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THE NORTHEASTERN ILLINOIS DAIRY REGION

by
George C. De Long

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ABSTRACT

THE NORTHEASTERN ILLINOIS DAIRY REGION

by George C. De Long

The purpose of this study is to elaborate the physical and cultural factors in the establishment and continuation of the highly concentrated dairy nucleus northwest of Chicago. Whereas sizeable quantities of milk are obtained from other sections of the Chicago Milk Shed, the Northeastern Illinois Dairy Region represents the portion from which the greatest amount is derived. It is also the area which devotes the greatest amount of its agricultural resources to the paramount objective of supplying the Chicago Metropolitan Area with a continuous and reliable supply of milk daily. The irregular shape of the area is economically determined: the Region is composed of the thirty-four contiguous townships that obtained 50% or more of their farm income from the sale of milk in 1944.

Several procedures were used in developing the study and its conclusions. Unpublished 1945 Census of Agriculture data were used, first in determining the Regional boundaries and later as the bases for the construction of numerous maps, tables, and textual materials. Additional data were obtained from other censuses as well as other sources. Although much of the Region was already well known to the author, he made many additional traverses in order to cover the area thoroughly, to become generally acquainted with the physical and cultural aspects, and to take many photos. Then detailed field studies were made in selected places in all seasons of the year, historical information was collected, county agents were consulted, interregional contrasts were observed, and the complex marketing regulations were investigated.

Chapter I is the Introduction. Chapter II is devoted to the physical side of the geographic equation. The gifts of the glacier--numerous moraines, till plains, swamps, and lakes, which overshadow the more level outwashes and lake plains--are potent factors in the utilization of the land. The climate, soils, and even the vegetations of the Region preclude the corn-hog combination of the Corn Belt and favor permanent and rotation pastures, hays, and corn used as silage.

Chapter III is concerned with the utility and production of the farmland, historical changes in its economy, cultural factors in the dairy concentration, marketing the milk, and nonagricultural occupations. Isopleth and dot maps as well as tables and photographs are

used to illustrate the importance of milk production and both its dependent and allied economies. Five selected land type areas are compared by the use of aerial photographs, soils maps, and land ownership maps, and from them general land use maps have been devised.

The conclusions are: (1) The physical setting is highly favorable to the production of milk and less favorable to field crops, (2) The cultural appearances and activities of the Region attest the prime importance of the production and marketing of milk to the exclusion of other uses, (3) The proximity and purchasing power of Chicagoland's millions and the price structure favoring nearness to the city combine to make the most important factor in promoting the Region.

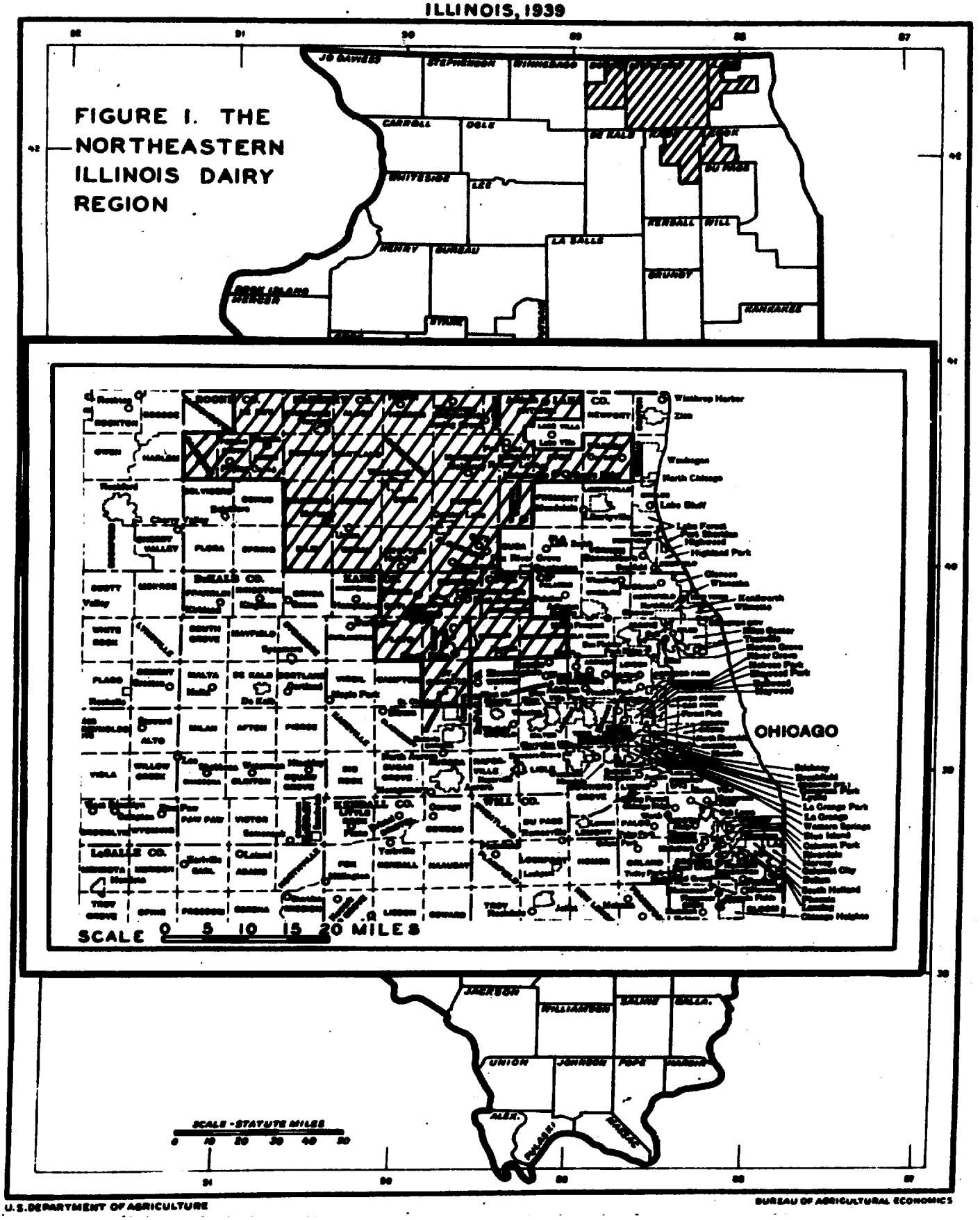


FIGURE 1. THE NORTHEASTERN ILLINOIS DAIRY REGION

FRONTISPIECE

PREFACE

Having been born and reared in the heart of the Corn Belt in central Illinois, I was always interested in observing the greater apparent prosperity of the dairy areas of northern Illinois and parts of Wisconsin. Traversing the areas many times, I obtained the reason for this continuous prosperity, in part, from my paternal grandfather. He maintained that it was a more steady and reliable income, during the winter as well as during the growing season, year after year, that enabled dairy farmers to maintain their buildings in better condition than those of the cash grain farmers of the inherently richer Corn Belt.

It was the growing realization that there are many other factors besides these that are responsible for dairy concentration--cultural and physical, geological and historical factors--that led to a wider personal interest in the production of milk and its products. Knowledge of concentration of cheese in Wisconsin and the localization of certain types in particular led to a further pursuit of the reasons for the distribution of the various uses of milk. The years spent in our two largest metropolitan areas heightened interest in the problems of obtaining large quantities of fresh fluid milk.

It was with these constantly recurring questions and problems in mind that I turned to some phase of milk production as a choice for a dissertation. A study of the near-Chicago area, in fashion similar to those pursued by various geographers at the University of Wisconsin, seemed feasible. Application of the 1945 dairy statistics proved that there was a definite line of demarcation encircling Chicago and separating the inner zone where dairying was the source of greatest farm income from the outer zone where grain farming and beef cattle assumed greater importance than the production of fluid milk. It was the suggestion of Professor Charles M. Davis that this inner zone be further restricted in size and more intensively studied. As a result, the area set forth here, The Northeastern Illinois Dairy Region, is an irregularly shaped area of contiguous townships, west and northwest of Chicago, in which 50 percent or more of the farm income is derived from the sale of fluid milk for daily consumption in the Chicago Metropolitan Area.

Although many articles have been written on various phases of milk production affecting Chicago directly--in farm, trade, and occasionally geographic journals--data of specific geographic value are obtained chiefly through field work, by consultation with men associated with farming and dairying in particular, and through indirect publications, such as census data, the numerous University of Illinois and State publications, and various historical accounts.

Simultaneous with the perusal of published materials I traversed and re-traversed the area of concern many times in order to become generally well acquainted with it. As the patterns of distribution and utility became evident I consulted the farm advisers of the counties represented, chose representative localities for detailed observation, studied the atypical physical and cultural inclusions as well as the typical, and took many photos in all seasons, particularly in the growing season.

Since the portrayal of the economy of the Region necessitated the use of many statistics, their acquisition and translation into useful and frequently illustrative material was one of the most time-consuming tasks. In some cases 1940 census data were the last available; in other instances 1950 census information was obtained; but the majority of the agricultural figures, especially for minor civil divisions, were made available through the courtesy of University of Illinois Professor Charles Stewart, whose scores of photostated copies of unpublished 1945 Census of Agriculture figures were copied and used as bases. Some minor civil division data were obtained only by telephone or letter directly from the Census Bureau in Washington. Both the isopleth and dot maps, some of the tables, and much of the written materials were based on data from these several sources.

The problem of determining the dominant factors in the dairy concentration resolved only after both the

physical and cultural aspects of the Region were set forth. The intricate cultural ramifications pertinent to the continuation and growing intensification of dairying appear complex indeed--more so than even the still complex but less changeable physical aspects. While much space is devoted to the physical background in the dairy equation, greater emphases must be placed on the ever-changing activities of man as cumulative factors in the establishment of any intensive and areally concentrated occupation, such as milk production for the large Chicagoland population.

My thanks go to many persons and institutions for their aid in the collection of materials, for their advice, and for their suggestions in the writing of the paper. Special gratitude goes to Professor Kenneth C. McMurry, chairman of the Doctoral Committee, whose guidance and help were constant encouragements. Thanks go also to the other members of the Committee--Professors Charles M. Davis, Stanley D. Dodge, John W. Hyde, and Benjamin W. Wheeler--each of whom contributed time and suggestions in one form or another. Several persons in Urbana also gave timely aid in the early stages of research, and to them goes my gratefulness: the late Professor W. O. Blanchard, who gave many helpful suggestions; Professor Alfred W. Booth, whose dissertation covered the Region joining mine on the north; Professor Charles Stewart for his liberality in the use of his farm statistics; Doctor George E. Ekblaw for his help on several occasions on the geology of the Region; Professor

Mutti for dairy products statistics; Professor R. S. Smith for aid on soils; Professor J. Nelson Spaeth for aid on forestry; and Professor R. T. Odell. The University of Michigan, the University of Illinois, Michigan State College, Michigan State Normal College, Elgin City, Chicago Natural History Museum, and the Chicago Historical Society Libraries and librarians were of much help. Likewise the several county farm advisers, especially William Tammeus of Mc Henry County, gave valuable and frequent assistance.

George C. De Long.

Ypsilanti, Michigan.
September 15, 1952.

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THE NORTHEASTERN ILLINOIS DAIRY REGION

CHAPTER I. Introduction

A. The Area Defined

The Northeastern Illinois Dairy Region is located entirely within the Central Lowland of the United States, as delimited by Fenneman.[1] The western fifth of the Region is in the Till Plain Section of Illinois, while the remainder is in the Great Lakes Section.[2] The Region covers an area of 1,142.1 square miles (2% of Illinois), embracing all of Mc Henry County, parts of Boone County to the west, the northeastern part of Kane County on the south, and parts of Lake and Cook Counties on the eastern edge (Figure 1, Frontispiece). The maximum east-west width is 55 miles; the north-south extent is 42 miles.

Inasmuch as the criterion of delimitation is economic, the irregular boundary follows township lines. The boundary is drawn to include the thirty-four contiguous townships of northeastern Illinois in which dairying accounted for fifty percent or more of the farm income in

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[1] N.M. Fenneman, Physiography of Eastern United States (New York: Mc Graw-Hill, 1938), chap. ix and Pl. iv.

[2] M. M. Leighton, George E. Ekblaw, and Leland Horberg, Physiographic Divisions of Illinois (Urbana: State Geological Survey, 1948), p. 18.

1945.[1] The Region is thus smaller than the area in which dairying is merely the chief source of income. Certain detached townships of the northeastern part of the state that had fifty percent or more of their income from dairying are excluded because they are "outliers".

Late Wisconsin glaciation is evident over most of the area, although in the western part of the Region older drift was the last deposited. Over certain parts of the Region deposits of loess appear in roadcuts or as mantles over fields, giving a yellowish cast to the topsoil, which is thus superimposed over the drift. Physically, the entire Region is complicated by its varied glacial deposits, which include the types common to glaciation--moraines, till plains, lake plains, and outwash plains.

The relief of the Region varies from less than ten feet per mile to over 200 feet per mile, where the Fox River has cut deeply into the drift. Relief is an important factor in the utilization of the land. Generally, only relatively small areas are level enough for extensive grain farming, while much of the land lends itself to dairy farming. The terrain varies from a level to a steeply rolling or rough nature. Most of it is gently rolling (undulating) to rolling. A few notably flat areas occur.

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[1]United States Bureau of the Census, United States Census of Agriculture, 1945. Illinois, Vol. I, Pt. 5 (Washington: Government Printing Office, 1946), pp. 1-185. Many of these data were obtainable only through direct communications with the Census Bureau in Washington or through the courtesy of Professor Charles Stewart of the Department of Agriculture, University of Illinois, Urbana.

The drainage pattern of the Region is largely dendritic, usually consequent in type (Figure 2). Most of the drainage is into the Fox River on the east or into the Kishwaukee and ultimately into the Rock River on the west. The very eastern part, however, drains into the Des Plaines. The general slope of the land is thus southward, westward, or eastward.

Within the Region is the only extensive lake area of Illinois. Most of the lakes appear in depressions of the Valparaiso Moraine in western and northwestern Lake County, though they extend over into contiguous eastern Mc Henry County. In the latter case there is frequent impounding on relatively level ground moraines in deep peaty soils.

Despite a mean annual precipitation averaging 33 inches throughout the Region and the presence of numerous lakes and streams, the total water surface of the Region is only 18.7 square miles, or 1.7% of its area.[1] Summer is the period of maximum precipitation, much of which is convectional. However, since it is located on the northern edge of the Humid Continental Climate, long-summer phase, it receives a larger proportion of its precipitation in the form of prolonged and effective rains and winter snows than is true of the Corn Belt further south.

The indigenous vegetation of much of the Region was forest, predominantly of oak and hickory. Considerable

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[1]Computed from Census data.

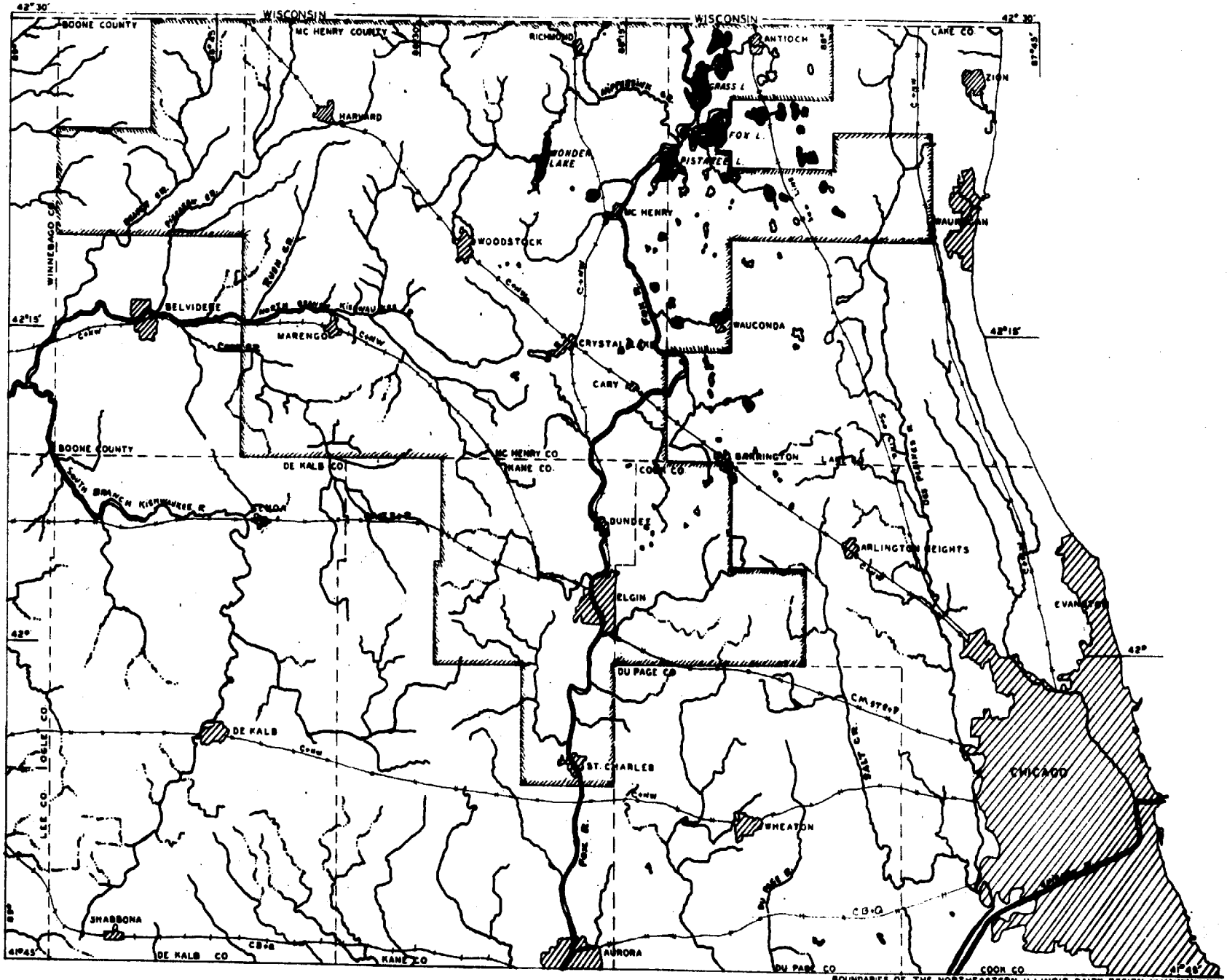


FIGURE 2. DRAINAGE OF NORTHEASTERN ILLINOIS

areas of forest still remain, though most of them are second growth. Many parts of the Region have been permanently deforested and devoted to farming practices. In some portions of the Region, however, trees never gained a foothold, but prairies dominated instead. The original vegetational picture has changed considerably through man's activities, either through the removal of forest, or the planting of trees to line highways or as dividers of fields, or through the application of conservation methods of one sort or another.

Because of the recency of glaciation, the soils of the Region are immature. Likewise, the promiscuous nature of glacial deposition has been responsible in part for the great variety of soils that occurs. Throughout most of the area an average farm frequently includes a motley variety of soils, varying from mucky or peaty soils in the lowlands to a good silty or clay loam at higher elevations. However, there are distinct areas of good soils and those of poor soils. In the past few years conservational practices have stressed better use of the various soils in contrast to the stress upon either accessibility or slope alone.

In addition to census statistics, the prime importance of dairying in the Region is attested by the cultural appearance. Large bank barns and silos, ubiquitous herds of dairy cows, hay fields and forage crops, milk trucks and dairies are prevalent aspects of the landscape.

In the more level parts of the southwestern edge of the Region field crops and beef cattle assume importance. The raising of poultry is significant throughout, but especially along the eastern edge, partially in response to proximity to Chicago. Among other important activities is resorting in the Lake District. Practically every little town has some kind of manufacturing industry or at least a milk plant. Elgin, the largest city within the Region, has a great variety of manufacturing, some of it reflecting dairy concentration. At one time the city was considered the chief butter center of the nation and was the source of national butter quotations.[1]

Population densities are greatest in the southeastern corner of the Region and become progressively less toward the north and northwest. The Fox River Valley from St. Charles to Algonquin has the heaviest density, while the southwestern part of Mc Henry County and adjacent Boone County have the least density. Although there is considerable variation in their sizes, towns have been fairly evenly dispersed throughout the Region. The last decade, however, has brought about the establishment of numerous new concentrations, particularly in Lake County.[2] Farm distri-

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[1]Elgin Association of Commerce, Elgin Illinois Buyers Guide (Elgin, Illinois), p. 28.

[2]Wherever a county is cited it automatically refers to the portions of that county that are within the Region, unless otherwise stated. All of Mc Henry County is in the Region.

bution and sizes vary according to slope, soil, vegetation, and accessibility, and thus farm populations and densities show considerable local variations. While the majority of farmers are native American, they are usually of North European stock, with local enclaves of Germans and Scandinavians appearing.

Farm appearances in the Region are far above the national average; they give an impression of greater prosperity than even the Corn Belt, despite the latter's better soils. This apparent prosperity is partly unreal in that much capital has been invested in farms by Chicagoans who want to dabble in farms either as real estate or as income property. On the other hand, it is quite real in that the proximity of a good market has long provided a relatively good and steady income year in and year out to the farmers of the Region, while non-dairy farming has been more often subject to adverse fluctuations in income.

The Region is well served with communications. The highway and rail networks are closely spaced and adequate in most places. Railroads are distinctly a part of the radial system centering on Chicago as the hub. The highway pattern is similar, but there are also lesser nodes, such as Woodstock, Elgin, Dundee, and Antioch, which are within the Region itself. Many north-south and east-west roads, of various classifications, intersect this radial pattern.

B. Objectives of the Paper

The objectives of this dissertation are two-fold:

1. To present the physical and cultural aspects of the chorographic area, which is treated as a region;

2. To state the factors in the concentration of dairying in the Region.

CHAPTER II. The Physical Features

A. Topography

With the exception of minor postglacial sculpturing and alluvial deposition, the addition of loess in some places, and man-made changes, the irregular surface of the Northeastern Illinois Dairy Region is the result of Pleistocene glaciation. The depth of the drift varies from a few feet where the bedrock comes close to the surface west of Marengo to almost 350 feet in several places. The average is approximately 150 feet. The greatest depths occur either where the preglacial surface was lowest or where the deepest (highest) moraines developed. The greatest absolute depth occurs in Le Roy Township, Boone County, where a minor northeast-southwest preglacial trough of less than 550 feet elevation was thickly mantled by the White Rock Moraine to a height of 966 feet at its crest.[1]

1. Glacial Features

The most prominent features of the surface are the several moraines. These trend, in accordance with the successive stages of glaciation, in a north-south, northeast-

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[1]Leland Horberg, Bedrock Topography of Illinois. Geological Survey Bulletin No. 73 (Urbana: State Geological Survey, 1950), pp. 24-29 and Pl. i, sheet 1. Data were also computed with the aid of the various topographic sheets covering the Region.

southwest, or northwest-southeast direction. Some of them are extremely distinct ridges, bordered by flat or nearly flat till plains or outwash plains. Others are less distinct, with a more subdued character, merging less perceptibly into plains. One is partially submerged, only its relatively wide dissected summit areas giving evidence of its former stature. Now it is flanked by less-rolling till which has been deposited high up its original sides.

In the northwestern part of the Region, extending from the Wisconsin border southward along the Mc Henry-Boone County line, then swinging southwestward across Boone County, is the White Rock Moraine (Figure 3). This is the oldest moraine in the Region. West of it is Illinoisian Drift. Even east of this terminal moraine in scattered places Illinoisian appears at the surface. However, most of the Region is within the area of Wisconsin glaciation, and the pockets of Illinoisian east of White Rock Moraine are neither numerous nor large. The highest elevation of the moraine (in Illinois) is 1051 feet, which it attains in the northeastern part of Boone County. The moraine becomes progressively lower and narrower toward the south, and after swinging southwestward it dies out, becoming scarcely noticeable west of Belvidere (See Figure 3). This southwestern edge of the moraine forms the northwest periphery of the Belvidere Lobe, which is pre-Bloomington in age.

This moraine is rather mature in dissection. It is composed largely of fairly broad and gentle slopes.

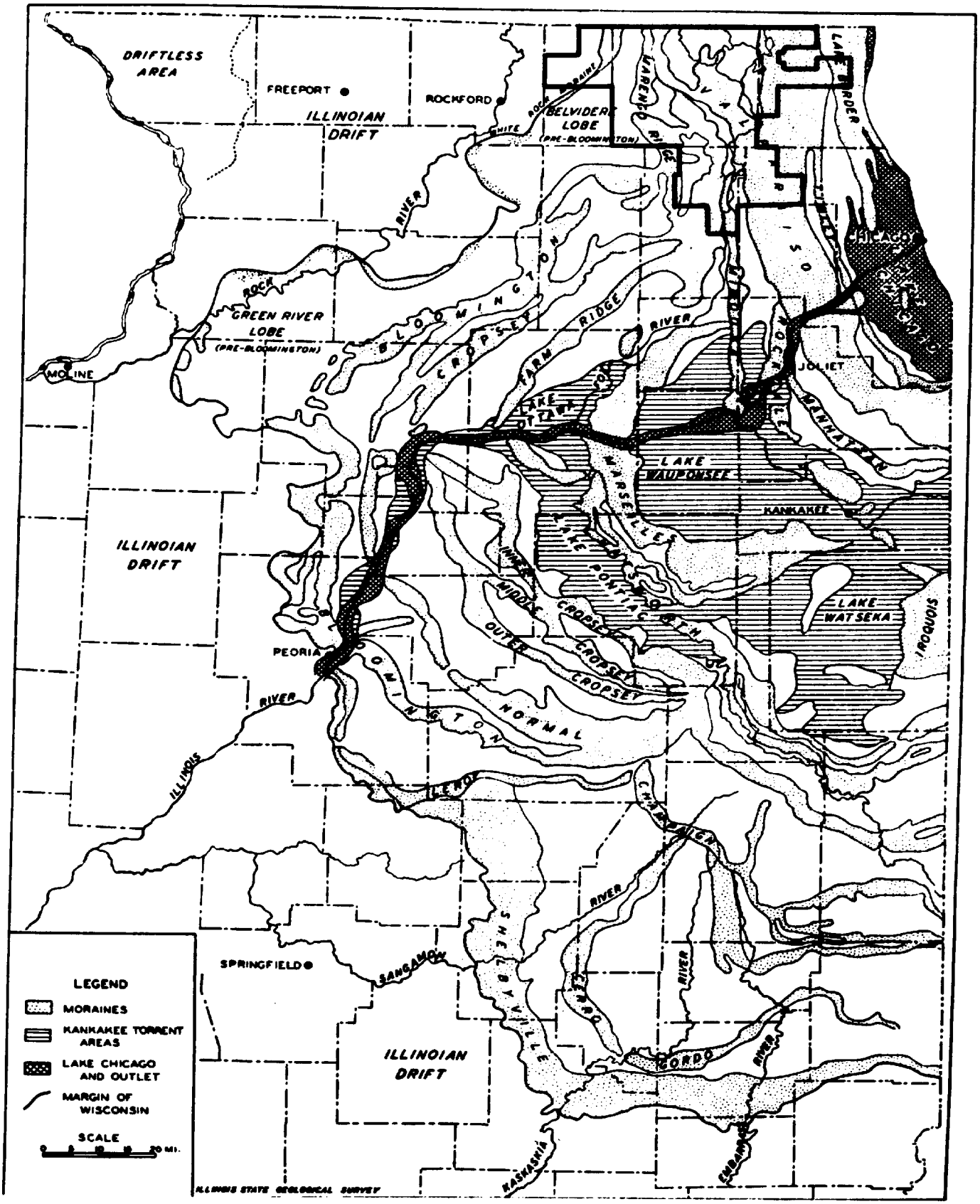


FIGURE 3. GLACIAL GEOLOGY IN NORTHEASTERN ILLINOIS
--Compiled by George E. Ekblaw, State Geological Survey

Kames and kettles are unusual, good ones being rare. From Beaver Creek on the west the slope of the moraine increases gradually, while the eastern edge is more abrupt. Local relief on the western side of the moraine varies from 40 to 60 feet, while the eastern side varies from 60 to 100 feet from base to crest. Marshes are numerous, both on the sides of the moraine and on the upland. One of them almost bisects the moraine, trending two and a half miles across it northwest of the town of Chemung.

As it is bordered throughout much of its length by either level or gently rolling till plains or outwash plains, the most prominent of all the moraines is Marengo Ridge (Figure 4). The Ridge averages three to three and a half miles in width, but broadens to five miles just north of Marengo. Like the White Rock Moraine, it continues into Illinois from Wisconsin, maintaining a southerly trend to the town of Marengo, and then turning southeastward it joins the Bloomington and Cropsey Moraines. It is the same age as the Bloomington Moraine.

Although there are two small east-west depressions in the northern part of the Ridge, there is a notably wide gap further south where the Kishwaukee River traverses it just north of the town of Marengo. This two-mile breach in the Ridge was caused during Bloomington deposition by a torrent which eroded deeply the weakest point in its path. This outwash channel has been eroded further by the Kishwaukee, which now winds through the lowest parts of it in

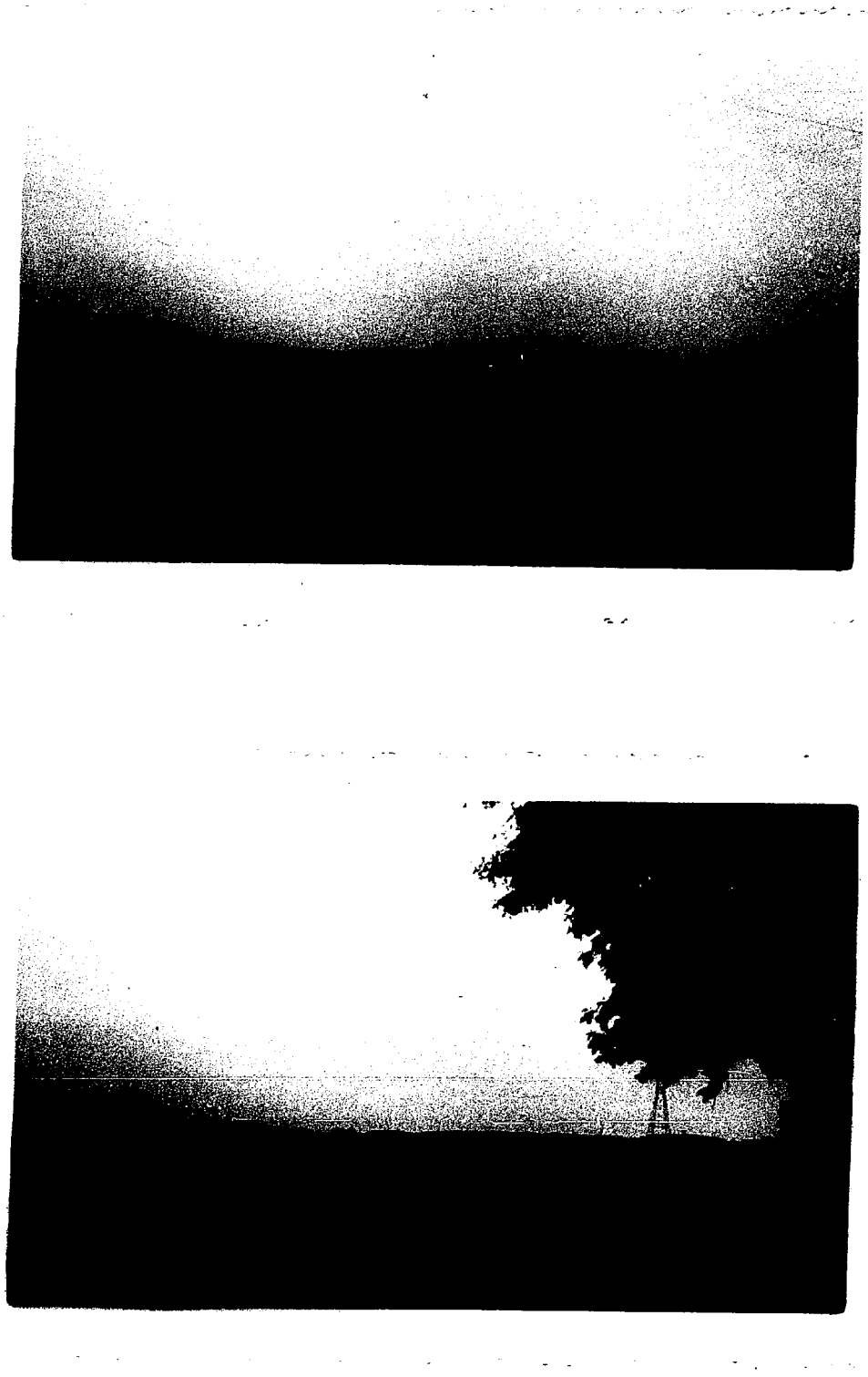


FIGURE 4. MARENGO RIDGE IN THE DISTANCE

its course to the Rock River.

Because of its more recent deposition, Marengo Ridge is not as maturely dissected as White Rock Moraine, despite the fact that its original summits are now relatively few and small. The greatest relief as well as the greatest altitude occurs near the Wisconsin border, while the entire moraine becomes less impressive southward (Figure 5). The slopes of the Ridge have as much as 120 feet relief per mile. Whereas marshes are not absent, drainage is generally good. Kame-and-kettle topography is not common.

The Valparaiso Moraine, which is more properly considered the Valparaiso Morainic System, covers almost a third of the Region. It extends northward into Wisconsin and southeastward around the head of Lake Michigan as one of the most extensive of all the morainic deposits in the country. This broad and complicated moraine, with its myriad kames, kettles, and long-quarried gravel pits, lacks the continuous ridgelike character of Marengo Ridge, except in sections. Instead, it is frequently a hodgepodge of irregularly deposited materials of many sorts, stratified and unstratified, with poor drainage, relatively small relief averaging 40 to 60 feet per mile, and an abundance of swells and swales of undulating to rolling topography. In a few places gradients become steep. Where this occurs, it is less the result of actual glacial deposition than of glacial or interglacial stream erosion, or the presence of

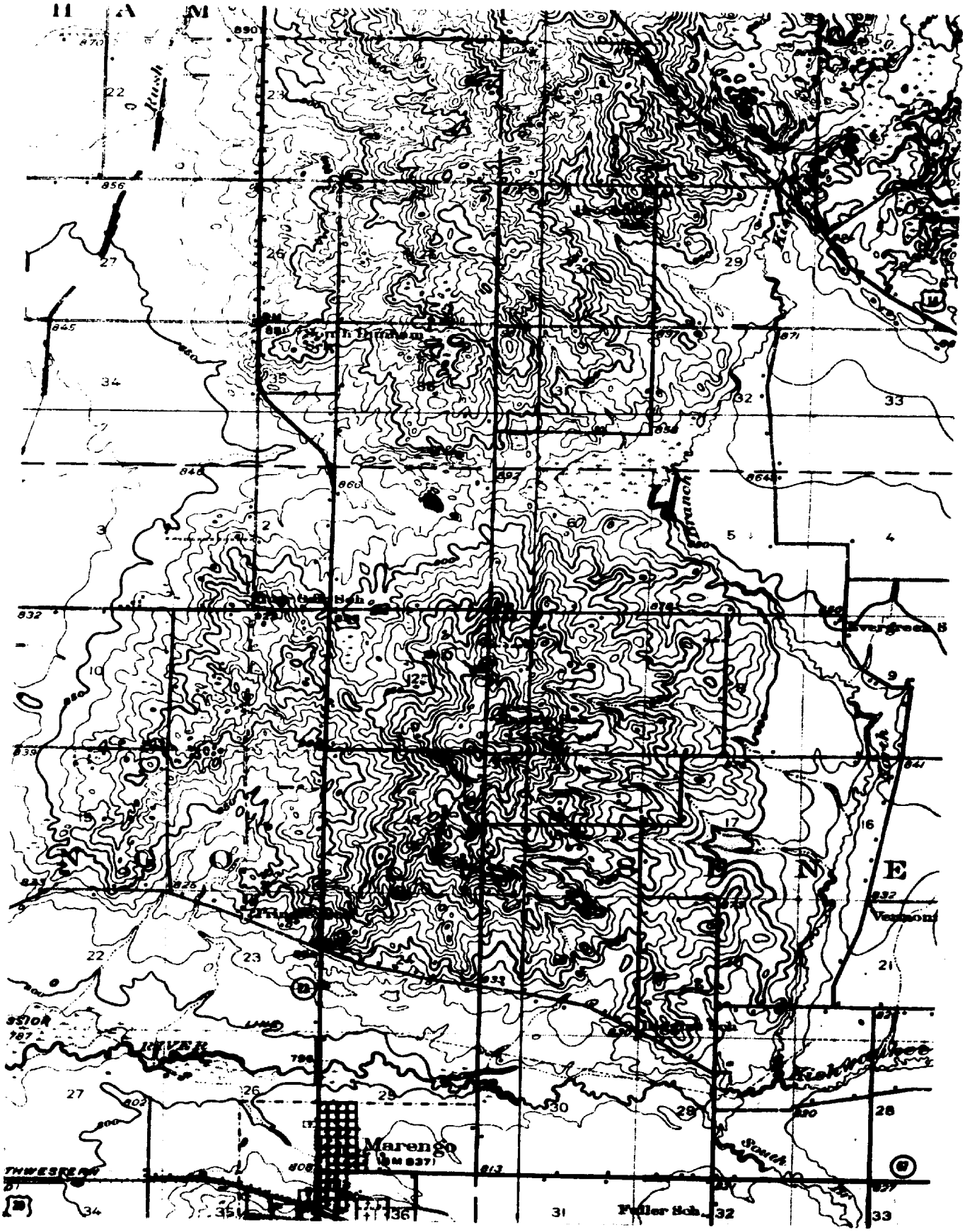


FIGURE 5. A PORTION OF THE HARVARD QUADRANGLE, INCLUDING MARENGO RIDGE. THE SCALE IS 1:62,500; THE CONTOUR INTERVAL IS 10 FEET

glacial spillways, or both. The greatest slopes are found flanking the long former channel of the Fox River (now occupied in part by Nippersink and Boone Creeks) that extends from northeast of Richmond, south-southwestward between Mc Henry and Woodstock, and then in a series of loops eastward to the present Fox River. The bluffs are 140 to 150 feet high.

The Valparaiso System in the Cook County portion of the Region is composed largely of gently rolling swells and swales, with many marshes and some lakes in the more extensive depressions. Only two permanent streams, Spring Creek and Poplar Creek, both dredged, cross the three townships represented. They flow respectively northward and westward into the Fox River, in neither case providing adequate drainage for the areas traversed.

In Lake County local relief becomes somewhat greater than in Cook County, and hills and depressions are less regular in height, shape, and size. Lakes cover 8% of the area and marshes 12% more. These lakes are the result of the filling of depressions caused by melting blocks of stagnant ice within the retreating glacier (Cary Substage).[1]

Atwood, in referring to the composition of the drift in the Evanston-Waukegan Region and adjoining Valparaiso Moraine to the west, says,

> When the ice had moved far and when there were frequent changes in the character of the rock

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[1]Leighton, et. al., Op. Cit., p. 23.

> constituting its bed, the variety of materials in the drift is great. The heterogeneity of the drift arises from the diverse nature of the rocks which contributed to its lithological heterogeneity--a term which implies the commingling of materials derived from different rock formations. Thus it is common to find pieces of sandstone, limestone, quartzite, granite, gneiss, and schist intimately commingled in the drift, wherever the ice which produced it passed over formations of the several sorts of rock. Lithological heterogeneity is one of the notable characteristics of glacial formations.[1]

In the local drift Atwood listed the following representative stones and pebbles (frequently striated); red, yellow, brown, and mottled sandstones; red quartzite; conglomerate; white and fossiliferous limestones; finely crystalline marbles; soft shale and hard slate; red and gray granites; diorite, syenite, gabbro, basalt; gneiss and schist; quartz and jasper; flint; chert; and pyrite. About 90% of the stones are of the Niagara limestone base, while the remaining 10% are foreign to Illinois, having been transported from greater distances.

The largest of the moraines in the Valparaiso System is the West Chicago. Its southern terminus begins between the East and West Branches of the Du Page River east of Aurora. It continues northward into the Region as the western part of the System to a point just north of Algonquin, then swings northwestward past Woodstock and then northward along the eastern side of Marengo Ridge. Thus it both parallels and overlaps the older Ridge for

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[1] W. W. Atwood, Physical Geography of the Evanston-Waukegan Region (Urbana: State Geological Survey, 1908), pp. 17ff.

some miles before entering Wisconsin.[1] From Woodstock northward it is full of kames and kettles, presenting one of the most minutely dissected parts of the Region, and averaging only two to three miles in width. Between Mc Henry and Woodstock a somewhat wider projection extends into the Hebron-Richmond Till Plain, past the town of Greenwood.

Lesser, more local moraines represented within the Valparaiso System are the Cary, Fox Lake, and a portion of the Lake Zurich. A small part of both the Tinley and Lake Border Moraines east of the Valparaiso System are also within the Region.

The small Minooka Moraine, which predates the Valparaiso System as the first local moraine of the Cary Substage, is situated first on the west bank and then on the east bank of the Fox River from just south of Dundee southward past the bounds of the Region. On it are located the upper level of Elgin, most of Fox River Heights, and the "upland" east of St. Charles.

