

A SPATIAL ANALYSIS OF GOLF FACILITY
DEVELOPMENT IN THE UNITED STATES
1931-1970

By

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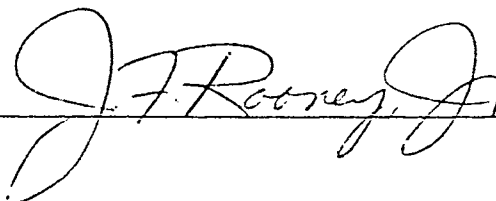
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Scope and Method of Study: Sport is a part of American culture that has been given little attention by geographers. Although geographers have recently made inroads into the realm of sports research, there remains a great need for continued research. The primary purpose of this study is to analyze spatial variations in golfing facility development in the United States for the period 1931-1970. A secondary purpose involves a description of certain of the effect that golf has on the landscape. The central hypotheses of this paper are; (1) that regional variations exist in the availability of golfing facilities, and (2) that these variations are related to certain identifiable characteristics of the regions.

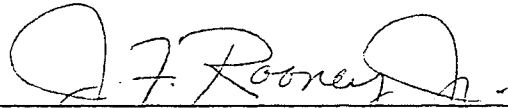
Findings and Conclusions: Spatial variations were found to exist in the development of golfing facilities throughout the United States. Two deficit facility regions (the Deep South and the highly urbanized and industrialized states of the North and Northeast), and three regions with more golfing facilities than their populations would warrant (the Plains States, the resort area of the East and Southeast, and the resort area of the West and Southwest) were found to exist. Differences in the establishment of and the emphasis placed upon facility development were found to be associated with certain identifiable variables, but no single variable or combination of variables proved to be a satisfactory explanation of facility development at the national level. Functional relationships were surmised to exist between golfing facility development and population density, urbanization, and percent of population change. No significant relationships were found to exist between golfing facility development and such variables as: percent of the population employed in the professional work category and climate.

ADVISER'S APPROVAL

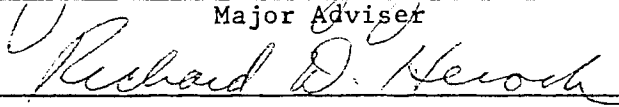


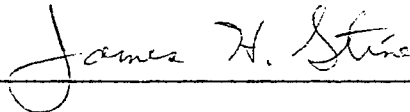
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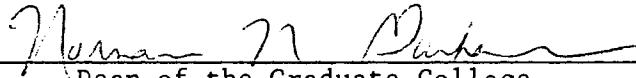
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PREFACE

This study is concerned with the spatial analysis of golfing facility development in the United States. The primary objective is to determine spatial variations in facility development, and to analyze golfing facility development in relation to certain socio-economic variables. A secondary objective is to describe some of the impact that golf has on the landscape.

The author wishes to express his appreciation to his major adviser, Dr. John F. Rooney, Jr., for his guidance and assistance throughout this study. Appreciation is also expressed to the other committee members, Professor James H. Stine, and Dr. Richard D. Hecock, for their invaluable assistance in the preparation of the final manuscript.

Finally, special gratitude is expressed to my wife, Sherrod, for her understanding and encouragement during these last two years of graduate study.

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION	1
The Focus	1
A Brief Historical Geography of American Golf	4
II. METHODOLOGY	14
Data Sources and Study Limitations	15
III. NATIONAL TRENDS	20
Statistical Analysis of Data	31
IV. SUMMARY AND CONCLUSIONS	35
BIBLIOGRAPHY	38
APPENDIX	41

LIST OF TABLES

Table	Page
I. Estimated Number of Golfers in the United States	13
II. Comparison of Plains and Deep South States	26
III. Spearman's Correlations of Socio-Economic Variables	32
IV. Multiple Correlations Matrix	34
V. 1931--State Production of Golfing Facilities	42
VI. 1960--State Production of Golfing Facilities	44
VII. 1970--State Production of Golfing Facilities	46

LIST OF FIGURES

Figure	Page
1. Growth in United States Golf Facilities	9
2. Increase in Golf Facilities 1960-1970	10
3. Total Golf Facilities as of October 1, 1970	11
4. Distribution of Golf Facilities as of October 1, 1970	12
5. Per Capita Production of Golf Facilities 1931	16
6. Per Capita Production of Golf Facilities 1960	17
7. Per Capita Production of Golf Facilities 1970	18
8. Golf Facility Production Regions	21

CHAPTER I

INTRODUCTION

The Focus

Sport is a part of the American culture that has been given little attention by geographers. This is in direct contrast to sociologists who have been studying this integral aspect of society for some time.¹ Although geographers have recently made inroads into the realm of sports research, there remains a great need for continued research.² Sport in a modern society provides employment for a considerable amount of people, attracts large amounts of capital investment, and provides leisure time opportunities for many people. Burley states that "sport has both material and non-material aspects. The molding of character by team sport is well known, but it is the material manifestations of

¹ See: J. P. Steiner, Americans at Play, New York: McGraw and Hill, 1932; P. C. McIntosh, Sport in Society, London: C. A. Watson Company, 1963; and H. Risse, Soziologie des Sports, Berlin, 1921. In addition to numerous individual articles and books, a yearly publication entitled International Review of Sport Sociology is published by the International Council of Sport and Physical Education (UNESCO) in Warsaw, Poland which is devoted entirely to research in the sociological aspects of sport.

² For an example of current geographic research in the field of sports geography see: John F. Rooney, Jr., "Up From the Mines and Out From the Prairies," The Geographical Review, Vol. LIX, No. 4 (1969), pp. 471-492; and John F. Rooney, Jr., "A Geographic Analysis of Football Player Production in Oklahoma and Texas," Proceedings of the Oklahoma Academy of Science, Vol. 50 (1970), pp. 114-120.

sporting activities that are the chief concern of the geographer."³ Certain sports, such as hunting and fishing, need to make few demands for modification on the existing environment, but the establishment of sporting facilities, e.g., basketball arenas, football stadia, and golf courses, involves a transformation of the existing landscape.⁴ Carl O. Sauer, as early as 1925 in "The Morphology of Landscape"⁵ and again in 1941 in "Forward to Historical Geography"⁶ stressed the need for geographers to work in the area of landscape evolution, and the effects of man upon the natural landscape. Sport is a subject which demands attention because of its economic importance, its usefulness as an indication of cultural regions and origins, and its utility in understanding land use patterns.⁷

It is the primary purpose of this paper to analyze spatial variations in golfing facility development in the United States. A secondary purpose involves a description of certain of the effects that golf

³Terence M. Burley, "A Note on the Geography of Sport," The Professional Geographer, Vol. XIV, No. 1 (1962), p. 55.

⁴Ibid., p. 56.

⁵Carl O. Sauer, "The Morphology of Landscape," University of California Publications in Geography, Vol. 2, No. 2 (1925).

⁶Carl O. Sauer, "Forward to Historical Geography," Annals of the Association of American Geographers, Vol. 31, No. 1 (1941), pp. 1-24.

⁷Burley, p. 56.

has on the landscape.⁸

Golfing facilities in the United States are analyzed for the period 1931-1970 on a total and a per capita basis. The National Golf Foundation reported an increase of 4,497 golfing facilities and an increase of 7,183,494 golfers in the United States during the 1931-1970 period.⁹ This impressive growth prompts the following questions; first, where have the increases in golfing facilities occurred, and second, to what are the changes in facility development related? The central hypotheses of this paper are; (1) that regional variations exist in the availability of golfing facilities, and (2) that these variations are related to certain identifiable characteristics of the regions. Questions to be analyzed in regard to the stated hypotheses pertain to certain characteristics which have possible relationships and associations to the development of golfing facilities. For example:

- a. Is there a significant correlation between golfing facility development and variables such as: urbanization, percent of the population employed in the professional work category (as a measure of affluence) population density, length of the work week (as an indicator of leisure time), and population change?

⁸ See: Wilbert J. Ulman, "Golf Courses in Metropolitan Denver: A Case Study of Urban Outdoor Recreation Land Use," (Unpub. Master's Thesis, University of Colorado, 1969), and K. McCleary, "A Systems Approach to the Location of Golf Facilities: A Problem in Urban Recreation," (Unpub. Master's Thesis, Waterloo Lutheran University, 1969).

⁹ National Golf Foundation, "Golf Facilities in the United States," Information Sheet ST 1, Chicago: National Golf Foundation, 1970.

- b. Is climate a significant factor in the development of golfing facilities?

Clawson and the Outdoor Recreation Resources Review Commission, states that participation in recreation and attendance at recreational sites will multiply due to such variables as; rapid rates of population growth, the enlargement of expendable income, the gain in apparent leisure or free time, age, changes in the occupational structures, and increases in mobility.¹⁰ It is believed that the same variables may in some way be associated with golfing facility development. Hence the variables analyzed here pertain generally to the characteristics identified by Clawson and the Outdoor Recreation Resources Review Commission, which are associated with increased recreational participation and increased attendance at recreational sites. It is also felt that since golf is a sporting activity that is almost always engaged in out-of-doors, that a regional weather and climate may be closely associated with the development of golfing facilities.

