dissertation, University of California, Los Angeles, 1972).
- Land Tenure Center. *Agrarian Reform in Latin America: An Annotated Bibliography*. (Madison: University of Wisconsin Press, 1975).
- Lobb, C.G. "The Historical Geography of the Cattle Regions Along Brazil's Southern Frontier." (Doctoral Dissertation, University of California, Berkeley, 1970).
- Longwell, A.R. "The Cananea Ejidos: From Private Ranch to Collective in Sonora." (Doctoral Dissertation, University of Nebraska, 1974).
- Maillard, J-C. "Un siècle de speculation bananière dans la zone antillaise," *Revista Geográfica (Mexico)*, Vol. 80 (1974), 89-104.
- Miller, E. "The Raising of Beef Cattle in Central America and Panama," *Journal of Tropical Geography*, Vol. 41 (1975), 59-69.

- Millet, A. "The Agricultural Colonization of the West Central Peten, Guatemala: A Case Study of Frontier Settlement by Cooperatives." (Doctoral Dissertation, University of Oregon, 1974).
- Mills, F. "The Development of Alternative Farming Systems and Prospects for Changes in the Structure of Agriculture in St. Kitts, W.I." (Doctoral Dissertation, Clark University, 1974).
- Morris, A.S. "The Failure of Small Farmer Settlement in Buenos Aires Province, Argentina," *Revista Geográfica (Mexico)*, Vol. 81 (1973), 63-78.
- Morris, A.S. "Dairying in Argentina," *Revista Geográfica (Mexico)*, Vol. 76 (1972), 103-120.
- Mueller, M. "Changing Patterns of Agricultural Output and Productivity in the Private and Land Reform Sectors in Mexico, 1940-1960," *Economic Development and Cultural Change*, Vol. 18 (1970), 252-266.
- Nelson, M. *The Development of Tropical Lands: Policy Issues in Latin America*. (Baltimore: Johns Hopkins University Press, 1973).
- Paganini, L. "The Agricultural Systems of Chucanagne/Tuiru Basin in the Darien Province, Panama." (Doctoral Dissertation, University of Florida, 1970).
- Palmer, E. "Landuse and Landscape Change along the Dominican-Haitian Borderlands." (Doctoral Dissertation, University of Florida, 1976).
- Parsons, J. "The Africanization of the New World Tropical Grasslands," *Tubingen Geographische Studien*, Vol. 34 (1970), 141-153.
- Patten, G. "Dairying in Nicaragua," *Annals of the Association of American Geographers*, Vol. 61 (1971), 303-315.
- Pierson, R. "A Geographic Analysis of the Citrus Industry in Sao Paulo, Brazil." (Doctoral Dissertation, University of Tennessee, 1972).
- Pinto de Gusmao, R. and Vianna Mesquita, O. "Difusão da infraestrutura de Armazenagem a suas vinculações com a atividade agrária no Noroeste do Rio Grande do Sul," *Revista Geográfica (Mexico)*, Vol. 88 (1978), 103-150.