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[1] At the stage of glaciation represented here the glacier re-advanced, partially covered the eastern flank of Marengo Ridge, sheared off the top of a pre-West Chicago Moraine to the east, partly buried it, and deposited a relatively thin layer of drift over it as it retreated to form the remainder of the Valparaiso System. The buried moraine is part of the Marseilles Moraine, which was post-Marengo, but pre-West Chicago. Marseilles Moraine thus plunges northward under the West Chicago, which post-dates it, and now appears only as a stump of the former moraine north of Woodstock. Yet, despite its classification as a buried moraine, it has a local relief of 150 feet on its eastern margin. Its western side slopes gently into the West Chicago.

Between the southern part of Marengo Ridge on the west and the West Chicago and Minooka Moraines on the east are Gilberts and Marseilles Moraines respectively. While Gilberts is local, Marseilles is an extensive one, deriving its name from the town of Marseilles in Ottawa County, where it is most pronounced. The two parallel each other from a point south of Woodstock southward. Marseilles is generally the wider of the two and overlaps the Gilberts throughout much of its length, so that the dividing line between the two is frequently difficult to trace. Marengo Ridge, followed by Gilberts and then Marseilles Moraine, represents the Tazewell Substage of Pleistocene Glaciation in the Region.

Almost as striking as the moraines are the intervening level or nearly level outwash and till plains of the Region. These vary in size from a few square miles to several townships. The largest are in northeastern Mc Henry County, in the western tier of townships of Mc Henry County, and in most of the Boone County area that is within the Region. Smaller plains appear in Kane County, but they are very limited in number and in size both in Cook and Lake Counties.

It is often difficult to determine just where outwash ends and till begins, inasmuch as the two frequently merge along irregular lines. This is true of the plain in Seneca and southern Hartland Townships, between Woodstock and Marengo. At variable depths below the surface

sand and gravel underlie the entire locality, except perhaps where swamp and bottomland soils extend deeply. This indicates that outwash during West Chicago deposition must have spread over the entire area involved after till was deposited. The surface mantle of 20 to 50 inches of finer material is usually simply the last stages of glaciofluvial deposition, though in some cases it may be postglacial alluvial materials including loess. There are numerous instances where stony or sandy soils appear at the surface.[1]

The extensive areas of outwash are referred to as terraces by the Soils Survey, and the soils are represented as terrace soils.[2] Thirty-three percent of the western half of Mc Henry County is composed of terrace soils and ten percent of the eastern half. There are also large areas of marsh and bottomland soils in the lowest areas and especially along streams, which are surrounded by terrace soils. Their position and drainage suggest that they too may have once had a veneer of glaciofluvial deposition, which has eroded away giving rise to better soils. In other cases, postglacial deposition of heterogeneous materials and subsequent decomposition of vegetable matter have resulted in characteristic bottomland soils which are often superimposed over outwash. Thus it appears that the most extensive of these bottomland areas are parts of the outwash

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[1]J. G. Mosier, et. al., Mc Henry County Soils; Soil Report No. 21 (Urbana: University of Illinois Agricultural Experiment Station, December, 1921), p. 3.

[2]Mosier, Ibid., pp. 3-9

plains. Actually, the classification of soils is not a completely reliable guide to glacial activities. For example, there is a long belt of loamy soils over gravel extending from just north of Elgin along the west bank of the Fox to the vicinity of Crystal Lake. This surface deposit may have been added partly during glaciation or it may be postglacial. In parts of it loess is quite evident. This has a tendency to mask the fact that the subsurface was gravelly and sandy outwash, in spite of the fact that the upper layers appear fertile. Where the upper horizons are deep and relatively rich the outwashes are good for agriculture; but large parts of them tend to be droughty because the A Horizon is shallow and the gravel below permits too rapid drainage. Farmsteads in the outwash areas frequently attest the fact that the soils are often not as good as the upland soils. Abandonment, far from common to the Region as a whole, has occurred in some of the outwash areas, for example along the southwest slope of Marengo Ridge south of the town of Marengo.

Harvard Quadrangle illustrates the extreme levelness of outwashes. From the juncture of Marengo Ridge and West Chicago Moraine, a traverse east of southward to the town of Franklinville shows a slope of less than 10 feet per mile (Figures 6 and 7). East-west relief is similar in most of the large outwash plains.

The till plains characteristically display a relief between that of the moraines and the outwashes. Far

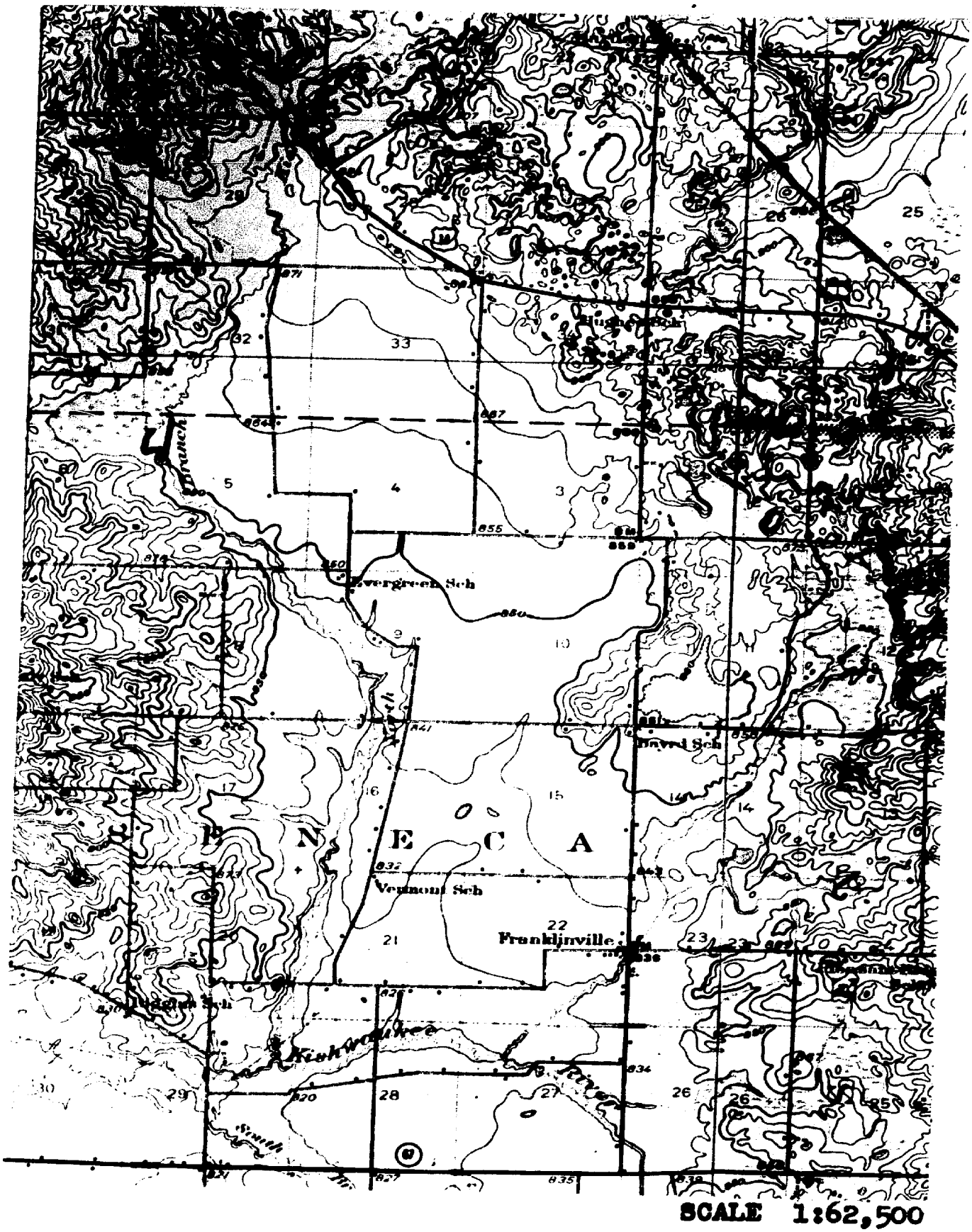


FIGURE 6. A PORTION OF HARVARD QUADRANGLE, ILLUSTRATING THE LEVEL NATURE OF THE HARTLAND OUTWASH PLAIN. THE CONTOUR INTERVAL IS 10 FEET



HARTLAND PLAIN FROM WEST CHICAGO MORAINE



FIGURE 7. THE LEVEL HARTLAND PLAIN, WITH MARENGO RIDGE IN THE BACKGROUND

from being flat, most of them are rolling or even steeply rolling in nature. Except for the White Rock Moraine and the rather wide outwash flanking it on its southeastern margin, the remainder of Boone County lying within the Region is till plain, most of it Illinoisian. This westernmost extension of the Region exhibits rolling topography of considerable variation. Trending northeast-southwest through the town of Caledonia, long undulating swales occur with marshes in the northern part. But paralleling this to the southeast and eventually joining the White Rock Moraine is a segment of more rolling topography, where relief is 40 to 50 feet per mile. On both sides of the moraine slopes again become undulating.

The large area of till in the central northern, northeastern, and central eastern part of Mc Henry County is more complicated. Not only are linear reliefs sustained enough and steep enough to suggest small moraines, but also stream beds, both glacial and postglacial, present steep walls of 100 to 120 feet in height. In the former case, the buried stump of Marseilles Moraine north of Woodstock appears in the western part of this plain. It is now considered part of the plain because of its partially covered nature and the subsequent subduing of its original topography after West Chicago deposition. Certainly it appears like a moraine when viewed from the undulating, poorly drained, and more typical till area joining it on the east. This latter, more level portion extends from just north of

Woodstock northward past Hebron and then eastward to Richmond.

Another area of very level terrain is the 14-mile-long Glacial Lake Pingree Plain, nestled between the southern part of Marengo Ridge and Gilberts Moraine. Much of this plain, varying in width from one to four and a half miles, is under cultivation. Originally quite marshy, it now has numerous drainage channels (Figure 8) which drain into remaining marshes or in at least three cases into natural streams. Because of the saucer-like nature of the lake plain it has been necessary to dredge outward from the plain in order to gain permanent drainage into the surrounding natural streams. This is the only large glacial lake plain in the Region.

The most intricately irregular parts of the Region invariably occur in connection with kame-and-kettle topography. The West Chicago Moraine has the greatest number of these features, followed respectively by the Marseilles, Gilberts, and Cary. They also occur in limited parts of Marengo Ridge west of the town of Gilberts and in the Fox Lake Moraine. White Rock Moraine and most of Marengo Ridge are relatively less dissected. Kames are particularly abundant throughout the part of the West Chicago Moraine where it parallels Marengo Ridge, west and northwest of Woodstock. The highest point in the entire Region (1192 feet) occurs on a kame about two miles west of Alden, or about four miles northeast of Harvard. East of Woodstock,

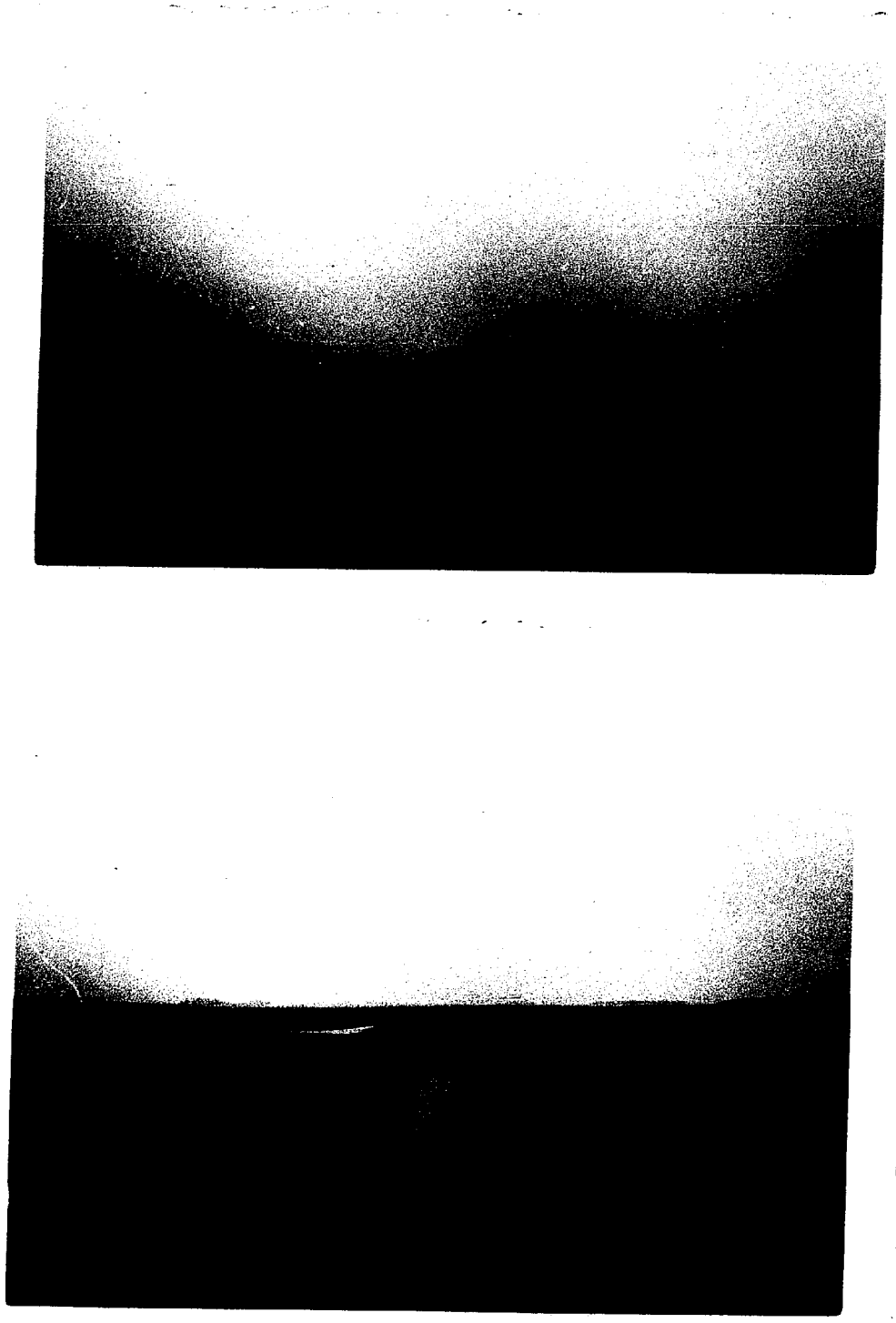


FIGURE 8. VIEWS ACROSS GLACIAL LAKE PINGREE PLAIN, WITH A TYPICAL DRAINAGE DITCH IN THE LOWER PHOTO

whereas distinct, symmetrical kames are fewer, kettles and other depressions, some lake-filled, are common. Again, surrounding Wonder Lake, kames are numerous. Roadcuts in these kames indicate that they are very sandy and gravelly with a large number of small boulders in them (See Figure 94). On the right bank of Nippersink Creek below Wonder Lake several kames rise precipitously as much as 110 feet above Nippersink Flats. Because of the rapid permeability of these kames they support only grasses rather than trees, and locally they present almost a semi-arid situation (Figure 9). Most of the kames in the Region have a relief of only 20 to 40 feet.

The kames and kettles of the Cary vicinity have long been utilized--west of Silver Lake, northeast of the town, and along the bluffs of the Fox River. Some of the best-known sand and gravel pits of the Region are found in these particular irregular areas. They contain both stratified and unstratified materials used both for road-building and construction purposes (Figure 10).

Because of such consistent irregularities and generally poor drainage in the drift covering the Region, lakes, swamps, and marshes are numerous. There are 75 lakes of a quarter mile length or more, the average size being approximately a half mile square (one quarter of a square mile). The largest lakes--Grass, Fox, and Pistakee--are drained by the Fox River, which flows through them from north to south. These and other connected lakes are the



KAME-AND-KETTLE TOPOGRAPHY NEAR GILBERTS



FIGURE 9. GRASS-COVERED KAMES ALONG NIPPERSINK FLATS



STRATIFIED AND UNSTRATIFIED GRAVEL AT CARY

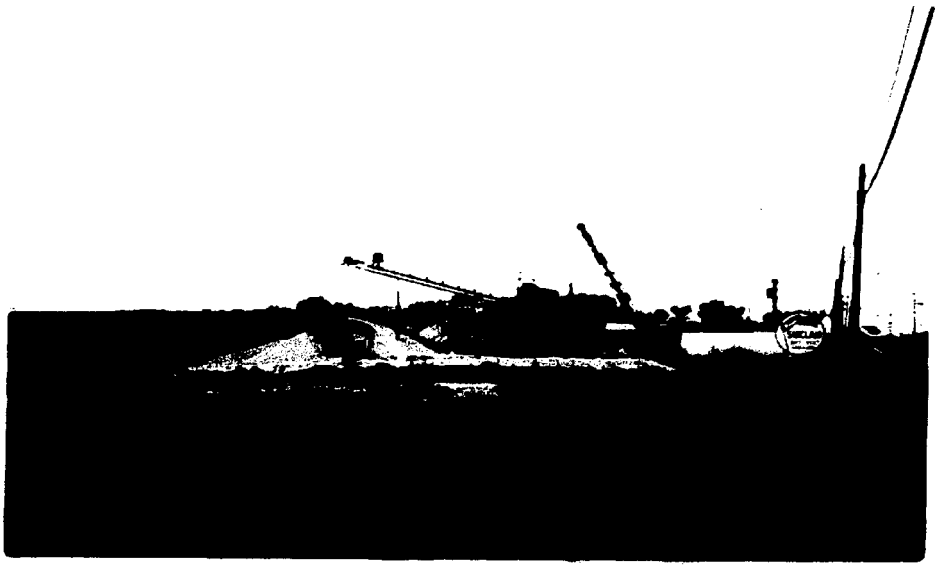


FIGURE 10. A GRAVEL PIT AT CARY

center of the state's "inland" lake tourist trade and constitute the Lake District. Surrounding this nucleus in the near vicinity are many other lakes which likewise are becoming resort attractions, frequently with year-round housing accommodations. Although the Lake District, which is in the Valparaiso Morainic System, accounts for the greatest concentration of lakes, they are not entirely lacking in other parts of the Region. Added to the total of 75 bodies of water large enough to be classed as lakes, there are probably 200 very small lakes and a similar number of ponds, most of the former shown on topographic maps. The majority of the minute lakes are confined to the West Chicago Moraine, the Marseilles Moraine in the immediate vicinity south of Woodstock, and Marengo Ridge between Marengo and Huntley. They do not appear in the White Rock Moraine, are very scarce in Marengo Ridge north of the town, and are singularly absent in much of the Valparaiso System. Most of the lakes are formed by obstructions at their lowest levels. Others simply sprawl over the depths of swampy swales where the gradient is practically lacking.

There are very few lakes in the till plains, regardless of their frequent marshiness. The best-known of those that do appear is Crystal Lake, once the chief source of ice both for the city of Chicago and the entire northern part of the state. Mc Cullom Lake, northwest of Mc Henry, is impounded in the lower end of the former channel of Fox

River, scarcely twenty feet above the present river level a mile and a half distant.

To add to the expanding resort industry, within the past two decades several artificial lakes have been created. Chief among these is three-mile-long Wonder Lake, northwest of Mc Henry. A relatively narrow and easily constructed earth dam at a narrows of the Nippersink impounded this kame-and-hillock-surrounded lake. Lake of the Hills, northwest of Algonquin, is also artificial.

Significant as are the lakes to the resort-poor state of Illinois, their total surface of 18.7 square miles is actually small. But, when added to this is approximately 72 square miles of marsh and swamp, the total amount of wet land and water surfaces becomes about 8% of the Region. Swamps are insignificant, although they were more numerous in the early days of settlement.[1] One fairly large one persists just north of Elgin in essentially its original state. Small remnants of others can be found. Some of the original swamps were cleared either for their wood or for use of the land agriculturally. Many marshes have been drained, but a great number have been unaltered.

There is no limited pattern in the distribution of marshes. They occur almost anywhere, except in the well-drained Illinoisian till plain of Caledonia Township and in some outwashes. They are particularly prevalent in the

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[1]Statement by Mr. Alfred Kirkland, historian, author, and retired newsman of Elgin (personal interview).

Lake District, in intermorainal areas except outwashes, and within the moraines themselves (Figure 11). They are frequently essentially continuous along both major, minor, and intermittent streams in most parts of the Region. On the other hand, the excellent drainage of the outwash areas prevents marsh and swamp formation, except where heavier bottom soils occur.

2. Geological Heritage

Just as the older glacial drift is in the northwestern part of the Region and the newer drift to the east, so likewise the older rocks under the glacial debris appear under the Illinoisian Drift while subsequent rocks were deposited eastward (Figure 12). The preglacial surface was entirely of limestones, dolomites, and a small amount of shale. The two former ones make up a large amount of the fragments of the glacial drift. West of the White Rock Moraine, Middle Ordovician Dolomites and Limestones were laid down, followed by the later Ordovician Maquoketa Formation of both limestone and shale. This formation underlies the Quaternary in the very western and southwestern parts of Mc Henry County, a small part of Boone County, and parts of Kane County. Two narrow "peninsulas" extend into Barrington and Schaumberg Townships of Cook County. East of these formations, underlying the eastern two-thirds of

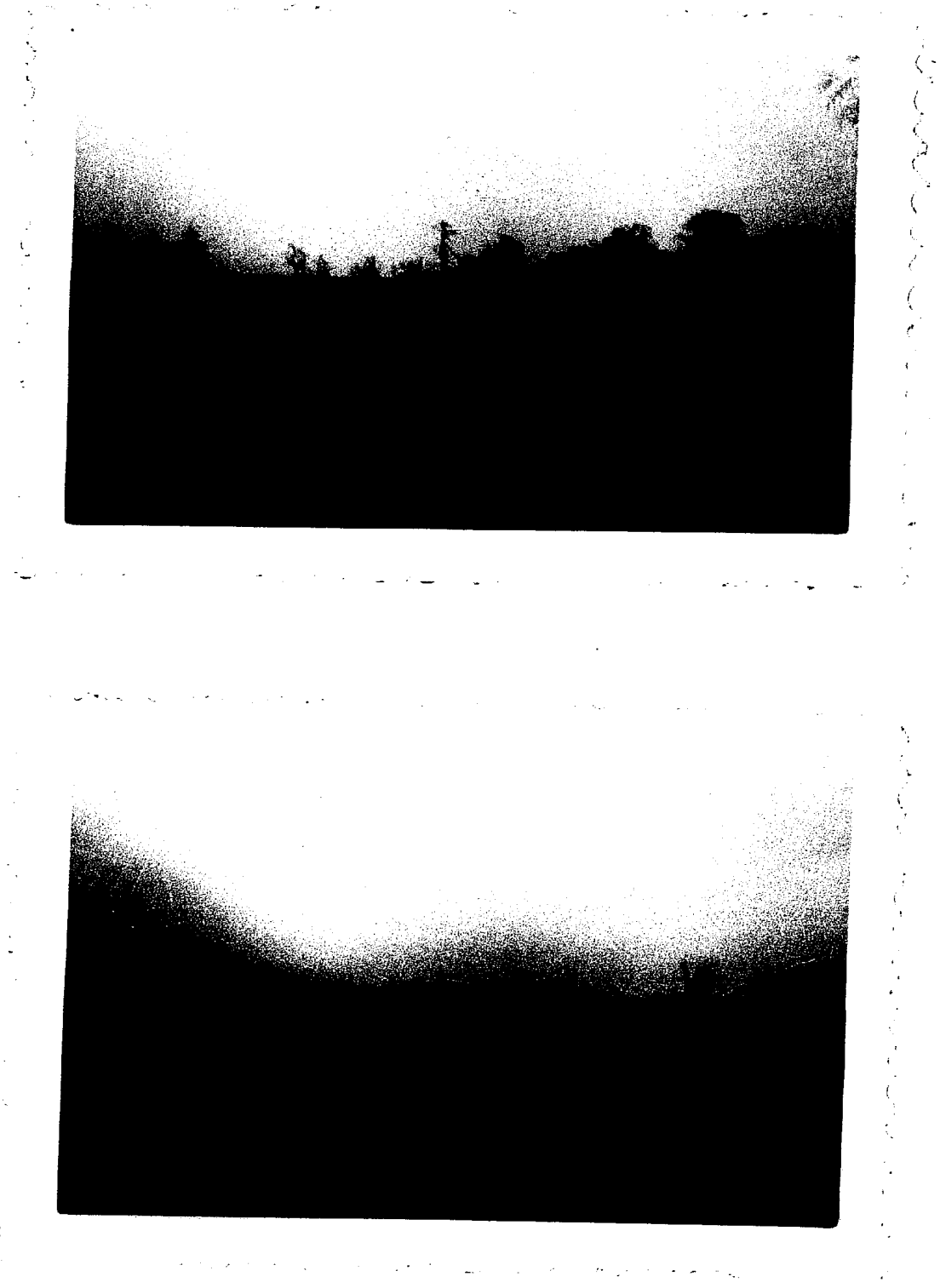


FIGURE 11. MARSHES ON A DULL SPRING AFTERNOON

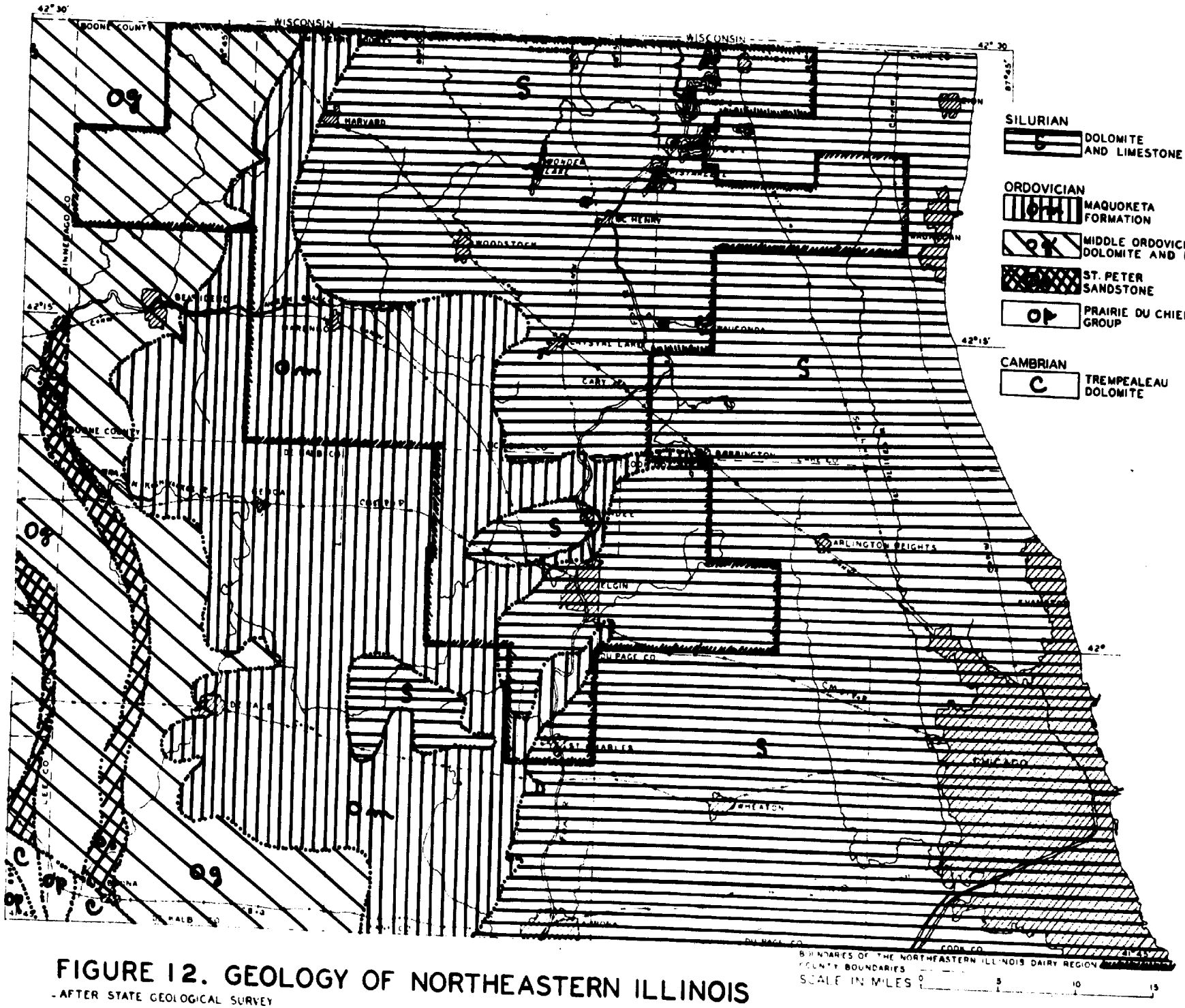


FIGURE 12. GEOLOGY OF NORTHEASTERN ILLINOIS

- AFTER STATE GEOLOGICAL SURVEY

the Region, is the large area of Silurian Dolomite and Limestone.[1]

In the almost total absence of outcrops in the Region, well borings have been the chief source of information regarding the bedrock topography. The only outcrops occur west of Marengo and at South Elgin, although rock is reported quite close to the surface just north of the Kishwaukee west and northwest of Marengo.

As a whole, there is very little correlation between the irregularities of the bedrock and the present surface.[2] For example, the only notable preglacial trough in the Region (Troy Valley), which trends northeast-southwest across Boone County, is now filled with the White Rock Moraine, thus making that area the one of thickest glacial deposition. A semblance of another trough trends in a similar direction in Kane County. In both of these cases the preglacial trough bottoms were around 550 feet above sea-level. On the other hand, the highest preglacial rock surfaces, slightly over 900 feet, occurred in the northwestern part of Mc Henry County, close to the highest present elevation of the Region. This correlation, however, is unusual. Although the preglacial surface throughout the Region was quite irregular, there was a general slope eastward. The maximum preglacial relief was about 400 feet.[3]

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[1]Workman, Cady, Bell, Lamar, and Ekblaw, Geologic Map of Illinois (Urbana: State Geological Survey, 1945).

[2]Horberg, Op. Cit., p. 28.

[3]Horberg, Op. Cit., Pl. i, Sheet 1.

3. Minor Factors

No sooner had the last glacial ice terminated its depositional activities than the forces of erosion began their attack on the newly formed and unconsolidated drift surface. While wind erosion must have sculptured the Region to some extent, the greatest physical changes have been brought about by stream and sheet erosion and to some extent by alluvial and loessial deposition. It is quite conceivable that while loess was being deposited the Region was subject concurrently to aeolian denudation, and part of the material was redeposited locally.

There is considerable question as to the depths and extent of loess in the Region. Evidence is cumulative that most of it was originally covered by a silty material, believed to be largely loess.[1] In many places loess is readily identifiable on level or nearly level upland surfaces, but where gradients of 3 to 10% occur and erosion is a problem, as it is in parts of Boone County, it has been washed down to lower levels, leaving slopes denuded of it.

With reference to Kane County loess, Hopkins states:

> ...The rock flour produced by the grinding action of glaciers was reworked by the wind and deposited over

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[1] R. T. Odell (Personal communication).
Herman Wascher, et. al., Boone County Soils. Soil Report No. 65 (Urbana: University of Illinois Agricultural Experiment Station, June, 1939), p. 8.
Guy D. Smith, Illinois Loess. Experiment Station Bulletin 490 (Urbana: University of Illinois Agricultural Experiment Station, July, 1942). (Note erratum of Fig. 3, facing p. 152).

> nearly all of the county to a depth of 12 to 40 inches. This loessial, or wind-blown material, has been transformed into soil by weathering and by the accumulation of organic matter, and now covers the lower and less rolling areas. There is little doubt but that this wind-blown material was quite uniformly deposited over the exposed surface, but has subsequently been removed in places by erosion, so that the boulder clay (till) is exposed on some of the more rolling areas. The deposit is thicker on the Early Wisconsin glaciation than on the Late Wisconsin, because of a deeper original deposit (3 to 6 feet) and because, owing to the less rolling character of the area, there has not been so much erosion.[1]

The parts of Mc Henry, Lake, and Cook Counties that are within the Region also have a thin covering of loess, although some parts of Mc Henry County lack these deposits, as is evidenced by the fact that in these particular limited areas soils have developed directly from till.[2]

Under the influence of a humid climate, the uneven surface of the new postglacial Region was remodeled before vegetation could gain a foothold. Thus valleys, ravines, and stream channels soon dug down into the drift surface. Also, all the sloping areas were affected by considerable sheet erosion. Although later retarded by both forest and prairie growth, this erosion has played a significant part in forming the minor relief of the Region. Where slopes are steepest and soils fine and unconsolidated, large amounts of upper till and soils have been redeposited by water, resulting in considerable alluvial deposition at

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[1]Cyril Hopkins, et. al., Kane County Soils. Soil Report No. 17 (Urbana: University of Illinois Agricultural Experiment Station, August, 1917), p. 2.

[2]J. G. Mosier, et. al., Op. Cit., p. 3.

lower levels. Combined with reworked loess, and in addition to loess in other places, notable amounts of alluvial deposits covered the gravelly surfaces of the outwashes. Less noticeable, yet occurring frequently, have been the small deltas and fans, floodplains, and bottomland areas that owe their surface forms to water-borne materials.

B. Water Resources

1. Drainage

In an area completely covered by glacial debris, the many differences in the topography determine the major surficial drainage. Varying soil types are also factors. Easily permeable soils readily absorb rainfall, which soaks down into the subsoil. Slowly permeable soils lead both to erosion and a much greater amount of surface runoff. The large component of heavy soils, including some loessial as well as tight clay soils with their slowly permeable nature, aids in the large amount of stream drainage.

The presence of many lakes and ponds (See Drainage Map, Figure 2) indicates poor drainage. This is chiefly the result of heavy and relatively impermeable soils, extensive level areas and many depressions, and the fact that stream gradients are frequently too slight to tap many of the bodies of water and drain them effectively.

Most of the streams are very young in age, indeed almost infantile, as they wander aimlessly over the youthful glacial topography. Only the larger streams, the Fox and the Kishwaukee, have reached full-fledged youth, the latter in limited portions only. The best examples of V-shaped river cross sections are along the Fox at Algonquin, Dundee, Elgin, and St. Charles.

As is typical of glacial areas, the stream pattern is mostly dendritic. This is in response to drainage controlled by relatively unconsolidated soils in contrast

to rocks of unequal hardness, where a trellis pattern results. There is a slight tendency toward trellis drainage below Cary for some distance down the Fox River. This is due simply to consequent drainage from the heights of the bluffs on the sides of the main river.

The number of streams in the Region is about the same as the average for the state. However, there are areas where they are fewer in number. They are particularly lacking along the larger ridges and in the Lake District, where poorer drainage and level terrain lead to a greater proportion of lakes, ponds, marshes, and intermittent streams.

The only stream worthy of the name river is the Fox, which wanders from the state line southward through the Lake Plain until it reaches the Cary Moraine, just north of Cary. Thence it turns southwestward across the moraine and then southward to the edge of the Region, occupying the well-known and beautiful "trench", the Fox River Valley. Almost two-thirds of the Region is drained by the Fox and its tributaries. Whereas shallowness limits the river so that it is now of little practical value as a waterway, historically its valley, which has frequent terraces, was one that presented ease of access, protection, farming land, and suitable sites for the establishment of early towns.

The three eastern "prongs" of the Region drain eastward and southward into the Des Plaines and into Salt

Creek, and thus, like the Fox, ultimately into the Illinois.

The remaining third of the Region drains westward via the Kishwaukee into the Rock River. Chief branches of the Kishwaukee in the northwestern section are the Beaver, which angles southwestward across Boone County, and the Piscasaw, which parallels Beaver Creek east of White Rock Moraine. Several smaller streams in Caledonia Township, northwest of the town of Belvidere, are not tributary to the Kishwaukee, but flow directly westward into the Rock.

The remainder of southwestern and western Mc Henry County and the northwest part of Kane County are drained by Rush Creek, which arises northwest of Harvard at the junction of Marengo Ridge and the West Chicago Moraine; North Branch of the Kishwaukee, stemming just south of Alden and flowing southward into the outwash plain west of Woodstock; South Branch of the Kishwaukee, which drains northwestward to its confluence with the Kishwaukee, east of Marengo; and Coon Creek, which drains the outwash and till areas of the very southwest part of Mc Henry County. One small creek, Virgil Drainage Ditch, No. 2 (partially dredged), leads from the southwestern part of Plato Township, west of Elgin, into a second South Branch of the Kishwaukee, which empties into the Kishwaukee near Rockford, twenty miles below the upper South Branch.

Drainage ditches are common to the Region. They are utilized in the level outwash and till areas in the

southwestern corner of Mc Henry County, rather profusely in Lake Pingree Plain, in the outwash plain west of Marengo Ridge, in the northeastern till plains of Mc Henry County, in the gently rolling Valparaiso Moraine of Cook County, and in the Lake District. They are not entirely lacking in the moraines themselves. Some of the areas belong to extensive and well-organized drainage projects. Coon Creek Project, partially within the Region, is one of the most extensive systems of artificial drainage.

2. Groundwater Resources

Sufficient quantities of underground water are available to meet requirements in most parts of the Region, either from relatively shallow glacial aquifers or from shallow and deep rock formations. Much of the agrarian requirements come from the former, but the needs of the larger users are met chiefly from the deeper sandstone formations.[1] Water levels of the shallow deposits ordinarily reflect annual local precipitation changes and thus are not quite as dependable as the deeper formations which have their major outcrops in Wisconsin. In the latter case, hundreds of years are required for the precipitation to reach the areas of pumpage within the Region, and thus they constitute an efficient and staple source for industry and urban uses.

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[1]Statement of G. E. Neher, State Water Survey, Urbana (Personal communication).

The drift is everywhere in the Region worthy of consideration as a source of groundwater, with the possible exception of portions of Caledonia Township in Boone County where the bedrock is mantled with older Illinoisian drift and parts of southwestern Mc Henry County where the drift is very thin. Water-bearing gravels occur in a wide variety of deposits. They range from thin outwash and shoestring valley train to lenticular types. There are many locations where boring encounters no permeable deposits above the bedrock and there are other locations where a vertical section through the drift reveals two or more aquifer beds.

Among the upper rocks (See Figure 12), the Niagaran Formation (Silurian) is abundantly creviced in its upper portion and is a favorable aquifer over most of the area of its occurrence. Groundwater contained within the open fissures is generally derived from nearby gravel deposits in the overlying glacial drift.

The Maquoketa Formation is not considered a favorable source of groundwater; where the shale underlies the drift groundwater must be obtained either from the drift or from deeper bedrock formations.

West of the Maquoketa occurrence dolomitic limestone of the Galena-Platteville Formations underlie the drift. Groundwater is obtained from the open crevices of these formations in the same manner as from the Silurian Limestone further east.

The important deep bedrock sources of groundwater in the Region are the St. Peter Sandstone, the Trempeleau Dolomitic Limestone, and the Galesville and Mt. Simon Sandstones. These formations are believed to underlie the entire Region. Among the four deep aquifers, the Galesville is generally considered the most favorable on the basis of permeability. The Trempeleau Limestone is well known for its water-filled open caverns and fissures which are prolific sources of groundwater where they are fortuitously encountered. Inasmuch as these deep aquifers, with the exception of the St. Peter Sandstone in the western part of the Region, are tapped only at great cost, their importance to domestic groundwater requirements is subordinate to the glacial drift and to the shallow bedrock limestones.[1]

The presence of springs within the Region has been frequently mentioned from the early days of settlement to the present. A few of them, such as the one in the courthouse square in Woodstock, have supplied continuous and copious amounts of water which have been highly praised for their analyzed mineral content. However, they are neither abundant nor prolific enough to be of consequential significance when evaluating the overall groundwater resources.[2]

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[1]John W. Foster, State Geological Survey, Urbana, Illinois (Personal summary of groundwater status within the Region concerned).

[2]Neher, Op. Cit.

C. Soils

1. Chief Characteristics

The soils of the Northeastern Illinois Dairy Region have two things in common--they are all partially the result of glacial deposition and they have developed under essentially the same climatic conditions. Beyond that they are the result of differences in slope, vegetation, drainage, and the length of time through which the weathering forces have been acting. It is the local character of these last four perhaps as much as the glacial heritage and the climate that has determined the detailed soil distributions. Nevertheless, the glacier dumped here sands, there clays, and elsewhere mixtures of the two; here fine waterborne alluvial deposits, there coarse-grained outwashes, elsewhere till of higher value. It was upon this glacial surface that the forces of erosion and deposition (including aeolian activities), climate, and vegetation acting concertedly have altered the upper few inches to several feet and thus have in the process of time formed the soils of the Region. Because of their recency of formation as compared to purely residual soils, they are both immature and frequently relatively thin, although complete profiles are usually developed.