A Brief Historical Geography of American Golf

The sport of golf, which originated in Scotland, was introduced into the United States a relatively short time ago. On November 14, 1888, John Reid officially founded the country's first permanent golf club at Yonkers, New York. The club was named St. Andrews and was a

¹⁰ See: Marion Clawson, Land and Water for Recreation (Chicago, 1963), p. 34; Outdoor Recreation for America, Outdoor Recreation Resources Review Commission (Washington, D. C., 1962), pp. 27-28.

three-hole layout carved from a hilly pasture.¹¹ In August of 1897, the St. Andrews Golf Club was moved to Mt. Hope, New York, where there was room for a full 18-hole course.¹² Prior to this development, reference had been made to golf in the United States as early as 1799. An Englishman, James Rivington, who was in the printing and importing business, placed an advertisement in his publication, The Royal Gazette, announcing the sale of a shipment of play clubs and balls from Scotland.¹³ There is also some evidence that a golf club was in existence in Charleston, South Carolina, as early as 1786. The members of this club were said to play a game similar to miniature golf on a green that was only a few acres in size.¹⁴ Claims have been made of another golf club being in operation in Savannah during the mid-1790's, but there is no positive evidence that golf was ever played at the club. From the data available, it would seem that the club served only a social function. The club did not survive the War of 1812.¹⁵ However, the claims of golf in the United States before 1888 are mainly speculation and have never gained official recognition from the golf associations.

¹¹There seems to be some controversy over the location of the first permanent golf course in the United States. Sources have credited both the Foxburg Country Club, Foxburg, Pennsylvania and St. Andrews Golf Club, Yonkers, New York, with being the first permanent courses. The majority of sources indicate that the St. Andrews Club was the original course, and it is accepted as the original for the purposes of this paper.

¹²Charles Price, The World of Golf (New York, 1962), pp. 58-59.

¹³Ibid., p. 59.

¹⁴Ibid.

¹⁵Herbert Warren Wind, The Story of American Golf (New York, 1956), pp. 9-12.

By 1900, there were over 1,000 golf courses in operation throughout the United States. This represents extremely rapid diffusion over a twelve-year period. Every state had at least one golf course and many had a considerable number.¹⁶ The leading states in numbers of golf courses at this time were New York with 165; Massachusetts, 157; Illinois, 57; California, 43; Florida, 17 and Texas with 5. The spatial concentration was extreme at this time. About this same time the first public course was opened at Van Cortlandt Park in New York.

During the early 1900's it took an average of \$200,000 to purchase the 200 acres necessary to construct a golf course; a sizeable sum in 1900.¹⁷ In the early years of golf course development in the United States, the syndicates investing were always faced with the possibility that the game would not be well received in the area of their development. In order to protect their investment, courses were usually constructed on wooden acreage. In this way, if the game did not catch on, the course could be sub-divided into housing lots and sold on the open real estate market.¹⁸

It was expensive to develop a course in the early 1900's, and also to participate in the game. Golf, only twelve years after its introduction at Yonkers,

...had come to be regarded by Americans of that day more or less as skiing is by Americans today: an outdoor recreation, open to both sexes and a wide range of ages,

¹⁶ Nevin H. Gibson, The Encyclopedia of Golf (New York, 1964), p. 18i.

¹⁷ Wind, pp. 47-48. It should be noted that \$200,000.00 is an average figure for the United States.

¹⁸ Ibid., p. 48.

whose environment was as attractive, if not more attractive, than the exercise itself; a sport whose professionals came from overseas and whose leading missionaries were the college crowd, and which offered its followers an occasion for dashing outfits, endowed them with the bright aura of being fashionable, and demanded from them a good slice of their income.¹⁹

During this early period the game was considered to be for the well-to-do and the status-conscious citizens. It was not considered the "proper" game for the average citizen until after the year 1913 when Francis Ouimet, a boy from the "wrong side of the tracks" won the United States Golf Championship. And even after that event, golf has progressed slowly into the ranks of the blue-collar workers, the poor, and the Blacks. The popularity of golf among the well-to-do of both sexes offered an opportunity to resort developers that could not be overlooked. The established summer resorts in the Northeast and the newly founded winter resorts of the Southeast added golf courses to their establishments in order to attract the growing numbers of United States' golfers. By 1900 Northeastern resorts at Shennecossett near New London, Connecticut, Lake Placid in New York, Poland Spring, Saratoga and Manchester Clubs in Vermont had all constructed courses. In Florida resorts were opened at Palm Beach, Ormond, Tampa, and Bellcair. Pinehurst Colony had been founded in the sandhills of North Carolina, Aiken was opened in South Carolina, and resorts were operating in Virginia at Hot Springs and at Jekyll's Island, Georgia. Golf had arrived in the United States, and discovering this, newspaper editors began to allocate more and more space to its coverage in their

¹⁹Ibid., p. 46.

daily editions.²⁰

The total number of golf courses in the United States by 1931 had grown to 5,691, and by 1970, the number had increased to 10,188 courses.²¹ Figure 1 is a graphic representation of the growth in golfing facilities providing a breakdown in the different classes of facilities during the 1931-1970 time period. Much of the expansion in golfing facility development has occurred during the ten-year period from 1960 to 1970. Figure 2 shows the total increase over the ten-year period. Figures 3 and 4 show the total number of golfing facilities by states as of October 1, 1970.²² Not only has the number of golfing facilities increased, but there has also been a marked increase in the number of golfers in the United States (Table I).²³ It should be noted that the increase in golfers has been fourfold since 1947 (Table I).

From an economic standpoint, golf has grown tremendously in recent years. There are 1,082,920 acres in the United States devoted to golfing facilities. This acreage represents a capital investment of over \$3,025,000,000.²⁴ The sale of golfing equipment has also become a multi-million dollar business. American golfers spend approximately \$100,000,000 a year on such items as balls (approximately 30,000,000 sold yearly), gloves, golf clubs, golf bags, and tees.²⁵

²⁰Ibid., pp. 51-53.

²¹National Golf Foundation, p. 7.

²²Since data were not available on the accurate locations of all golfing facilities, it was necessary to estimate the locations using a series of population density maps.

²³National Golf Foundation, p. 7.

²⁴Ibid., p. 8.

²⁵Wind, p. 6.