- Rees, J. "Forest Utilization by Tarascan Agriculturalists in Michoacan, Mexico." (Doctoral Dissertation, University of California, Los Angeles, 1971).
- Richardson, B.C. "The Rice Culture of Coastal Guyana: A Study in Location and Livelihood." (Doctoral Dissertation, University of Wisconsin, Madison, 1970).
- Richardson, B.C. "Spatial Determinants of Rural Livelihood in Coastal Guyana," *The Professional Geographer*, Vol. 25 (1973), 363-368.
- Richardson, B.C. "Livelihood in Rural Trinidad in 1900," *Annals of the Association of American Geographers*, Vol. 67 (1975), 240-251.
- Satterthwaite, R. "Campesino Agriculture and Hacienda Modernization in Coastal El Salvador, 1949-1969." (Doctoral Dissertation, University of Wisconsin, Madison, 1971).
- Sazama, G. and H. Davies. "Land Taxation and Land Reform," *Economic Development and Cultural Change*, Vol. 21 (1973), 642-654.
- Shaw, R.P. *Land Tenure and the Rural Exodus in Chile, Colombia, Costa Rica, and Peru.* (Gainesville: University of Florida Press, 1976).
- Shlemon, R. and L.B. Phelps. "Dredge Tailing Agriculture on the Rio Nechi, Colombia," *The Geographical Review*, Vol. 61 (1971), 396-414.
- Sigsworth, G. "The Mexican Epizootic of Foot and Mouth Disease: A Study in the Spread, Eradication and Impact of Infectious Livestock Disease and Associated Modernization in the Livestock Industry." (Doctoral Dissertation, University of Illinois, 1975).
- Smith, S.I. "Sugar Production Potential in Barbados," *Journal of Tropical Geography*, Vol. 42 (1976), 58-77.
- Smith, V. "Beef Cattle Production and Marketing in Guanacaste, Costa Rica." (Doctoral Dissertation, University of Florida, 1970).
- Smith, V. "Marketing Agricultural Commodities in Pichincha Province, Ecuador," *The Geographical Review*, Vol. 65 (1975), 353-363.
- Snaden, J. "Petoquillas: The Agricultural Geography of a Peasant Village in Southern Mexico." (Doctoral Dissertation, University of Michigan, 1974).

- Spielmann, H. "La expansion ganadera en Costa Rica, problemas de desarrollo agropecuario," *Revista Geográfica (Mexico)*, Vol. 77 (1972), 57-84.
- Steenland, K. *Agrarian Reform Under Allende: Peasant Revolt in the South*. (Albuquerque: University of New Mexico Press, 1977).
- Sternberg, R. "Farms and Farmers in an Estanciero World, 1856-1914." (Doctoral Dissertation, Syracuse University, 1971).
- Stewart, N., J. Belote, and L. Belote. "Transhumance in the Central Andes," *Annals of the Association of American Geographers*, Vol. 66 (1976), 377-397.
- Stouse, P.A.D "Instability of Tropical Agriculture: The Atlantic Lowlands of Costa Rica," *Economic Geography*, Vol. 46 (1970), 78-97.
- Thiesenhusen, W. "What Changing Technology Implies for Agrarian Reform," *Land Economics*, Vol. 50 (1974), 35-50.
- Thirsk, W. "The Distribution of Land Reform Benefits in Colombia," *Land Economics*, Vol. 52 (1976), 77-87.
- Vertinsky, I., D. Geffner, and S. Fox. "A Perspective of Land Reform Law in Colombia: Choice of Strategy for Change," *Land Economics*, Vol. 48 (1972), 367-376.
- Wales, R. "Land Holding and Agriculture Development in Puerto Rico, 1508-1970." (Doctoral Dissertation, University of Kansas, 1973).
- Walton, M. "The Evolution and Localization of Mezcal and Tequila in Mexico," *Revista Geográfica (Mexico)*, Vol. 85 (1975), 113-132.
- Wesche, R. "Planned Rainforest Family Farming on Brazil's Transamazonian Highway," *Revista Geográfica (Mexico)*, Vol. 81 (1974), 104-115.
- Wilkie, J. *Measuring Land Reform*. (Los Angeles: University of California Latin American Center, 1974).
- Williams, L. "Land Use Intensity and Farm Size: Traditional Agriculture in Cuzco, Peru." (Doctoral Dissertation, University of Kansas, 1973).

Wolfe, D. "Land Settlement in Northeast Brazil." (Doctoral Dissertation, McMaster University, 1971).

Wood, H. "Spontaneous Agricultural Colonization in Ecuador," *Annals of the Association of American Geographers*, Vol. 62 (1972), 599-617.

Zamorano, G.L. "La Libertad, Departamento de Rivadavia, un típico distrito agrario mendocino," *Revista Geográfica (Mexico)*, Vol. 85 (1975), 11-62.

Zuvekas, C. "Agrarian Reform in Ecuador's Guayas River Basin," *Land Economics*, Vol. 52 (1976), 314-329.