A complete, up-to-date classification of the soils of the entire Region is not available. The soil surveys of Lake, Mc Henry, and Kane Counties are old and

they employ the old system of nomenclature.[1]

More recently (1939), Boone County has been remapped in accordance with the new system,[2] and parts of Cook County are undergoing a similar process. In Cook County, single soil association maps are available for Schaumberg and Hanover Townships. The net result is that there are three partially confusing, partially correlated systems of both nomenclature and description for the Region, each system stemming from the same source.[3]

2. Soil Associations Represented

In view of the different details available on the soils of the Region, the Soils Association map (Figure 13) serves the dual purpose of giving a generalized summary of the soils and of simplifying what is in reality a greatly varied group of them--varied partly because of the fact that glacial materials are promiscuously deposited and partly because of the degree of difference in the other factors that make up soils, as mentioned. The description

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[1]In Illinois, the "descriptive system" of naming soil types was used prior to 1933. With this system, there was no geographic series name attached to the name of the particular soil type. Only the color and texture were given, thus: Brown Silt Loam over Gravel, etc. See Soil Surveys for Mc Henry, Kane, and Lake Counties.

[2]The new system employs geographic series names as well as the older descriptive analysis, thus: Saybrook Sandy Loam. Numbers are also given each type; thus #204 refers to Saybrook Sandy Loam.

[3]All of the reports referred to are the various soil reports of the Agricultural Experiment Station, University of Illinois, Urbana, Illinois.

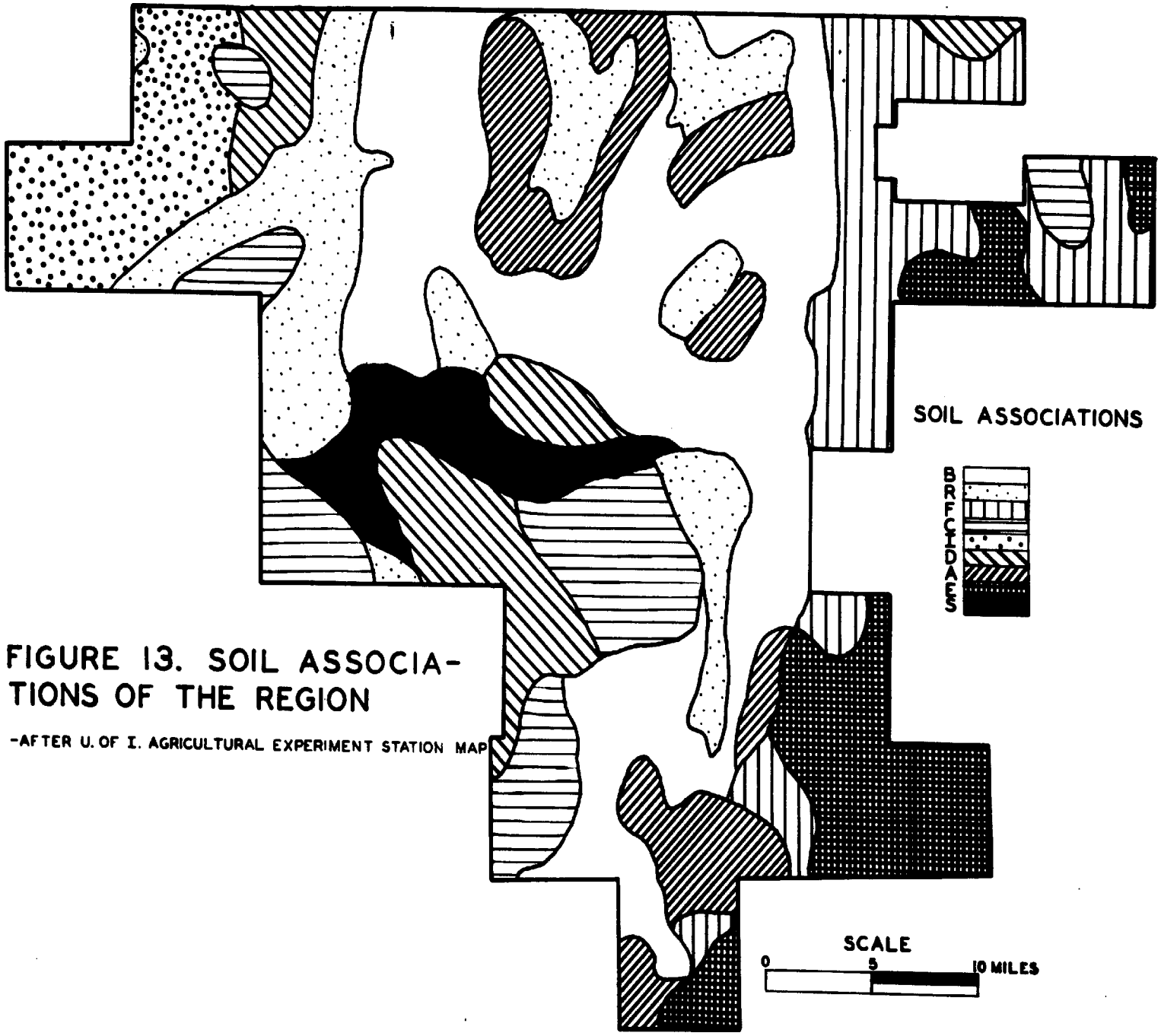


FIGURE 13. SOIL ASSOCIATIONS OF THE REGION

-AFTER U. OF I. AGRICULTURAL EXPERIMENT STATION MAP

is a classification based on soil color, permeability, and the parent material from which each one is developed. The map is an aid to an understanding of the Region because the soil associations presented are closely correlated with the larger topographic features on which they are developed.

The most prevalent association (Area B on the map) belongs almost exclusively to this particular Region, only small extensions of it protruding outside the Region. These soils have developed under forest vegetation, where kames and kettles are features of the moraines represented. The surface soil is light in color, the subsoils are medium to coarse-textured and are moderately rapid to rapidly permeable to water. The underlying parent material is sandy to gravelly calcareous glacial till. The soils vary in productivity from medium to low depending upon the depth of the coarse material, degree of droughtiness, and topography. Soil fertility and erosion are major problems in the cultivated areas.

Most of Lake County within the Region has soils developed from fine-textured to very fine-textured glacial till under forest vegetation, as included in Area F. The topography varies from nearly level to strongly rolling and the steeper areas are unsuited to cultivation. The surface soils are light-colored and the silty clay to heavy clay subsoils are slowly to very slowly permeable to water. Not only are the soils low in productivity, but also erosion,

drainage, and fertility are major problems in the utility of these areas.

The several scattered but large outwash areas are indicated by the letter R. These soils developed from medium-textured to fine-textured outwash and terrace deposits of Wisconsin age. The topography is generally level to gently rolling. Dark-colored silt loam and silty clay loam soils predominate, but some notably sandy areas and some light-colored forest soils also appear in the association. The subsoils are normally moderately permeable and tile drainage is satisfactory if outlets are available. Keeping the soil in good tilth and providing sufficient drainage are the major problems. The dark-colored soils, usually with high humus content and developed from grass vegetation, are highly to very highly productive. The light soils are of moderate value.

One area of sandy loam to sandy soils occurs within the Region (Area S). It is also developed from glacial outwash, terrace, and wind-sorted materials. Topographically the area ranges from nearly level to rolling. Although both light and dark soils occur, because of their coarseness, greater permeability, and lower water-holding capacity, they are generally less productive than the soils in Area R. Droughtiness and wind erosion are the chief problems on the sandier areas. This is particularly evident near the southwest corner of Mc Henry County on the southwest flank of Marengo Ridge. Here farm appearances

attest the poor quality of the soil. Drainage is sometimes needed and fertilization is a frequent necessity.

Association I covers most of Boone County that is within the Region. The topography is moderately sloping to steep, but some nearly level areas are included. The soils on the gentler slopes are developed from loess, on the steeper slopes from glacial till. Light-colored, medium-textured soils with moderately permeable subsoils predominate. The tillable soils are of moderate productivity under good management, but they lend themselves best to cover crops and thus to dairying. Fertility and erosion are the particular problems facing the agriculturist.

Area A. This association is limited to Kane, Mc Henry, and adjacent counties in northeastern Illinois. The topography is undulating to strongly rolling, with some kame-and-kettle terrain. This area is composed of dark-colored prairie soils with subsoils that are medium to coarse in texture and moderately rapid in permeability. The underlying material is sandy to gravelly calcareous glacial till. Both erosion and drainage problems are hard to control and the soils are droughty where coarse materials appear near the surface. Where not droughty these soils are medium to highly productive.

The C Association consists of many nearly level to moderately sloping areas scattered throughout the Region and elsewhere. These are dark-colored prairie soils, with medium-textured, moderately permeable subsoils predominating. Tiling is common, especially in Glacial Lake Pingree



Plain and in south central Mc Henry County. These soils range from high to very high in productivity and are among the best in Illinois. The areas are highly utilized and evidence prosperity. Limited areas of less productive sandy soils are included in the association. The sandy areas are definitely less fertile, usually because they tend to droughtiness and wind erosion.

The southern part of Marengo Ridge, White Rock Moraine, a small area south of Woodstock, and a little section in northern Lake County are classed as Association D. These soils occur only in northeastern Illinois, often in areas too small to show on the Soil Association Map. They occur to a limited extent in Areas C and I as well as D. These soils developed on gently sloping to steeply rolling topography under forest vegetation. They are light-colored. Their subsoils are medium-textured and moderately permeable to water and to plant roots. The tillable land in these areas is medium to low in productivity. Fertility and erosion are the major problems on these soils.

Most of the Cook County section that is within the Region and a part of Lake County are in Area E. The Association occurs mainly on nearly level to moderately sloping topography. The soils are dark-colored and have subsoils that are fine-textured and moderately permeable to water. Run-off is high and erosion is a problem, even on gentle slopes. Movement of water to tile is rather slow in these soils and the laterals should be placed rather close

together in order to obtain satisfactory drainage on level areas. These soils are medium to highly productive.[1]

3. Soil Types

Because of the lack of uniformity in soil type classification in the respective counties, the best resumé of them may be gained through an analysis on the county basis. Lake, Kane, and Mc Henry County Soil Reports, dating 1915, 1917, and 1921 respectively, follow a four-fold division, namely: (a) Upland Prairie Soils, (b) Upland Timber (Forest) Soils, (c) Terrace (Outwash) Soils, and (d) Swamp (Marsh) and Bottomland Soils.

The Mc Henry County Soil Survey Map is divided into two unequal sheets, the eastern being one-sixth larger than the western. The West Sheet, which covers eight townships, indicates a smaller proportion of Upland Soils than the Eastern Sheet. Upland Soils (both Forest and Prairie) make up half the soils of the western part of the county, Forest Soils being twice as common as the Prairie Soils. A third of the area of the eight townships has Terrace Soils and a sixth has Swamp and Bottomland Soils. No other part of the Region has such extensive terraces and bottomlands, though they are not lacking elsewhere. Some of the best

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[1]The information on the Soil Association Areas comes chiefly from Wascher, Fehrenbacher, Odell, and Veale, Illinois Soil Type Descriptions (Urbana: University of Illinois Experiment Station, 1950), pp. 7-13. The Soil Association Map appears between pp. 10 and 11. The information also appeared in the publication: Principal Soil Association Areas of Illinois (Urbana: University of Illinois Agricultural Experiment Station, May, 1949).

farmlands of the Region appear in the Upland Prairie Soils areas. On the other hand, local variations in the value of both the Terrace and Bottomland Soils are pronounced. In the case of the Terrace Soils it is usually the B horizon that determines their productivity. Some are excellent, some have subsoils that are too sandy, thus leading to droughtiness. As a whole, the Terrace, Lowland, and Prairie Soils are more highly utilized than the Upland Forest Soils, largely because of the uneven terrain and poorer accessibility.

The soils of the eastern part of Mc Henry County, as indicated by the East Sheet, are almost 70% upland in nature (35% forest in origin, 33% prairie). Although areas of wet soils are not usually extensive, except north of Woodstock and in the eastern part of the county where the Lake District begins, there are many additional river lowlands where deep peats are especially common. In fact, the pattern of distribution of the Swamp (Marsh) and Bottomland Soils is a close guide to the location of streams in the area. Five outwash areas of several square miles each and numerous smaller detached ones occur.

Within the Region in Kane County, two-thirds of the soils are Upland, Forest Soils being slightly more prevalent than Prairie Soils. Terrace Soils, which make up less than 10% of the area, are concentrated mainly on or near the west bank of the Fox River. They are common features throughout the length of the river, but attain their

greatest width between South Elgin and Algonquin. This fairly continuous and wide "belt" continues northwestward from Algonquin to Crystal Lake; smaller terraces appear above Algonquin as far as Pistakee Lake. While Swamp and Bottomland Soils tend to hug the Fox River below the terraces as narrow bands, they are most common in the Lake Pingree Plain in Plato and Rutland Townships, in the lower marshy swales of both Gilberts and Marseilles Moraines, and along streams such as Otter Creek. A fifth of the soils of Kane County belong to this class.

In Lake County (excluding the area not in the Region), 60% of the soils were developed from forest vegetation. Farther away from the Lake District, Upland Prairie Soils become common. They make up slightly over 20% of the soils, while Swamp (Marsh) and Bottomland Soils cover almost another 20%.[1] Terrace Soils appear only along the Des Plaines River near Gurnee, in the extreme eastern part of the Region.

The most prevalent soil type in Boone County is Pecatonica Silt Loam. Approximately one-half of the area of the four townships[2] included within the Region has this type of forestland soil. Developed on sloping land (1-6%),

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[1]Some of the lakes in the Lake District are surrounded by Upland Forest Soils, not Bottomland Soils, as might be expected.

[2]Some of the older maps show the old township divisions of Boone County. Present Township 45 North has three townships, namely, Caledonia, Poplar Grove, and Boone, from west to east. Each township is four miles wide (east-west) and six miles long.

it usually occupies the higher areas except in the eastern part of the county where Miami Silt Loam takes over. Because of the rolling nature of that portion of the Region, there are many small but flatter areas and small valleys where other types of loams, Terrace Soils, or Bottomland Soils occur. As a result, the distribution of Pecatonica is very irregular, with frequent small areas of other soils dividing sections of it, thus making an intricate mosaic on the map. It is a light-colored soil derived from a silty covering on leached pebbly till, is low in organic matter and nitrogen, and has an acid pH. All three horizons have considerable yellowish cast mixed with brown or gray. The productive level is inherently low and the soil deteriorates rapidly unless well-managed. Where slopes are 3-6%, strip cropping and contour farming are advised in order to reduce erosion, which is a paramount problem.

Miami Silt Loam is limited to some of the highest portions of White Rock Moraine around Capron and the northeastern part of the county. It is very similar in most respects to Pecatonica, but the underlying limestone is much nearer the surface than is true of the latter (around 30 inches as against 60 to 90). Hence, Miami is usually more productive, especially for legumes.

Between the two areas of Miami and also in the southeast corner of Boone Township is Saybrook Silt Loam. Saybrook, which derives its name from the Corn Belt town of Saybrook in Mc Lean County, is a dark soil derived from

permeable calcareous glacial till, developed on gently rolling to rolling topography under grass vegetation. The surface horizon is 5 to 7 inches thick and is a brown silt loam of medium acidity. The light brown or yellowish-brown subsurface is 6 to 10 inches thick, while the similarly colored subsoil is equally as thick. Friable calcareous till appears at 35 to 40 inches depth. Because harmful erosion occurs throughout the type, crop rotation and especially cover crops are recommended. The Miami and Saybrook Loams are Wisconsin in age; Pecatonica is Illinoisian.

About two square miles of Muscatine Silt Loam are situated northwest of the town of Caledonia. This dark Prairie Soil, though limited in areal extent, is one of the best in the county. Derived from deep loess,[1] and with medium-high organic content, it responds well to diverse treatment, especially crop rotation if not fall plowed. As is true of most of the silt loams of the county, the slope is frequently sufficient for active erosion if unchecked.

Two other soils are classed as Forest Soils in type, Westville Silt Loam and Strawn Silt Loam. Both appear on slopes ranging from 7 to 15%, and since surface drainage is rapid, serious erosion results. Westville is commonly associated with Pecatonica Silt Loam and appears

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[1]The distribution of loess was discussed under the heading Minor Factors, pp. 36-38. Whereas deep loess is known in northwestern Boone County and is an important source of silt locally, the great prevalence of silty loams in the county is also partly due to reworked loess at lower elevations and to alluvial deposition to some extent, or a combination of these.

frequently throughout all of Boone County as a series of fingerlike projections into Pecatonica, generally at lower elevations. The grayish-yellow A horizon is low in organic matter and as a whole is low in value except for hay and pasture crops. Strawn Silt Loam is subject to severe sheet erosion and gullying. It is located next to or surrounded by Miami Silt Loam on steep slopes of White Rock Moraine.

One of the more important and common soils, Caledonia Silt Loam, is the result of the decay of heavy slough-grass vegetation. It is not a bottomland type of soil, although it appears very commonly along streams. The surface is 8 to 10 inches thick and varies from a black silt loam to a silty clay loam. Since it is high in organic matter, it frequently approaches a peaty loam or a muck. Because of its low-lying nature and drainage into it from higher elevations, the chief difficulty in its utility is obtaining proper drainage both through tiling and open ditches.

Herbert, Beaver, Capron, and Argyle Silt Loams are transitional types of soils, being the product of park vegetation, which is grass with either scattered timber or brush or bushes. Herbert Silt Loam has a tendency to surround Saybrook Silt Loam north of Capron and also south of the Piscasaw. It is similar to Pecatonica in management requirements, slope, and profile, but the A horizon is darker. Beaver Silt Loam appears west of Saybrook Loam and in other scattered places. Argyle Silt Loam is present in

small enclaves in Caledonia Township. Capron Silt Loam is a medium-dark soil derived from a silty wash material and is developed on nearly level to depressional topography under a vegetation of mixed grasses and brushy timber. It is of common occurrence in swales and often appears on the map as long parallel and irregular bands between Caledonia Silt Loam at the bottom of depressions and Pecatonica Silt Loam on the slopes.

On the left side (south) of the Piscasaw are two rather extensive types of terrace soils. Covering about four square miles is Littleton Silt Loam. A dark soil derived from silty alluvial material 40 inches or more thick lying over stratified sand and gravel, it has been developed on nearly level to undulating topography under grass vegetation. The surface of 7 to 10 inches thickness is a brown or dark-brown silt loam moderately high in organic matter and of medium to slight acidic reaction. It is seldom droughty and is not greatly harmed by erosion. It is one of the more fertile soils and is adapted to the growth of all vegetable, grain, and legume crops in the area.

The other Terrace Soil of importance is Camden Silt Loam. In contrast to Littleton, it is a light-colored soil developed under deciduous forest vegetation. It is wedged between Littleton and Otter Loam Bottom Soil along the Piscasaw and to some extent along Beaver Creek.

Bottomland Soils are Otter Loam and Muck. Both Piscasaw and Beaver Creeks flow almost entirely through

Otter Loam, except in their upper reaches. Muck, which is of minor importance, is formed in several places along Beaver Creek and in the marshes of White Rock Moraine. It has no profile development, has formed no definite horizons, and frequently it has a surficial mixture of organic matter and silt or clay of several feet thickness. Some of it is drained and is in agricultural use. Marshes prevail elsewhere, as in Section 25, Township 46, Range 4 East.

With minor discrepancies because of overlapping details, the soils of Boone County can be categorized on similar bases as those of Mc Henry, Kane, and Lake Counties. An analysis indicates that there are within the Boone County part of the Region four forest type soils, five prairie soil types, two terrace types, two bottomland soils, and four that are transitional in nature (a detail not given in the earlier soil reports for the other counties):

TABLE I: CLASSIFICATION OF BOONE COUNTY SOILS[1]

Upland Forest Soils	Upland Prairie Soils	Terrace Soils	Bottomland Soils	Transitional Soils
Pecatonica	Muscatine	Littleton	Otter	Herbert
Westville	Caledonia	(from grass)	(Swamp [Marsh])	Beaver
Miami	Saybrook	Camden	Muck	Capron
Strawn	Brenton	(from forest	(Swamp [Marsh])	Argyle
	Onarga	vegetation)		

[1]There are nine soil types shown on the Boone County Soil Survey Map that are not represented in the Region. In one case, O'Neill Silt Loam (Terrace), it does appear in the Region, but is extremely negligible.

In areal distribution, two-thirds of the soils in Boone County are forest-derived, 9% developed from prairie vegetation, 7% are classed as Terrace Soils (Littleton from grasses; Camden from forest vegetation), 4% are Bottomland Soils (developed from swamp and/or marsh vegetation), and approximately 14% developed under a combination of prairie and trees or brush or bush and may be classified as transitional in type.

Information on soils in Cook County is indirect, as there is no detailed Soil Survey Report. In addition to the generalized Soil Association Map (Figure 13), however, there are township Soil Association Maps available.

D. Vegetation

Inasmuch as soils are in part a reflection of the vegetational heritage of an area, and for the lack of conclusive data on the distribution of indigenous prairies and forests, perhaps the best check on native vegetation is the present distribution of soils. Admittedly, there has been some encroaching of forests upon prairies and vice versa since the Region was first occupied by white settlers; but such changes have been negligible in a span of less than 120 years.

Other evidences as to the original amount of forest cover are contained in early historical writings pertaining to the area dating back to within 10 years of the first white occupation and details provided by old settlers.

A composite survey of soil reports, other published information, and early inhabitants' accounts, indicate that forests probably covered two-thirds of the Region (Figure 14). Forests were, as now, chiefly concentrated on the higher, less accessible elevations, while prairies abounded between the hills and especially in the larger till and outwash areas of western and southern Mc Henry County. Occasionally, however, prairies developed on the higher and more rolling areas.

Much of the best timber was readily removed in order to provide local building materials and especially to clear the land for farming purposes. But the timbered land was not apparently mined wholesale as it was in some other

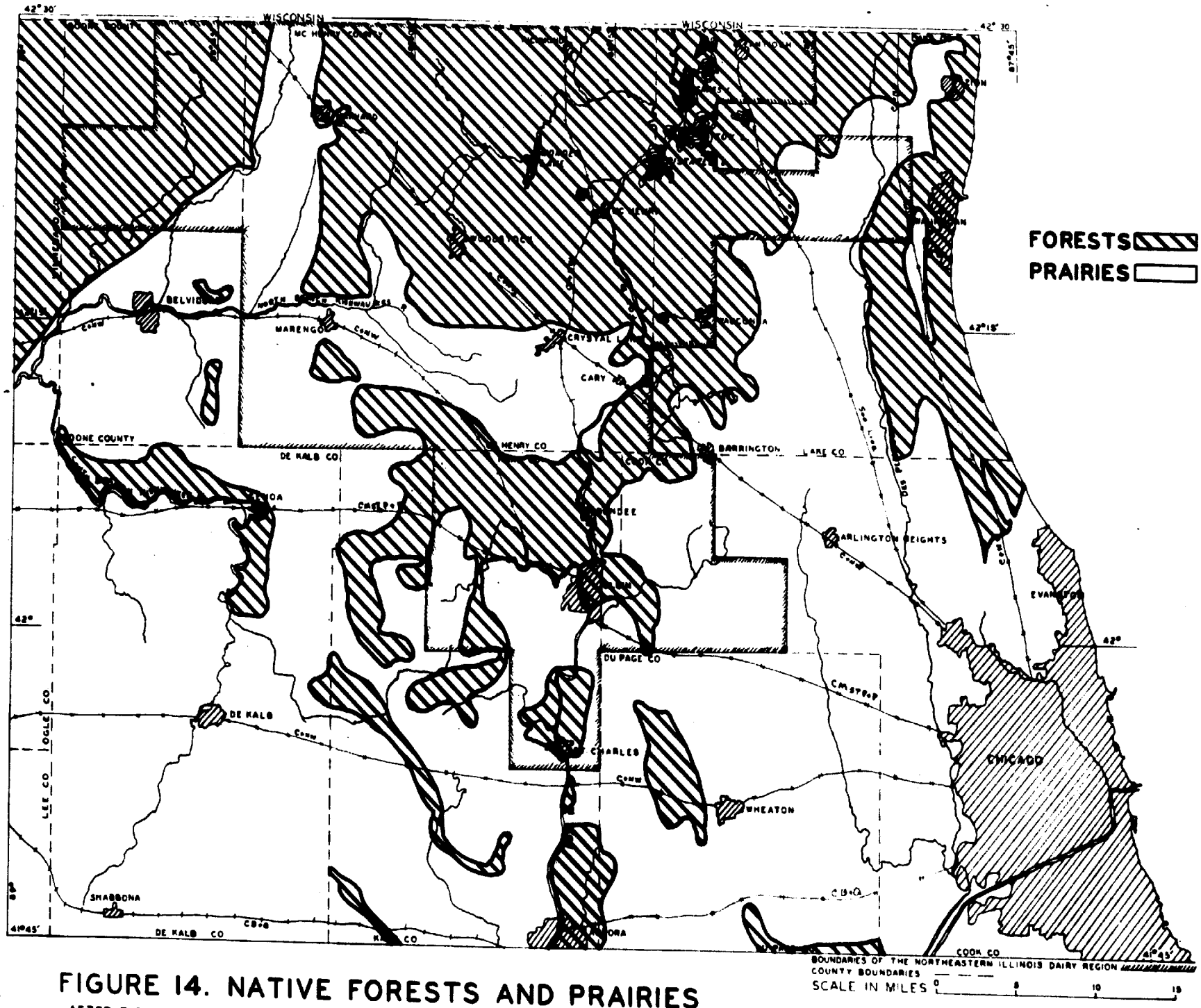


FIGURE 14. NATIVE FORESTS AND PRAIRIES

-AFTER R. S. SMITH

places, thus leaving the Region largely treeless at any one time. The less level lands were generally left in forest. Still, in the course of time periodic lumbering has resulted in even the more rugged areas being cut over. Most of the forests are now composed of good-sized second growth, with varying amounts of underbrush, and it is conjectured by some that the amount of forest in many localities is now about as great as it ever has been.[1]

A complete and recent guide to the present forest cover (but including also planted trees) is gained through the study of aerial photos of the Region. In any decade this picture in itself will change to some extent and is in reality non-static. Although parts of the Region are scheduled for rephotoing, the area was completely flown in 1939 and 1941. Indicative of a well forested location is the left-hand (morainic) side of Figure 15. Typical of an area where grassland vegetation is dominant is the right-hand outwash portion of the same figure.

The forests of the Region are predominantly hardwoods, chiefly of the oak-hickory association (Figure 16). Hickory has disappeared to a much greater extent than oak, and the latter is by far the most common tree to be found. In the majority of the larger stands, oak comprises 85-90% of the species. Some exceptions occur, especially in part of eastern Lake County, where greater varieties are present. It is principally on the edges of the ridges and hills, in

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[1]Statement of Mr. Kirkland (Personal Interview).



NORTH

SCALE 1:20,000

FIGURE 15. REMNANTS OF AN IMPOUNDMENT-FORMED AREA (MARENGO RIDGE) ON THE LEFT; NATIVE GRASSLANDS AREA EAST OF THE CREEK



AN OAK FOREST IN SPRING



FIGURE 16. AN OAK-HICKORY FOREST IN WINTER

the lowlands or their fringes, in heavily wooded areas with lots of underbrush, or where trees have been planted that other varieties assume their greatest relative importance.

Indicative of the great number of species of trees to be found in the Region, Halsey says:

> Today the uncleared portions of the morainic uplands of Lake County are covered by a forest dominated by the oaks, with the hickory, hard maple, scarlet maple, ash, and linden well represented, and flanked by a varying undergrowth of hawthorne, witch hazel, sumac, plum, wild crab, ironwood, etc. The earliest settlers found the oak-hickory forests dominant with some little intermingling of white pines and red cedar. The white pine, being of more economic importance than the oak, was cut down, and today only a few specimens here and there remain. Also, the oaks invaded areas where pine once stood. According to Professor Cowles [pp. 326 and 327], there is some evidence that in the plant succession stages here in Lake County a beech-sugar maple succession is ultimately to dominate this region and supplant the oak-hickory type. However, observations in the field show that maples are at the present time far, far subordinate to the oak-hickory setup, and any such event is a long way off. Of the oaks, six species--the white, the red, and the scarlet are dominant in the upland; the bur oak, the swamp white oak, and the black oak complete the list of oaks at lower elevations. The bur oak and white oak flourish best in the lowlands, but the black oak is mostly on the sandy ridges. The pin oak is not a native of this region, although they are sometimes referred to here in place of the scarlet oak which does actually exist.
>
> Two types of aspen--the quaking and the large-tooth aspen--are abundant, usually growing in colonies on the flank of the forest. There are two species of ironwoods or hornbeams. Also one must not forget that the uplands have considerable hazelnut, choke cherry, dwarf huckleberry, two or three species of dogwood, gooseberry, currant, elderberry, etc. The witch hazel is perhaps the most characteristic shrub of the oak forest. Trees of the low woodlands represented are the elm, the ash, the bur and the swamp white oak, the linden, and the silver maple as being dominant.
>
> Both the white elm and the red or slippery elm occur, the former being much more abundant. Some of the oaks of the upland also appear in the lowlands. The

silver maple, rare of occurrence as a native tree in the upland, is well represented in the valley woodlands. Shagbark hickory is now accompanied by the bitternut hickory, the walnut, and the butternut. The linden and the wild black cherry too are well represented. The aspens, the various willows, the red ozier, and dogwood fringe about in abundance in the low woodlands. The hawthorne, the wild plum, the wild crab are abundant, and great thickets of sumac and hazelnut bush occur. Among the shrubs abundant here are prickly ash, the elderbush, and two of the viburnums....

The marshes have tall grasses, rushes, sedges, burrweed, sweet flag, and cat tails...Where the ground is somewhat higher and above the marshy stage, the wooded swamp comes in with the lowland trees such as the ash, the willow, the elm, and the silver maple, or there may be a prairie with a cover requiring a moist substratum. A swamp of tamarack or birch may at times occur. Such are more characteristic of depressions not in contact with the lakes, though some may have ponds within their limits. Between areas more or less submerged and the wooded swamp is usually a border strip occupied by shrubs under wetter conditions than the trees, such as the button-ball, alder, ozier dogwood, dwarf birch, and various kinds of willow. The higher grounds along the shores are provided with such trees, shrubs, and herbaceous growth as characterizes the upland vegetation of the forest and prairies of the surrounding hills and valleys.[1]

The lakes and ponds of Lake County also have many varieties of water lilies and sphagnum (peat) moss. At one time the town of Antioch claimed that Fox Lake had the only lotus beds in the nation.

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[1]John J. Halsey, A History of Lake County (Chicago: Roy S. Bates, Publisher, 1912), pp. 21ff.

E. The Climate of the Region

1. Type of Climate

The Region is situated on the northern edge of the Humid Continental Climate, Warm-Summer Phase (Dfa or Daf).[1] A few miles north the more severe cool-summer phase begins, where the warmest month averages less than 71.6° F.

The Region is thus on the northern periphery of the Corn Belt Climate or the Oak-Hickory Climate, appellations frequently given because of the prevalence of the maize crop and of the prevailing hardwood association.[2]

2. Climatic Characteristics

The latitude of the Region (between 41° 54' and almost 42° 30' North Latitude) and its continental location are the chief controlling factors in the climate. Slight influence of Lake Michigan is evidenced on the eastern edges of the Region both in length of growing season and in the lake's tempering effects. Because of uneven terrain air drainage is also a factor in local temperatures at times. Non-periodic, but marked, weather changes are the result of cyclonic control, especially in the colder season. Cyclones occur in the summer too, but less frequently. Although convection is less prominent than further south, it is the chief type of summer precipitation. Orographic

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[1] Vernor C. Finch and Glenn Trewartha, Elements of Geography, 3rd Edition (New York: Mc Graw-Hill Book Company, 1949), p. 192.

[2] Ibid.

precipitation does not occur except perhaps in small amounts on the summits of the higher moraines, such as Marengo Ridge.

The mean annual temperature is slightly over 47° F.[1] This is based on data from Marengo and from three weather stations that are located slightly out of the Region on the south, east, and north, but in each case within a very short distance (Aurora and Waukegan, Illinois, and Williams Bay, Wisconsin, respectively). July is the warmest month, January the coldest. The climatic chart for Marengo (Figure 17) illustrates the rather rapid rise of temperature beginning in March and lasting through June. Similarly, October, November, and December emphasize the march of temperature downward. Winter severity is indicated by the mean minimum December, January, and February temperatures at Marengo, namely 17.3°, 12.3°, and 14° F.[2]

The absolute minimum temperature at Marengo is -27° F., at Waukegan -25°, at Aurora -25°, and at Williams Bay -25° F. Each of these stations records absolute minima below zero for the five-month period, November through March. In each case, minimum temperatures are above zero in April and October, usually appreciably.

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[1]United States Weather Bureau, Climatic Summary of the United States (Washington: U. S. Government Printing Office, 1933),
(a) Section 49, Eastern Wisconsin,
(b) Section 56, Northern Illinois.

[2]Ibid., Section 56, p. 18.

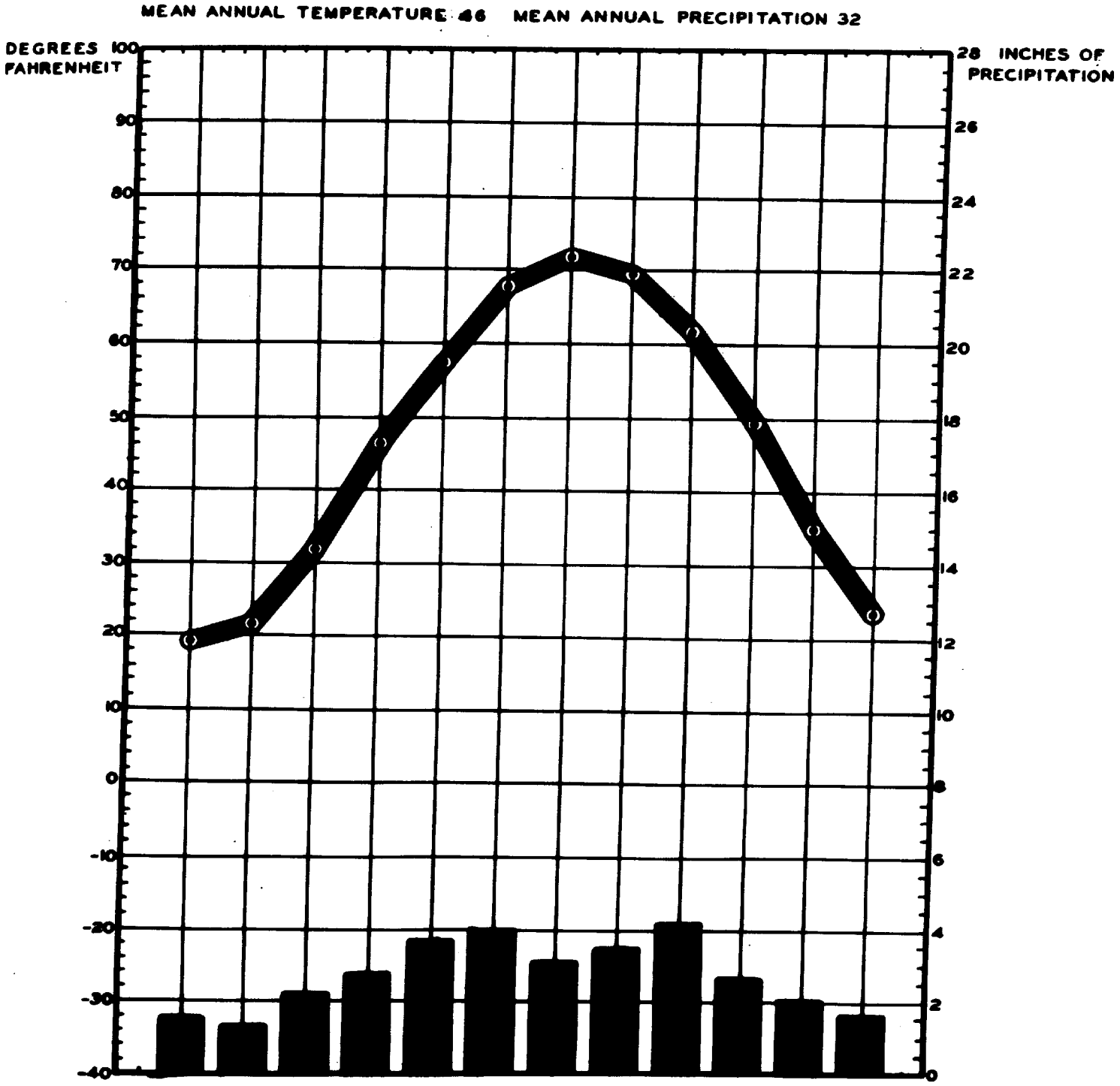


FIGURE 17. CLIMATE OF MARENGO

-FROM CLIMATE AND MAN, PAGES 13 & 18

Average maximum temperatures are slightly higher in July than in August. Highest absolute temperatures occur in July at Aurora (109), Waukegan (102), and Williams Bay (100), but in August at Marengo (108). Absolute temperatures in September are 100° at Williams Bay (same as July), 104 at Aurora, and 103 at Marengo. Marengo's July absolute is only one degree less than August (107). Longer summer days help raise the average summer and the absolute summer temperatures to figures similar to those further south in Illinois. Though the summer months witness days as hot as the southern part of the state, there are generally intervening cool periods, while the southern and central parts have less relief from heat.[1]

The growing season averages about 160 days (Figure 18). In the northeastern part of the Region it is somewhat less; in the southeastern part it reaches almost 170 days. However, there is a wide fluctuation from year to year. This is proven by figures for Marengo from 1891 through 1930. In that period of years, twelve had seasons under 150 days, while sixteen years had over 170 days of growing season. In 1914 Marengo's growing season was 189 days, followed by only 111 in 1917. Killing frosts can be expected around October 10th to 15th, while the last dates of their occurrence in spring vary from the last few days of April to about May 10.

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[1] Ibid., Section 56, p. 1.

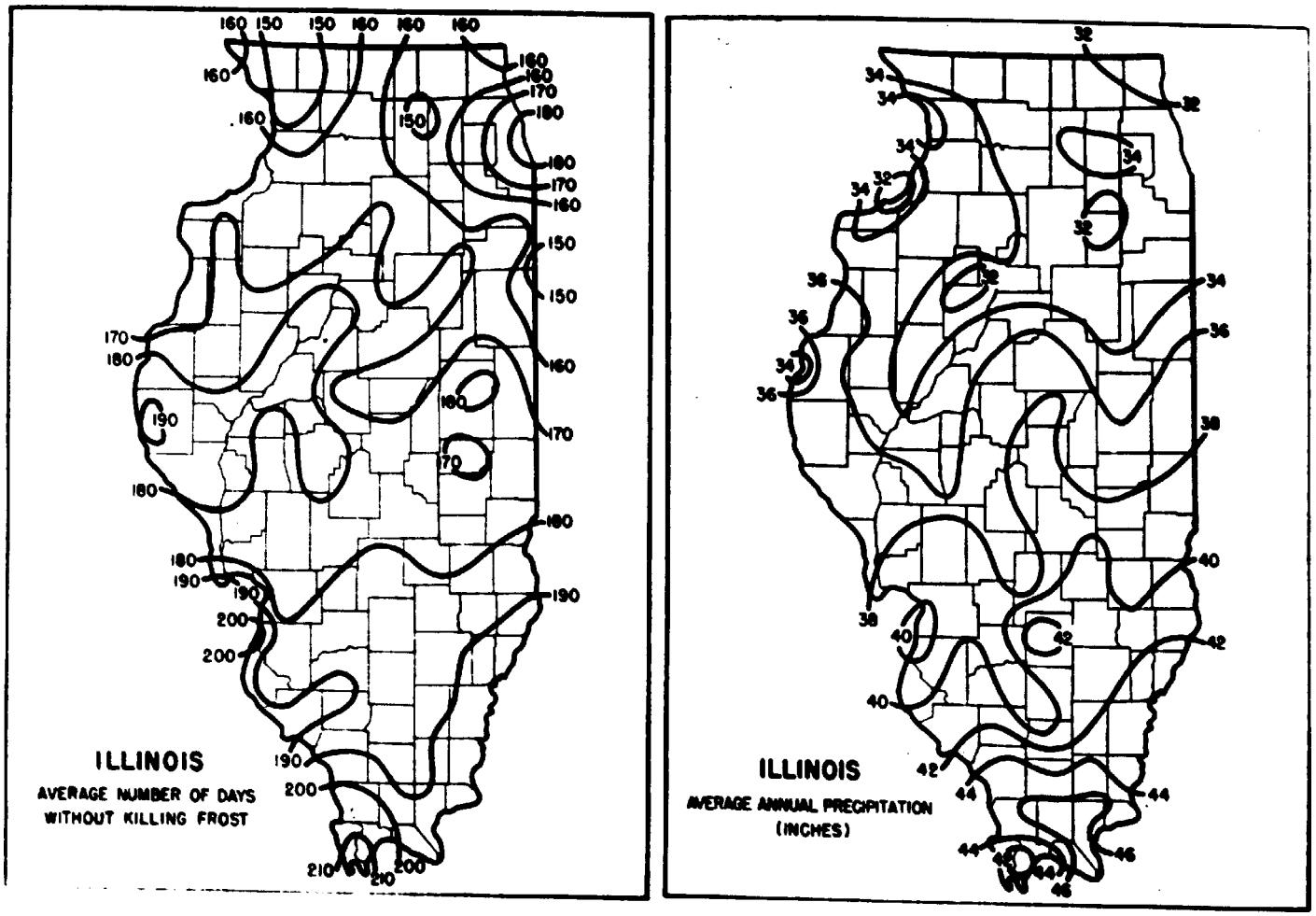


FIGURE 18. LENGTH OF GROWING SEASON AND AVERAGE ANNUAL PRECIPITATION

--From Yearbook of Agriculture, 1941, pp. 849 and 850

Westerly winds prevail in the Region. At Marengo four months have northwesterlies, three have southwesterlies, three have westerlies, while May and August have a preponderance of easterlies. All other stations in and near the Region have similar winds.