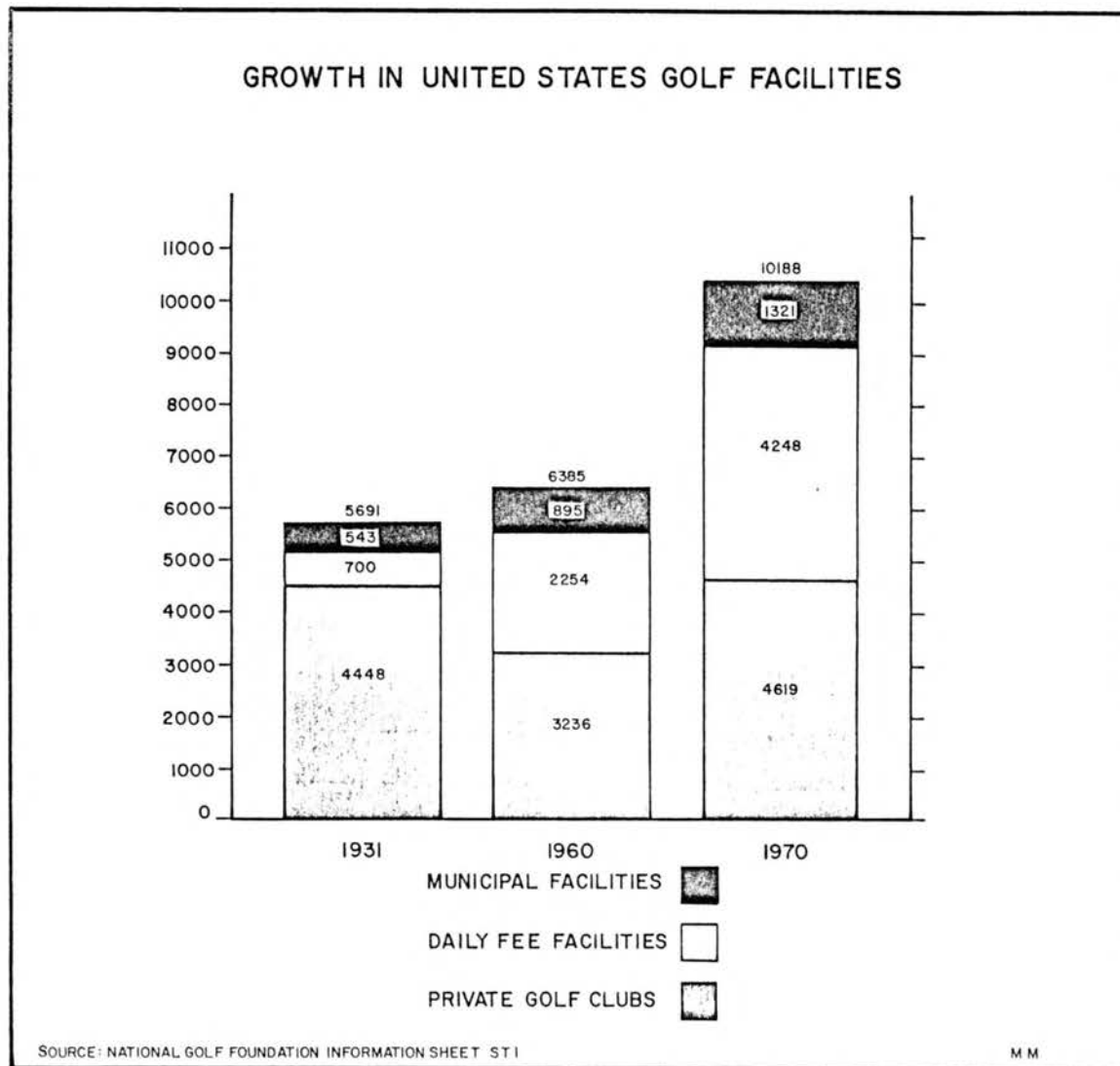


Figure 1. Growth in United States Golf Facilities

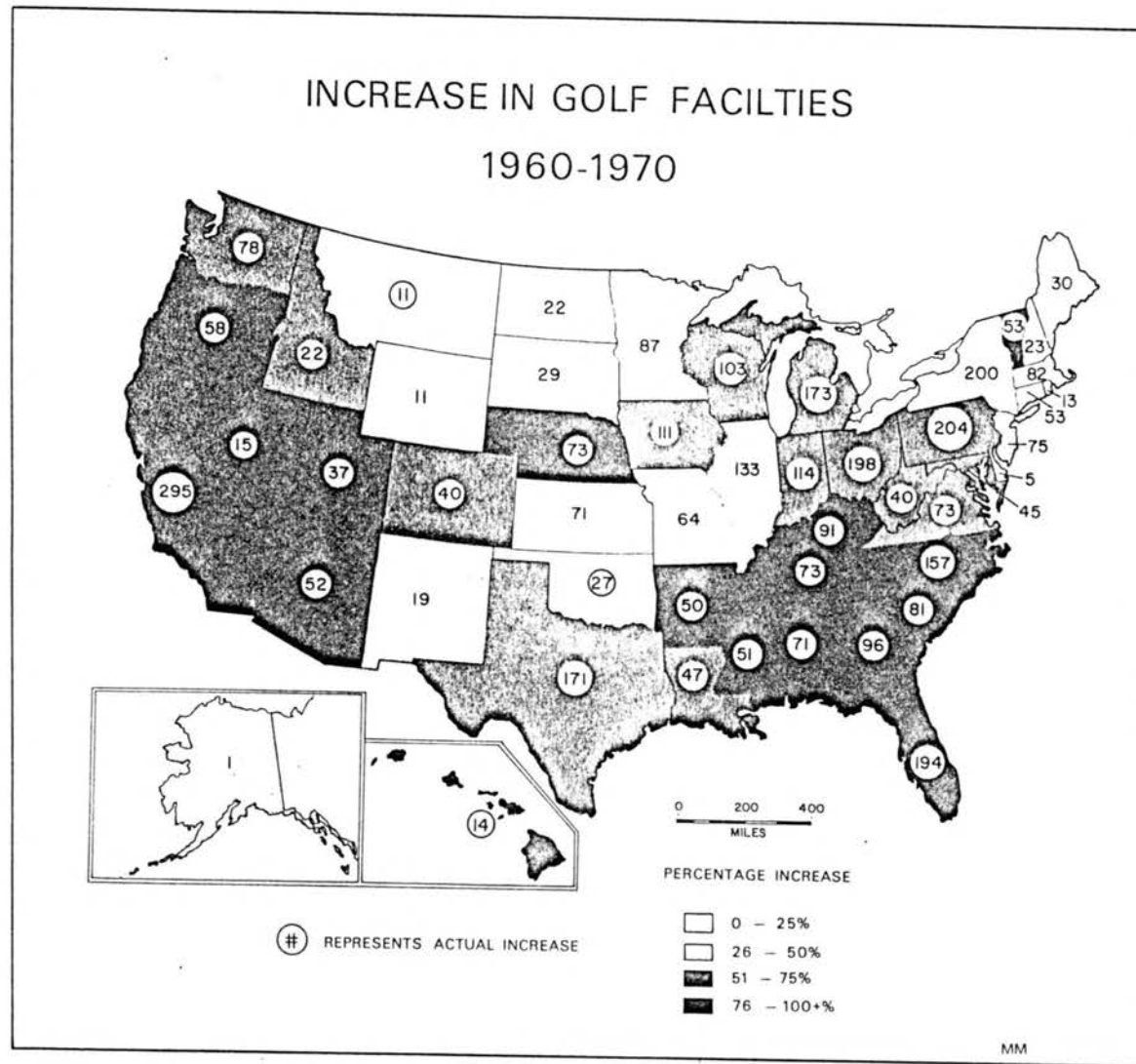


Figure 2. Increase in Golf Facilities, 1960 - 1970

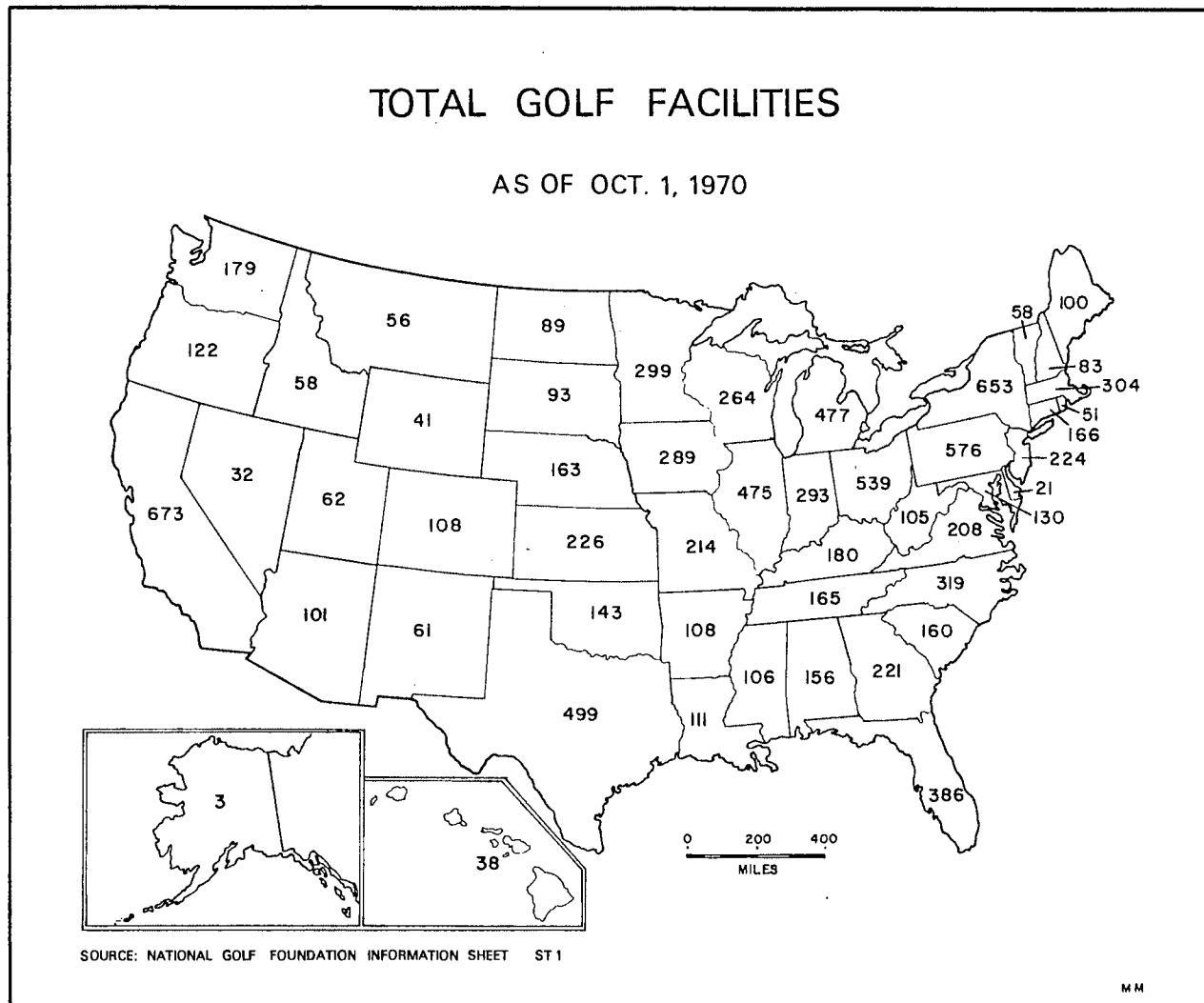


Figure 3. Total Golf Facilities, as of October 1, 1970

DISTRIBUTION OF GOLF FACILITIES

AS OF OCT. 1, 1970



SOURCE: NATIONAL GOLF FOUNDATION INFORMATION SHEET ST1

MM

Figure 4. Distribution of Golf Facilities, as of October 1, 1970

TABLE I
ESTIMATED NUMBER OF GOLFERS IN THE UNITED STATES*

GROWTH SINCE 1947		COMPARATIVE STUDY: PRIVATE, DAILY FEE, MUNICIPAL			
YEAR	NUMBER OF GOLFERS	1968	1969	1970	
1947	2,516,506	At Private Clubs			
1948	2,742,234				
1949	3,112,000	Men	920,000	940,000	978,000
1950	3,215,160	Women	360,000	370,000	388,000
1951	3,237,000	Juniors	170,000	175,000	186,000
1952	3,265,000	<u>TOTAL</u>	<u>1,450,000</u>	<u>1,485,000</u>	<u>1,552,000</u>
1953	3,335,632	At Daily Fee Courses			
1954	3,400,000				
1955	3,680,000	Men	2,540,000	2,580,000	2,610,000
1956	3,680,000	Women	820,000	830,000	832,000
1957	3,812,000	Juniors	310,000	320,000	341,000
1958	3,970,000	<u>TOTAL</u>	<u>3,670,000</u>	<u>3,730,000</u>	<u>3,783,000</u>
1959	4,125,000	At Municipal Courses			
1960	4,400,000				
1961	5,000,000	Men	2,840,000	2,900,000	2,968,000
1962	5,500,000	Women	850,000	875,000	873,000
1963	6,250,000	Juniors	490,000	310,000	524,000
1964	7,000,000	<u>TOTAL</u>	<u>4,180,000</u>	<u>4,285,000</u>	<u>4,365,000</u>
1965	7,750,000	TOTAL Golfers in the United States			
1966	8,525,000				
1967	9,100,000				
1968	9,300,000	9,300,000	9,500,000	9,700,000	
1969	9,500,000				
1970	9,700,000				

For 1971, add an additional 2,200,000 golfers who played less than 15 rounds per year.

*Adopted from National golf information sheet ST 1

CHAPTER II

METHODOLOGY

The geographic units for this study are the fifty states, plus Washington, D. C. The first step in studying the spatial variations that exist in golfing facility development was to determine the emphasis placed on facility development by the individual states. This was accomplished by producing per capita index ratings of golfing facilities for each of the fifty states. Per capita measurement is an effective means of measuring or determining a state's position in regard to golfing facilities due to the uneven distribution of population among the states. A normal production rate (a facility production rate approximating the national average) is represented by an index value of "1.00" (tables listing states and their respective index ratings for 1931, 1960 and 1970 are given in the appendix). For example, in 1960 the United States had a population of approximately 179,300,000 and 6,385 golfing facilities, thus establishing a "norm" facility rate of 1:28,085 (one facility for every 28,085 people). If a state had only one-half (1/2) as many golfing facilities per capita as the national "norm" then it would have an index value of 0.50 (one facility for every 56,170 people). An index rating of 2.00 for 1960 would mean that a state had twice as many golfing facilities per capita as the national "norm" or one facility for every 14,043 people. The normal facility rate for 1931 was established as being 1:21,649 (one

facility for every 21,649 people), and for 1970 the normal rate was established as being 1:19,944 (one facility for every 19,944 people).¹ Figures 5-7 show index ratings for each of the states for the years 1931, 1960, and 1970 respectively.

The per capita index ratings were utilized in the examination of golfing facility development throughout the United States, and in the determination of national trends in their development. Temporal as well as spatial changes in facility development can be analyzed using the per capita index ratings. A third step was undertaken using the Spearman rank correlation coefficient method in the testing of the second hypothesis of this paper.²

Data Sources and Study Limitations

Data were obtained from the National Golf Foundation in regard to the net increase and/or decrease of golfing facilities in the United States. The year 1931 was chosen as the initial year of study since it represents the first year that accurate and complete golf data were collected and recorded for United States' golf facilities.

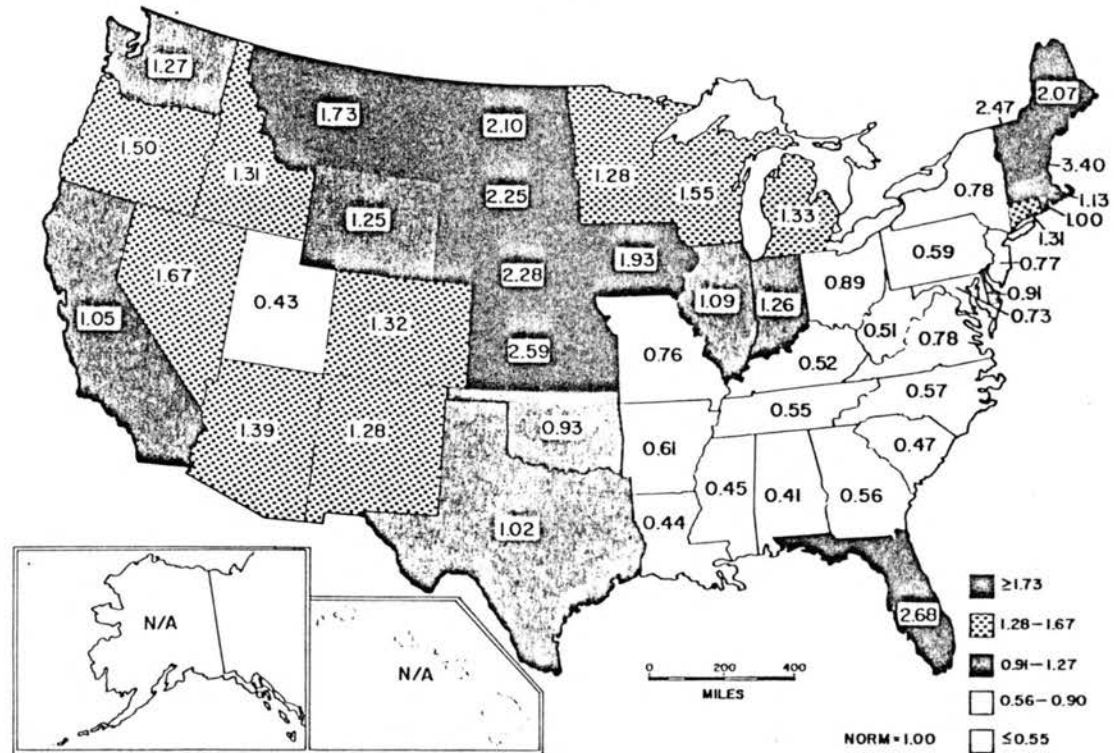
After a check on the reliability of source information, it was determined that the National Golf Foundation figures are the most accurate and complete data available on golfing facilities in the

¹For the purposes of this paper, a golfing facility is defined to include all private, daily fee, and municipal courses of the nine and eighteen-hole regulation length and the par-three regulation length.

²For an explanation of the procedures involved in this test see: Sidney Siegel, Non-parametric Statistics for the Behavioral Sciences (New York, 1956), pp. 202-213.