The mean annual precipitation of the Region is 33 inches. This is based on data from Antioch, Elgin, and Marengo,[1] which are located in the northeastern, southern, and western parts of the Region respectively. Data for Marengo indicate that 64% (21.1 inches) of the precipitation comes in the six-month growing season, April through September (See Climatic Chart, Figure 17). This is a considerably higher percentage than that of the southern part of the state, although the actual rainfall is less.

June is the rainiest month at Marengo (4.14"), followed by September, May, August, and July, each with over three inches. The rain is chiefly convectional, but cyclones account for considerable too. September is the rainiest month in both Antioch and Elgin.

Although droughty conditions sometimes affect the central and southern parts of the state, rainfall is usually ample in the northern part for both vegetation and agriculture. Only in areas of rapidly permeable soils are droughts deterrents in the Region, but their duration is relatively short and local in nature.

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[1] Ibid., Section 56, pp. 8, 10, 13.

The winter months average less than two inches of precipitation each, with slightly less in December than in January and February. On the average, 28% of the days of the year (104) have .01 inch or more of precipitation. Marengo has a mean annual snowfall of 28.4 inches, the highest amounts falling in January and February. Traces have occurred in July and September. Heavy falls of snow, accompanied by strong winds and much drifting, are not uncommon. But a large part of the snowfall is the result of frequent light amounts that accompany the passage of cyclonic storms.[1]

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[1] Ibid., Section 56, p. 2.

F. Native Animal Life

The indigenous animals of the Region were not endemic, except some of the aquatic life and the nonmigratory birds. Strong evidences point to migration of animals from the Plains States, according to Schmidt.[1] His belief, which is substantiated by others, is that during the early postglacial days a prairie corridor extended eastward from Nebraska as far as Ohio and further in places. As a result, animals unaccustomed to forests spread eastward into the Midwest in the same manner that they spread into Europe from the Steppes of Asia. As forests eventually developed, many of the grassland animals adapted themselves to the vegetational evolution and remained. Thus, species that did not ordinarily inhabit the forests of either the northeastern or the southeastern states persist in the Region, and it would be difficult to explain their presence on any other basis.[2] Although Schmidt's studies have been limited largely to reptiles as migratory criteria, other animals are cited that normally inhabit the Plains.

The most characteristic creatures of the Region at the time of the arrival of the white man were the buffalo, the wolf, and the coyote, now mostly slaughtered or removed to other habitats or simply more important in the

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[1]Karl P. Schmidt, Chicago Natural History Museum (Personal Information).

[2]Karl P. Schmidt, "Herpetological Evidence for the Postglacial Eastward Extension of the Steppe in North America," Ecology, XIX, No. 3 (July, 1938), 396-407.

less-populated Plains themselves. But many other animals were common, including the possum, various shrews, bats, weasels, the Mississippi Valley Mink, the Illinois Skunk, badgers, foxes, woodchucks, ground squirrels, red and fox squirrels, flying squirrels, chipmunks, white-footed mice, prairie meadow mice, muskrats, deer, and several species of rabbits.[1] Most of these persist in varying degrees today.

Bird varieties are very numerous, embracing those that inhabit woodland, prairie, and marsh. Some species migrate northward in the summer, others southward in the winter, but many are permanent residents.[2] Aquatic life includes many types of fishes, frogs, turtles (some of them migrants), and water-loving birds.[3]

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[1]Walter L. Necker and Donald M. Hatfield, "Mammals of Illinois," Bulletin of the Chicago Academy of Sciences, VI, No. 3 (1941), 17-60.

[2]Edward R. Ford, Colin C. Sanborn, and C. Blair Coursen, "Birds of the Chicago Region," Program of Activities, Chicago Academy of Sciences, V, Nos. 2 and 3 (May, 1934), 17-80.

[3]Carl L. Hubbs and Karl F. Lagler, Guide to the Fishes of the Great Lakes and Tributary Waters (Bloomfield Hills, Michigan: Cranbrook Institute of Science, 1941).

CHAPTER III. The Cultural Occupance

A. Population

1. Historical Changes

Scarcely had the Indian titles to northeastern Illinois been forfeited (1829)[1] and the Blackhawk Wars consummated (1831-32)[2] when settlers started occupying the Region in 1834.[3] Boone County apparently had fewer Indian villages of importance than the other parts of the Region,[4] but all of the area was well-occupied until the removal of the Indians onto reservations in Kansas. The Algonquin Family, and notably the Illini, Iroquois, and Pottawatomie Tribes were most numerous,[5] although Kickapoos also ranged into the Region. Numerous evidences pointed to a high stage in mound building in various parts of the Region.[6]

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[1]William Le Baron, The Past and Present of Lake County, Illinois (Chicago: Wm. Le Baron and Company, 1877), p. 219.

[2]Newton Bateman, Historical Encyclopedia of Illinois (Chicago: Munsell Publishing Company, 1909), II, 663ff. History of Mc Henry County (Chicago: Munsell Publishing Company, 1922), I, 23.

[3]History of Mc Henry County, Illinois (Chicago: Inter-State Publishing Company, 1885), pp. 163ff.

[4]Bateman, Op. Cit., p. 662.

[5]Halsey, Op. Cit., pp. 259ff.

[6]History of Mc Henry County, Op. Cit., p. 25. Halsey, Op. Cit., p. 56f.

The first white settlements were along the Fox River and on the Military Road from Chicago to Green Bay. At Algonquin, Dundee, and St. Charles the first cabins were erected among wigwams. But after 1836 few Indians remained in the Region and settlement increased rapidly. The population of Mc Henry County had jumped to 500 by 1837, to 2,578 in 1840, to 22,089 in 1860, and 24,908 in 1880.[1] Of these, four-fifths were native born, coming chiefly from other parts of Illinois, from New York, Wisconsin, Pennsylvania, Ohio, Indiana, and Virginia. Of the 1848 foreign-born inhabitants, almost 40% were from Germany, a quarter were from Ireland, and lesser numbers from England and Wales (690), Norway and Sweden (251), Scotland, Bohemia, France, Switzerland, and others.

But whereas foreign-born English-speaking people were relatively few in number, many of the migrants from other states were of British origin. A roster of early leaders within the various settlements of the county, including physicians, clergymen, and barristers, was overwhelmingly British in background. The Virginia Settlement in eastern Dorr Township was peopled almost exclusively by those of English origin. This little group constituted the most active pioneers within Mc Henry County.

In Kane County, Hoosiers were the first to settle in significant numbers, followed successively by Yankees

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[1] History of Mc Henry County, Illinois, Op. Cit., pp. 230-234.

from Massachusetts and New York, Scotch, Irish, Pennsylvania "Dutch", Welsh, French, Scandinavians, and eventually Negroes. As was true in Mc Henry County, it was the migrants from New England and New York or Virginia who were primarily responsible for the early advancement in both agriculture and industry.

Most of the settlers in Boone County came from New York, Pennsylvania, and New England, where they had anything but level land, and consequently "they were quite surprised and very pleased to find perfectly level land in parts of the county."[1]

By 1875 large numbers of Germans, both foreign-born and native, flocked to the Region. In northwestern Cook County, certain townships, notably Schaumberg, became almost entirely German. The east side of the Fox Valley also has become a German's land, while all of the towns and cities as well as the rural population can thank German efficiency for much of the prosperity of the Region.

2. Population Distribution

In 1940, 9% of the population of Mc Henry County was foreign born. More than a third (35%) of the foreign-born were of German origin and 24% were Scandinavian in background (15% Swedish). Only 10% were from the British Isles, while 9% came from Czechoslovakia. After these, Canadians, Austrians, Netherlanders, Polish, Russians, and

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[1]Bateman, Op. Cit., p. 661.

Italians numbered significantly, followed by lesser numbers from other European nations and Latin America.

In the 1940-1950 decade there were a few changes in the character of the foreign-born population. With the uptrend in population, many foreign-born have moved into the Region from Chicago, other metropolitan sections of the country, and from other nations. Most of these have gone to the industrial areas, but others, notably the Swedes, have trekked to the farm. In the decade, Swedes, both foreign-born and native, have made the most noticeable "back-to-the-farm" and "on-to-the-farm" shift in Mc Henry County.[1] Thus, while only one-sixth of the foreign-born whites of the county were Swedes, between 1940 and 1950 more Swedish-stock than German farmers have been purchasing farms, so that the farming population now appears much more Swedish in trend than German.

Table Number II indicates the population trend in Mc Henry County from 1840 to 1950. In those eleven decades the population rose from 2,578 to 50,656. Although there was no decade in which the population did not increase, the percent of increase varied greatly. The greatest numerical increases were between 1840 and 1850 and again a century later, the latter being somewhat greater. On a percentage basis the former showed an increase of 481%, the latter

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[1] Confirmed by Mr. William Tammeus, Mc Henry County Farm Adviser, and by the names on mailboxes and in plat books.

only 33%. The smallest actual and relative increases (percentages) were in the decade 1910 to 1920.

TABLE II: POPULATION OF MC HENRY COUNTY, BY DECADES, 1840 TO 1950

Decades	Population	Increase	Percentage of Increase
1950	50,656	13,345	33
1940	37,311	2,232	6
1930	35,079	1,915	6
1920	33,164	655	2
1910	32,509	2,750	9
1900	29,759	3,645	14
1890	26,114	1,206	5
1880	24,908	1,146	5
1870	23,762	1,673	8
1860	22,089	7,111	48
1850	14,978	12,400	481
1840	2,578		

The total population of the Region in 1950 was 114,924 (Figure 19), which was an increase of 26% over 1940 (84,751). The increase was largely urban, some rural areas actually decreasing in numbers. The five Lake County townships increased 134%, those in Cook County 34%, those in Kane County 15%, those in Boone County 3%, while Mc Henry County registered an increase of 33%. On a township basis, increases ranged from less than 1% to 226% (Figure 20), while four townships decreased from less than 1% to 5%. The townships with decreases either are without towns or have only small villages. This reflects the fact that the population increases in the decade were in the towns, cities, and the more populated eastern and southeastern parts of the Region, not the dominantly agricultural areas of the northwestern part.

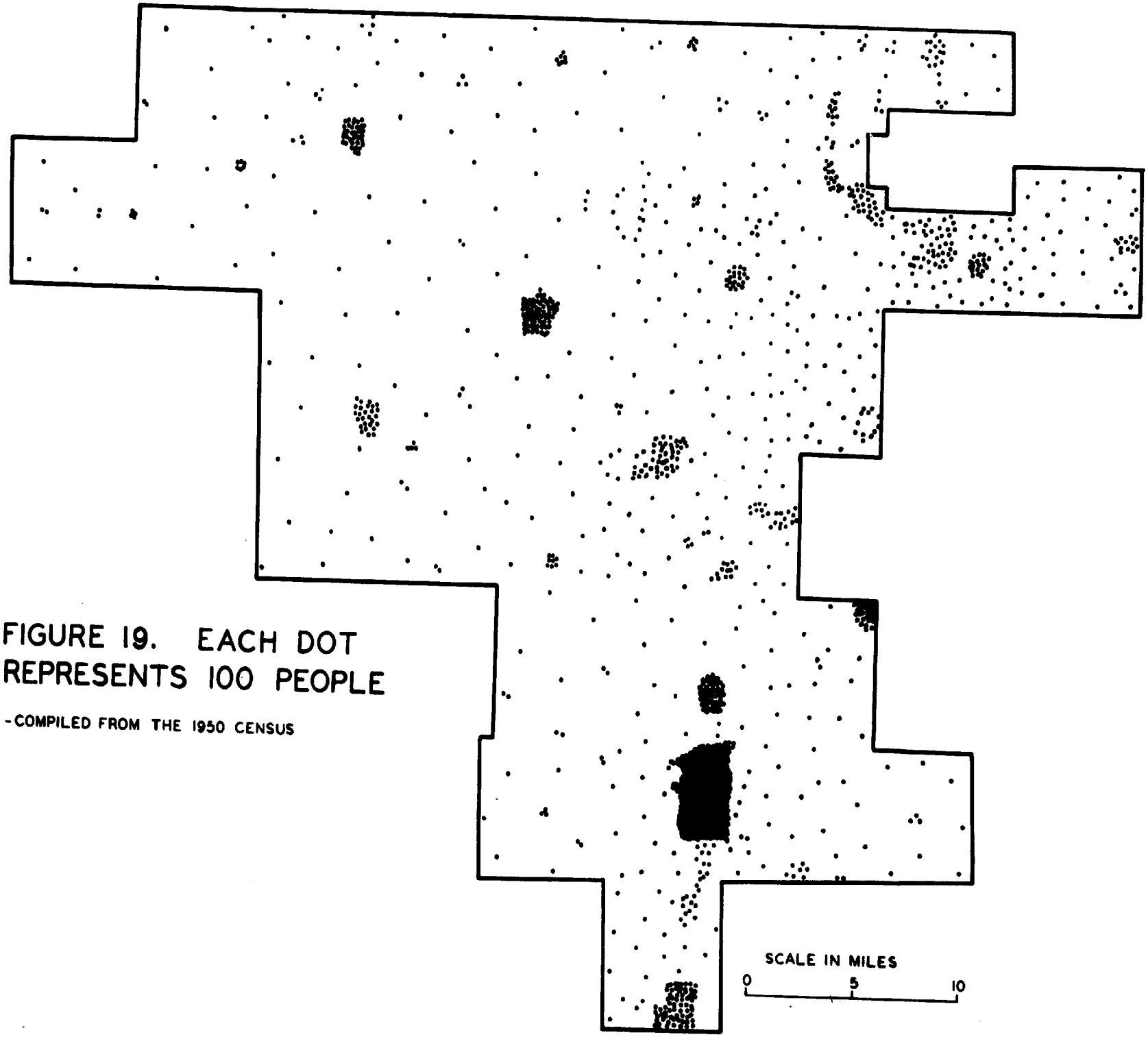


FIGURE 19. EACH DOT REPRESENTS 100 PEOPLE

-COMPILED FROM THE 1950 CENSUS

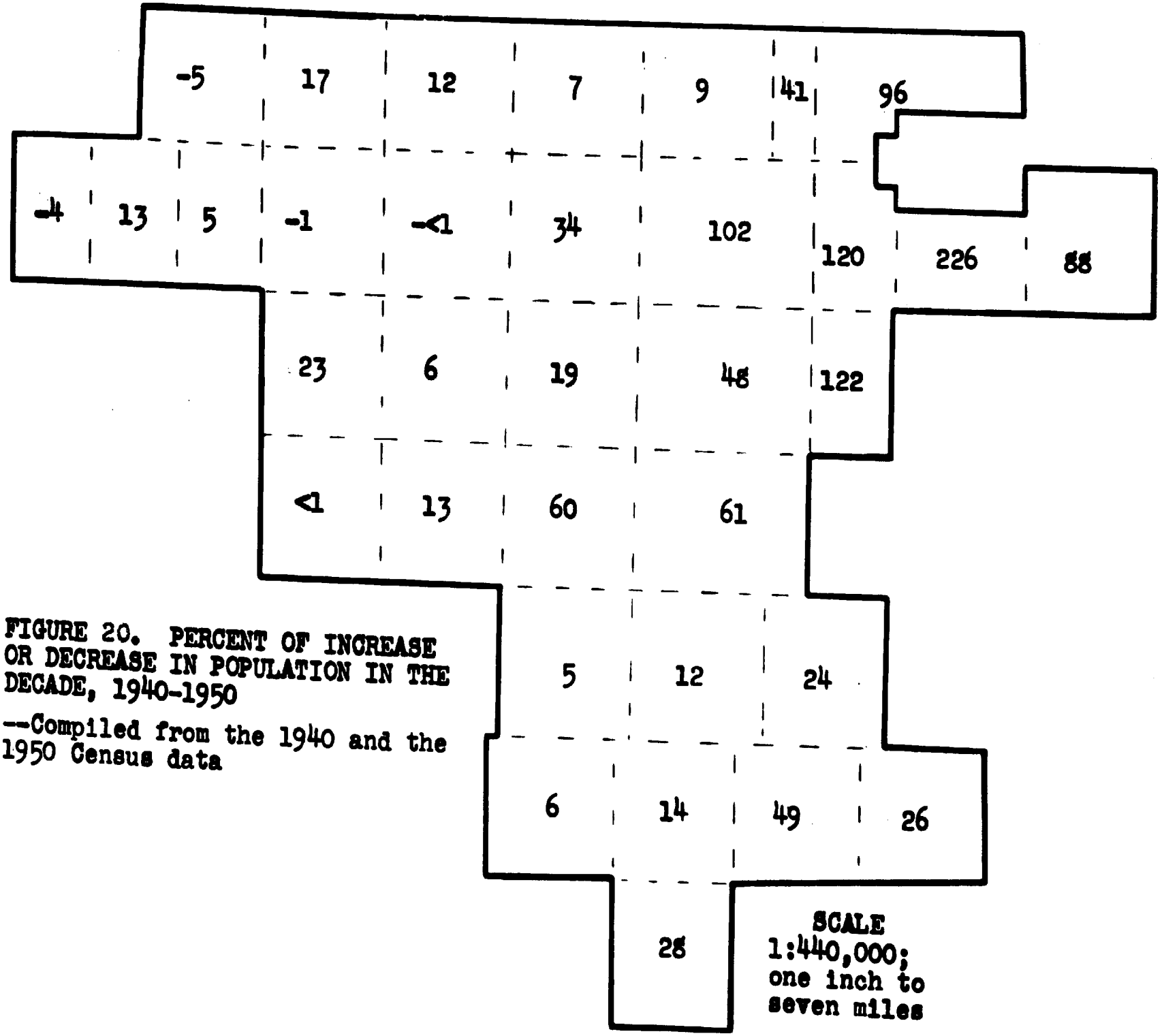


FIGURE 20. PERCENT OF INCREASE OR DECREASE IN POPULATION IN THE DECADE, 1940-1950

--Compiled from the 1940 and the 1950 Census data

The rural farm population was 19% of the total population of the Region in 1940 (Figure 21). In general, the western part of the Region had the highest percentage of farm population. However, Schaumberg Township of Cook County was 81% rural. Boone County was 66% rural,[1] Cook County 33%, Mc Henry 32%, Lake County 23%, but Kane County only 6%.

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[1]Refers only to the townships that are within the Region.

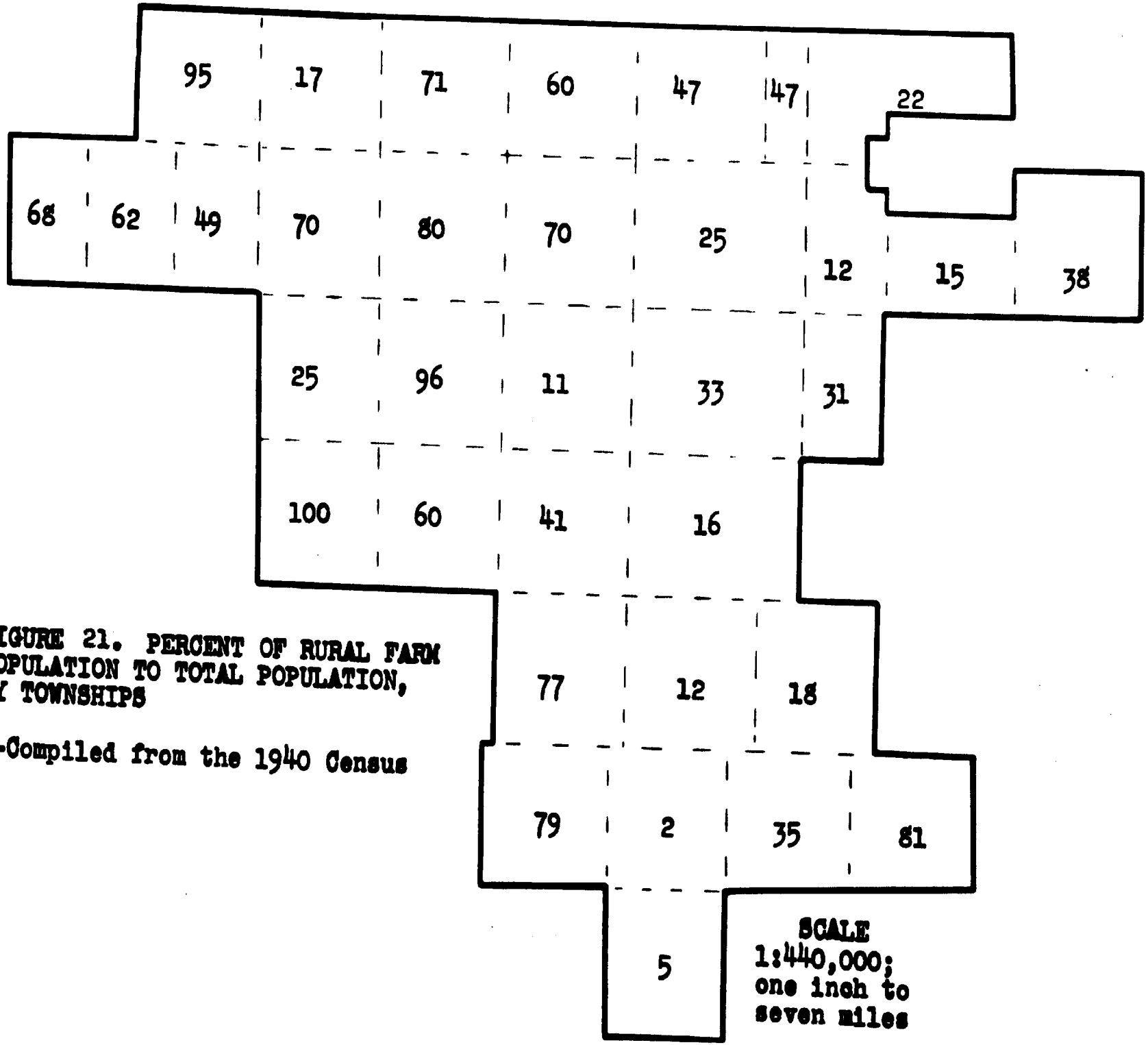


FIGURE 21. PERCENT OF RURAL FARM POPULATION TO TOTAL POPULATION, BY TOWNSHIPS

—Compiled from the 1940 Census

B. Transportation

1. Historical Development

As was true in other parts of the country occupied by the Indians, their trails were the earliest transportation routes. Although their alignments were commonly on relatively well-drained ground, they habitually connected rivers at crossing points. The most important focus of Indian trails was the portage across the Chicago River at Chicago. From there the trails radiated in various directions, into the Region and contiguous areas. The Green Bay Trail (the Military Road from Chicago to Green Bay) was originally one of the trails. Another followed the west bank of the Des Plaines northward to Gurnee, thence crossing the river to the east bank and occupying approximately what is now the right-of-way of the Milwaukee Railroad. Another began at Halfday and led northwestward around the south end of Diamond Lake to the eastern edge of the Fox Valley; then skirting the Chain of Lakes it went north to the present site of Antioch and northward to Muckwanago, Wisconsin.[1] Many other trails have been at least partially followed by present traffic routes throughout all of the Region, sufficiently so that it can be said in general that the northwest-southeast roads were in many cases formerly Indian routes. The north-south and east-west trails were primarily connectors with the main routes.

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[1]Halsey, Op. Cit., pp. 282ff.

The first "highway" in northeastern Illinois was the Chicago-Green Bay Road, which crossed only the eastern edge of the Region. This was followed by an important through route connecting Chicago with Madison, via Lockport, Naperville, Warrenville, Dundee, and Woodstock.[1] Among the other early roads were the plank roads, which were rather numerous in Lake County. One of them connected Antioch with Waukegan and was called the Waukegan Plank Road.[2]

2. Present Transportation Situation

With the increase of population in the Region, the expanding occupance of the land, and the shift to dairying as the chief occupation of the Region, these early roads were greatly expanded into the network now existing (Figure 22). Along with the increase of wagon roads, there was an expanding rail system which likewise resulted from the need for transporting goods.

Today there are five federal highways and twenty-three state highways located in the Region. Their local mileage is 500 exclusive of those within towns and cities. These two classes of roads represent most of the concrete highways in the Region, although there are a number of additional short ones that are either State Aid Roads or

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[1] C. Walker, Biographical Directory of the Taxpayers and Voters of Mc Henry County (Chicago: C. Walker and Company, 1877), pp. 77ff.

[2] Halsey, Op. Cit., p. 280.

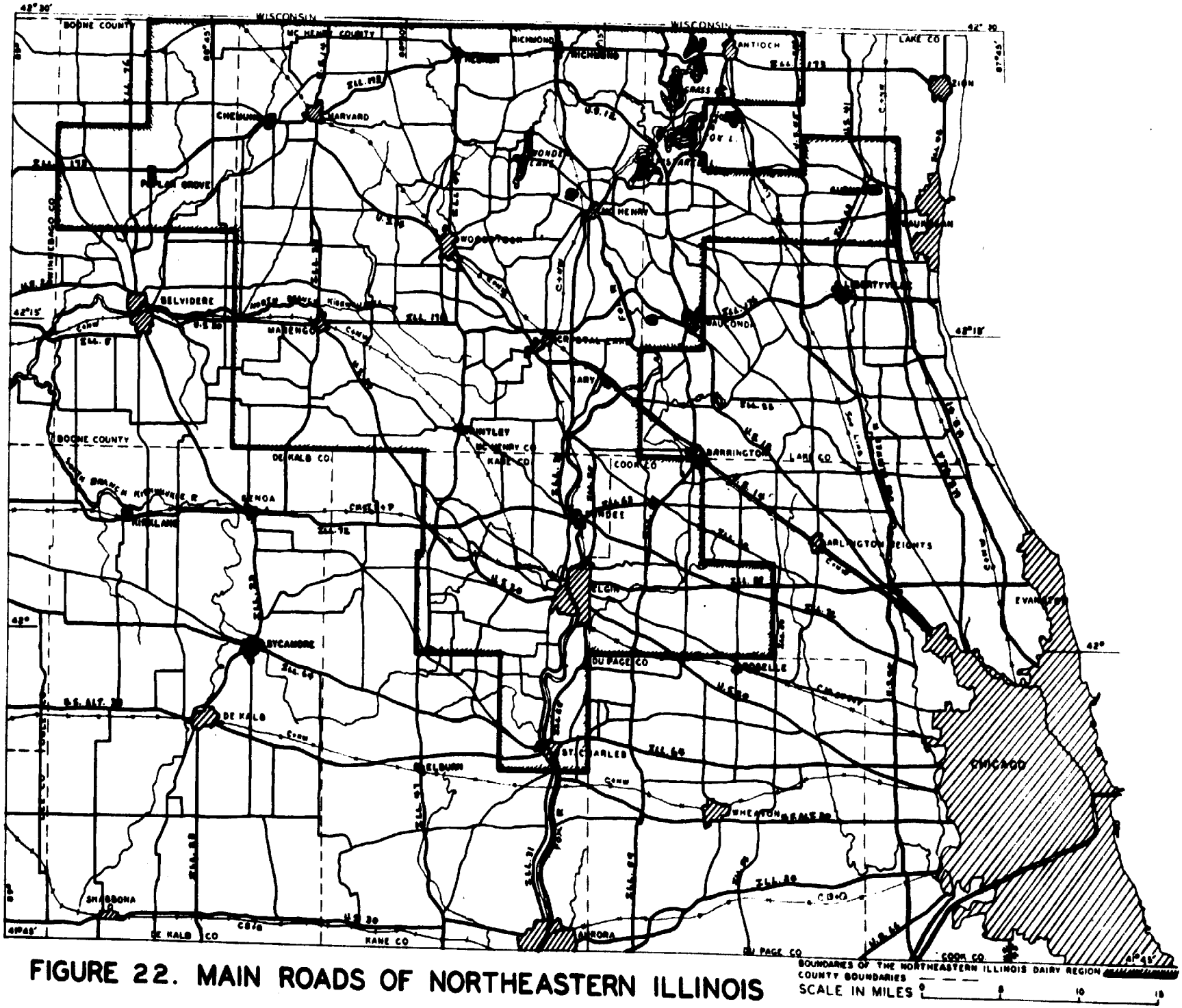


FIGURE 22. MAIN ROADS OF NORTHEASTERN ILLINOIS

simply spurs connecting highways with towns. There are only 20 miles of superhighways, represented by the small amount of U. S. 41 that is in the Region, U. S. 12 as far north as Volo, U. S. 20 southeast of Elgin, a mile of State 64 east of St. Charles (all four of which continue into Chicago as four-lane superhighways), and small sections connecting some of the Fox River Valley cities and towns.

There are many well-maintained State Aid roads of either tarvia or excellent gravel and a few of concrete. Dirt roads are limited and few in number, but they make an appearance in southwestern and northern Mc Henry County, in the former case on low level land, in the latter case in hilly, less accessible terrain. Township roads are frequently of poorer quality gravel than the State Aid ones.

The Kane and Cook County parts of the Region have the irregular pattern of roads which is fairly typical of the entire Region (See Figure 22). Few of the federal and state highways follow the rectangular grid system, but many minor roads adhere to this pattern.[1] The "east-west" highways actually trend chiefly northwest-southeast as spokes of the Chicago network, while north-south highways either follow the Fox along the slopes or crests of the bluffs or maintain cross-country alignments frequently irrespective of section lines. State Routes 47 and 59, for example,

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[1] Many of the lesser roads have been constructed so as to make best use of the terrain--along ridges or away from marshy areas--rather than along either township or section lines.

were constructed purposely to avoid the congestion of the Fox River Valley and thus provide more rapid transit from north to south; whereas they do connect small towns, there is no adherence to the grid system. Furthermore, the radial or nodal character of the road pattern is well emphasized by the radiation of roads from such places as Gurnee, Wauconda, Antioch, Dundee, Elgin, Mc Henry, and Woodstock, as well as from Chicago.

The importance of Chicago as the chief hub of traffic passing through the Region is reflected in the flow of traffic charts.[1] The charts indicate that the most heavily travelled highways are Federal Routes 12, 14, 20, and 41, which cross the Region from Chicago. In general, those that trend northwest-southeast have greater passenger traffic than others, except north-south Route 41 connecting Milwaukee with Chicago. Whether federal or state, east-west and north-south routes that do not connect with Chicago directly have less traffic. Commercial traffic flow is similar, except that U. S. 12 has a smaller proportion of commercial traffic than the other federal routes mentioned.

The first railroad in the Region, and one of the first in the state, was the Freeport Division of the Chicago and Northwestern, passing through Elgin, Huntley, Union,

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[1]United States Department of Agriculture and Illinois Department of Public Works and Buildings, Traffic Maps of Boone, Kane, Lake, and Mc Henry Counties (Springfield: 1947). Also, Illinois Department of Public Works and Buildings, Traffic Map of Chicago Metropolitan Area (Springfield: 1947).

and Marengo, en route to Belvidere and Rockford. There are now 16 rail lines in the Region, two of them electric. The Chicago and Northwestern Railroad, with 7 branches totalling about 133 miles (which is 57% of the total mileage in the Region), is the most important line. The Milwaukee Road, with four branches, is second. In similar pattern to the highways, the railroads also reflect the radial system from Chicago. Only one east-west line and two north-south lines are not strictly a part of the radial system. The total network is close enough so that no place is more than six miles from a railroad, and most places are closer (Figure 23).

3. Communications

Probably no other rural and semi-rural area in Illinois is better served with communication lines--telephone, telegraph, and electrical. The Illinois Bell Telephone Company and its subsidiaries control most of the phone lines, which are knit into an effective system. A few local exchanges exist, chiefly in smaller towns. The Illinois Commercial Company, originally a private farmer-owned company founded in 1890, serves all the area north of Woodstock. The Public Service Company of Northern Illinois and the municipal plants, such as the one at Woodstock, maintain the bulk of the power lines. One gigantic derrick-type high-power transmission line conveys power to local substations. Conspicuous because of their locations on the

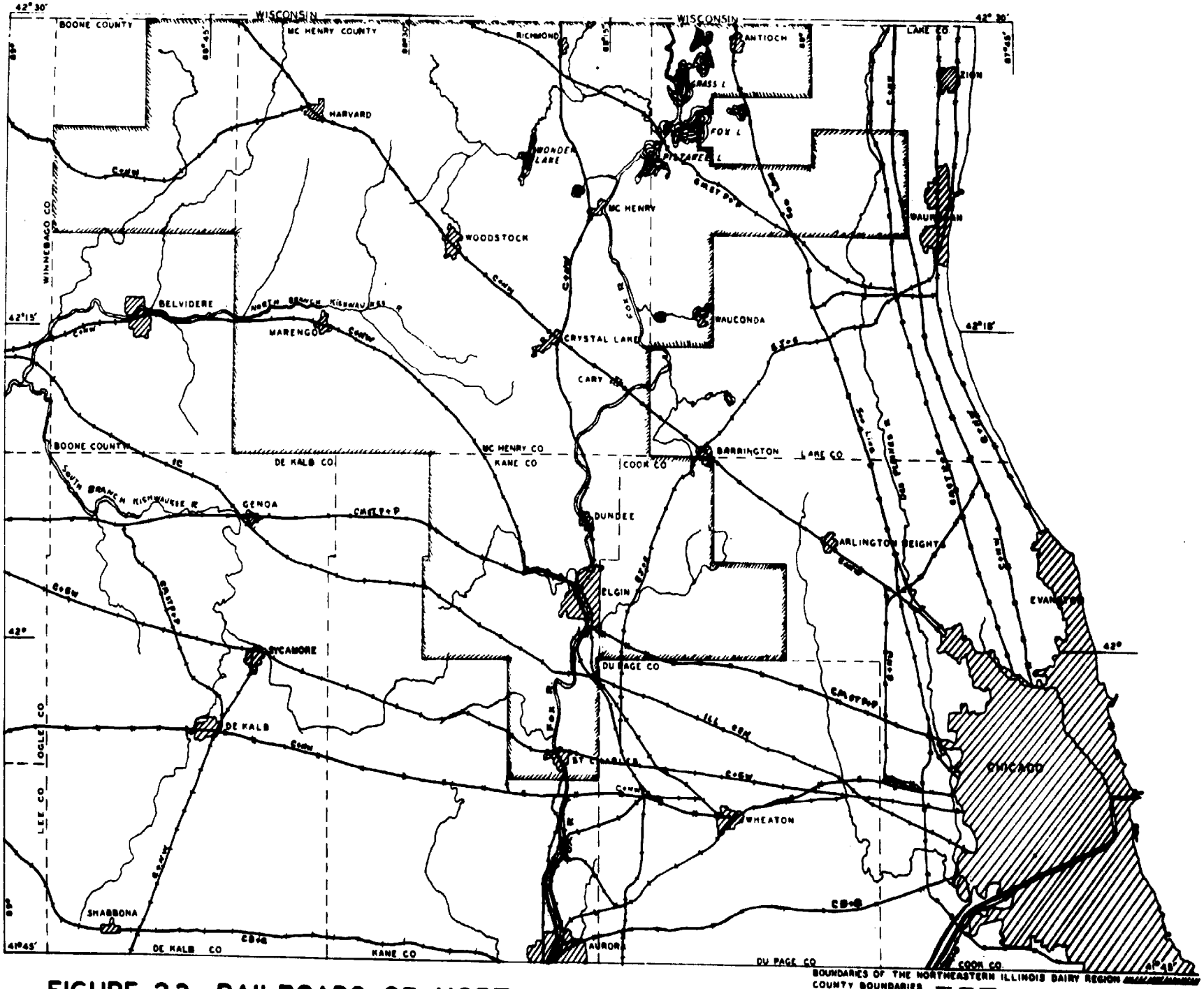


FIGURE 23. RAILROADS OF NORTHEASTERN ILLINOIS

highest vantage points in the locality are the television relay towers. These belong to the Chicago-Omaha and Chicago-Milwaukee Relay Systems (Figure 24).

Several oil and gas pipelines cross the Region. This is indicated by the various colored fence posts where the pipes pass under the highways.

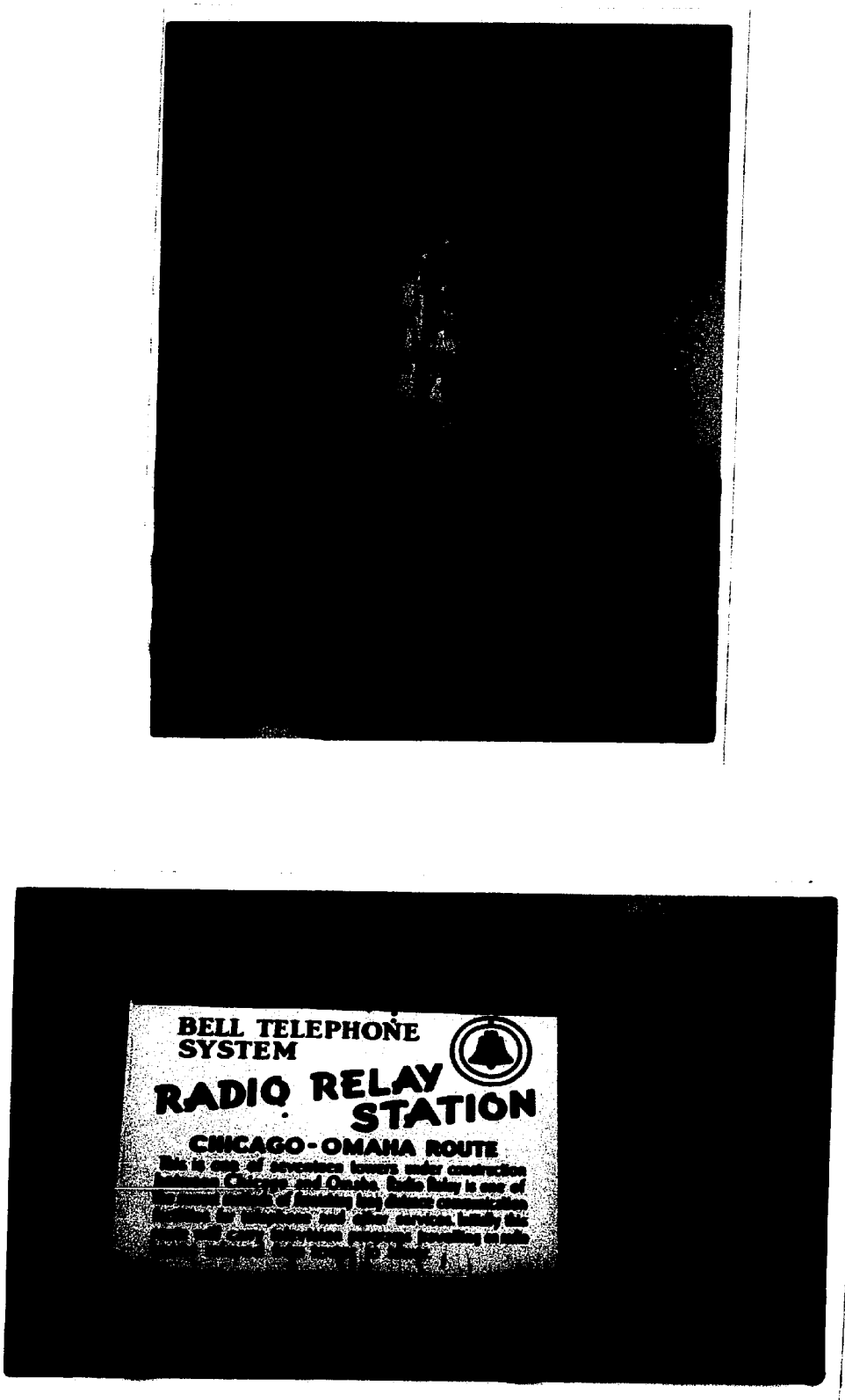


FIGURE 24. A TELEVISION RELAY TOWER AND SIGNBOARD

C. Agriculture

1. Farm Pattern

In spite of the sizeable areas devoted to the Fox Valley Industrial Section, the resort industry of the Lake District, the rural nonfarm population of the eastern part of the Region, and the hillsides that are too steep for cultivation, most of the land of the Region is used agriculturally. Consequently, farmsteads and buildings, farm machinery, fences, crops, farm woodlots and forests, and farm animals dominate the landscape. Most of the activities of the towns, even some of the manufacturing industries of the cities, reflect their dependence upon the soil, directly or indirectly. Thus the accessibility and distribution of the farms is of primary importance to most of the people in the Region.

Unlike European agricultural areas, the farmsteads are dispersed throughout the Region (Figure 25). The distribution, however, is uneven. Farm houses are closer together east of the Fox Valley then west of it. This in turn indicates smaller farms in the eastern part. Farms are least numerous on the level outwash and till areas of Mc Henry County, particularly where drainage is poor, though there are no places where several farms cannot be sighted readily in various directions.