PER CAPITA PRODUCTION OF GOLF FACILITIES

1931



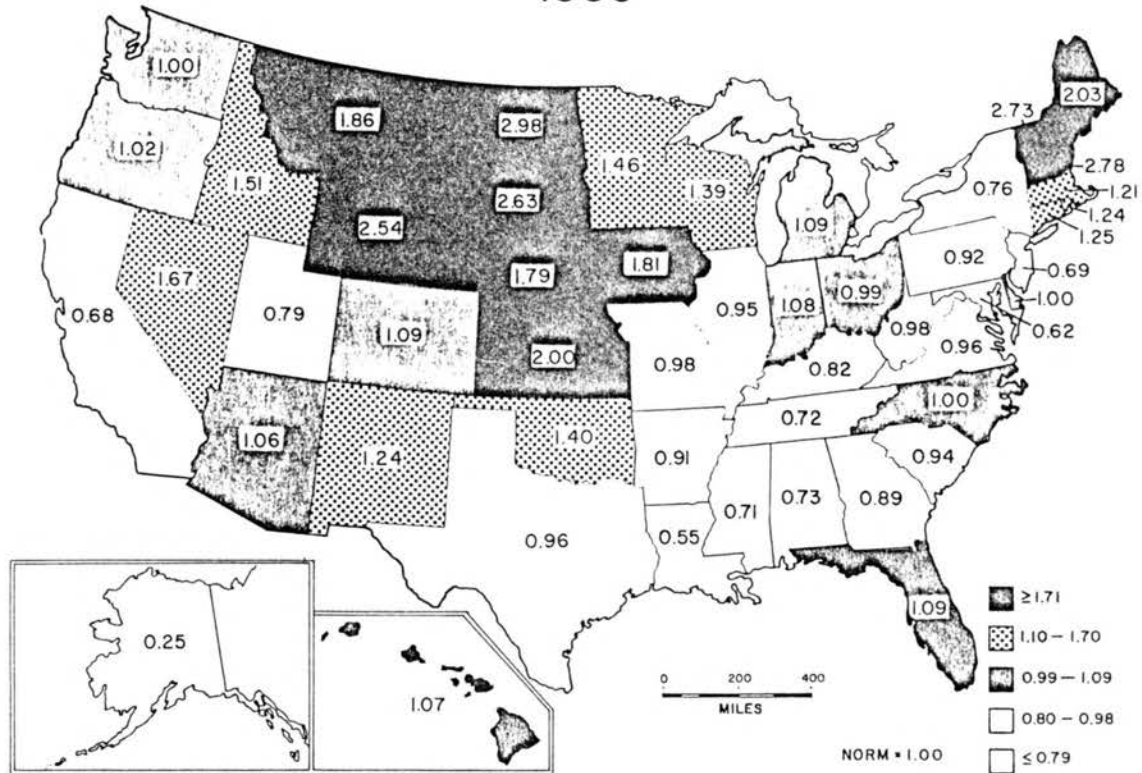
SOURCE: NATIONAL GOLF FOUNDATION INFORMATION SHEET ST 1

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Figure 5. Per Capita Production of Golf Facilities, 1931

PER CAPITA PRODUCTION OF GOLF FACILITIES

1960



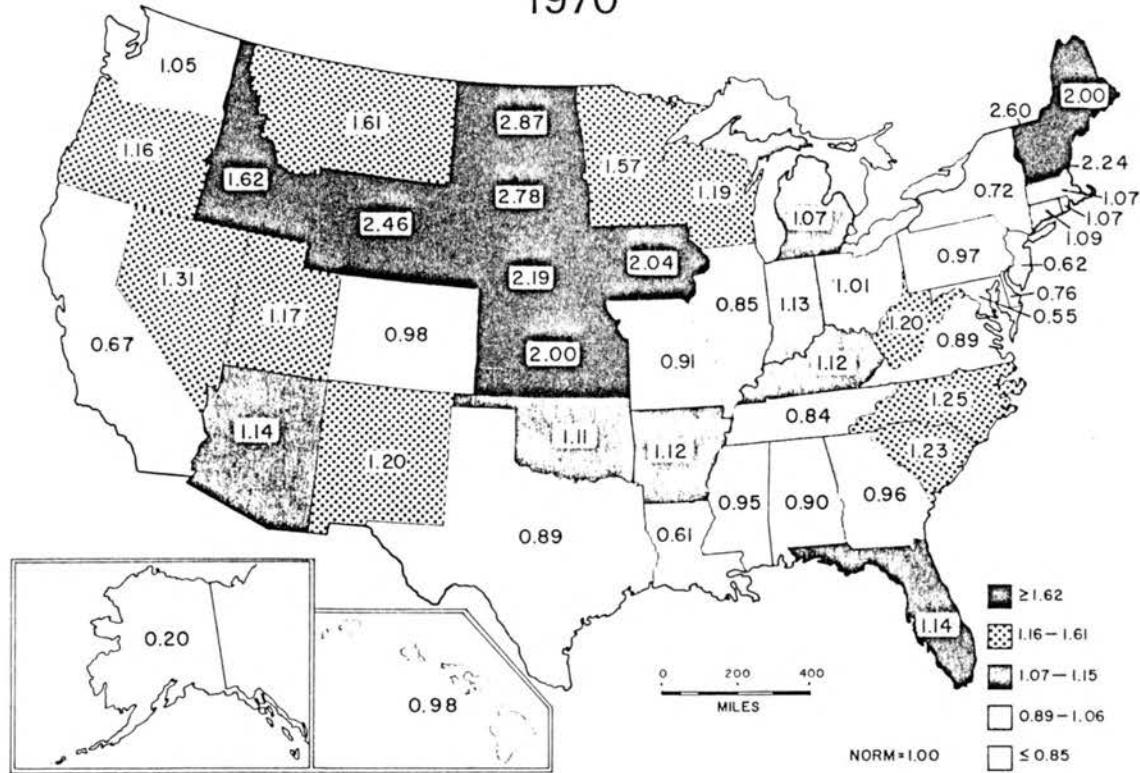
SOURCE: NATIONAL GOLF FOUNDATION INFORMATION SHEET ST 1

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Figure 6. Per Capita Production of Golf Facilities, 1960

PER CAPITA PRODUCTION OF GOLF FACILITIES

1970



SOURCE: NATIONAL GOLF FOUNDATION INFORMATION SHEET ST 1

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Figure 7. Per Capita Production of Golf Facilities, 1970

United States.³ The United States Census materials provide data on the independent variables, but due to the fact that the 1970 Census is to date incomplete, it will be impossible to make comparisons between the total 1931, 1960, and 1970 data.

³ A personal check of data reliability was carried out by the author utilizing telephone directories in determining numbers of golfing facilities in a state in relation to the numbers given by available data sources. An intensive check was carried out on the state of Oklahoma using data supplied by Jim Reed, a researcher for the Oklahoma Parks and Industrial Development Commission, listing all golfing facilities in the state. Less intensive data checks were carried out utilizing the author's personal knowledge of the location and numbers of golfing facilities in Texas.

CHAPTER III

NATIONAL TRENDS

It is apparent from the per capita data (Appendix and Figures 5-7) of golf facility development in the United States that facility development has had greater emphasis in some regions than it has had in others. Basically, five regions can be identified (Figure 8).¹ There are two deficit regions and three regions that have more facilities than their population would merit. The three regions with above normal numbers of golfing facilities are: (1) the resort area of the East and Southeast, (2) the resort area of the West and Southwest, and (3) the Plains states. It should be noted that the regions are not contiguous in nature in all cases. The resort area of the East and Southeast is divided by a zone of rather low per capita facility development (New York, New Jersey and Maryland). The resort region is centered on Vermont, 2.60, and New Hampshire, 2.24 in the Northeast and on North Carolina; 1.25, South Carolina; 1.23, and Florida; 1.14 in the Southeast.² The emphasis placed on golf in these regions might well be related to the advantage of early historical development. It was

¹The regions delineated are given only as an indication of the approximate extent and location of the regions, and are in no way meant to be perceived as fixed regions. An analysis of the index rankings for the years 1931-1970 will reveal the dynamic quality of the regions.

²It should be noted that the per capita ratings quoted in this section are based on 1970 ratings unless otherwise specified.