As is true in the morainic areas both northwest and southwest of Harvard, most of the farm buildings line the roads which are located on the slopes of the ridges; by

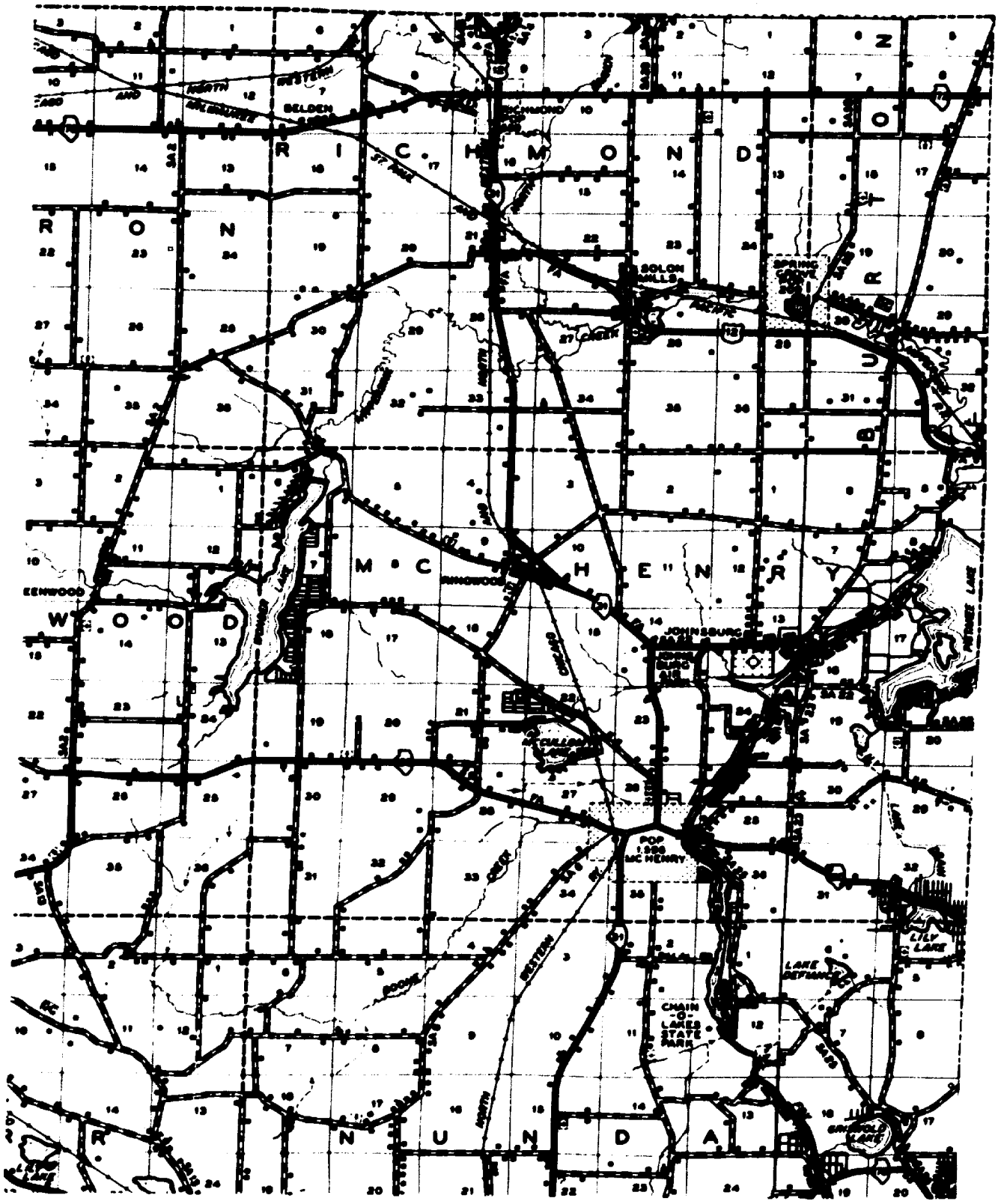


FIGURE 25. THE DISPERSED FARM PATTERN TYPICAL OF MC HENRY COUNTY

--A portion of the 1946-1947 Federal Works Agency Highway Map of the county

comparison they are conspicuously absent on the lowland proper. The same is true on the outwash plain southwest of Woodstock and along the Kishwaukee River.

There is a tendency for farm homes to be most numerous along the state and federal highways. This is the result of greater subdivisions of farms along these routes. Sometimes the subdivision is for more intensive farming than formerly; sometimes it reflects farming on a small scale while the occupant concurrently holds another type of job in town. Also, not infrequently retiring farmers simply build a smaller house adjacent to or near the old farmstead, which the son takes over.

Almost five-sixths of the Region (83%) is in farms. They number 4683 (Figure 26).[1] The average dairy farm comprises about 130 acres, a little less than the average stock or grain farm.[2] Smaller farms frequently occur along highways, as specialty farms in the eastern part of the Region,[3] on hillier ground, or where carrying capacity for one reason or another is low. The larger-than-average farms frequently are parts of estates or

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[1]Compiled from 1940 Census data.

[2]This is based on the following information:
(a) Personal conferences with the County Farm Advisers in Boone, Kane, and Mc Henry Counties,
(b) The several county plat books, and
(c) 1940 Census data.

[3]Chicken, horse-radish, vegetable, and mink.

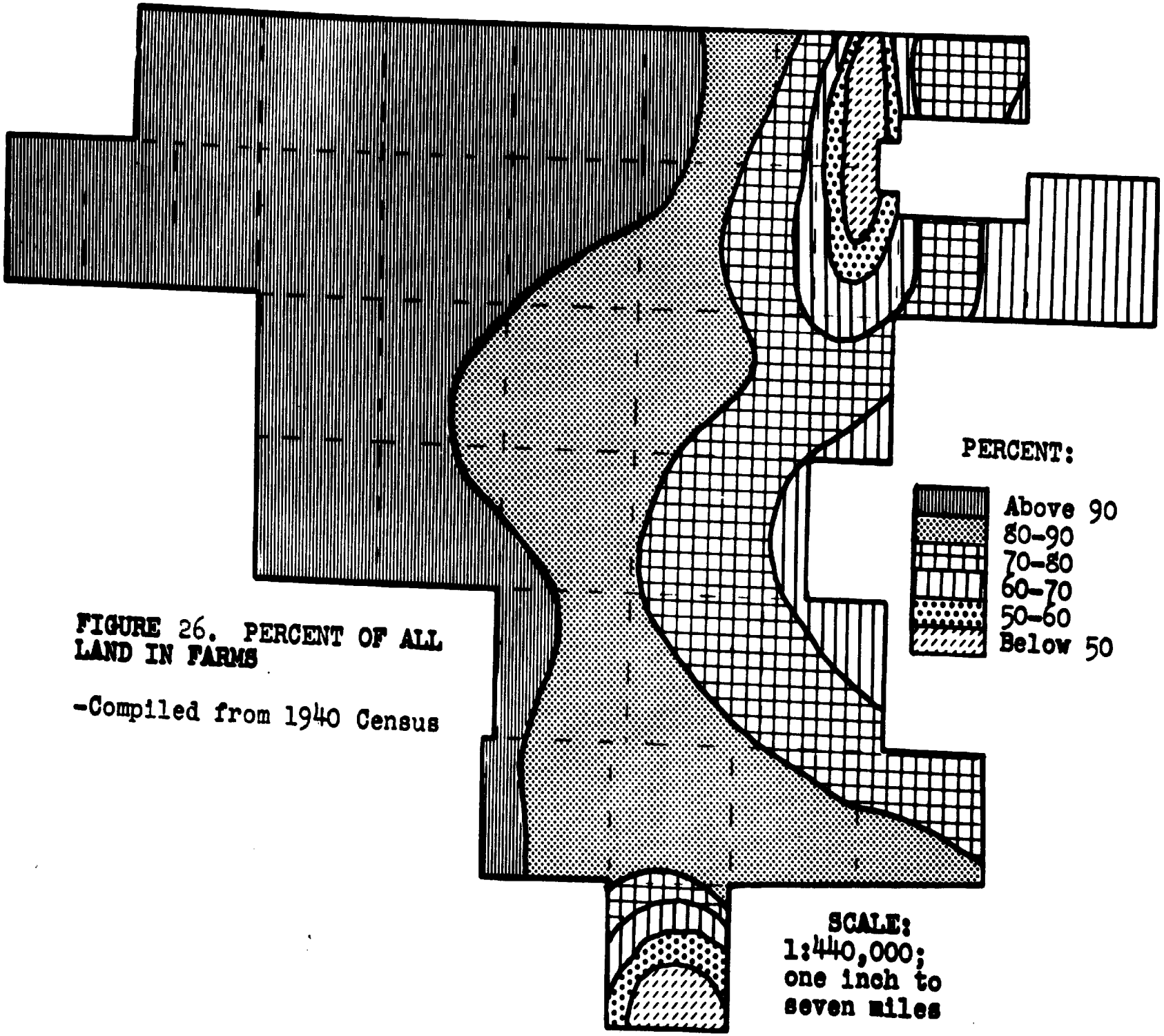


FIGURE 26. PERCENT OF ALL LAND IN FARMS

-Compiled from 1940 Census

large companies[1] or appear where the carrying capacity is highest, usually because of level and fertile land.

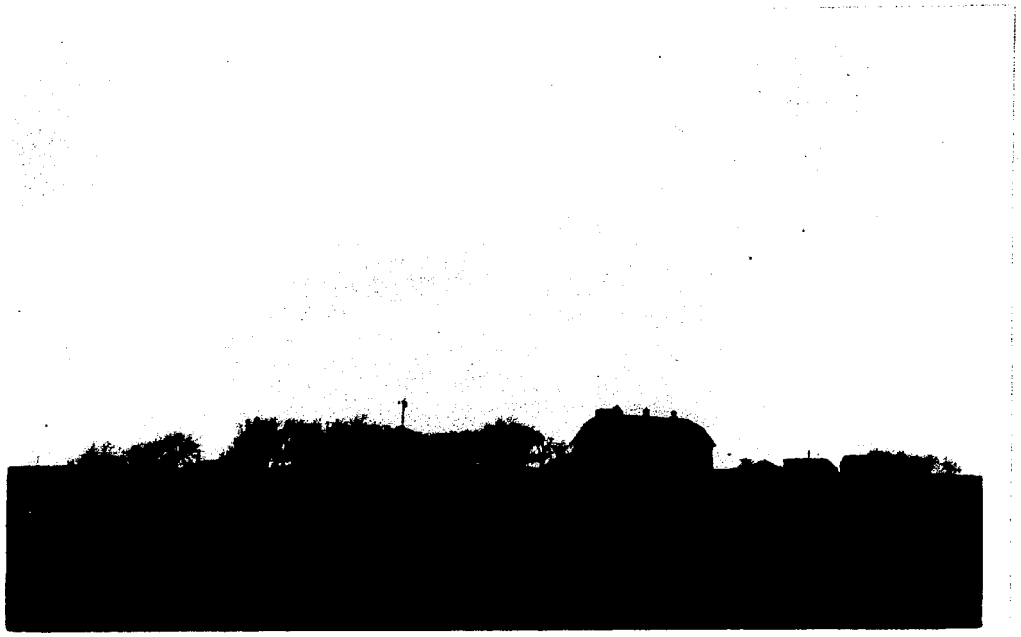
Because of the necessity of housing dairy cows as well as storing hay for winter feed, the largest buildings on the farms are the barns. These are of two chief types:

1. The Gambrel Roof Type (Figure 27), with or without mansard or dormer windows. This type is the most common in the Region because the curved construction of the roof permits huge amounts of hay to be stored.

2. The Gable Type (Figure 28), which is also considered 2½ stories in height. This type is commonly used because it harmonizes with the Northern Traditional Type of house. Both barns are frequently also bank barns, that is, they have an inclined driveway leading to the hay mow which is the second story (See Figure 27). Both barns also invariably have a concrete foundation for the first floor where the cows are milked and housed when necessary. Occasionally an all-concrete barn is seen and now and then a variation of the two main types. There are several

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[1]Curtiss Candy Company operates three of the largest farms in the Region. The Cary farm is used almost exclusively for the breeding of fancy cattle through artificial insemination. Several square miles are devoted to Curtiss farms south of the Kishwaukee, west of Marengo Ridge. A third farm, on Route 25, north of Elgin, is one of the most attractive superfarms of the Region. These farms are NOT maintained as direct sources of milk products for candy-making, although some milk is powdered or dried, and only powdered milk is used in the making of candy. Many other companies and wealthy individuals are represented by above-average farms, which are frequently large. Most of them are in the eastern half of the Region, notably near the Fox River or in Kane County west of Elgin, or in Barrington Township of Cook County.



A GAMBREL ROOF BARN



FIGURE 27. A BANK BARN WITH A GAMBREL ROOF





FIGURE 28. GABLE TYPE BARNS

octagonal barns in the Region (Figure 29). Many farms have two barns. The second may be a twin, or an auxiliary, or it may be another type entirely and may be used for other kinds of animals.

The highest structures are usually the silos, which are most often constructed of concrete, but sometimes of wood and staves or of stone or of metal. Half of the farms in the Region have two silos and larger farms may have three or more. Very few farms are without at least one of them.

Most of the farm buildings throughout the Region are well cared for and well painted. They characteristically give an impression of prosperity. This is somewhat less true in the western part of the Region where soils are sometimes poorer, where distances from the Chicago market reflect less net income, and where corn canning companies have purchased farms and have subsequently allowed them to deteriorate. Yet most of these farms are making their way; their owners simply spend relatively less money on the improvement of buildings than farmers in other sections of the Region. Typical of these less well-equipped farms are those of Boone County (Figure 30).

Farm houses are somewhat more varied than barn types; yet three types or their variants make up 95% of those in the Region. The most common is the two-story, L- or T-shaped Type, frequently called the Northern Traditional (Figure 31). In its usual form it has three gables,



A ROUND BARN



FIGURE 29. AN OCTAGONAL BARN

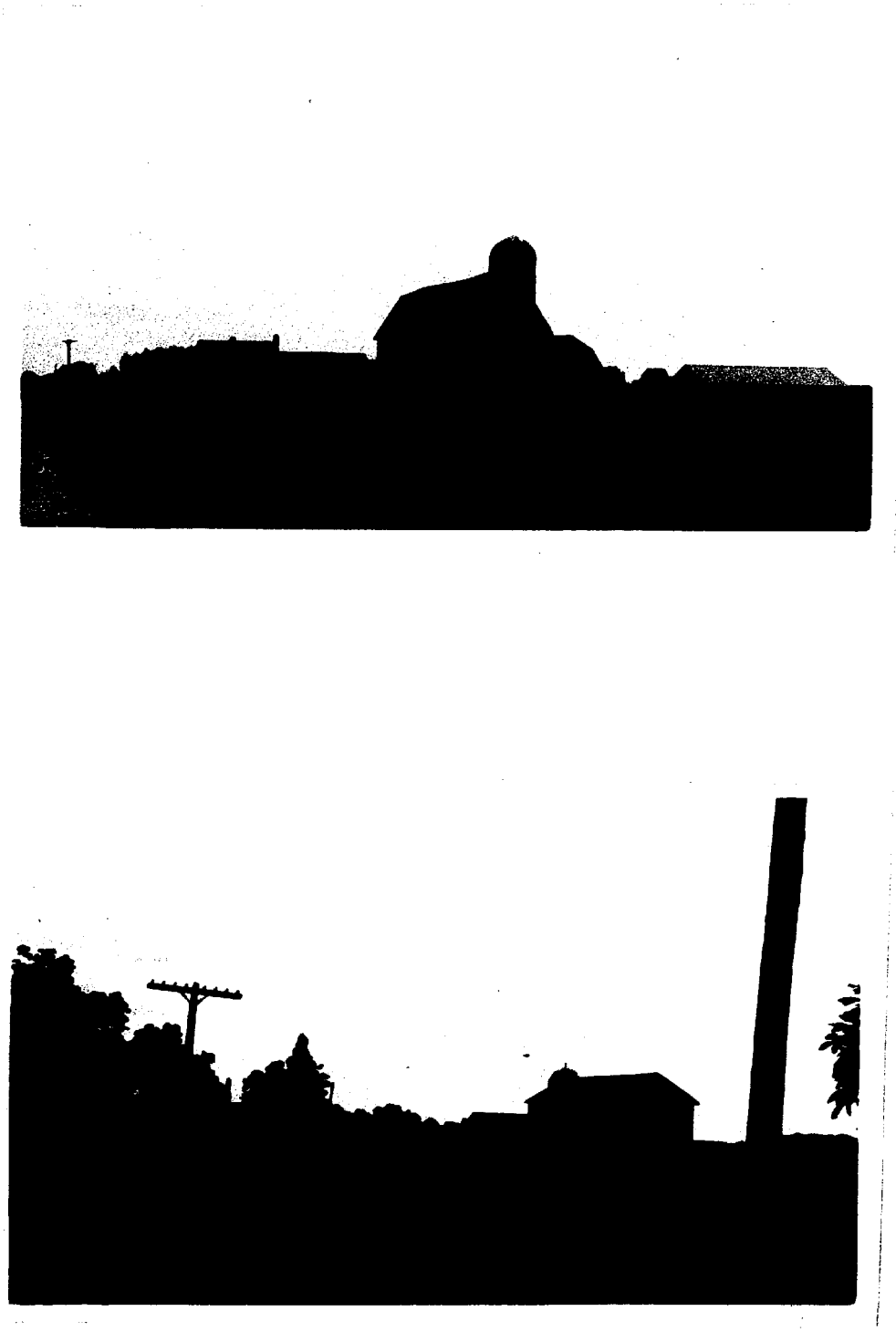


FIGURE 30. AVERAGE BOONE COUNTY FARM BUILDINGS

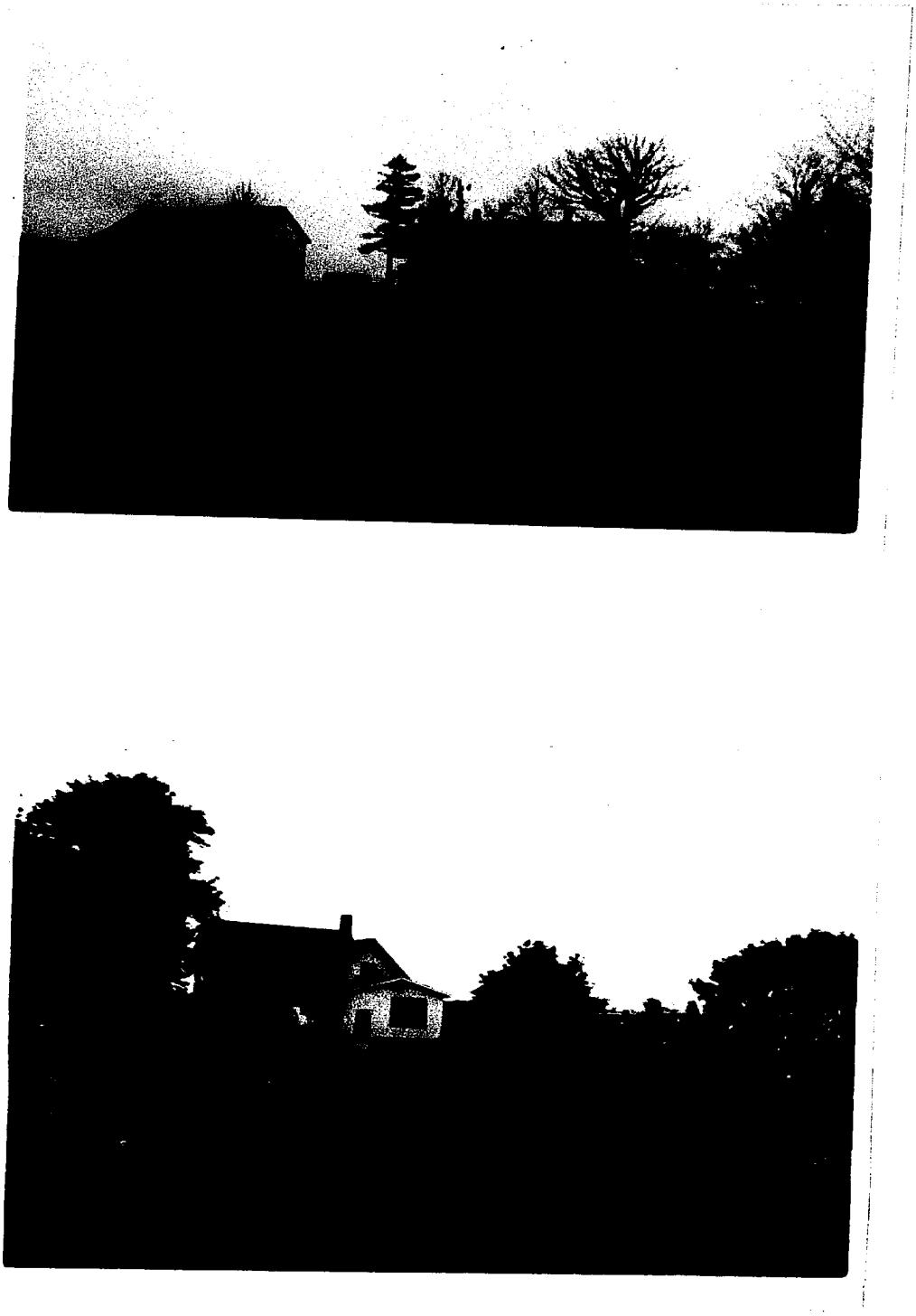


FIGURE 31. NORTHERN TRADITIONAL FARMHOUSES

but larger houses may add a fourth or fifth gable. Approximately 50% of the houses of the Region are Traditional, 35% are the well-known Square Type, 10% are Bungalows (Figure 32), and 5% are of miscellaneous construction. The proportion of brick farmhouses is not high, although it is greater in the eastern half of the Region than in the western half.

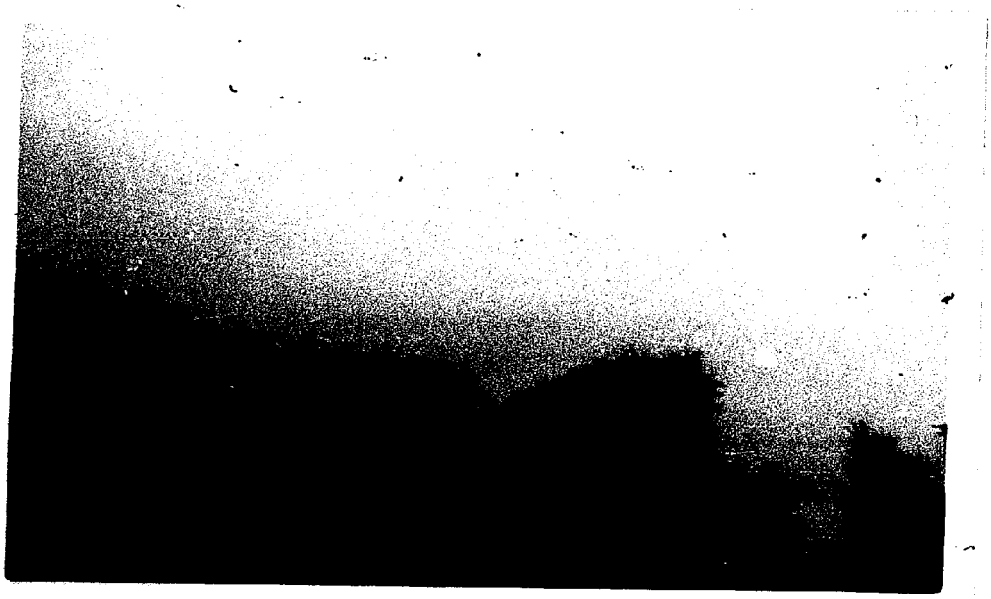
A corn crib or two, an implement shed, frequently a separate tool shed, a chicken house and often a brooder house, a garage, sometimes a pig shed or sheep barn, and a milk house for cooling the milk rapidly are usual additional buildings. On the western edge of the Region a less substantial feeder stock barn or simply an open air lean-to is a common sight.

Many farms in the eastern half of the Region do not actually support the above-average buildings on them. Instead they reflect Chicagoland money invested in them. Many Chicago investors put money from their city enterprises into farm building improvements, thus recording a loss of capital investment, which reduces personal income taxes.

Spatially, pastures of various sorts occupy a high though variable percent of the land. Although permanent grass pastures[1] may appear to be the most important,

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[1]This includes plowable pasture. Sixteen percent of the cropland of the Region is so classed, with the highest percentages occurring in the Lake District and in other sections where surface water resources are fairly high, such as Seneca, Coral, Plato, Dundee, and Elgin Townships.



A BUNGALOW



FIGURE 32. A SQUARE HOUSE

they are relatively much less important than formerly. Under conservation methods, low and wet or peaty lands, where air drainage is sometimes a factor, are being retained in permanent ladino or reed canary pastures. Also, land along streams and in rough areas is frequently best devoted to permanent pasturage. Woodland pastures, often of questionable value for grazing, are common in more rolling areas. Many of these are uneconomic because the grasses are poor and because too often their distances from the barns require excessive walking, which is harmful to dairy cows. Night pastures, which are common sights in parts of Wisconsin, are seldom encountered in the Region. Their small size limits their utility for any large herd, since it is impossible to produce continuous supplies of grass on them.

About 20% of the farms belong to Soil Conservation Districts. Under the Conservation program technicians advise each farmer on the best use of his land, with emphasis upon a crop rotation system. Not only are field crops properly rotated, but in such an important dairying area what is known as rotation grazing is practiced by many of the farmers. Under this scheme cows are admitted to only one hay field at a time, and other hay fields are similarly grazed in turn. Thus while one field is being foraged the others are growing for use in the rotation plan. The income per acre under this plan is tremendous compared to the income that would be derived from a cash crop on the

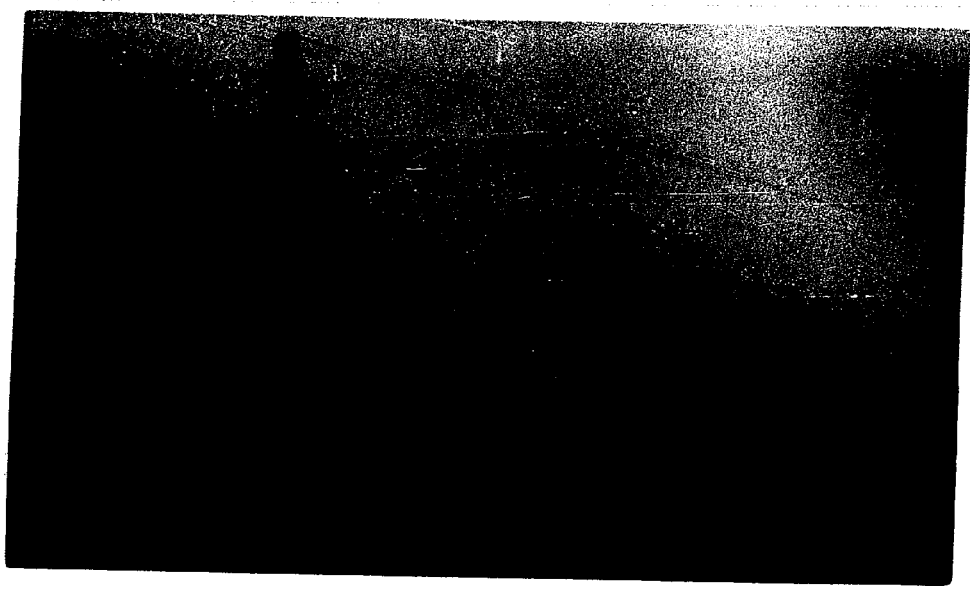
land,[1] partly because of the relatively high and constant prices for milk, but also because there are no labor costs for putting up the hay. Where this type of rotation is practiced there is no fixed pattern of pastures, but instead most of the cropland serves as grazing land at one time or another.

Non-dairy farmers have larger and less numerous individual fields than dairy farmers. Partly because of this they are inclined to practice somewhat less rotation than dairymen. But as a whole the values of rotation have been well demonstrated in the Region, and most farmers, whatever their classification, practice it. Hence the sizes and shapes of fields, as well as the crops produced, change more frequently than in the Corn Belt, where field crops dominate the landscape. In conjunction with rotation grazing, few fields on dairy farms have the same crop more than two successive years.

Woodland now occupies between 5 and 10% of the average dairy farm of the Region.[1] Some of the original hardwood forest still stands, particularly on the highest lands, but most of the wooded areas are second growth. Whereas there is no consistent pattern in the location of woodlands, they are most commonly found: (1) In the center of sections of land (Figure 33), or in comparable less

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[1]Statements of Mr. William Tammeus, Mc Henry County Farm Adviser (Personal conference).



A FARM GROVE

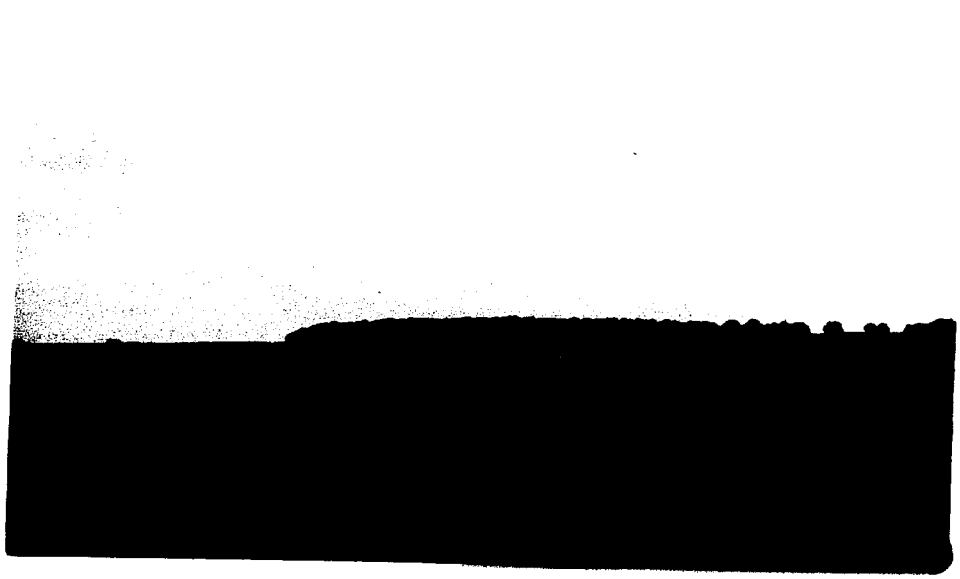


FIGURE 33. A CENTER-OF-SECTION WOODLAND

accessible locations where roads are more than a mile apart, (2) In rough terrain, especially on steeper moraines, (3) Along streams, except where marshy conditions exist, and (4) As woodlots or groves near the farmhouse (See Figure 33). However, they are likely to appear almost anywhere, and they vary in size from a woodlot or wooded pasture of little worth to a continuous oak forest of considerable potential value on the higher moraines.

May-Day Farm, located south of Woodstock, near the junction of State Routes 47 and 176, is cited as a representative dairy farm of the Region. Although the acreage of the farm is above the Regional average, the buildings are proportionally the same both in number and condition as are to be found characteristically (Figures 34 and 35).

In 1951, 88% of May-Day's 240 acres was cropped, with hay rotation pastures occupying more than 50% of the cropped land (Table III). Grains represented 48% of the cropped land. The 12% noncropped land was devoted to woodland, roadways, waterways, farm buildings, and marshes (Figure 36).

TABLE III: MAY-DAY FARM'S CROPS AND CROPLAND, 1951

Hay and Rotation Pasture	52% of the Cropland
Hay and Rotation Pasture	46% of the Farm
Corn	31% of the Cropland
Oats	17% of the Cropland
Cropland	88% of the Farm
Noncropland	12% of the Farm

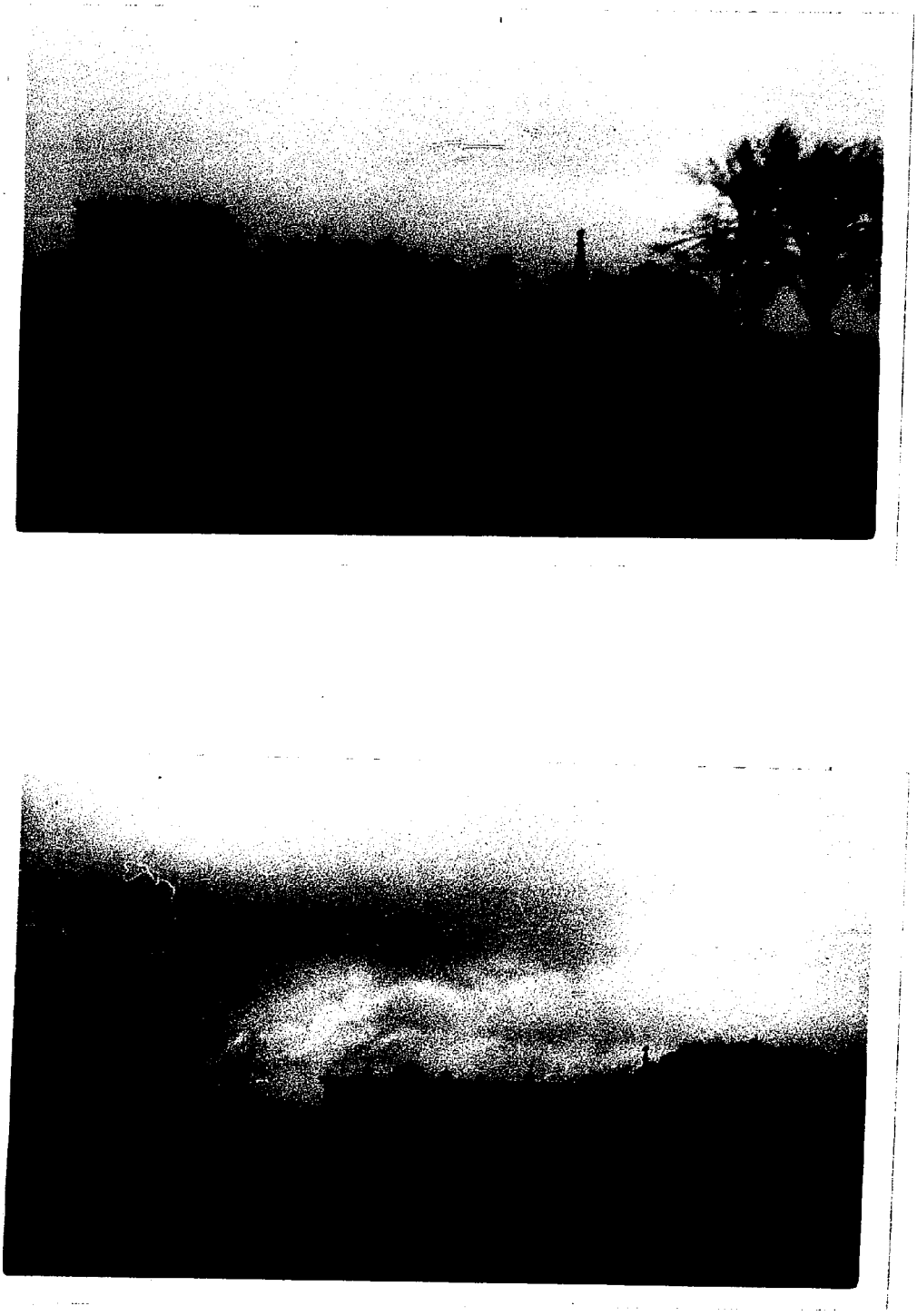
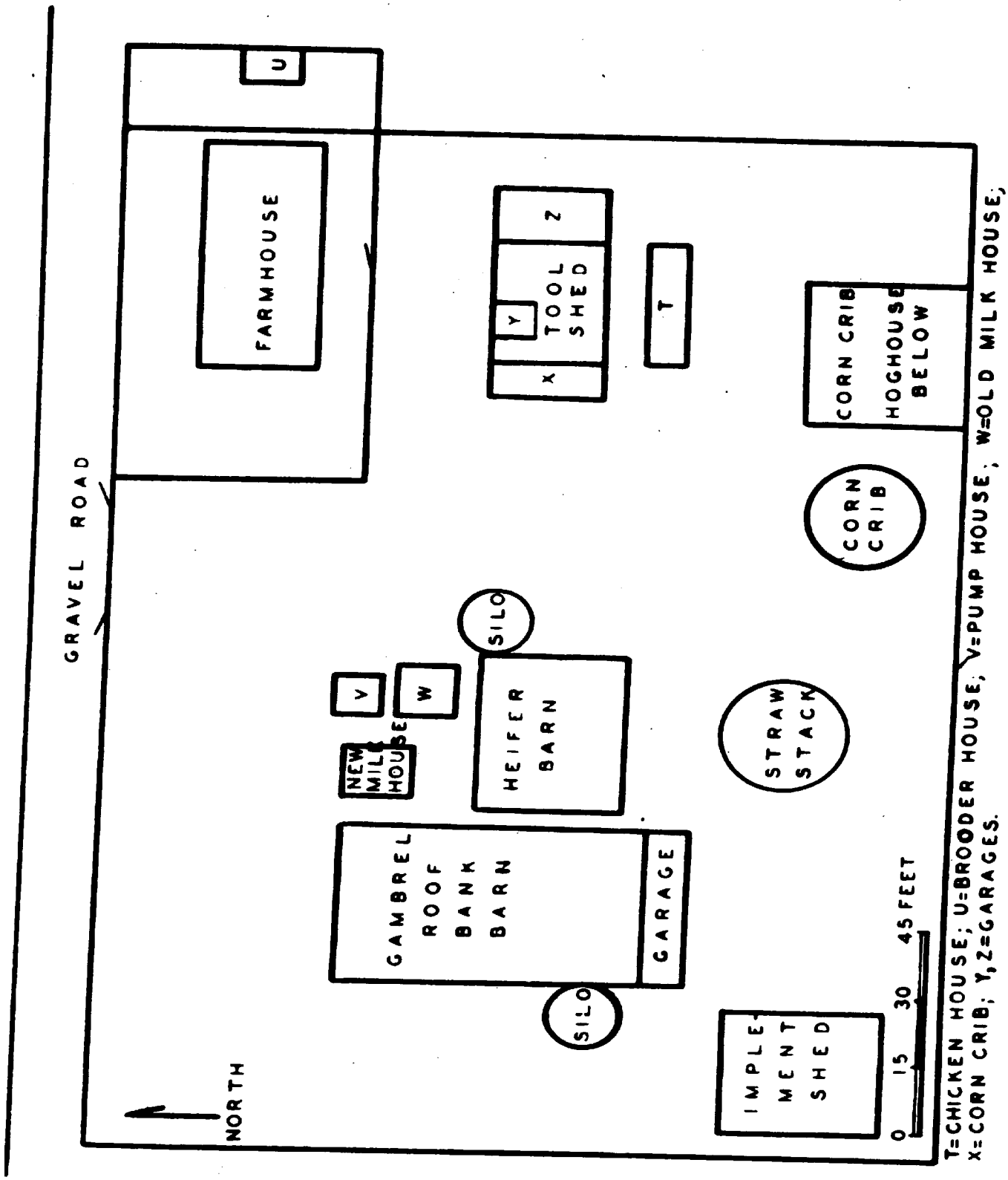


FIGURE 34. VIEWS OF MAY-DAY FARM



T=CHICKEN HOUSE; U=BROODER HOUSE; V=PUMP HOUSE; W=OLD MILK HOUSE;
X=CORN CRIB; Y,Z=GARAGES.

FIGURE 35. BUILDINGS OF MAY-DAY FARM

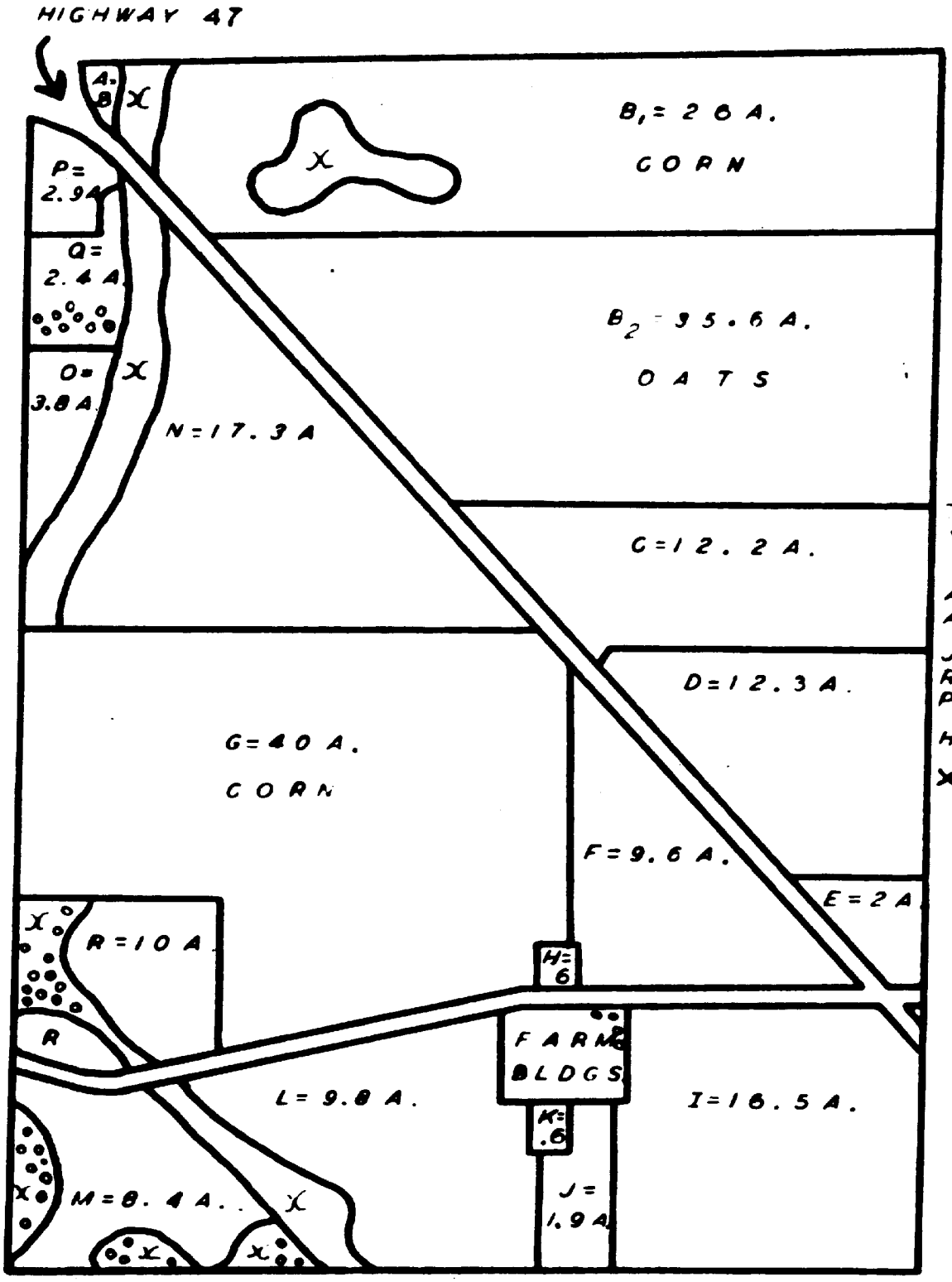


FIGURE 36. FIELD PATTERN OF MAY-DAY FARM, 1951

SCALE 0 528 1056 1584 FEET
0 .1 .2 .3 MILE

In 1949 the field arrangements were somewhat different and the acreage planted varied likewise from 1951. In the former year, 75 acres were sown to corn (20 for silage), 50 acres to oats, 40 acres specifically to alfalfa to be cured for winter hay, 12 acres were in other hays, 25 acres were in rotation pasture (i.e. hays grazed by cattle themselves), 20 acres were turned under as green manure, and 18 acres were not cropped.

2. Farm Values

The values of farmland, buildings, and machinery in the Region are appreciably above the average for the state (Table IV). The total value of farmland and buildings represented 2.6% of the total for the state in 1949, while the Region itself embraces only 2% of the state's area. Likewise, the average farm was valued at a figure 22% above the state average. On a per acre basis the farmland and buildings of the Region were 40.4% more valuable than the state average.

Indicative of the large and expensive buildings necessary for dairying is the fact that by value 4.1% of the state's buildings are in the Region. In fact, the buildings are 87.7% more valuable per farm than the state average. Similarly, the average farm in the Region has a farm machinery investment 30% greater than is true for the state as a whole.

TABLE IV: VALUE (IN DOLLARS) OF MACHINERY, BUILDINGS, AND LAND OF THE REGION COMPARED TO THE STATE (1940)

		REGION	STATE
(1)	Average Value of Machinery Per Farm	1,228	990
(2)	Total Value of Buildings	26,476,775	640,151,326
(3)	Percent (2) is of State	4	
(4)	Average Value of Buildings Per Farm	5,778	3,080
(5)	Percent (4) is of State	4.1	
(6)	Total Value of Land and Buildings	65,323,938	2,537,117,306
(7)	Percent (6) is of State	2.6	
(8)	Average Value of Land and Buildings Per Farm	14,445	11,887
(9)	Average Value of Land and Buildings Per Acre	114.8	81.76

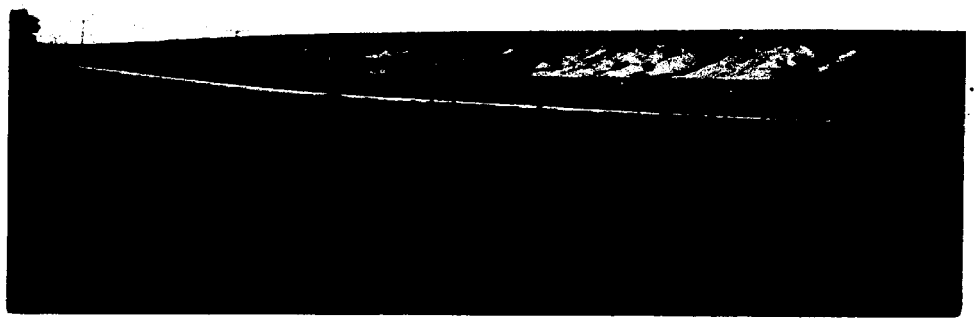
Table V below shows the value of farmland, buildings, and machinery for 14 selected townships within the Region. They have been chosen to show trends in values and to indicate departures from the Regional averages.

TABLE V: VALUE (IN DOLLARS) OF FARMLAND, BUILDINGS, AND MACHINERY, BY SELECTED TOWNSHIPS (1940 CENSUS)

	Average Value of Farmland and Buildings per Farm	Average Value of Farmland and Buildings per Acre	Average Value of Buildings per Farm	Average Value of Machinery per Farm
Boone County:				
Poplar Grove	12,152	91.89	5,190	1,280
Caledonia	14,744	93.07	6,020	1,806
Mc Henry County:				
Coral	10,379	87.60	4,548	761
Dunham	12,529	86.15	4,915	1,319
Hartland	17,204	93.59	8,222	1,507
Greenwood	15,359	100.48	6,909	1,500
Algonquin	15,048	141.91	7,838	1,543
Burton	20,615	101.48	6,853	2,193
Kane County:				
Plato	13,243	106.43	6,650	2,120
Dundee	19,612	121.56	7,904	1,735
Lake County:				
Antioch	12,156	114.12	3,753	525
Warren	17,226	173.77	6,500	961
Cook County:				
Barrington	20,773	148.60	10,360	1,434
Schaumberg	14,448	124.02	6,180	1,220
ILLINOIS:	11,887	81.76	3,080	990

In general, these data indicate that farm values increase eastward and southeastward as the Chicago area is approached. But there are notable exceptions. For example, the average farm (land and buildings) in Coral Township is of less value than the townships of Boone County farther west because of a combination of much marshy area, considerable rough land (Marengo Ridge), and poor sandy outwash soils on the southwest flank of the Ridge west of the town of Harmony. Antioch also reflects a great deal of marsh land as well as considerable rough land where erosion is sometimes a problem (Figure 37) and soils are poor; also buildings have the least value of the entire Region. Schaumberg and Warren Townships have lower than expected average values per farm because they have many smaller farms that are devoted to truck crops and/or orchards.

High average values of farmland and buildings per farm for Burton, Barrington, and Dundee Townships are the result of several larger-than-average farms included; but their values per acre vary considerably. There is a greater correlation in the increase of value of farmland and buildings per acre as one nears the Chicago area than is true of the value of land and buildings per farm. The reason for this, in part, is because the farms are smaller eastward, but they have greater value added because of their buildings.



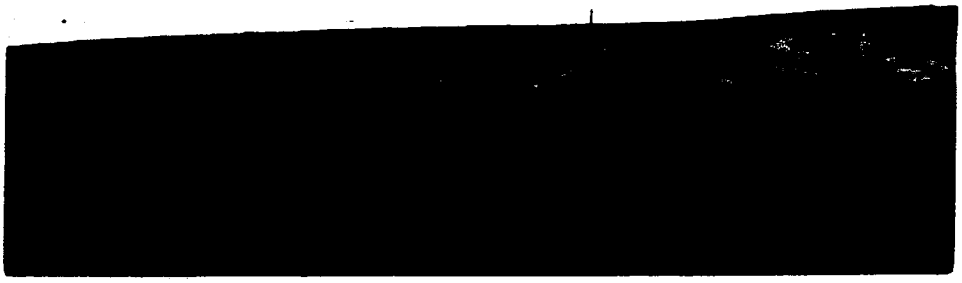


FIGURE 37. ERODED SLOPES EAST OF ANTIOCH

3. Farm Production

a. Dairying--Chief Occupation

Dairying--the production of fluid milk for daily consumption--is the most important farm activity of the Region. Seventy-five percent of the farms of Mc Henry County are classed as dairy farms, and the rest of the Region approximates a similar figure.[1] No other part of the state is nearly as important in this respect. Parts of Wisconsin adjacent to the Region derive the bulk of their income from milk, but the milk is used principally for condensery products, cheese, or butter, rather than as fluid milk, except in the areas which are in the Chicago and Milwaukee fluid milk sheds.

Equally impressive as the percent of farms in the Region that are classed as dairy farms is the percent of farms reporting dairy products. This figure is also calculated at 75% for the Region.[2] Seventy-three percent of the farms reported whole milk sold. In this case rather wide variations occurred. Except for Schaumberg Township, the southeastern and eastern parts reported fewer farms selling milk than was true for the Region as a whole. Although further away from the market, the western and northwestern parts, notably Boone, Dunham, and Hartland Townships, had a higher percentage of contributors (Figure 38). This

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[1]Based on data from the 1940 Census.

[2]Based on data for counties, 1940 Census.

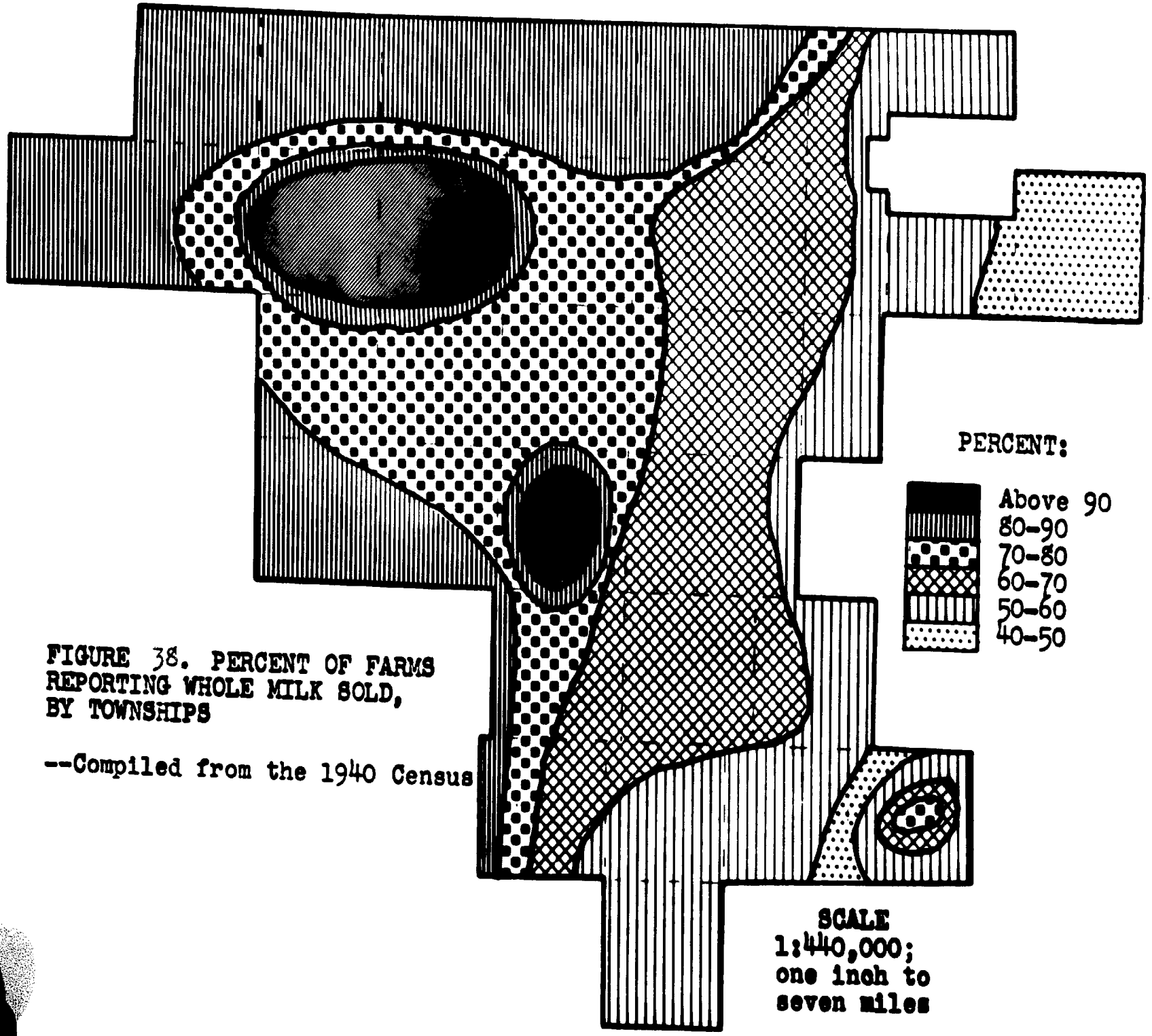


FIGURE 38. PERCENT OF FARMS REPORTING WHOLE MILK SOLD, BY TOWNSHIPS

--Compiled from the 1940 Census

reflects the higher price paid, despite distance, for fresh milk in Chicago than for milk for cheese, powdered and condensed milk, ice cream, or butter in Rockford, or Freeport, or southern and southwestern Wisconsin, where these last four products enjoy considerable concentration.

Certain areas show extremely high production of milk per section on an annual basis. Hebron Township, as well as the south central part of Mc Henry County and north central Kane County have the greatest production, with over 70,000 gallons per square mile. As Figure 39 indicates, production decreases toward the edges of the Region, except the northern. Lowest production in the Region is the Lake District around Antioch, where marshiness, the presence of lakes, hills, and resorts preclude such intensity. Figure 40 also indicates milk production per section.

Considering the importance of dairying, relatively few cattle are actually seen from the highways. Nevertheless, the cow population is large (Figure 41).[1] Milk cows are most numerous in western and northern Mc Henry County, with the largest actual number around Hebron, which is also outstanding in milk production. Eastward from Hebron and Richmond the number of milk cows decreases rapidly as the Lake District is approached. There is another rapid decrease on the southern edge of the Region near

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[1]About 90% of the dairy cattle are Holsteins, which reflects the dairyman's desire for quantity, since that breed gives more milk than any other. Brown Swiss and Guernseys represent 3 to 4% each; and Jerseys and Ayrshires 1 to 2% each.

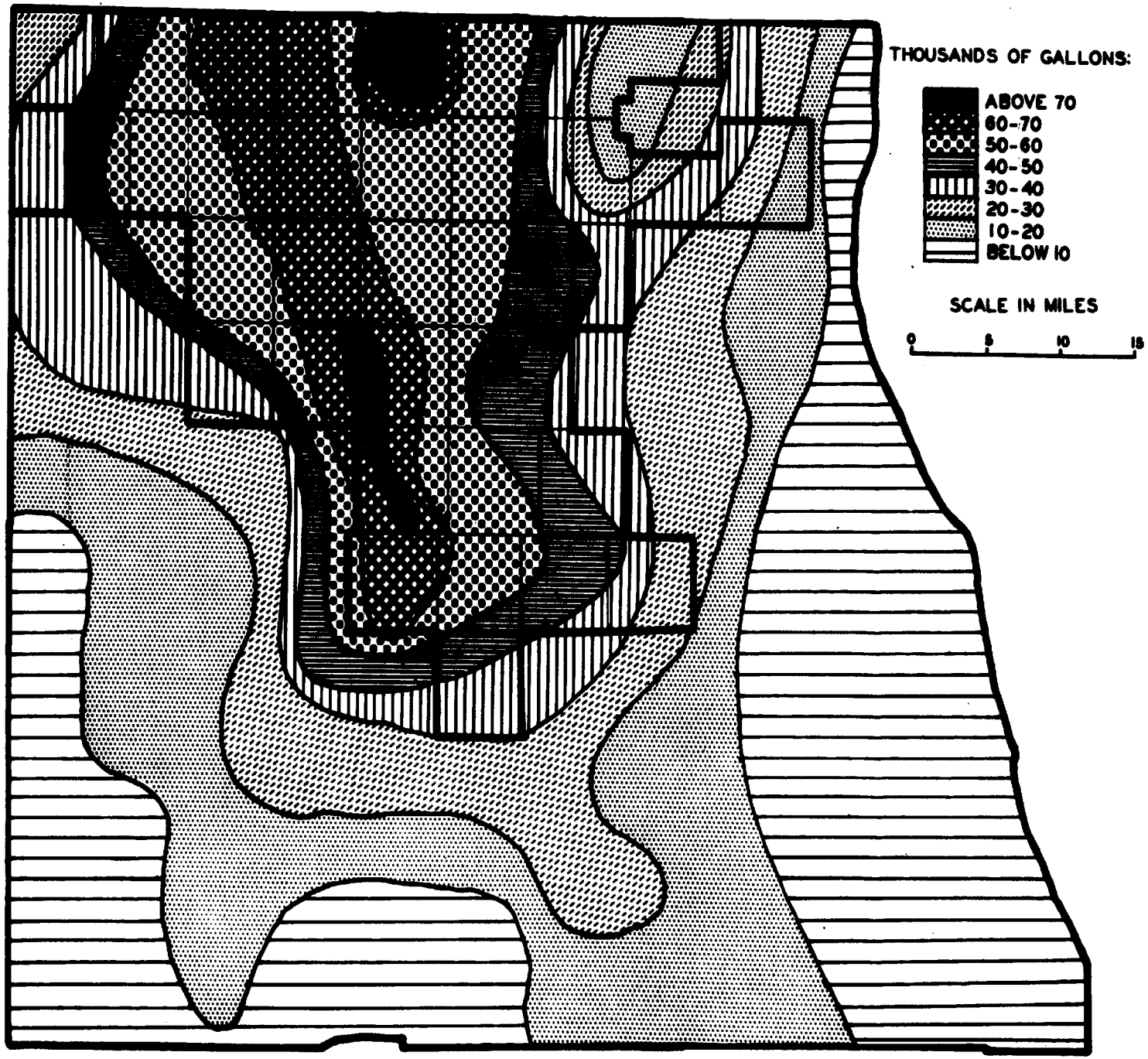


FIGURE 39. THOUSANDS OF GALLONS OF MILK PRODUCED PER SECTION
--COMPILED FROM THE 1940 CENSUS

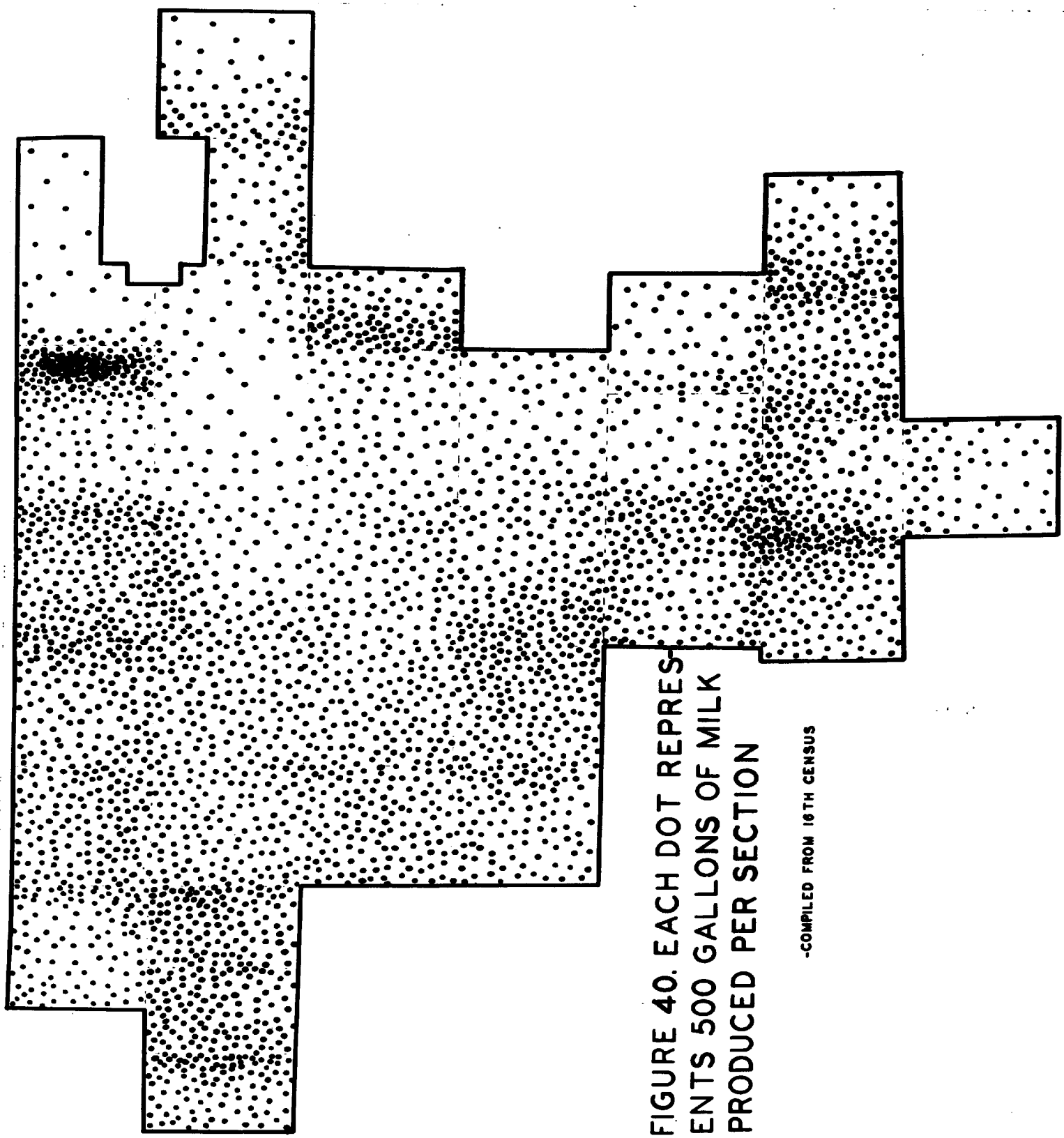


FIGURE 40. EACH DOT REPRESENTS 500 GALLONS OF MILK PRODUCED PER SECTION

-COMPILED FROM 16TH CENSUS

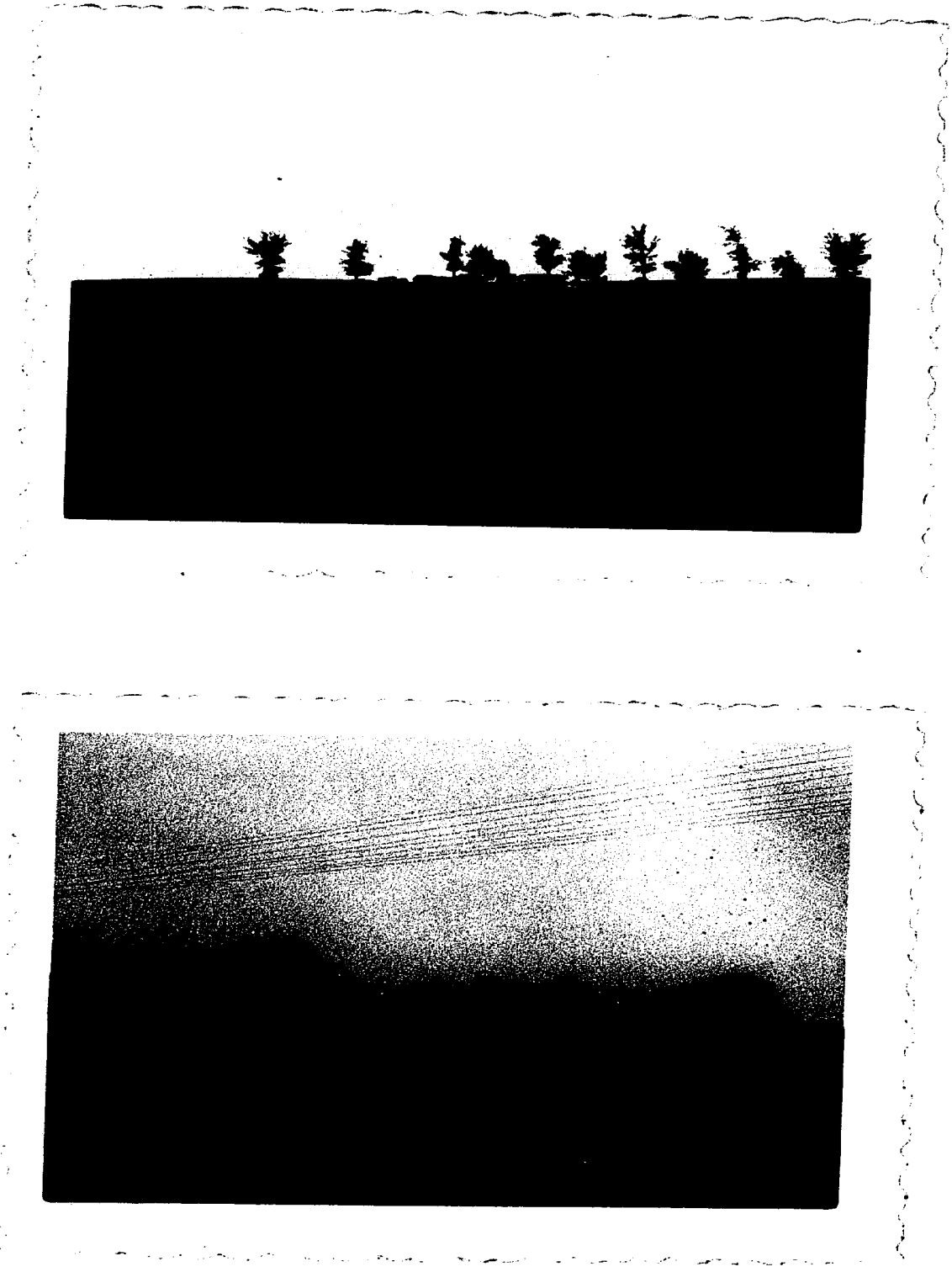


FIGURE 41. DAIRY CATTLE

St. Charles, but the number remains high on the western periphery (Figure 42). On a township basis the number of cows and heifers milked shows a similar trend, with Hebron and Nunda Townships ranking high (Figure 43; see also Figure 44).

The percent of Illinois farms reporting cows and heifers milked shows considerably less variation than is true of milk production. Most farms either keep cows for their own milk supplies or else sell some milk products in one form or another. A high percentage of farmers in the state ships cream or whole milk to creameries.

Even within the Region there is a range of 25% in the number of farms milking cows and heifers (from a low of 70% to a high of 95% on a township basis). Boone County stands pre-eminently high in this respect, while western and northern Mc Henry County are not far behind. The Lake District and the Fox Valley report the lowest percent, and there is an increase in the eastern edge of the Region (Figure 45).

Statistically, there are 10 acres of land for every cow in the Region.[1] But since not all the land is useful, the amount of farmland per cow is reduced to 8.38 acres, and the acreage of cropland per cow is 5.07. Stated conversely, there are 10 cows for every 100 acres of land, 11.9 cows for every 100 acres of farmland, and 19.7 cows for every 100 acres of cropland.

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[1]Based on the 1940 Census.

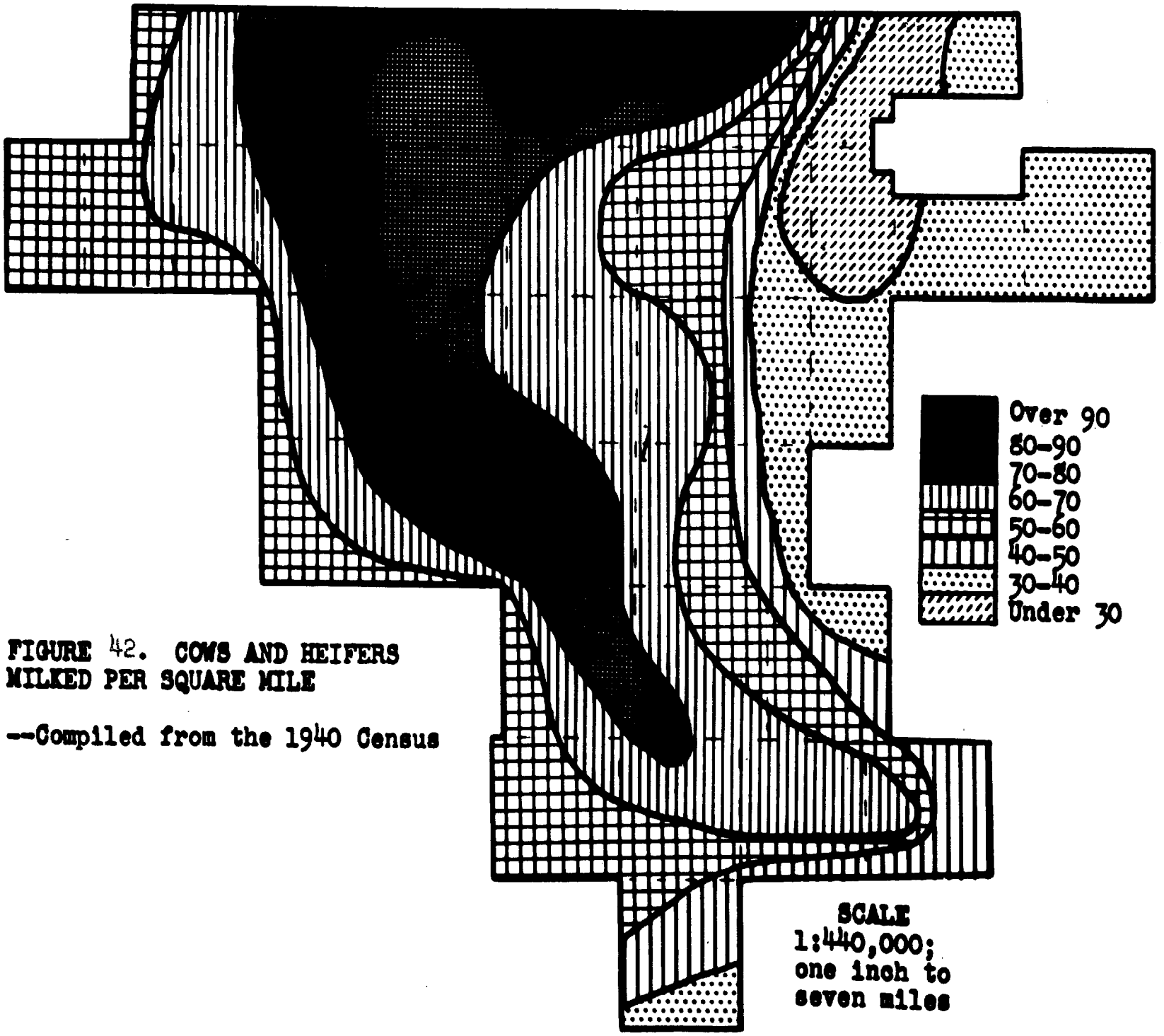


FIGURE 42. COWS AND HEIFERS MILKED PER SQUARE MILE

--Compiled from the 1940 Census

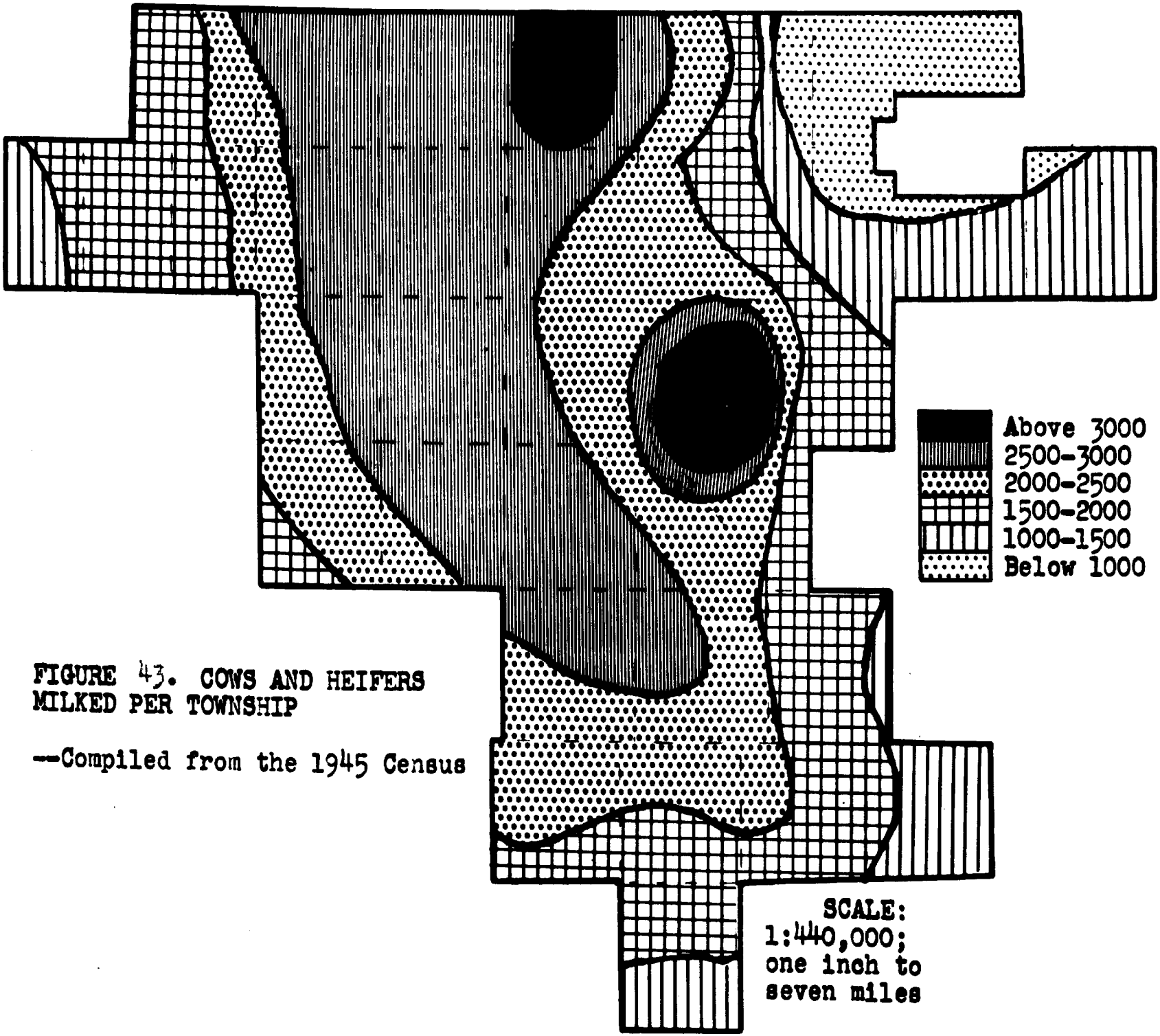


FIGURE 43. COWS AND HEIFERS MILKED PER TOWNSHIP

--Compiled from the 1945 Census

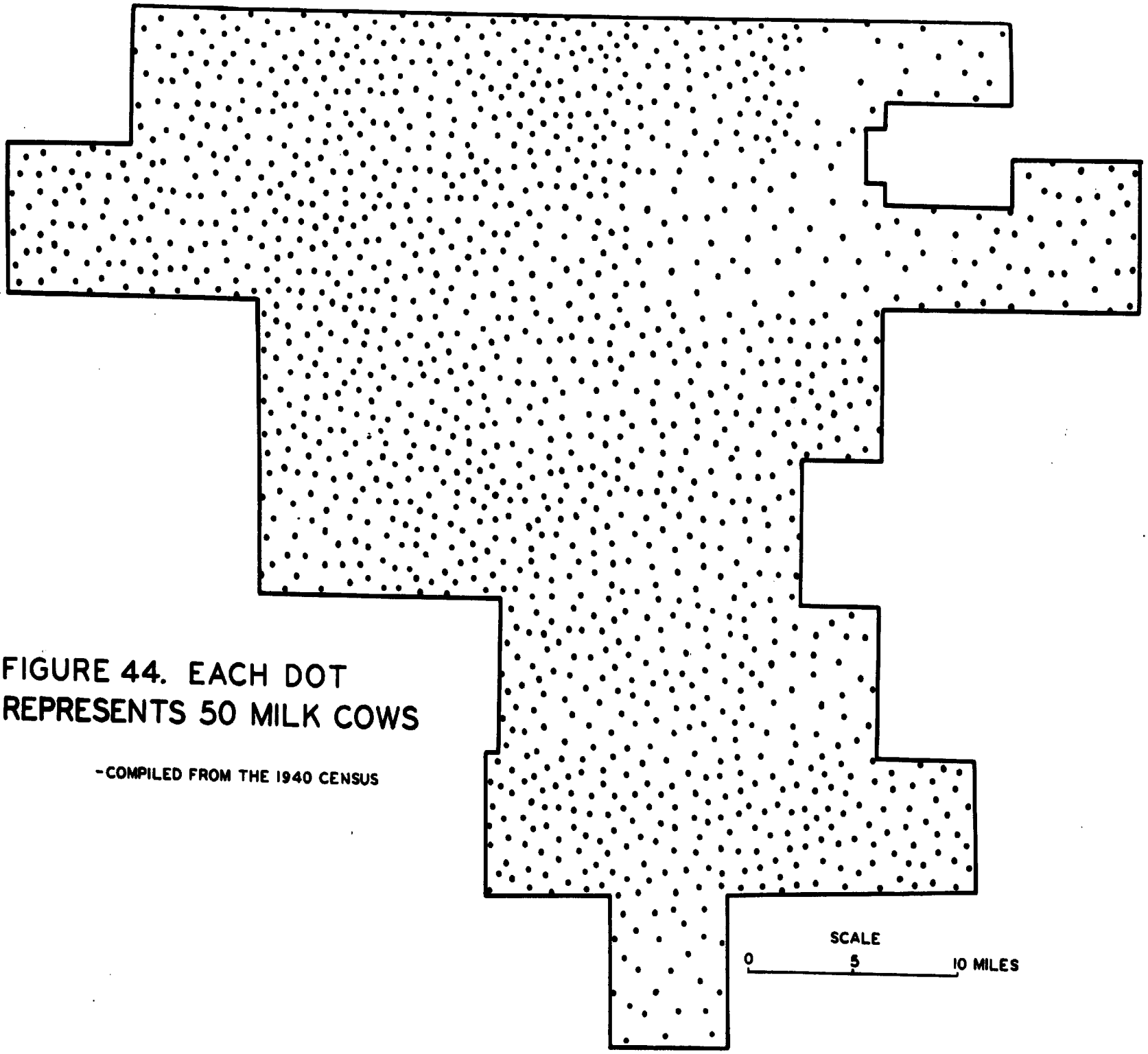


FIGURE 44. EACH DOT REPRESENTS 50 MILK COWS

-COMPILED FROM THE 1940 CENSUS

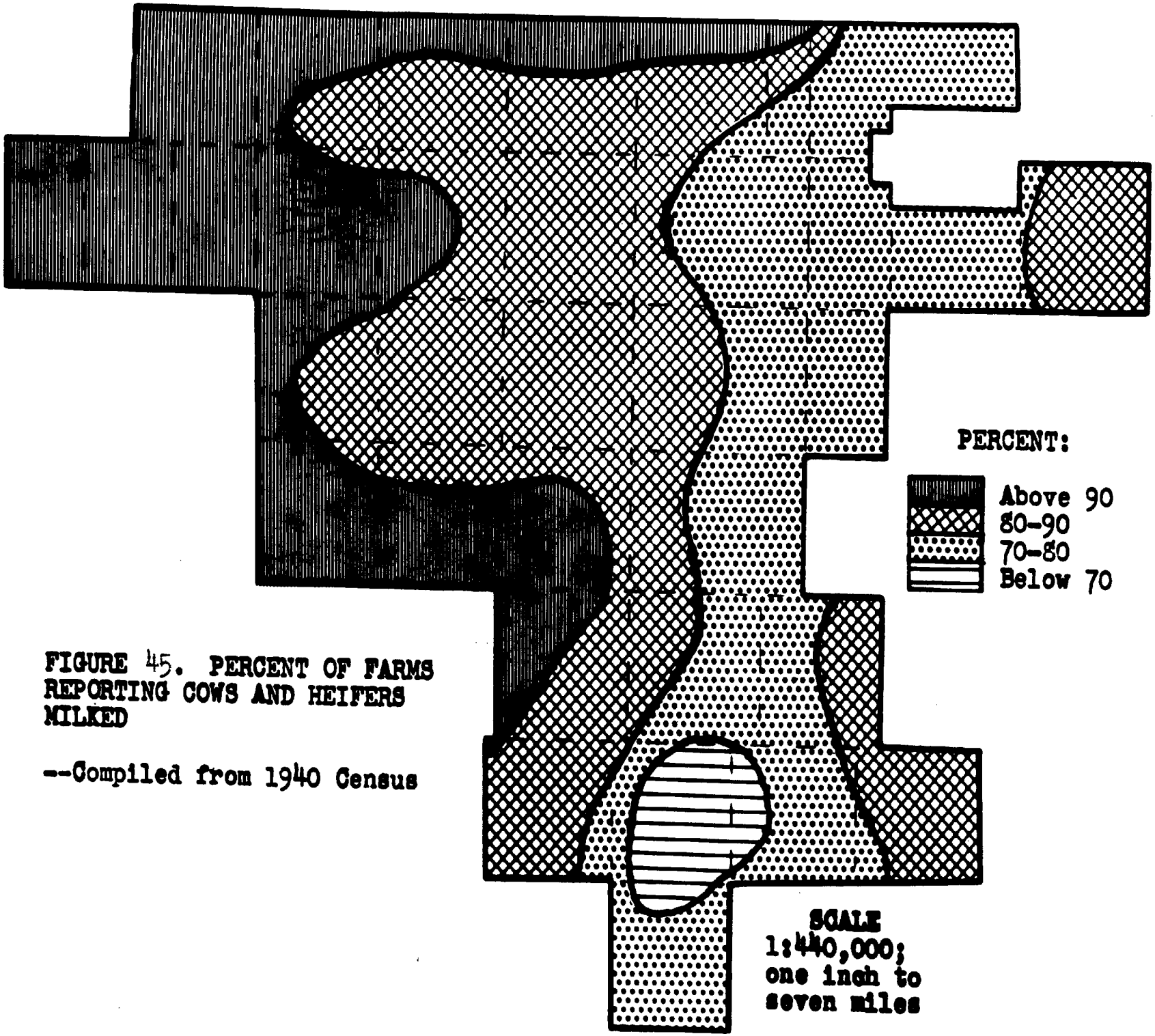


FIGURE 45. PERCENT OF FARMS REPORTING COWS AND HEIFERS MILKED

--Compiled from 1940 Census

In 1944, 62% of the farm income of the Region was derived from the sale of dairy products, mostly fluid milk.[1] All of the townships represented produced sufficient milk so that at least half of their farm income was from it, except ironically, Hartland Township. Only 49.4% of its income was from dairy products (Figures 46 and 47).[1] It has been included arbitrarily because its percentage was nearly 50% and because it is surrounded by townships with more than 50% of their farm income from dairying. Four factors have been responsible for Hartland's lower milk production:

(1) It has one of the highest proportions of rough and unfarmed land in the Region, including areas of both Marengo Ridge and the widest part of the much dissected West Chicago Moraine. Furthermore, most of the little valleys have swamp or bottomland soils of poor quality where the cow-carrying capacity is relatively low.