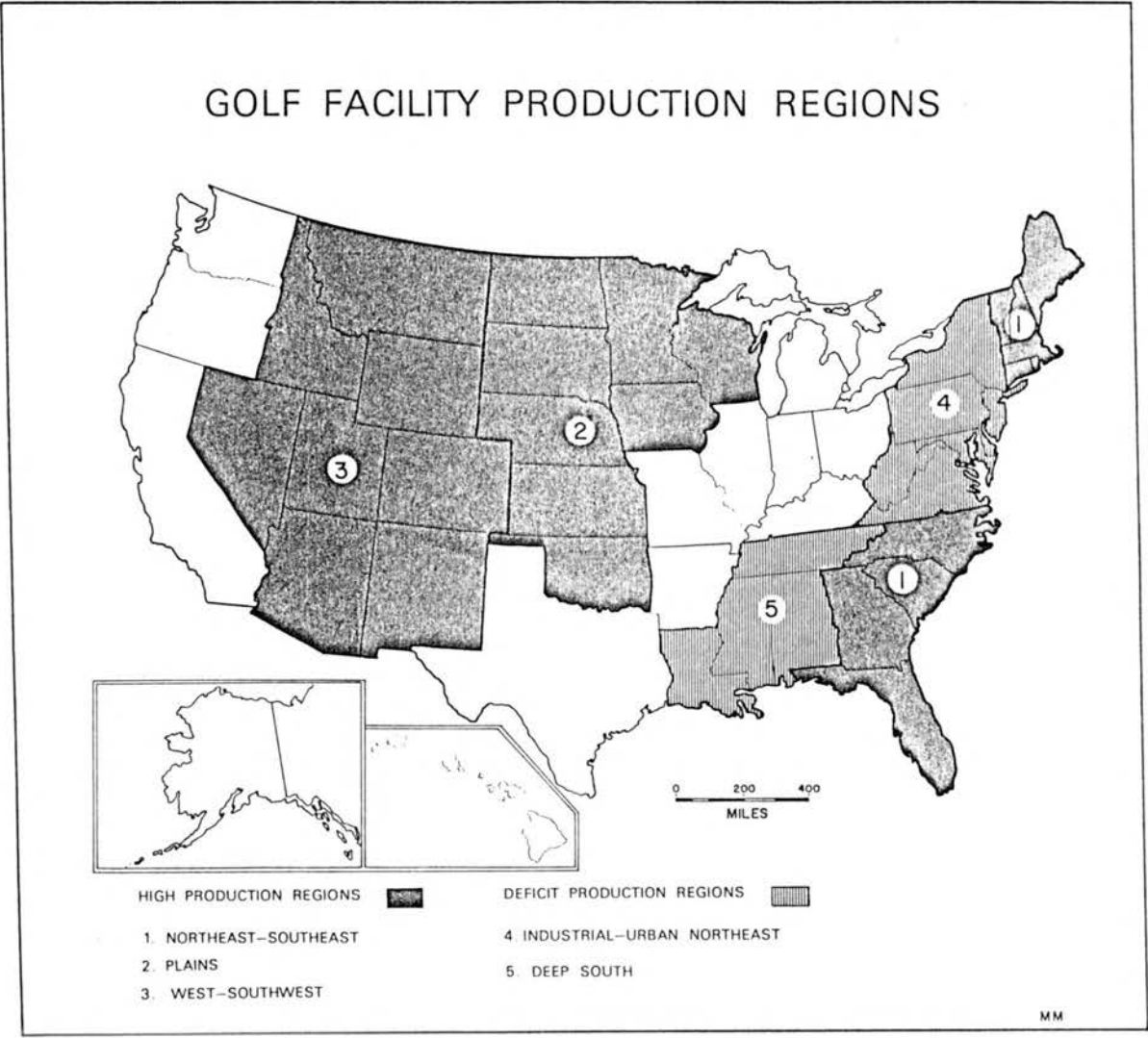


Figure 8. Golf Facility Production Regions

noted earlier that hotels in the East and Southeast developed golfing facilities soon after the well-to-do took up the sport. Even now the Georgia-South Carolina-North Carolina area advertises year-round golfing in the "Dixie Golf Circle" in order to lure the tourist and resort dollar to the area.³ Myrtle Beach, South Carolina claims to be the "Seaside Golf Capital of the U.S.A.," and supports thirteen golf and country clubs which are open for play as resort developments in the Grand Strand area alone.⁴ There are approximately eighty golf courses operating in connection with the "Dixie Golf Circle," and this represents only a fraction of the total number of courses throughout the region.

The emphasis placed on golf facility development in the West and Southwest (Wyoming; 2.46, Idaho; 1.62, Montana; 1.61, Nevada; 1.31, New Mexico; 1.20, Utah; 1.17, and Arizona; 1.14) can be associated with two different types of facility development. One is the traditional resort development aimed at the tourist or vacation dollar. The Phoenix and Tucson SMSA's advertise the "Valley of the Sun" as a "golfer's paradise." One source is quoted as saying that "in Phoenix a golfer can play a different course every day during a month's vacation and still have some courses to spare."⁵ In northern Nevada, the Reno area is fast becoming an attraction to golfers, and in the south, the city of Las Vegas has six courses within its hinterland. The Sun

³Georgia Department of Industry and Trade, Tourist Division, Dixie Golf Circle (Atlanta), pamphlet.

⁴Golf Holiday, Myrtle Beach Golf Holiday (Myrtle Beach, South Carolina), pamphlet.

⁵The Captain's Golf Course Guide (Chicago, 1966), p. 165.

Valley area of Idaho has long been noted as both a summer and a winter resort area. Salt Lake City, Utah is similar to Las Vegas, Nevada in that it also has six courses within its local area. Much of the development in Utah and New Mexico is taking place around the major cities (Albuquerque and Santa Fe, New Mexico, and Salt Lake City, Ogden, Provo and Logan in Utah).⁶ The second phenomenon to be considered in relation to golfing facility development in the West and Southwest is the golf-housing development. The golf-housing phenomenon has been in existence only since the mid-1950's, but there are now golf-planned communities scattered through at least twenty states. The majority have been designed for families of middle incomes, but golf communities have also been established for the retired and the semi-retired.⁷ The West and Southwest has long been recognized as an retirement and vacation area. In a study which represented the first comprehensive listing of golf-oriented communities in the United States, 45 percent were found to be located in the West and Southwestern region of the United States.⁸ A projection based on 1967 homesites available and published plans for future development estimated that in 1970 there were over one million residents in golf-centered housing developments.⁹ This would suggest that approximately 450,000 persons lived in golf-centered housing developments in the West and Southwest region during

⁶ Ibid., pp. 64, 150, 189.

⁷ Bill Hartley and Ellen Hartley, "125 Places to Live Along a Golf Course," Golf Digest, Vol. 18, No. 11 (November, 1967), p. 45.

⁸ Ibid., p. 57.

⁹ Ibid., p. 45.

1970.

The emphasis placed on golf facility development in the Plains States is not as easy to explain. In the region are included five states with per capita indexes of at least two times the national "norm". The highest per capita state in the region is North Dakota with an index rating of 2.87, followed by South Dakota; 2.78, and Nebraska; 2.19. The emphasis on facility development in this region has been on the "public" golf course, as opposed to the resort golf course in the East and Southeast. Here it is hard to find a community with a population over 3,500 that does not have some type of golf course.¹⁰ The Plains States' economies are based primarily on the production of such agricultural products as wheat, small grains, and livestock. This type of economy is associated with a distinctive settlement pattern characterized by small rural communities distributed equally over the landscape. There are no significant industrial centers in the region. Johann von Thünen developed the "isolated state" theory in which he conceived of the idea of a state with little or no trade connections with any other state.¹¹ Due to the "isolation" of the state it became necessary for each "state" to provide all goods and services necessary to support its population. The rural communities located in the Plains region take on many of the qualities of

¹⁰The Captain's Golf Course Guide, p. 56. In addition, a personal check of golf facility location and community population size was carried out by the author to determine and substantiate the validity of the 3,500 population threshold figure.

¹¹Michael Chisholm, "Johann Heinrich von Thünen," Readings in Economic Geography: The Location of Economic Activity, ed. Robert H. T. Smith, Edward J. Taaffe, and Leslie J. King (Chicago, 1968), p. 37.

"isolated states," and therefore, must provide to some extent "all" necessary goods and services including recreational facilities. Each town serves as the central place of a regional community and the mediator of "all" aspects of community life. Walter Christaller in his work Die Zentralen Orte in Suddeutschland stated that goods and services provided by central places are known as central goods and services with higher order and lower order goods and services being offered at higher and lower order places respectively.¹² The rural communities of the Plains being analogous to von Thünen's "isolated states" must, therefore, provide higher order goods and services than communities of similar population size would otherwise merit. It has been stated earlier that the majority of these small communities support golf courses. It should also be noted that a functional relationship exists between population density and recreational land use. High degrees of population density are not conducive to recreational land uses such as golfing facilities, that require large concentrations of open space.

But settlement pattern alone does not entirely explain high degrees of facility development. The Deep South, which will be discussed later, has been recognized as a deficit region. The Deep South is similar to the Plains States in that both display similar settlement patterns of small rural communities with few large urban centers. Table II shows a comparison of three variables; percent of Black

¹²Brian J. L. Berry and Allan Pred, "Walter Christaller's Die Zentralen Orte in Suddeutschland - Abstract of Theoretical Parts," Readings in Economic Geography: The Location of Economic Activity, ed. Robert H. T. Smith, Edward J. Taaffe, and Leslie J. King (Chicago, 1968), p. 65.

TABLE II
COMPARISON OF PLAINS AND DEEP SOUTH STATES

STATE	1960 % BLACK	1969 POP. DENSITY	1969 PER CAPITA INCOME
Tennessee	16.5	95.4	\$2,810
Louisiana	31.9	83.0	\$2,780
Mississippi	42.0	50.0	\$2,192
Alabama	30.0	69.1	\$2,567
North Dakota	0.10	8.9	\$3,011
South Dakota	0.20	8.6	\$3,051
Nebraska	2.10	18.9	\$3,642
Kansas	4.20	28.3	\$3,531
Iowa	0.90	49.6	\$3,517

population, population density and per capita income, for a sample of the Plains and Deep South states. It should be noted that income and percent of the population that is Black in addition to settlement pattern, help account for differences in golfing facility development between the two regions. Findings of a report to the Outdoor Recreation Resources Review Commission entitled, Participation in Outdoor Recreation: Factors Affecting Demand Among American Adults, concluded that Blacks engage in outdoor recreational activities relatively infrequently, and that participation in outdoor recreation rises with

income.¹³

Two deficit regions of golfing facility development can also be identified: (1) the Deep South, and (2) the highly industrialized and urbanized states of the North and Northeast. Within the time period of this study (1931-1970), the Deep South has experienced a marked increase in golfing facility development, but even with this increase, it still ranks below the majority of the states in facility developments. In 1931 the leading state in the region was Tennessee with an index rating of only 0.55, or approximately one-half the national "norm". Alabama had an index rating of 0.41 which in 1931 was the lowest rating of all the states. By 1970, most of the Southern states had doubled their per capita index ratings with the exception of Louisiana, which in 1931 had an index rating of 0.44 and in 1970 had an index rating of only 0.61 (see Figures 5 and 7). Even with the doubling of the index ratings, the South remains a deficit region.