(2) Of greater importance, however, is the fact that the township has 3 square miles of very level land in the southern part, the north end of the intermorainal outwash (See Figure 6), where field crops assume more importance than crops specifically for dairy purposes. Significantly, 33% of the farm income of the township was from crops sold as against only 10% for the Region as a whole and only 22% for the second highest township.

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[1]Based on data from the 1945 Census of Agriculture.

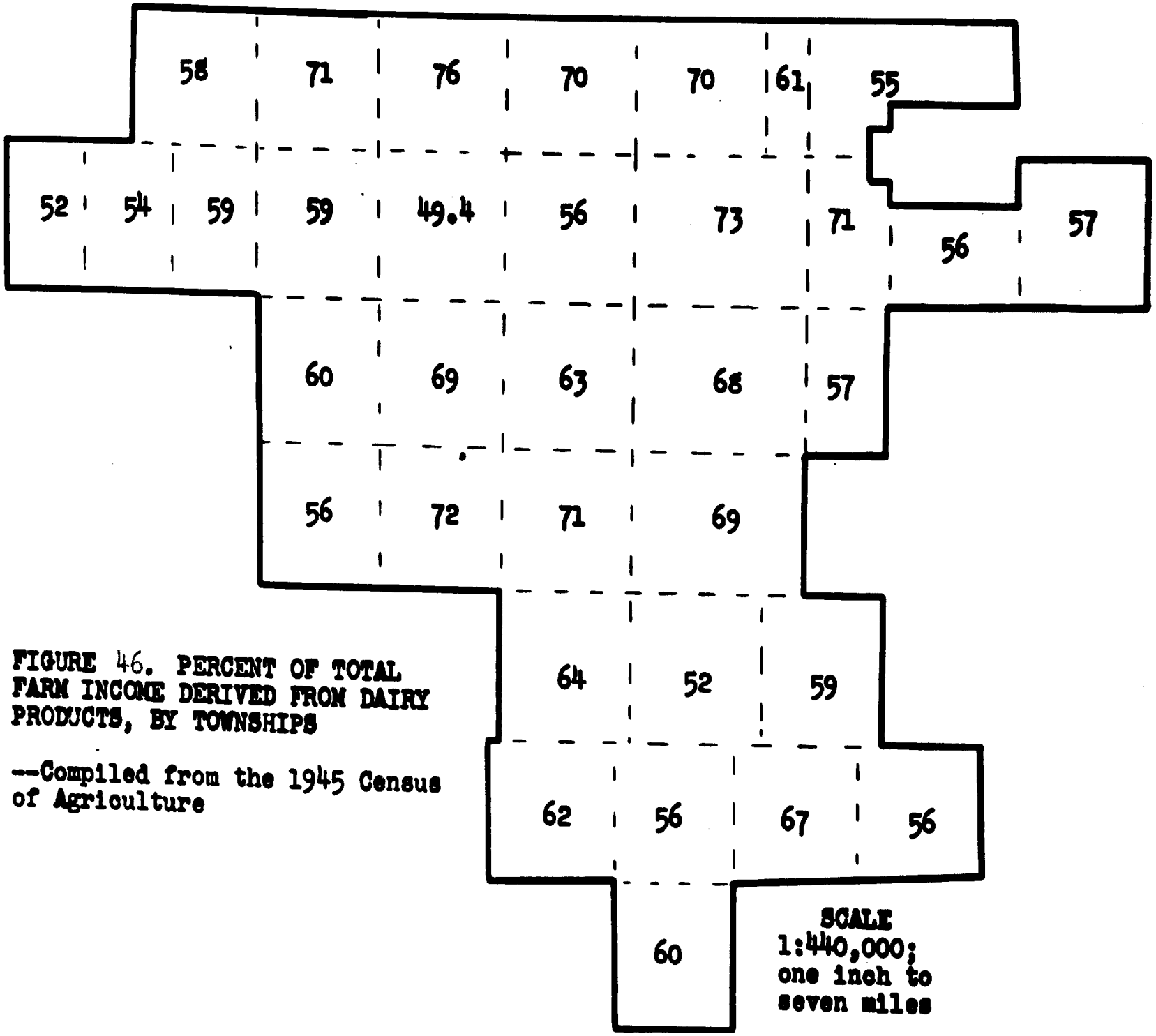


FIGURE 46. PERCENT OF TOTAL FARM INCOME DERIVED FROM DAIRY PRODUCTS, BY TOWNSHIPS

--Compiled from the 1945 Census of Agriculture

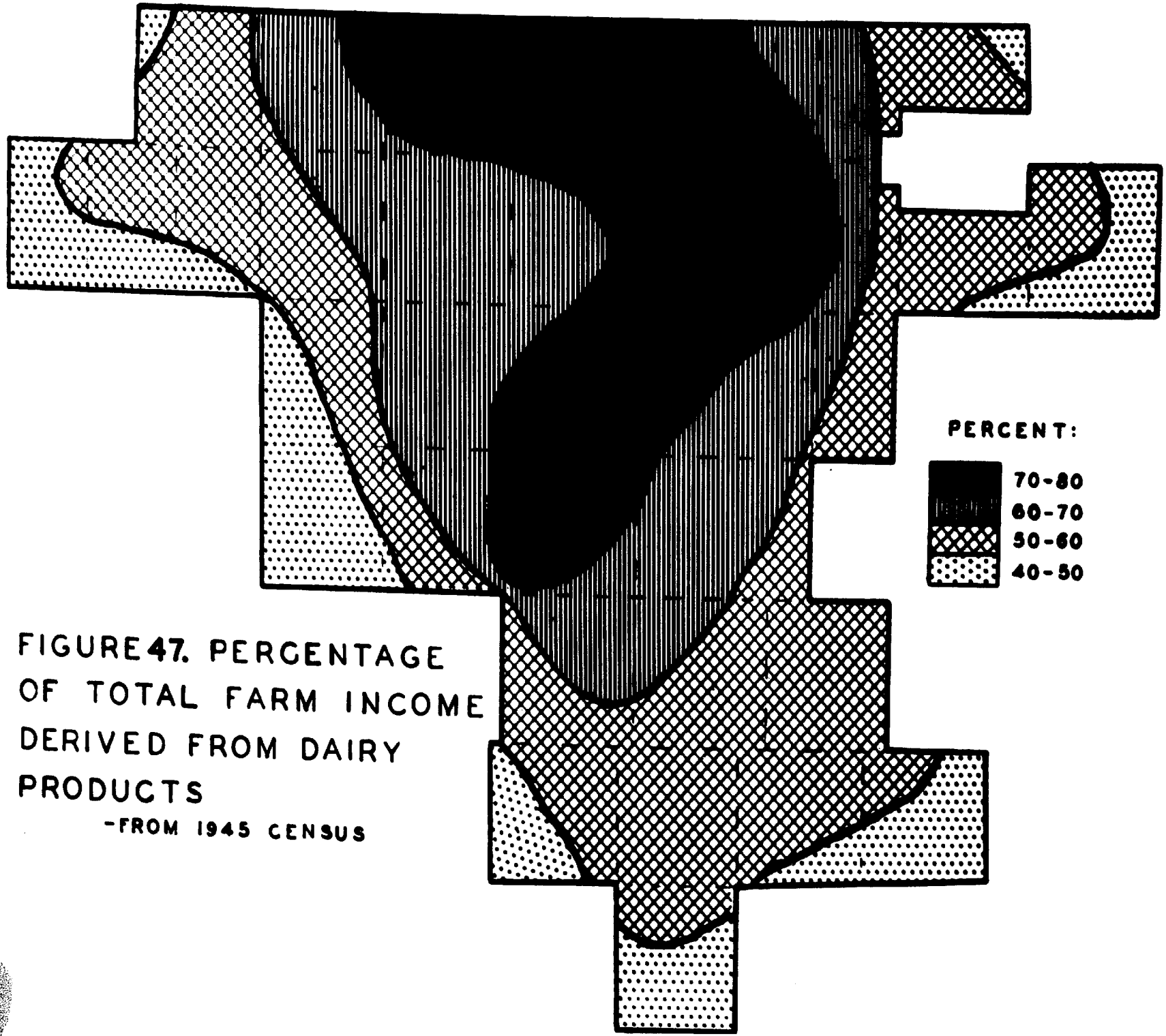


FIGURE 47. PERCENTAGE OF TOTAL FARM INCOME DERIVED FROM DAIRY PRODUCTS

-FROM 1945 CENSUS

(3) The population of the township is composed chiefly of Irish, who prefer to raise field crops rather than be tied down by the exacting requirements of dairying.

(4) Two of the largest individual holdings of the Region are in the township (totaling 2000 acres).[1] These Irishmen specialize in beef cattle and raise uncommonly large amounts of corn for fattening purposes.

Further indication of the overwhelming use of the milk as market milk rather than in the manufacture of ice cream, butter, and condensery products is the lack of these processing plants. In 1943 there were only five ice cream plants in the Region. Three of them were in Elgin, one in St. Charles, and the fifth in Mc Henry. This represented only 5.3% of the ice cream plants of the state (Figure 48). At the same time only three of the creameries of Illinois (2%) were located in the Region, two in Elgin and one in Harvard (Figure 49). This is particularly indicative of the change in the use of milk in the Region, because of Elgin's one-time eminence as the butter center of the nation. Only one of the 54 condenseries of the state was in the Region. But more surprising was the complete lack of cheese factories (Figure 50).

Historic Changes in the Use of Milk

Much like some other areas of the United States, the Northeastern Illinois Dairy Region has changed its

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[1] According to William Tammeus, Mc Henry County Farm Adviser (Personal communication).

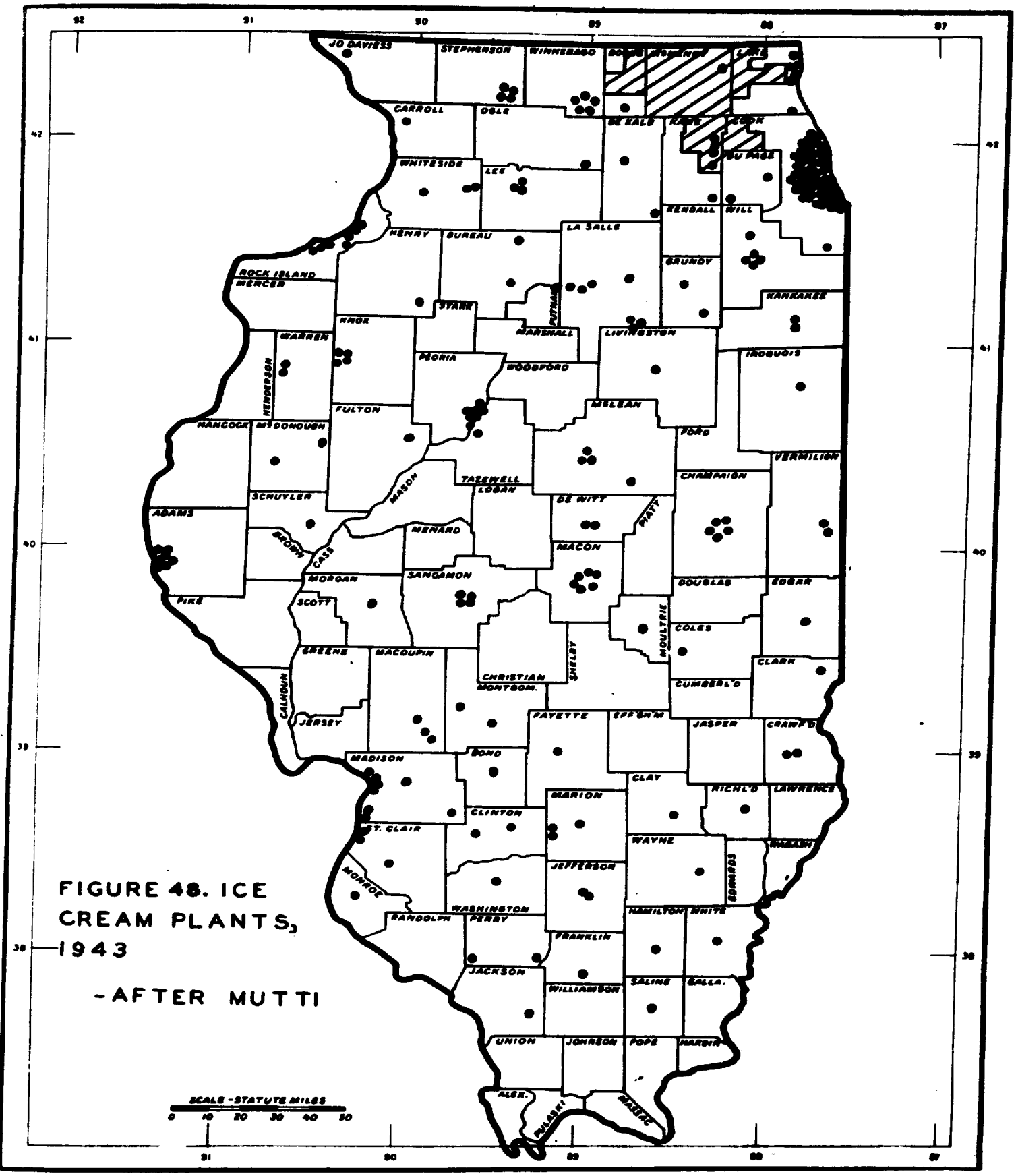


FIGURE 48. ICE CREAM PLANTS, 1943

-AFTER MUTTI

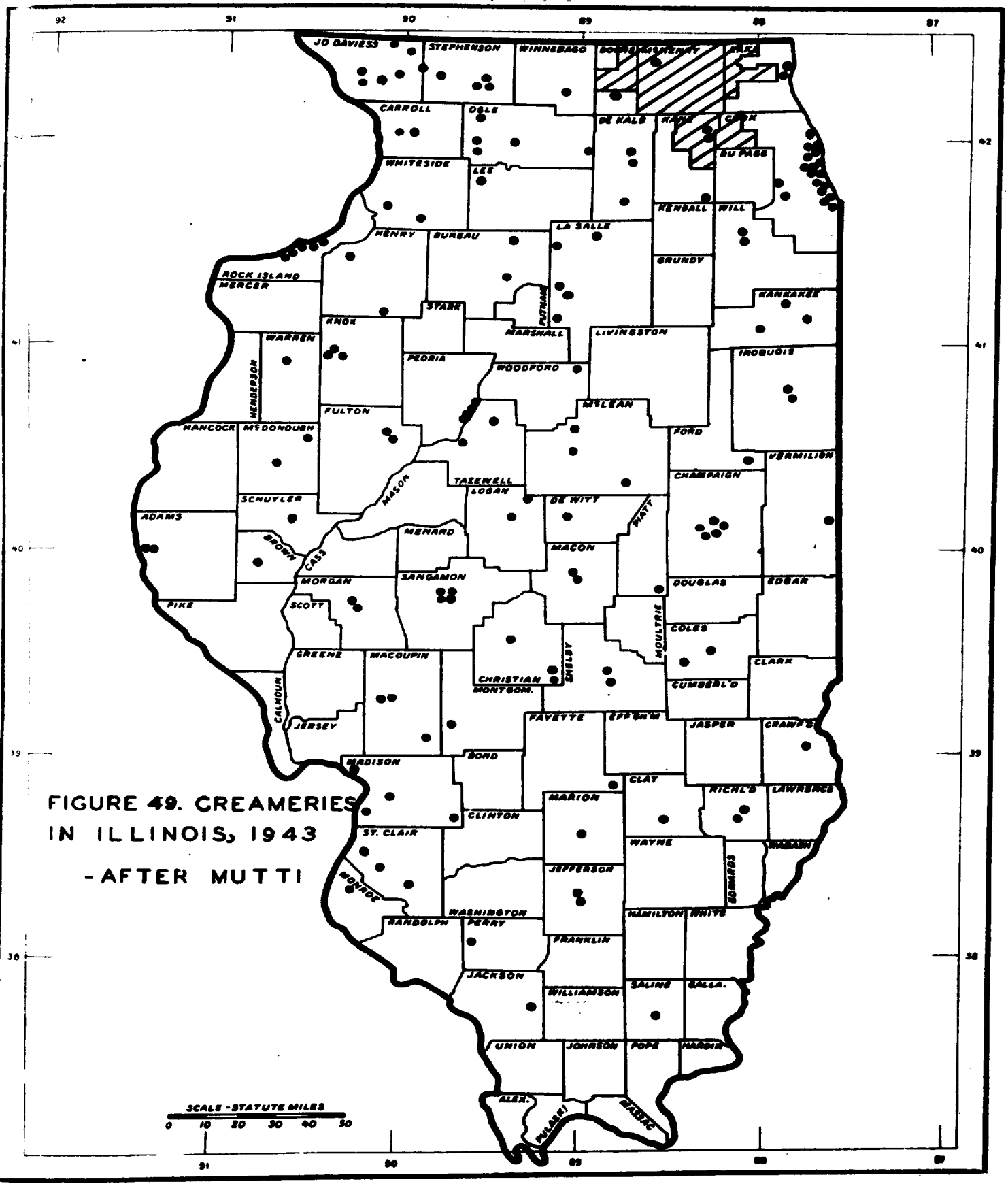


FIGURE 49. CREAMERIES IN ILLINOIS, 1943 - AFTER MUTTI

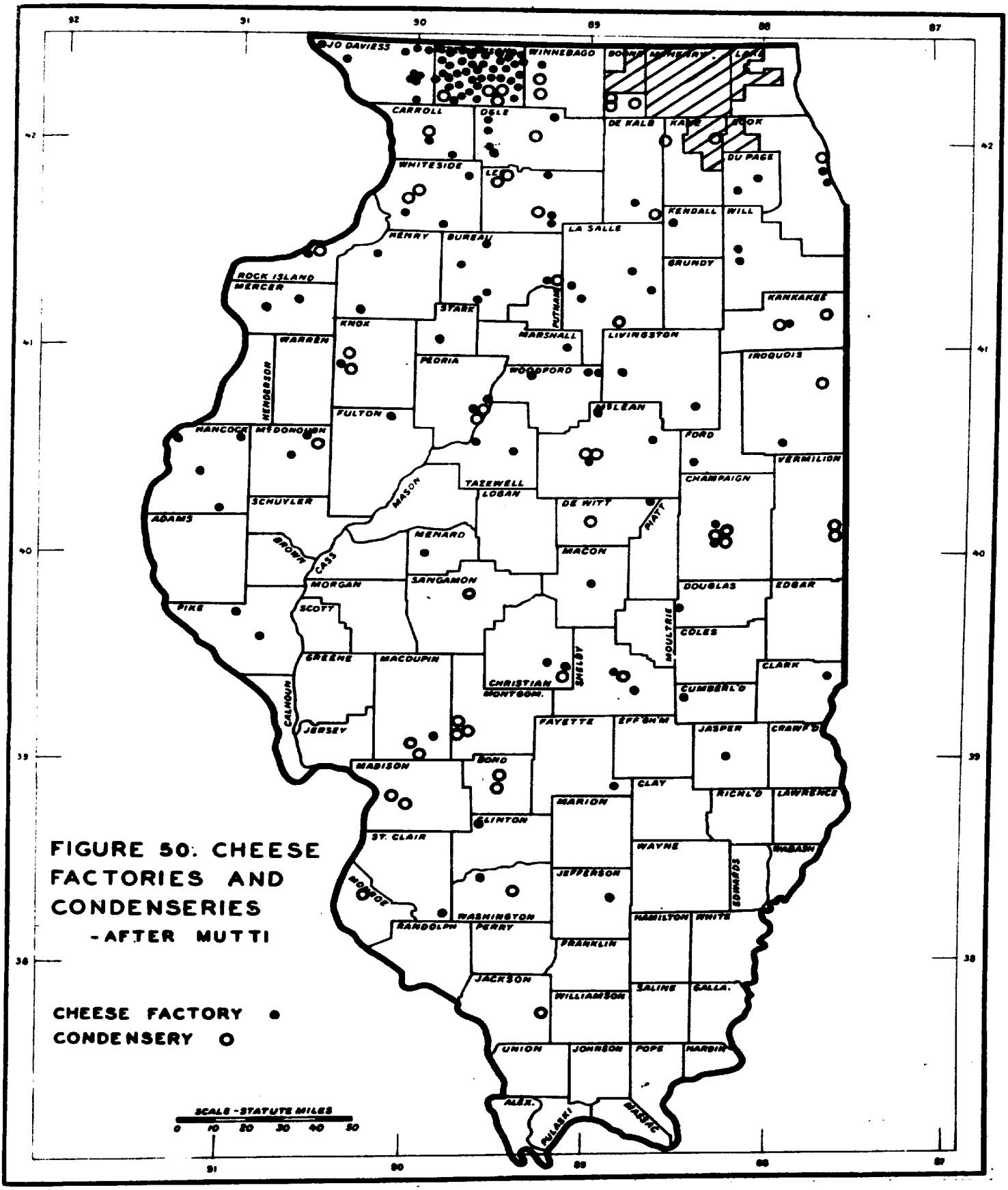


FIGURE 50: CHEESE FACTORIES AND CONDENSERIES - AFTER MUTTI

CHEESE FACTORY ●
CONDENSERY ○

chief economy several times. In the process of development and growth the frontier was pushed back and a mature dairy business has finally emerged.

The advent of the first settlers, the clearing of forested land, and the occupance of prairies led first to grain farming and stock raising as the chief source of livelihood,[1] both for home use and for cash. But most of the farmers also milked cows, regardless of breed or condition, made their own butter and often cheese. Thus, when Chicago began to look promising as a market, enterprising farmers in the Region grasped the opportunity to augment their incomes. Much of the city's milk supply was marketed directly by individuals, frequently being peddled personally by the producer from door to door. In fact, several of the better-known dairies today began in this fashion, and names such as Wanzer, Borden, Bowman, and Kraft became connected with dairy enterprises.

But the flood of milk during the '50s and '60s was too much for the Chicago market at that time, and a great oversupply resulted. The production had become so large that there appeared ample for the founding of butter, cheese, and condensery manufactures, and Mc Henry and Kane Counties played dominant roles in the expansion, despite attempts of the East to thwart them.[2] Towns in Mc Henry

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[1] History of Mc Henry County, Illinois (Chicago: Inter-State Publishing Company, 1885), p. 212.

[2] Ibid.

County and those along the Fox in Kane County, notably Elgin, began thriving dairy products industries, and rural crossroads creameries and cheese factories became common sights.

In 1867 there were eight cheese factories in Mc Henry County, the first one having been established in 1866 in Richmond. At first the industry lacked backers, financially and experientially. But after the first factory promised to make good, it was followed by those in Hebron, Huntley, Marengo, Greenwood, Union, Woodstock, and Riley. In 1885 it was stated

> ...there are fifty-three cheese factories and creameries and numerous large dairies. The supplying of milk to Chicago is carried on extensively and with great profit to dairymen. This branch of the dairy business is also comparatively new, but its growth has been rapid, and it is now one of the chief industries of the county. Every railroad station in the county sends its daily quota of milk to feed the great city.[1]

Although condenseries were never quite as important in the Region as either butter or cheese factories and never gained the prominence attached to them in parts of Wisconsin, they were not uncommon for a while. The first one was established by Gail Borden, who invented the process of condensing, in 1866.[2]

With the great increase in butter-making, the Elgin Butter Company, which was actually a combination of

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[1] Ibid., p. 214.

[2] The Past and Present of Kane County (Chicago: Wm. Le Baron & Company, 1878), pp. 362ff.

companies, emerged in 1870, and in 1872 the Elgin Board of Trade began quoting butter prices which determined the prices throughout the nation. Elgin enjoyed this prerogative until during World War I, when the government ordered it to stop its quotations as being "a restraint of trade."[1]

In its heyday the Elgin Board of Trade marketed huge amounts of both butter and cheese. The peak year was 1883 for cheese, when almost 13,000,000 pounds were traded, and 1911 was the year of greatest butter activity (almost 57,000,000 pounds). As late as 1879 the total production of creamery butter in the United States was only 29,421,784 pounds, an amount that was exceeded by the Elgin District alone 13 years later.[2] It was after 1883 that cheese sales declined and they were no longer reported after 1896. After 1912 butter production slumped because Chicago's growth and consequent milk requirements outstripped fluid milk supplies. With the establishment of higher prices for fresh milk it was no longer as profitable to manufacture cheese and butter as to sell market milk. This trend has not only remained but has intensified, and by the end of World War I the manufacture of cheese, butter, and condensery products was negligible, but Metropolitan Chicago's milk supply was firmly rooted.

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[1] Elgin Courier-News, Saturday, June 15, 1935, p. 6.

[2] Ibid.

Present-day Marketing of Milk

Not all the milk funnelling into Metropolitan Chicago comes from the Northeastern Illinois Dairy Region. Significant but greatly varying amounts (largely based on supply and demand) come from surrounding and distant parts of Illinois, Northern Indiana, Southwestern Michigan, and particularly Wisconsin. This enlarged area makes up the Chicago Milk Shed, one of the largest in the country. But the proximity of the Region with its advantageous physical and cultural background has led to a high concentration of milk production, sufficiently so that the bulk of Chicago's milk usually comes from it rather than the enlarged area.

Because of problems arising from distances involved, notably interstate traffic regulations, the only authority broad enough to cope with necessary market regulations is the Federal Government. Federal authority to regulate the handling of milk was first provided in the Agricultural Adjustment Act of 1933, but the orders of today are based more specifically on the Agricultural Marketing Act of 1937, which sets out in detail the authority granted earlier.[1]

Under this authority the Secretary of Agriculture is empowered to issue federal orders which apply to handlers of milk and its products. These orders, implemented locally by a Market Milk Administrator, under the Production and

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[1]United States Department of Agriculture, Questions and Answers on Federal Milk Marketing Orders (Washington: Production and Marketing Administration, May, 1950), p. 3.

Marketing Administration, impose certain requirements on the handling of milk in the area concerned. There are now 37 areas in the United States, all east of the Rockies, that are regulated by such orders. Federal Orders 41 and 69 (revised July, 1951), which apply to the near-Chicago area, not only seek to stabilize market conditions and do away with those particular characteristics of unregulated markets which are both harmful and unnecessary, but also operate to assure farmers of a steady and dependable market for their milk which is reasonable in relation to existing economic conditions. Further objectives are the correction of conditions of price instability and fluctuations which result in over- or underproduction, uniform quality of milk, and dependable supplies for consumers.

Under the present order affecting the Chicago Milk Shed, and thus the Region under concern, fluid milk for the city markets is the chief item regulated, and as such is known as Approved or Chicago-Approved milk. Those farmers who do not subscribe to the orders cannot contribute milk to the city's supply. Farmers are not actually controlled in any way under the orders, but milk handlers (dairies that either simply collect milk or actually deliver it) are required to pay the producer at least an established minimum price, make accurate weights and tests, and account properly for the way the milk is used. The orders do not control from whom the handler shall buy, to whom he shall sell, or at what price he shall sell.

Milk is classed under a Classified Milk Plan, a higher price being paid by the handler for milk to be used in a whole fluid form (Class I) than for the surplus milk which is to be used for other purposes (Classes II, III, and IV). The Classified Price Plan recognizes that it is more costly to produce and market milk for sale in a city market for fluid uses than for manufacture into butter, ice cream, cheese, or evaporated milk. This is true because additional expenditures must be made on market milk in order to comply with rigid sanitary standards and also because milk for daily consumption must be transported in whole fluid form over relatively long distances on a very rapid daily schedule. Prices are ultimately also determined, in part, by supply and demand, higher prices commonly obtaining during the fall and early winter when cows produce the least milk, or when for any reason the supplies are short. Likewise, prices are least when the supplies are greatest, in the late spring and early summer.

Another factor in the price structure is related to distance from the actual marketing area. As of July, 1951, milk actually brought into the Chicago Federal Milk Marketing Area (crosslined portion of Figure 51) enjoyed a 10-cent differential above the 55-70 mile zone (Zone 1) uniform price,[1] while the remainder of the area within the 55-mile radius from Chicago City Hall received two cents more than that received in Zone 1. The reason for these

[1]Based on hundredweight units, i.e. per cwt.

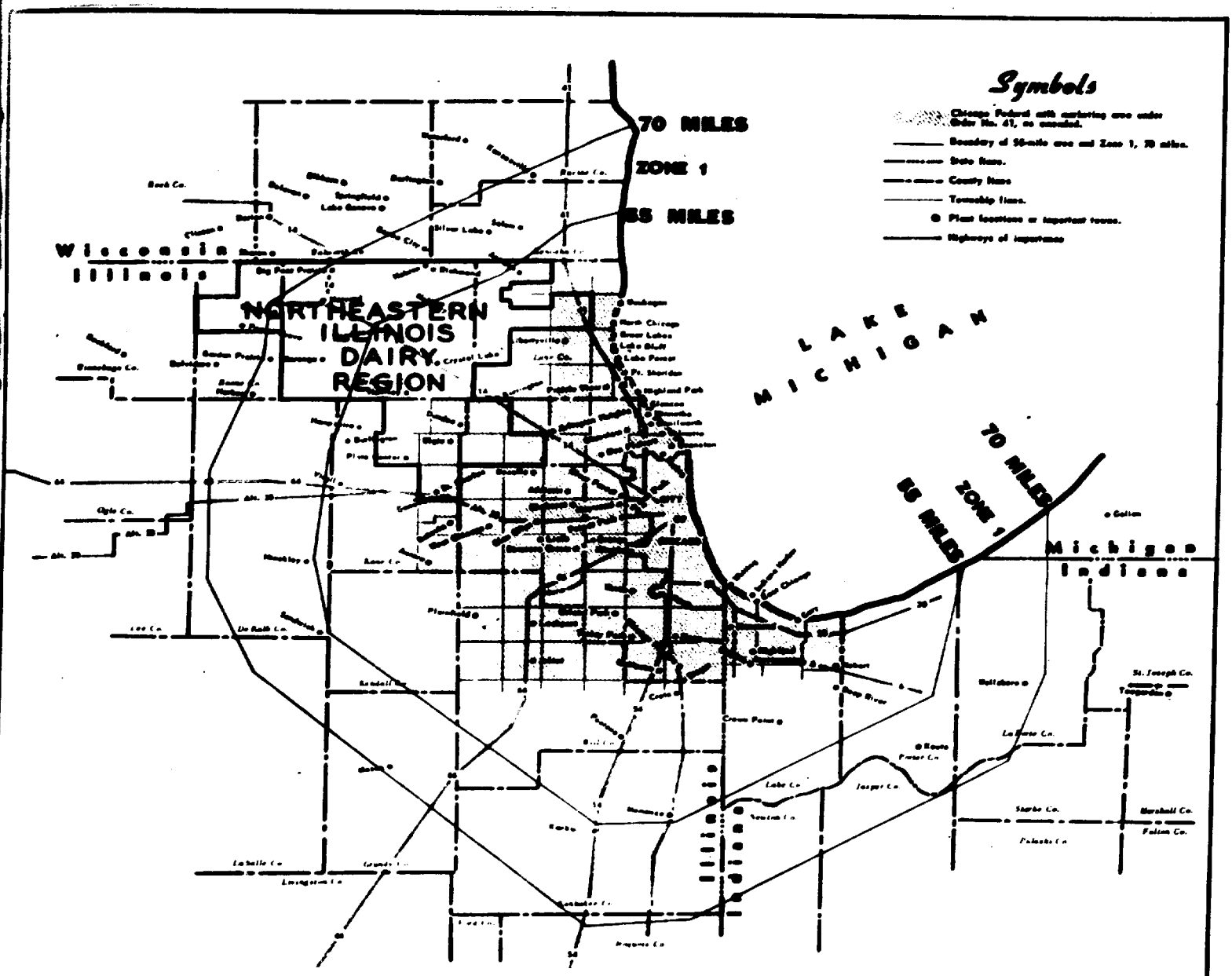


FIGURE 51. MAP SHOWING THE MARKETING AREA OF FEDERAL ORDER 41, AS AMENDED, ALSO, BOUNDARIES OF 55 MILE ZONE, AND 70 MILE ZONE, WITH PLANT LOCATIONS

preferential differences is that the producers (farmers) delivering to the plants within the 55-mile radius have longer hauls, and hence greater expense, than those further afield. Those farther than 55 miles out usually sell to a local handler who is responsible for transportation to the Marketing Area. Transportation costs are usually deducted from the bi-monthly or monthly checks the dairies pay the producer; but if milk is scarce the handlers may pay the cost of transportation in order to obtain sufficient supplies for their individual needs.

The first step in the marketing procedure is the farmer's part, including properly cooling the milk and delivering it quickly to the receiving plant (Figure 52). Sometimes the receiving plant,[1] which is dairy owned, simply weighs, tests, and further cools the milk, but in other cases it pasteurizes and even bottles it before transporting it to the distributing stations in or nearer Chicago. Approximately 95% of the milk of the Northeastern Illinois Dairy Region is transported in insulated stainless steel-lined trucks (Figure 53) to the large city pasteurizing and bottling plants, while the remaining 5% goes in railroad tank cars. After preparation in containers, the various milk products are concentrated at conveniently located

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[1]Within the Region are at least 26 receiving plants which help supply the 109 individual dairies within Chicago, plus numerous others outside the city itself. Twelve of the plants of the Region are located within the Chicago Marketing Area and the 55-mile radius, seven in Zone 1, and one in Zone 2.





FIGURE 52. MILK RECEIVING PLANTS AT THE TURN OF THE CENTURY AND NOW

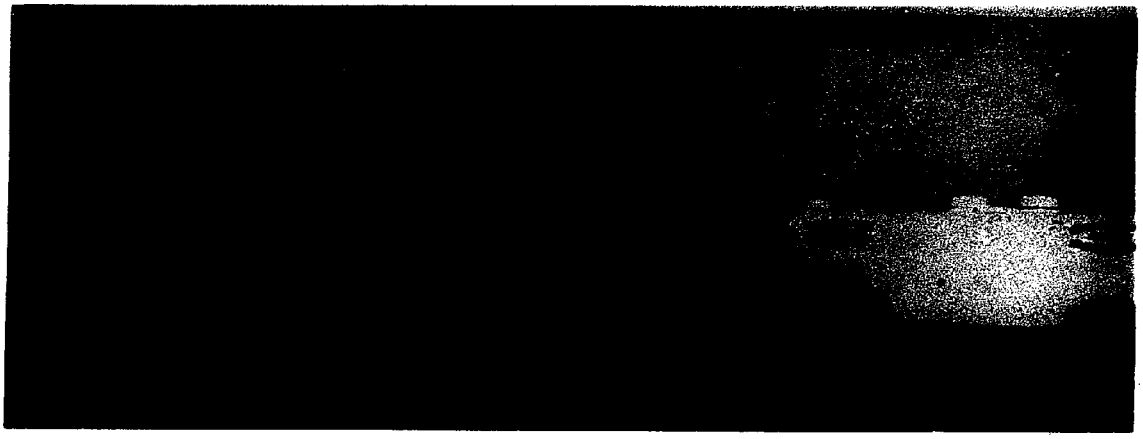


FIGURE 53. A FLEET OF MODERN STEEL-LINED MILK TRUCKS

distributing stations, from which modern milk wagons, trucks, or cars (Figure 54) deliver to houses, restaurants, groceries, and other consumers.

b. Livestock Industry

Second in importance only to dairying is the livestock industry, which included cattle, horses, hogs, sheep, bees, and fur animals. In 1944 the value derived from livestock and livestock products (other than dairy products and poultry and poultry products) was 23% of the farm income. As a whole, the parts of the Region where dairying is most significant are the areas where livestock and livestock products are least important. As Figure 55 indicates, livestock and livestock products increase in importance toward the edges of the Region (except on the Wisconsin side), in Boone, Lake, and Cook Counties, and the western part of Kane County.[1] They are relatively less important in most of Mc Henry County.

Although less important than in contiguous areas to the west and southwest, the fattening of cattle from the western ranges is important in peripheral parts of the Region, especially in Boone and Kane Counties. Numerous farms in Lake and Cook Counties also specialize in fancy

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[1] The importance of livestock and livestock products becomes vastly greater than dairying in Winnebago, De Kalb, and southern Kane Counties on the western and southwestern Regional borders. Each township there has its greatest source of income in livestock and livestock products, notably beef cattle.