The post-Civil War South has traditionally been a poorer region economically when compared with the remainder of the states, and as such the earliest courses in the area were usually of the private club, or the resort variety established for the use of tourists or wealthy residents. They were not designed for the majority of the local population. The emphasis placed on the development of private golfing facilities in the South served to exclude the large numbers of Black residents from the use of this type of outdoor recreational facility. Blacks have never participated in golf at rates comparable

¹³ Eva Mueller and Gerald Gurin, Participation in Outdoor Recreation: Factors Affecting Demand Among American Adults, Outdoor Recreation Resources Review Commission Report No. 20 (Washington, D.C., 1962), pp. 25 and 30.

to the white population. This is due in part to the early golfing facilities which were usually of the private variety, and which had, and in many cases still have, membership requirements that exclude Blacks.¹⁴ In addition to a "whites only" membership policy, private golfing facilities were, and still are for the most part unavailable to Blacks owing to the high level of income necessary to sustain one's membership dues and fees. A study of the current roster of the United States' professional golfers helps to illustrate this point. In 1970 there were only two Black professional golfers participating in the Professional Golf Association tour of events out of a total of over three hundred golfers (0.66%).¹⁵ In contrast to professional golf, a recent study by John W. Loy and Joseph F. McElvogue stated that while racial segregation is apparent in professional baseball and football in relation to playing position, it should be noted that 41% of all major league baseball players and 39% of all professional football players are Black.¹⁶

The second deficit region is located in the highly industrialized and urbanized states in the North and Northeast, extending southward to include part of the Middle Atlantic states. The region is centered on a five-state area. Maryland, with a per capita rating of 0.55 in

¹⁴ Interview with ex-members of six different private golf clubs from three southern states (Florida, Louisiana and Mississippi) which confirmed the "whites only" membership requirement in their former clubs, and all other private golf clubs that they were familiar with in the area of their former clubs, Denton, Texas (December 26, 1971).

¹⁵ The P. G. A. Tour Book (New York: Professional Golf Association [1971]), p. 60.

¹⁶ John W. Loy and Joseph F. McElvogue, "Racial Segregation In American Sport," Mimeograph copy of a speech delivered to the International Seminar on the Sociology of Sport, Macolin, Switzerland, September 7-13, 1969, pp. 7, 10-11.

1970, has the lowest rating not only in this region, but in the Continental United States as a whole. Maryland is followed by New Jersey; 0.62, New York; 0.72, Delaware; 0.76, and Virginia; 0.89, to complete the five-state core area. Pennsylvania, 0.97, is the only state in the region that has a golfing facility rate approaching the national "norm." This area represents the core region of American golf development, and it features some of the oldest courses in the United States. Even though the historical advantage lies with the region, it has not developed facilities at the rate that other sections of the United States have. The competition for land in an urban or densely populated area may be so great as to exclude the establishment of golfing facilities or other such outdoor recreational facilities requiring large amounts of open space.

J. H. von Thünen's theory of Economic Rent may underlie the question of the lack of available numbers of golfing facilities in the Northeast region. Von Thünen developed his theory based on agricultural products, but it is also applicable to a wide range of situations. Basically, the theory of economic rent is based on the premise that

...the areal distribution of crops and livestock and types of farming depends upon competition between products and farming systems for the use of any particular plot of land. On any specified piece of land, the enterprise which yields the highest net return will be conducted and competing enterprises will be relegated to other plots.¹⁷

The "highest return" that von Thünen considered was a monetary return

¹⁷Chisholm, pp. 34-36.

over and above the monetary expenses incurred.¹⁸ Thus, it follows that since the monetary return from a golfing facility is not that of the monetary return gained from such economic pursuits as; industrial development, housing construction, and agricultural expansion, that golfing facility development is relegated to a low priority position in the Northeastern region. Golfers in this region have been reported to arrive at the course as early as five hours before dawn, and those who arrive as late as 7:00 a.m. on weekends face waiting periods of up to five hours on the public courses.¹⁹

Howard J. Nelson in "A Service Classification of American Cities," identified the Northeastern region as the core area of manufacturing in the United States. Five-sixths of the cities classified as manufacturing centers by Nelson are located in the Northeastern region. On the other hand, very few retail trade centers are found in the area. The majority of the retail trade centers are located in a belt between the Rocky Mountains and the Mississippi River (the Plains region).²⁰ It should be remembered that manufacturing centers are characterized by providing lower order central place functions than retail trade centers which generally provide high order central place functions and as such are more conducive to golfing facility development.

¹⁸ Ibid.

¹⁹ The Captain's Golf Course Guide, p. 60.

²⁰ Howard J. Nelson, "A Service Classification of American Cities," Economic Geography, XXXI (July, 1955), p. 196.

Statistical Analysis of Data

In the preceding section certain possible associations between golfing facility development and such phenomena as; population density, settlement pattern, urbanization, and climate were implied. In order to substantiate the implied associations, Spearman's Rank Correlation method was used to test for association.²¹ The significance levels of the correlation coefficients of the socio-economic variables tested for the years 1931, 1960 and 1970 are contained in Table III. The 1960 analysis is the most complete and contains the comparisons of facilities against six independent variables.²² Significant correlations were found to exist between golfing facility development and population density and average weekly hours worked (as an indicator of leisure time). It is significant that the correlation between facility development and population density is negative; indicating a direct correlation between low population levels and high per capita golf facility development. Thus, the previous recognitions of the Plains States as a major golf facility region, and the North and Northeast as a deficit region gain some credence.

A comparison of correlation coefficients for the years 1931-1970 demonstrate the temporal trends in golfing facility development that have taken place since 1931. Strengthening associations exist between golfing facility development and three variables; percent of the

²¹ Spearman's Rank Correlation method was selected as the appropriate association test technique since it was felt that it would be an adequate and efficient test considering the scale of data used.

²² Analyses for the years 1931 and 1970 do not contain the total set of six variables due to Census definition and reporting changes between 1931 and 1970 and due to the incompleteness, to date, of the 1970 Census.

TABLE III
 SPEARMAN'S CORRELATIONS OF SOCIO-ECONOMIC VARIABLES

VARIABLE	SIGNIFICANCE LEVEL			
	1931	.05	.01	Not Significant At Either .01 or .05 Level
Population Density			-0.43	
Percent Population Change				-0.18
Percent Urban				0.11
Percent Employed in the Professions			0.49	
1960				
Population Density			-0.38	
Percent Population Change				-0.20
Percent Urban				-0.21
Percent Employed in the Professions				-0.02
Average Weekly Hours Worked	0.3139			
Average Number of Days of Precipitation				-0.14
1970				
Population Density			-0.53	
Percent of Population Change			-0.41	
Percent Urban			-0.50	

population that is classified as urban, population density, and percent of population change (as an indicator of population stability). In 1931 only population density was significant, but by 1970 each of the three variables was significant at the .01 level (Table III). The negative correlation coefficients for these variables support the

position that high per capita facility development is a function of low population density rates, stable population bases, and low degrees of urbanization.

There were two variables tested (percent of the population employed in the professional work category and average yearly number of days with precipitation) that were not significant at either the .01 or .05 level. The absence of a significant correlation between golfing facility development and percent of the population employed in the professional work category (1960 Census definition) helps to illustrate the position that golf is changing from a sport reserved for the wealthy to a sport that people in other social levels can financially afford to participate in. The lack of a significant correlation for average yearly number of days with precipitation suggests that there is little relationship between a region's climate and the development of golfing facilities. Some states (California; 0.67, Texas; 0.89, and Louisiana; 0.61) with mild climates have low per capita golf facility rates, while other states (North Dakota; 2.87, Vermont; 2.60, and Wyoming; 2.46) with considerably more variable and harsh climates have high per capita facility rates.

Since no single variable proved to be a satisfactory explanation of golfing facility development on the national level, multiple correlation analysis was performed to determine if possible combinations of variables would prove more satisfactory (Table IV). The resulting multiple correlation coefficients, while accounting for more of the variance in golfing facility establishment, still explained only a small amount of the variance in golfing facility development at the state level ($R_{1960} = 0.43$, $R_{1970} = 0.63$).

TABLE IV
 MULTIPLE CORRELATIONS MATRIX*

1960 Data	Golf Facilities	% Employed in the Professions	Average Weekly Hours Worked	Population Density
Golf Facilities	1.00	-0.02	0.31	-0.38
% employed in the professions		1.00	-0.12	0.002
Average Weekly hours worked			1.00	-0.34
Population Density				1.00

$$R_{1960} = 0.43$$

1970 Data	Golf Facilities	% Urban	Population Density	Population Change
Golf Facilities	1.00	-0.50	-0.53	-0.41
% Urban		1.00	0.48	0.56
Population Density			1.00	0.23
Population Change				1.00

$$R_{1970} = 0.63$$

*Multiple correlation coefficient given below each table.

CHAPTER IV

SUMMARY AND CONCLUSIONS

The first permanent golf club in the United States was founded on November 4, 1888, by John Reid at Yonkers, New York. Since that time golf has evolved from a sport played by the wealthy to a sport participated in by over 10,000,000 Americans each year. In 1888 there was only one golfing facility in the United States. By 1900 there were over 1,000 golfing facilities in operation, and by 1970 the number had increased to over 10,000.

Spatial variations were found to exist in the development of golfing facilities throughout the United States. Two deficit facility regions (the Deep South and the highly urbanized and industrialized states of the North and Northeast), and three regions with more golfing facilities than their populations would warrant (the Plains States, the resort area of the East and Southeast, and the resort area of the West and Southwest) were found to exist. Differences in the establishment of and the emphasis placed upon facility development were found to be associated with certain variables, but no single variable or combination of variables tested proved to be a satisfactory explanation of facility development at the national level. Functional relationships were surmised to exist between golfing facility development and population density, urbanization, and percent of population change. No significant relationships were found to exist between golfing facility

development and such variables as: percent of the population employed in the professional work category and climate.

Geographers in the past have investigated many facets of society and culture, but a void has been left due to their neglect of sports, and the effect of sport on the landscape. It is hoped that this study, broad and brief as it is, will add to the meager body of sports geography literature that is available today and that is forming the base for a more detailed geographical investigation and analysis.

This study should in no way be considered the only necessary geographical work on golf and golfing facilities. This study is meant to be an introduction to the problem and not a summation of it. Further research needs to be carried out on a cross-scale nature concerning the effect of golf and golfing facility development on the landscape. There is also a need for geographical research into the effects of the golf course on land and housing values, the golf course as a multi-use open space recreational facility, and the economic impact of golf on place to mention only a few.

In order to improve this and subsequent geographical studies on golf and golfing facilities there is a need for improved data. To date the only data available for geographical investigation is at the state level, and this scale is inappropriate for more detailed study. It is necessary that data be collected on both the county and the city level to complement state data that is presently available. Historical information on individual golf facilities is also necessary in order to study the diffusion of golf and golfing facilities in the United States. It seems appropriate that a data bank be established to collect and maintain data not only on golf, but on other sports

and sporting facilities as well. Geographers can no longer afford to neglect the vital role that sport plays on the culture of a people and their landscape.

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APPENDIX

TABLE V
1931--STATE PRODUCTION OF GOLFING FACILITIES

STATE	NUMBER OF COURSES	PER CAPITA RATE (1.00 = NORM)	STATE	NUMBER OF COURSES	PER CAPITA RATE (1.00 = NORM)
New Hampshire	73	3.40	New Mexico	25	1.28
Florida	182	2.68	Washington	92	1.27
Kansas	225	2.59	Indiana	188	1.26
Vermont	41	2.47	Wyoming	13	1.25
Nebraska	145	2.28	Massachusetts	222	1.13
South Dakota	72	2.25	Illinois	385	1.09
North Dakota	66	2.10	California	276	1.05
Maine	76	2.07	Texas	275	1.02
Iowa	220	1.93	Rhode Island	32	1.00
Montana	43	1.73	Oklahoma	103	0.93
Nevada	7	1.67	Delaware	10	0.91
Wisconsin	211	1.55	Ohio	272	0.89
Oregon	66	1.50	New York	452	0.78
Arizona	28	1.39	Virginia	87	0.78
Michigan	298	1.33	New Jersey	143	0.77
Colorado	63	1.32	Missouri	127	0.76
Connecticut	97	1.31	Maryland & Washington D.C.	71	0.73

TABLE V (Continued)

STATE	NUMBER OF COURSES	PER CAPITA RATE (1.00 = NORM)	STATE	NUMBER OF COURSES	PER CAPITA RATE (1.00 = NORM)
Idaho	27	1.31	Arkansas	52	0.61
Minnesota	152	1.28	Pennsylvania	263	0.59
North Carolina	83	0.57	Mississippi	42	0.45
Georgia	75	0.56	Louisiana	43	0.44
Tennessee	66	0.55	Utah	10	0.43
Kentucky	63	0.52	Alabama	50	0.41
West Virginia	41	0.51	Alaska	0	0.00
South Carolina	38	0.47	Hawaii	0	0.00

TABLE VI

1960--STATE PRODUCTION OF GOLFING FACILITIES

STATE	NUMBER OF COURSES	PER CAPITA RATE 1.00 = U.S. PER CAPITA RATE (NORM)	STATE	NUMBER OF COURSES	PER CAPITA RATE 1.00 = U.S. PER CAPITA RATE (NORM)
North Dakota	67	2.98	Colorado	68	1.09
New Hampshire	60	2.78	Michigan	304	1.09
Vermont	38	2.73	Florida	192	1.09
South Dakota	64	2.63	Indiana	179	1.08
Wyoming	30	2.54	Hawaii	24	1.07
Maine	70	2.03	Arizona	42	1.06
Kansas	155	2.00	Oregon	64	1.02
Montana	45	1.86	Washington	101	1.00
Iowa	178	1.81	Delaware	16	1.00
Nebraska	90	1.79	North Carolina	162	1.00
Nevada	17	1.67	Ohio	341	0.99
Idaho	36	1.51	Missouri	150	0.98
Minnesota	177	1.46	West Virginia	65	0.98
Oklahoma	116	1.40	Texas	328	0.96
Wisconsin	196	1.39	Virginia	135	0.96
Connecticut	113	1.25	Illinois	342	0.95
New Mexico	42	1.24	South Carolina	79	0.94
Rhode Island	38	1.24	Pennsylvania	372	0.92

TABLE VI (Continued)

STATE	NUMBER OF COURSES	PER CAPITA RATE 1.00 = U.S. PER CAPITA RATE (NORM)	STATE	NUMBER OF COURSES	PER CAPITA RATE 1.00 = U.S. PER CAPITA RATE (NORM)
Massachusetts	222	1.21	Arkansas	58	0.91
Georgia	125	0.89	Mississippi	55	0.71
Kentucky	89	0.82	New Jersey	149	0.69
Utah	25	0.79	California	378	0.68
New York	453	0.76	Maryland & Washington D.C.	85	0.62
Alabama	85	0.73	Louisiana	64	0.55
Tennessee	92	0.72	Alaska	2	0.25

TABLE VII

1970--STATE PRODUCTION OF GOLFING FACILITIES

STATE	NUMBER OF COURSES	PER CAPITA RATE 1.00 = U.S. PER CAPITA RATE (NORM)	STATE	NUMBER OF COURSES	PER CAPITA RATE 1.00 = U.S. PER CAPITA RATE (NORM)
North Dakota	89	2.87	Oregon	122	1.16
South Dakota	93	2.78	Arizona	101	1.14
Vermont	58	2.60	Florida	386	1.14
Wyoming	41	2.46	Indiana	293	1.13
New Hampshire	83	2.24	Arkansas	108	1.12
Nebraska	163	2.19	Kentucky	180	1.12
Iowa	289	2.04	Oklahoma	143	1.11
Maine	100	2.00	Connecticut	166	1.09
Kansas	226	2.00	Massachusetts	304	1.07
Idaho	58	1.62	Rhode Island	51	1.07
Montana	56	1.61	Michigan	477	1.07
Minnesota	264	1.57	Washington	179	1.05
Nevada	32	1.31	Ohio	539	1.01
North Carolina	319	1.25	Colorado	108	0.98
South Carolina	160	1.23	Hawaii	38	0.98
New Mexico	61	1.20	Pennsylvania	576	0.97
West Virginia	105	1.20	Georgia	221	0.96
Wisconsin	299	1.19	Mississippi	106	0.95

TABLE VII (Continued)

STATE	NUMBER OF COURSES	PER CAPITA RATE 1.00 = U.S. PER CAPITA RATE (NORM)	STATE	NUMBER OF COURSES	PER CAPITA RATE 1.00 = U.S. PER CAPITA RATE (NORM)
Utah	62	1.17	Missouri	214	0.91
Alabama	156	0.90	New York	653	0.72
Texas	499	0.89	California	673	0.67
Virginia	208	0.89	New Jersey	224	0.62
Illinois	475	0.85	Louisiana	111	0.61
Tennessee	165	0.84	Maryland & Washington D.C.	130	0.55
Delaware	21	0.76	Alaska	3	0.20

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