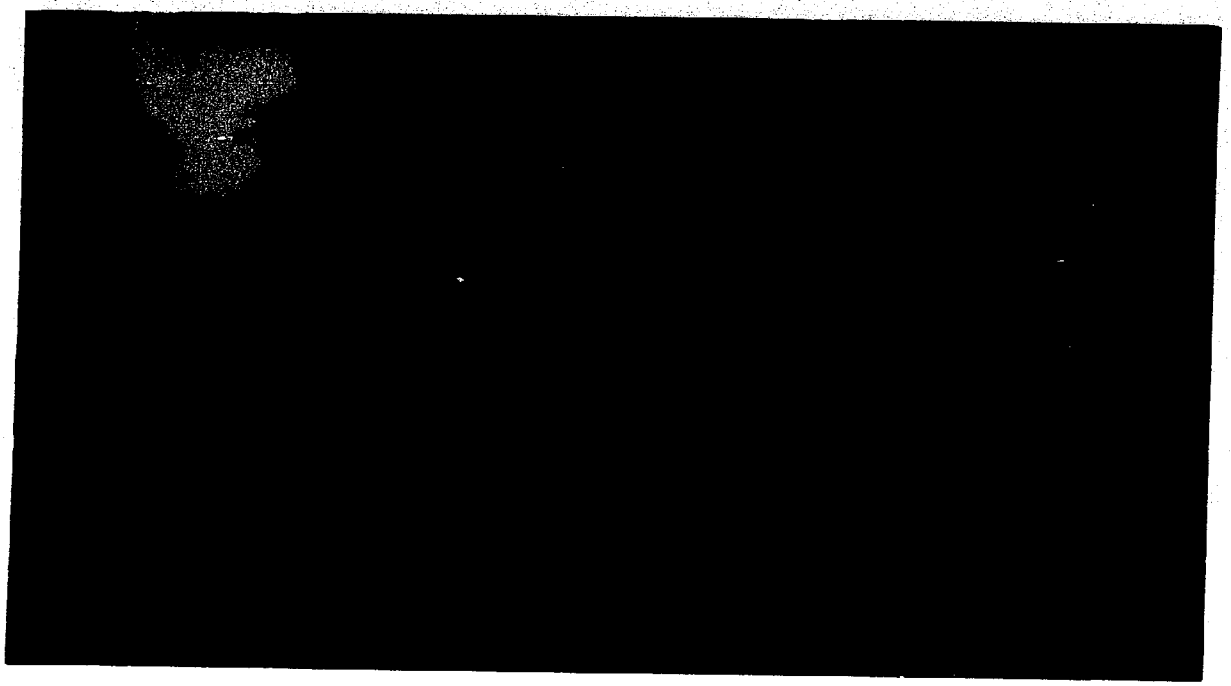




FIGURE 54. THE OLD VERSUS THE NEW IN MILK DELIVERY SERVICE

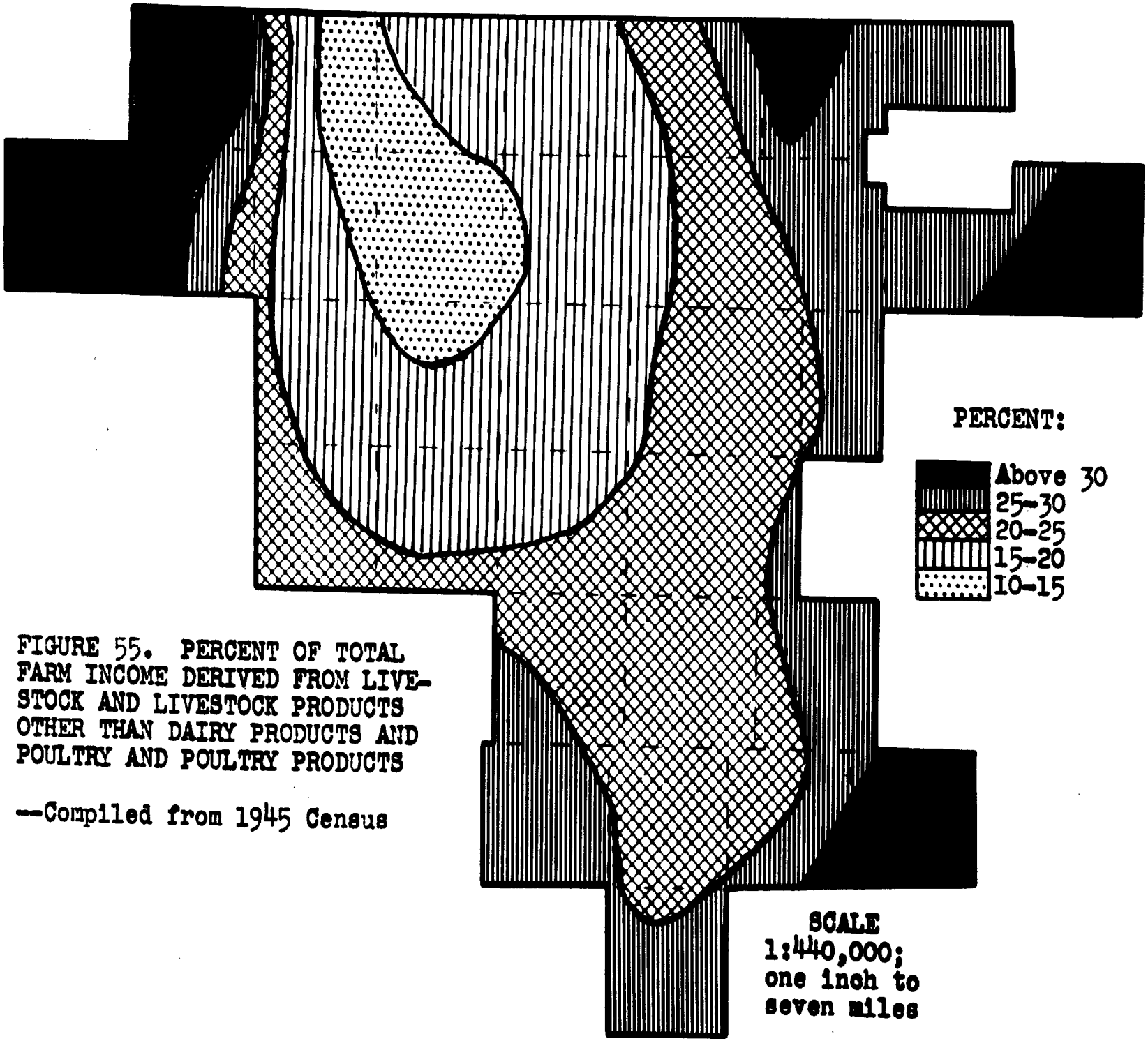


FIGURE 55. PERCENT OF TOTAL FARM INCOME DERIVED FROM LIVESTOCK AND LIVESTOCK PRODUCTS OTHER THAN DAIRY PRODUCTS AND POULTRY AND POULTRY PRODUCTS

--Compiled from 1945 Census

beef cattle. White Faces (Herefords), Shorthorn, and Polled Angus, including some locally raised purebreds, make up the bulk of the so-called feeder or stock cattle (Figure 56).

In the fattening cattle areas of the western periphery, the corn acreage per square mile is somewhat higher than in other parts of the Region, since corn is the principal fattening grain. However, the number of farms reporting corn cut for silage is almost as great as in the chief dairying sections, but the percent of the corn crop used for silage is much less (See Figure 62 below). One of the reasons for this is that much of the fattening of cattle is seasonal (late spring, summer, and early fall) and smaller amounts of silage are needed than for dairy cattle. On the other hand, many of the fattening cattle farms also keep dairy cattle, which require some winter ensilage. Rotation grazing is as important in the fattening areas as in the dairy sections and considerable hay is cured for winter feeding.

In 1939, 59% of the farms of the Region reported hogs, and only 8 of the 34 townships reported less than 50% of their farmers raising them. Whereas the average per farm raising them was only 15 head (Figure 57), which is low compared to the Corn Belt, the largest and most numerous herds were in Boone County and western Mc Henry County, while the southern and eastern parts of the Region, except Schaumberg Township, had the least intensity.





FIGURE 56. BEEF CATTLE

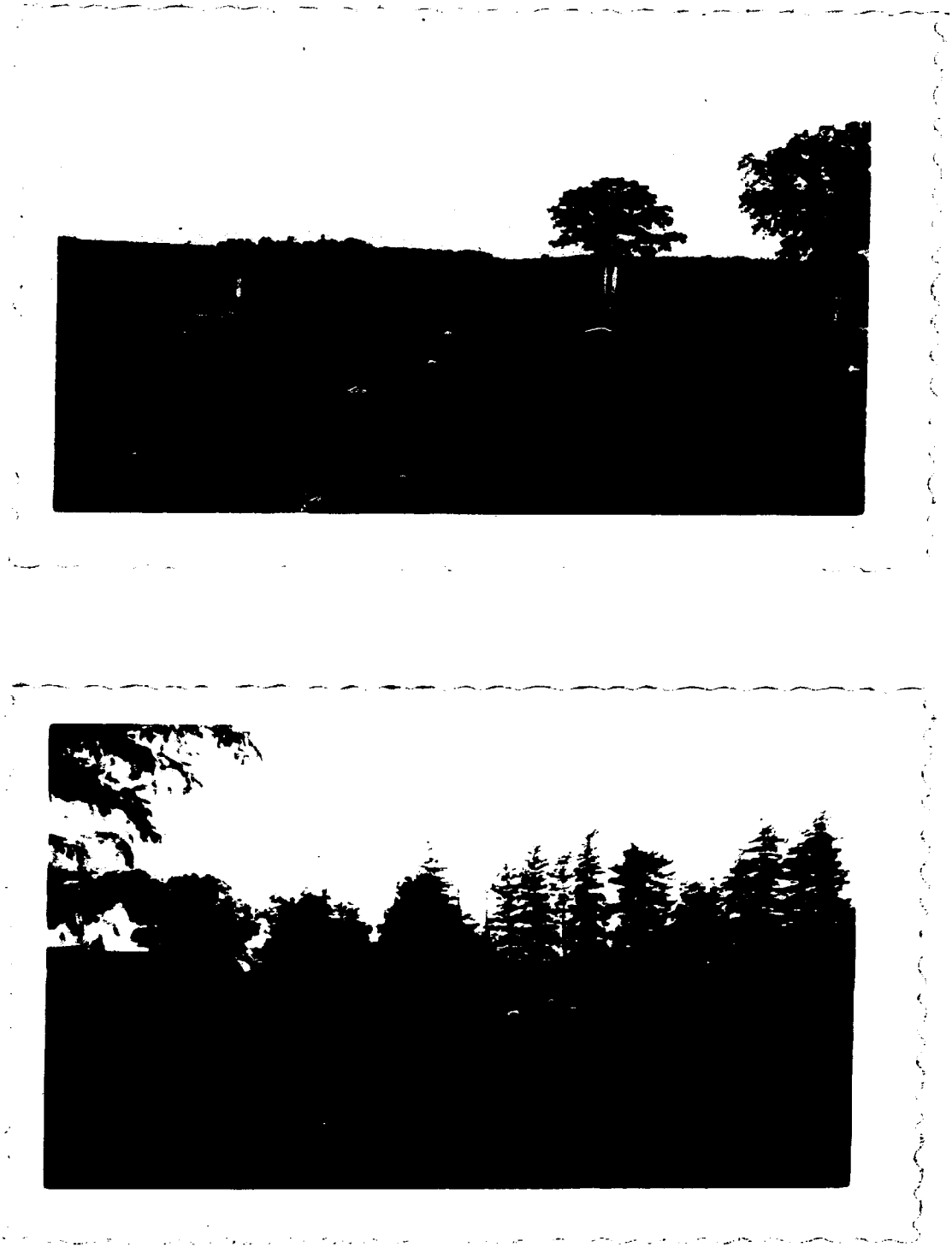


FIGURE 57. HOGS AND SHEEP

The importance of Boone County for livestock is further reflected in the fact that 17% of its farms reported sheep in 1939, while for the Region as a whole only 8% of the farmers kept them (Figure 57). The southern five townships of the Region reported the least number of flocks. On a township basis, the percentage of farmers with flocks ranged from 1% in Plato and Hanover Townships to 23% in Caledonia Township. The average flock numbered seventeen.

Eighty-six percent of the farms reported horses and colts, again with the greatest percentage in Boone County, where 94% of the farms kept them. Lake County and the Elgin-St. Charles section of the southern part of the Region reported the least percentage. Most farms kept only four horses.

Bees, which are classed as livestock, are not common in the Region, although symbiotically they are increasing in numbers. Most of the apiaries are located near clover or alfalfa fields and pollenation by bees is becoming recognized as valuable. Few of the colonies are owned by farmers, but are "farmed out" by beekeepers who give a percent of their honey and sometimes a cash rent in return for space and nectar.

Fur farms--mostly mink ranches--are fairly numerous.[1] Some of them are specialty farms, but others are operated as sidelines by farmers. One of the largest is maintained on a dairy farm north of Wauconda (Figure 58).

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[1]There are at least 20 mink farms, probably more.

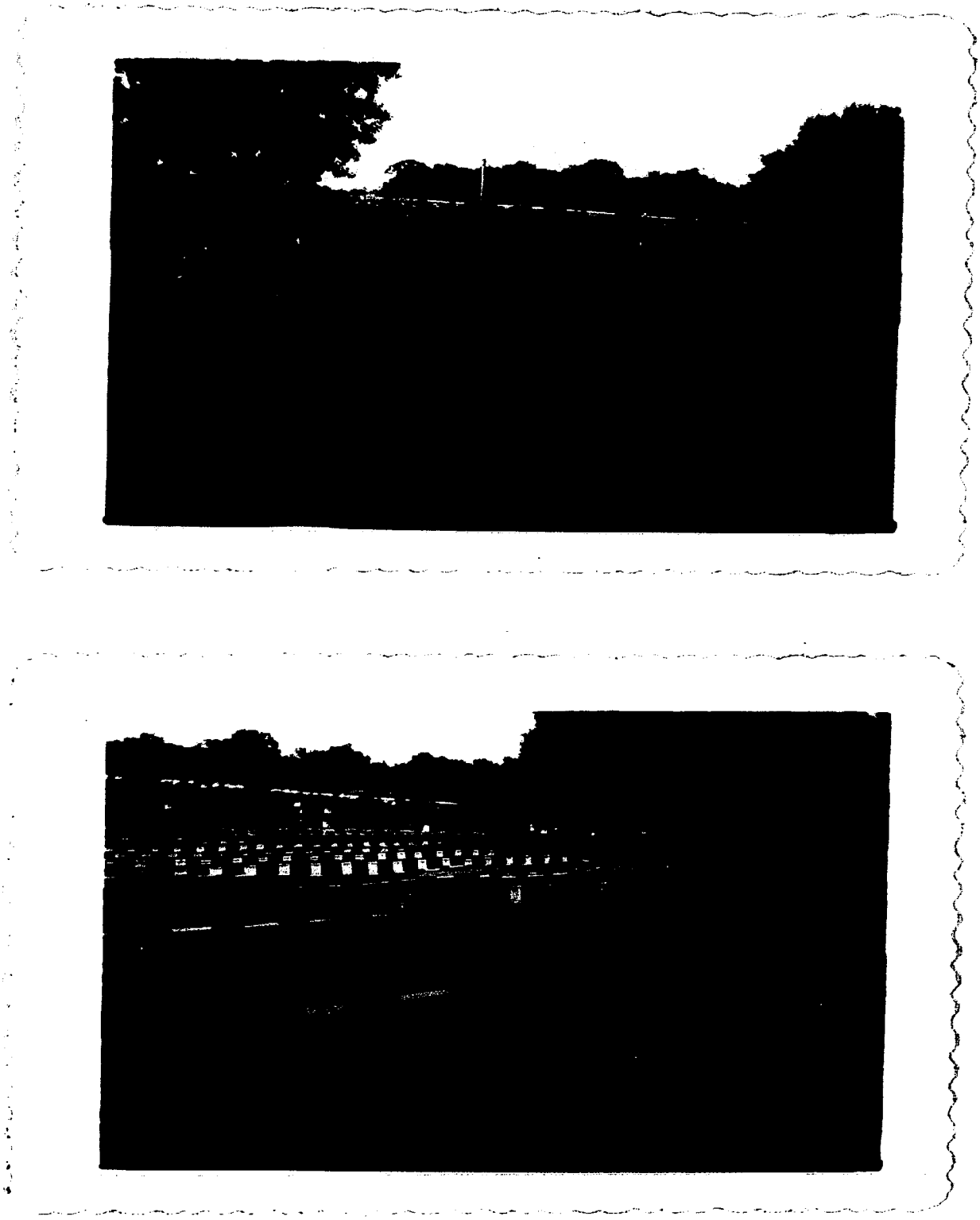


FIGURE 58. A MINK RANCH NORTH OF WAUCONDA

c. Poultry and Poultry Products

One-twentieth (5%) of the Region's farm income came from poultry and poultry products in 1944. Almost every farm reported them (Figure 59). Chickens and hen eggs accounted for about 90% of the poultry income, but ducks, turkeys, and occasionally geese and guineas and their eggs and feathers are also sold. While sizes of flocks vary considerably locally, they are largest in the northeastern part of Mc Henry County and the northwestern portion of Lake County. In that sector 8½% of the farm income came from poultry (Figure 60).[1]

d. Crop Production

Everywhere throughout the Region hay, corn, and oats abound. On the basis of observation, personal information, and traverses,[2] it appears that fully 90% of the currently cropped land is devoted to this combination. These three not only are most useful for forage but also figure well in crop rotation and rotation grazing.

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[1]The reason Lake Villa Township of Lake County is not included in the Region is because 62% of its income in 1944 came from poultry. One large duck farm, selling as high as 100,000 ducks annually, has been maintained there for years.

[2]Eleven traverses were made in various parts of the Region (exclusive of many other trips). Several of them extended outside the Region in order to make contrasts in the utility of the land within and outside the Region. Each tenth of a mile the crop, or farm, or woodland, or fallow ground on the right side of the road was recorded and then these data were summarized.

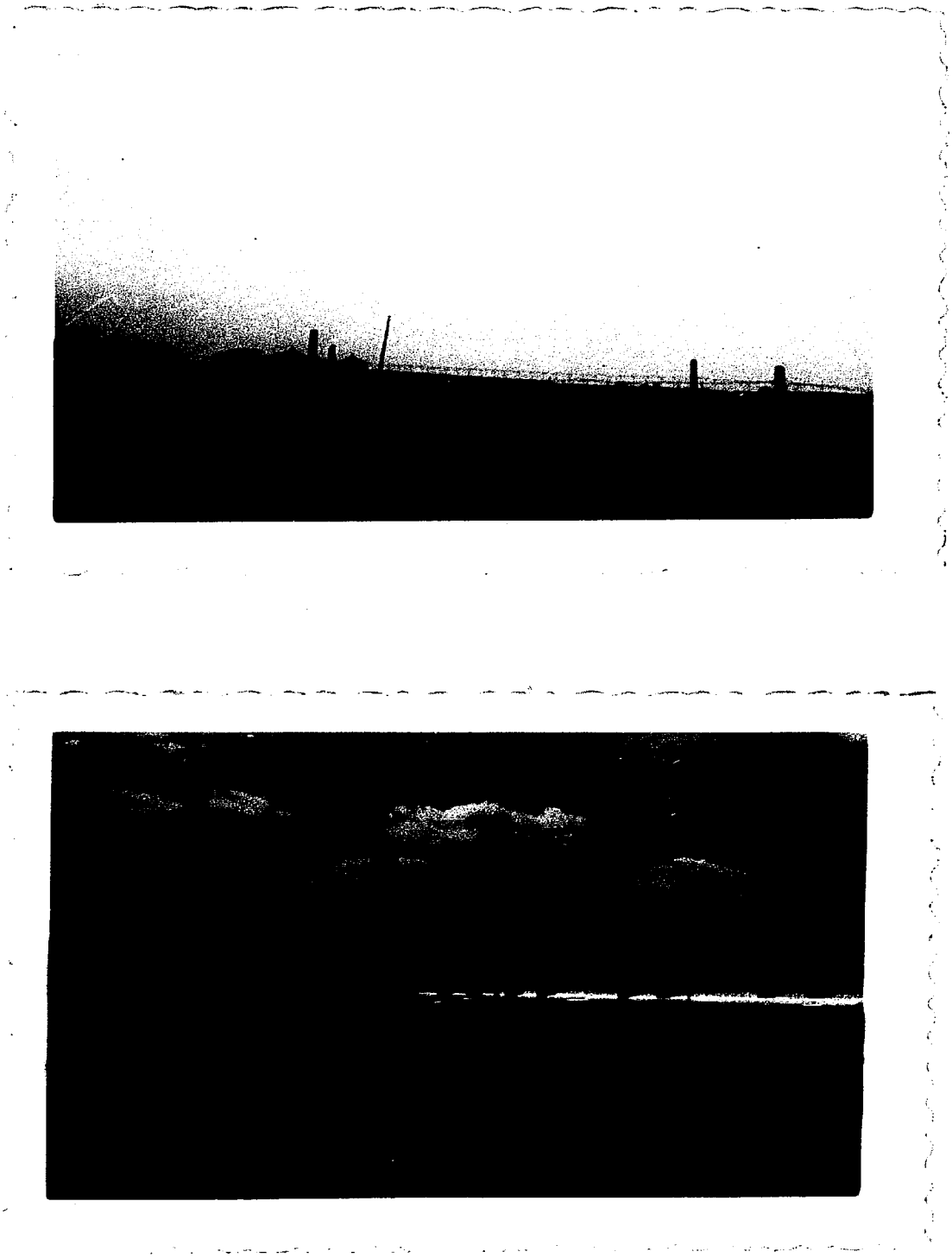


FIGURE 59. CHICKENS

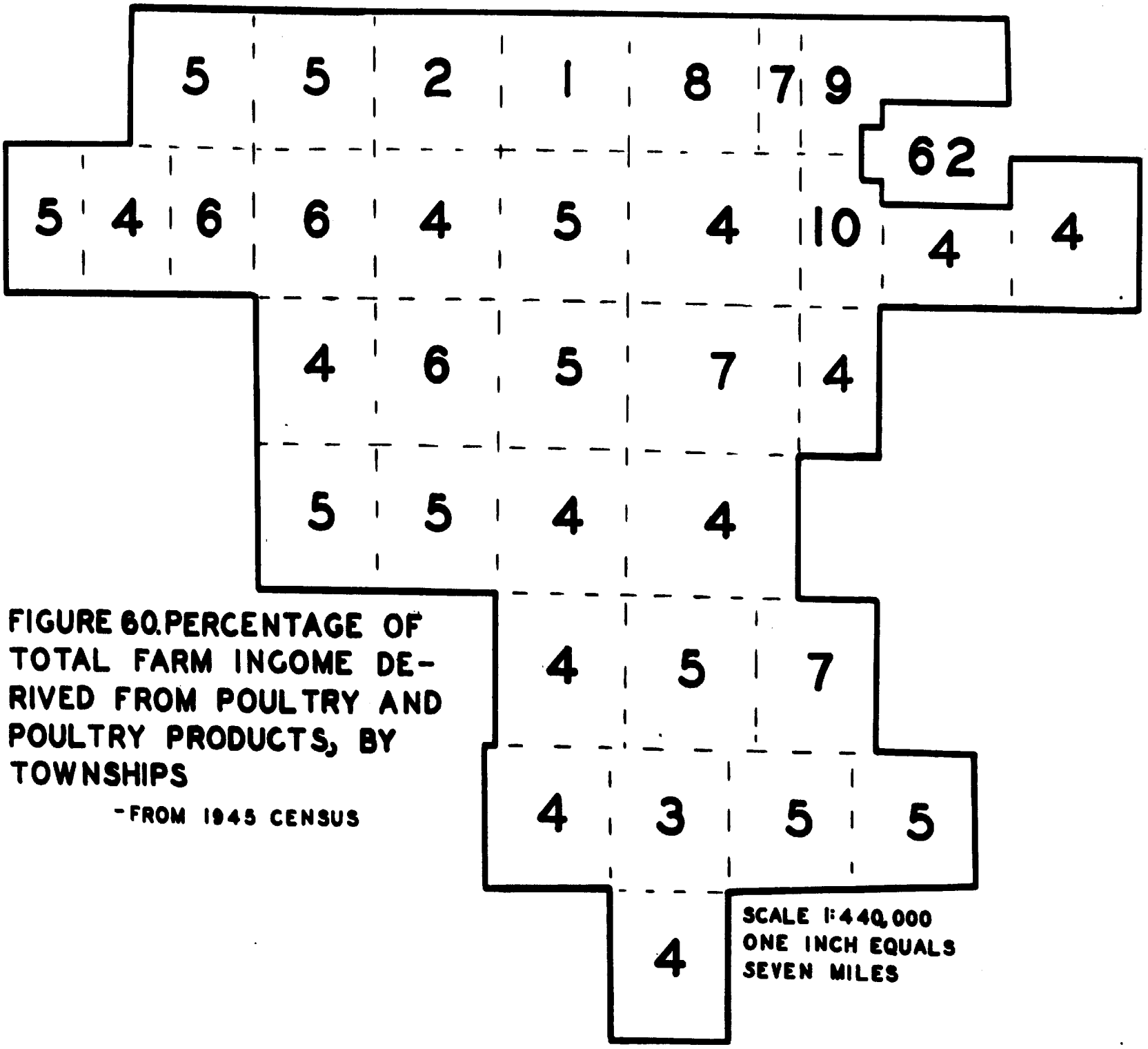


FIGURE 60. PERCENTAGE OF TOTAL FARM INCOME DERIVED FROM POULTRY AND POULTRY PRODUCTS, BY TOWNSHIPS

- FROM 1945 CENSUS

Most dairy farmers devote more of their cropland to hays than to any other crop, although some still have as much acreage of corn as hay. There is a tendency to raise more hay than formerly because of new varieties and types that can be produced on poor or wet ground and because of the unparalleled value of rotation grazing.

While sorghums and sudan grass are disappearing and red clover is receiving less emphasis than formerly, alfalfa remains the most universal hay, both for dairy and beef cattle. But brome grass, relatively a newcomer in the field, is gaining the ascendancy, because when it is mixed with alfalfa it is a high milk producer. Cows are reported to prefer it to clover and alfalfa. In Mc Henry County, 35 to 40% of the farmers raise it, and on the better soils of Boone County 70% raise it combined with alfalfa.

Ladino,[1] a new and fast-growing clover, is extensively raised in parts of Kane and Mc Henry Counties. About 5% of the farms of Lake County use Reed Canary Grass in the wetter areas, while in the Boone County lowlands Bird's Foot Trefoil Grass has been introduced with some gratifying results. Several hays are now being used for grass silage. Frequently on two-silo farms one is used for corn silage, the other for grass silage.

Corn, the most common of all grain crops raised in the Region, was harvested from 91% of the farms (4221

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[1]Information on new hays was obtained from the farm advisers of the various counties represented.

out of 4638). No township in the western half of the Region reported less than 90% of its farms producing corn in 1939, but 12 townships in the eastern half fell below this figure. In Lake County only 82% raised corn, and townships in eastern Mc Henry and Kane Counties and western Cook were also below the average.

Farms that reported corn devoted 35 acres on the average to the crop. The average square mile produced 131 acres, which was 20.5% of the total acreage cropped. Here again, the western half was above the average, the eastern half below, with Lake County (77 acres per square mile) the lowest. The greater concentration in the western half is further shown in Figure 61, where each dot represents 100 acres of corn.

Sixty-four percent of the farms of the Region and 69% of the Mc Henry County farms make corn silage.[1] Of the total corn crop in Mc Henry County, 30% was cut for silage,[2] with the greatest percent in the northeastern section of the county and extending into northwestern Lake County (Figure 62). The proportion of the crop cured for silage decreases westward, southward, and eastward from the area of greatest concentration.

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[1]Based on county data. Mc Henry County reports 69%, Boone County (entire) 66%, Lake County (entire) 42%, Kane County (entire) 52%, and Cook County (entire) 15%.

[2]By way of comparison, in the Corn Belt only 3/10 of 1% (.003) of Grundy County's corn and only 1/4 of 1% (.0025%) of Champaign County's corn is used for silage.

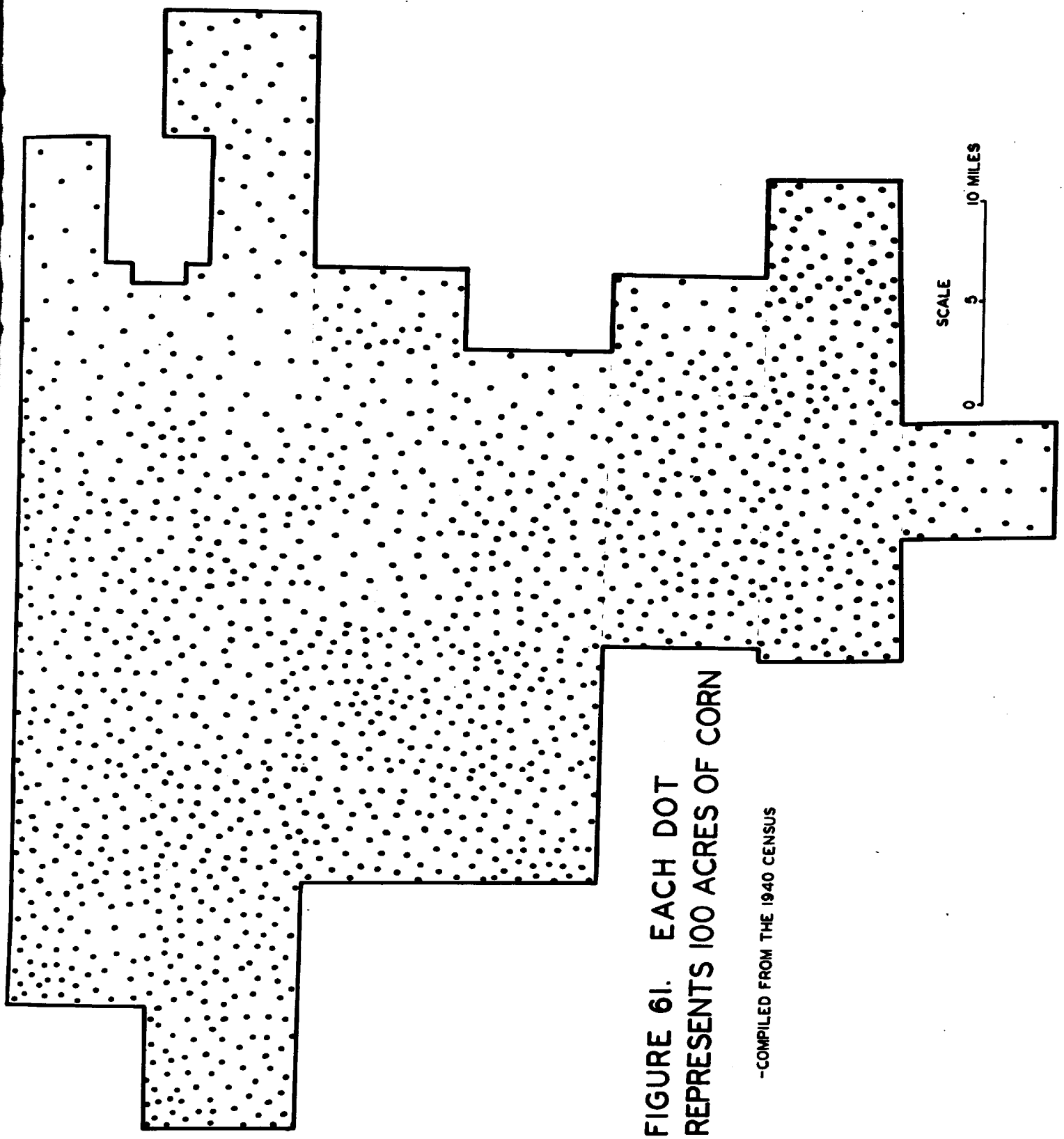


FIGURE 61. EACH DOT REPRESENTS 100 ACRES OF CORN

-COMPILED FROM THE 1940 CENSUS

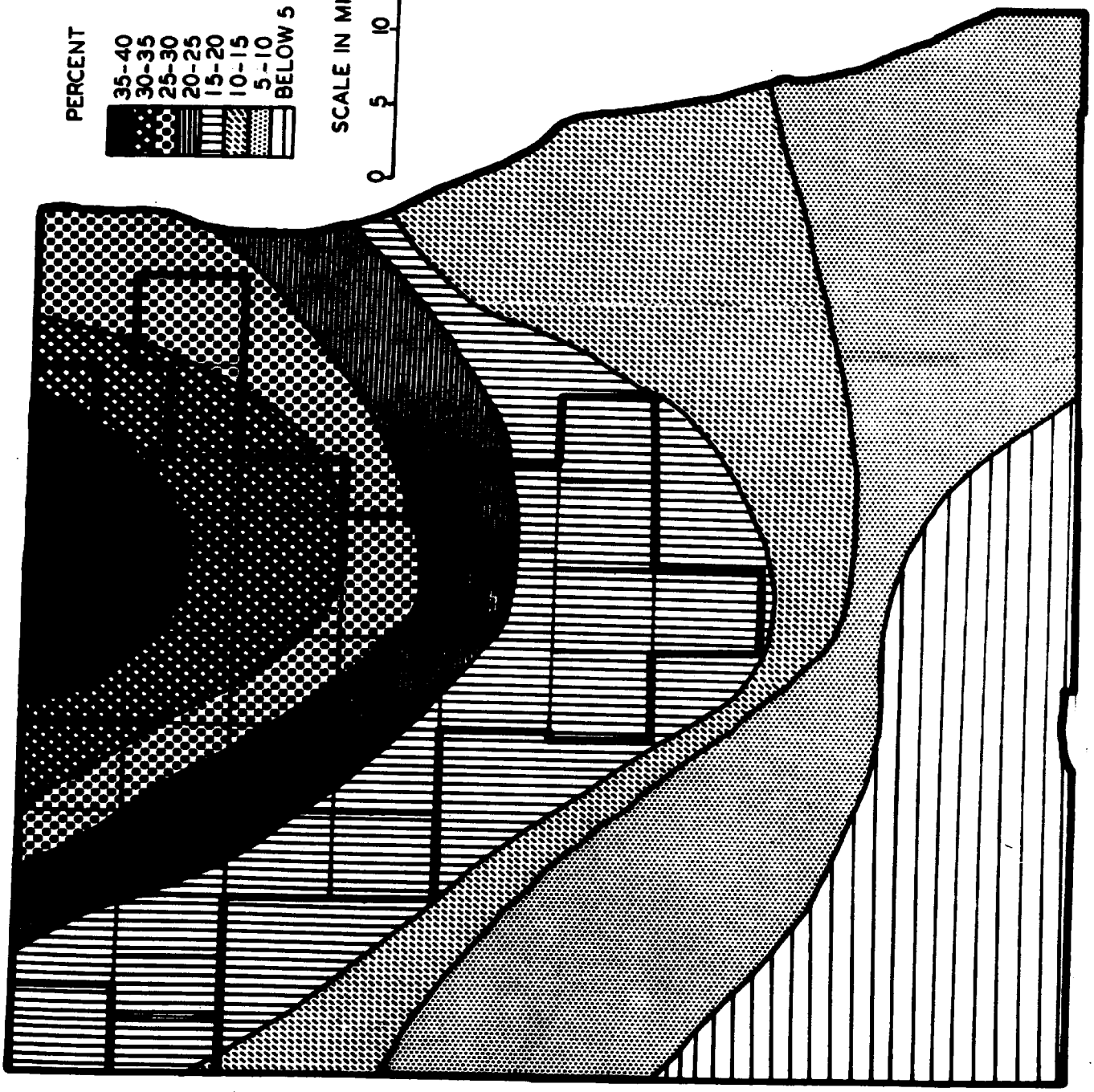


FIGURE 62. PERCENT OF CORN (ACRES) CUT FOR SILAGE
--COMPILED FROM THE 1940 CENSUS

Almost four-fifths (79%) of the farms in the Region raised oats (1939), with an average of 22 acres per farm. More farmers in Boone County raised them (92%) than in any other part of the Region, while only 60% of the farmers in Lake County produced them. Other parts of the Region were near the average. Part of the oats crop is used for silage, but most of it is either threshed or combined, the grain being used for feed and the straw either for bedding or for fertilizer. Straw for bedding may be taken from the stack as needed, or it may be cut by a chopper or shredder into small bits and thus be more efficiently and economically utilized. It is common practice to use oats, or occasionally wheat, as a nurse crop for alfalfa and other hay crops. As a crop per se, oats do not yield as much income per acre as either corn or hay.

Soybeans are relatively unimportant except in southwestern Mc Henry County, where 25 to 30% of the farmers grow them, chiefly as hay for beef cattle and as a soil enricher. Only 5% of the farmers in the entire county raise them,[1] and they appear even less commonly in other parts of the Region.

In 1939, 15% of the farmers raised wheat, but the percent is drastically smaller now, despite higher wheat prices. In 1950 less than 1000 acres of wheat were raised. Fields are seldom more than 10 acres in size.

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[1] In 1950 slightly over 1500 acres were devoted to soybeans in Mc Henry County.

In recent years brewing concerns in Milwaukee have contracted with numerous farmers around Woodstock to raise barley for malting purposes. In 1950 the acreage was 6800, almost three times that of wheat and soybeans combined.[1]

Throughout the Region vegetables are raised for home use and are frequently sold at roadside stands. A few truck farms appear in scattered parts of the Region, but except for Schaumberg Township there is no concentration of them. This township is on the western fringe of the Chicago Market Garden-Truck Farm Belt. The most distinctive crop in the locality is horse-radish (Figure 63), and it is claimed that 75% of Chicago's supply is raised by three brothers on the east slope of Valparaiso Moraine south of the town of Schaumberg. In western Mc Henry County and in Boone County many farmers raise peas and sweet corn for canneries, most of which are located outside the Region. Generally not more than 10 acres are sown to either crop, but the per acre remuneration in good years is excellent. A few pea vineries dot the landscape (Figure 64).

Fruit likewise is raised by the majority of farmers both for home use and sale, although the production is not large. Orchards usually consist of apple, cherry, peach, pear, and occasionally plum trees, and a grapevine

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[1] Woodstock Daily Sentinel, Monday, July 9, 1951, p. 6.

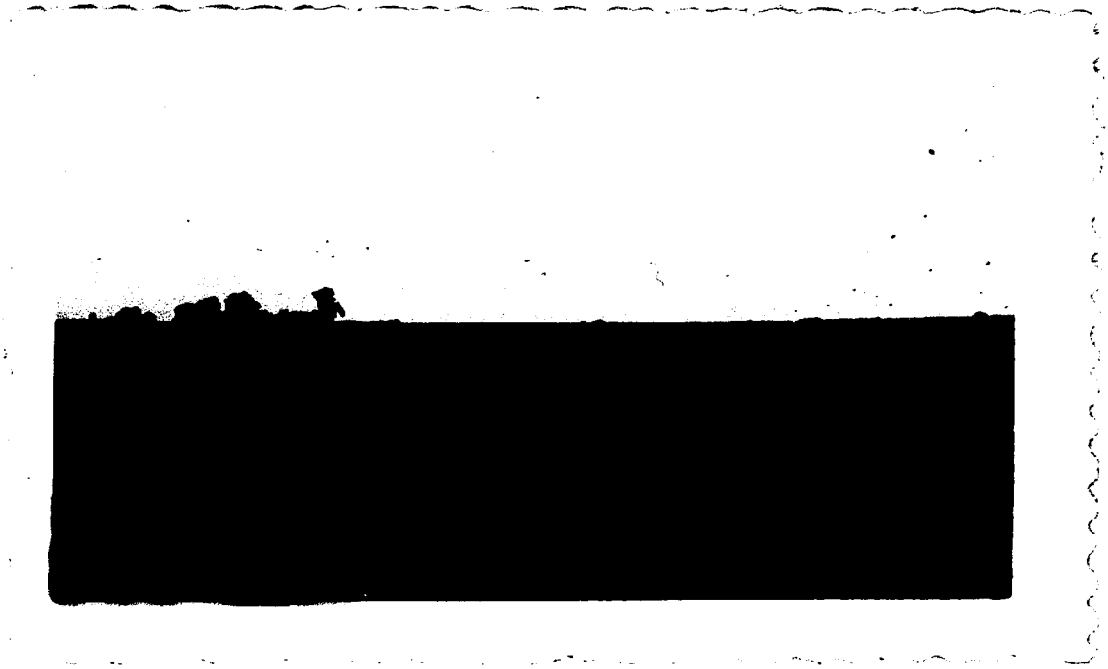


FIGURE 63. A LARGE FIELD OF HORSE-RADISH



A PEA VINERY NEAR MARENGO

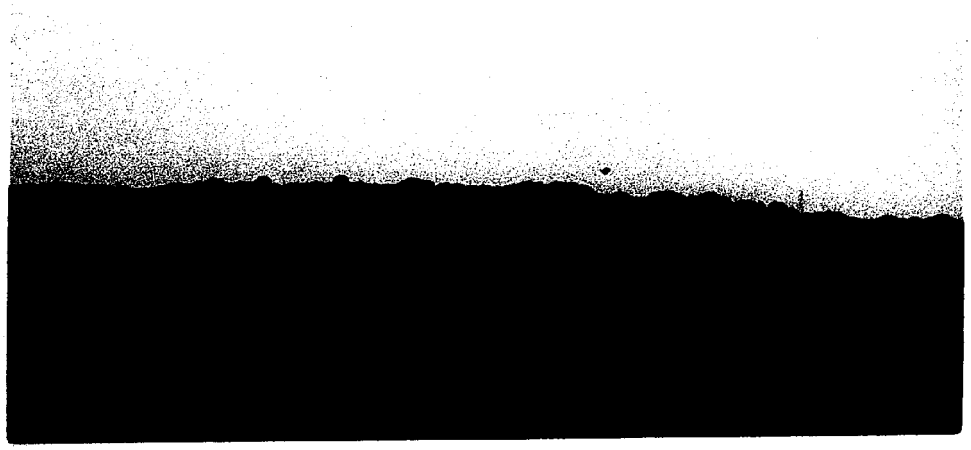


FIGURE 64. A COMMERCIAL ORCHARD NEAR GURNEE

or two. Commercial orchards, though present on the eastern edge of the Region (Figure 64), are not common.

A crop of considerable significance, although entirely commercial, is nursery stock. Several nurseries are distributed throughout the Region, but the largest one, Hill Nurseries of Dundee-Carpentersville, is particularly well known. Several hundred acres are planted to conifers, shade trees, fruit trees, and perennials. Contour and strip farming are practiced throughout most of the dispersed holdings (Figure 65).

In spite of the humid conditions that characterize the Region, a number of farmers employ irrigation to increase their profits. They have found that constant supplies of water, generally pumped from streams or lakes (Figure 66), triple or even quadruple the yields of hay, pastures, and truck crops. One polo field is irrigated. Mobile and light weight flexible aluminum piping is used to distribute water from the main irrigation lines to the various parts of the field. None of the systems in use is large in terms of arid land irrigation, but fields within a half-mile can be watered with these small setups. With its large amounts of water available, Lake County has more irrigation than other parts of the Region.

The relative unimportance of cash crops is evident in their small percentage of total farm income in 1944. Whereas 50% of the land of the Region and 60% of the land that is in farms is cropped (Figures 67 and 68), crops

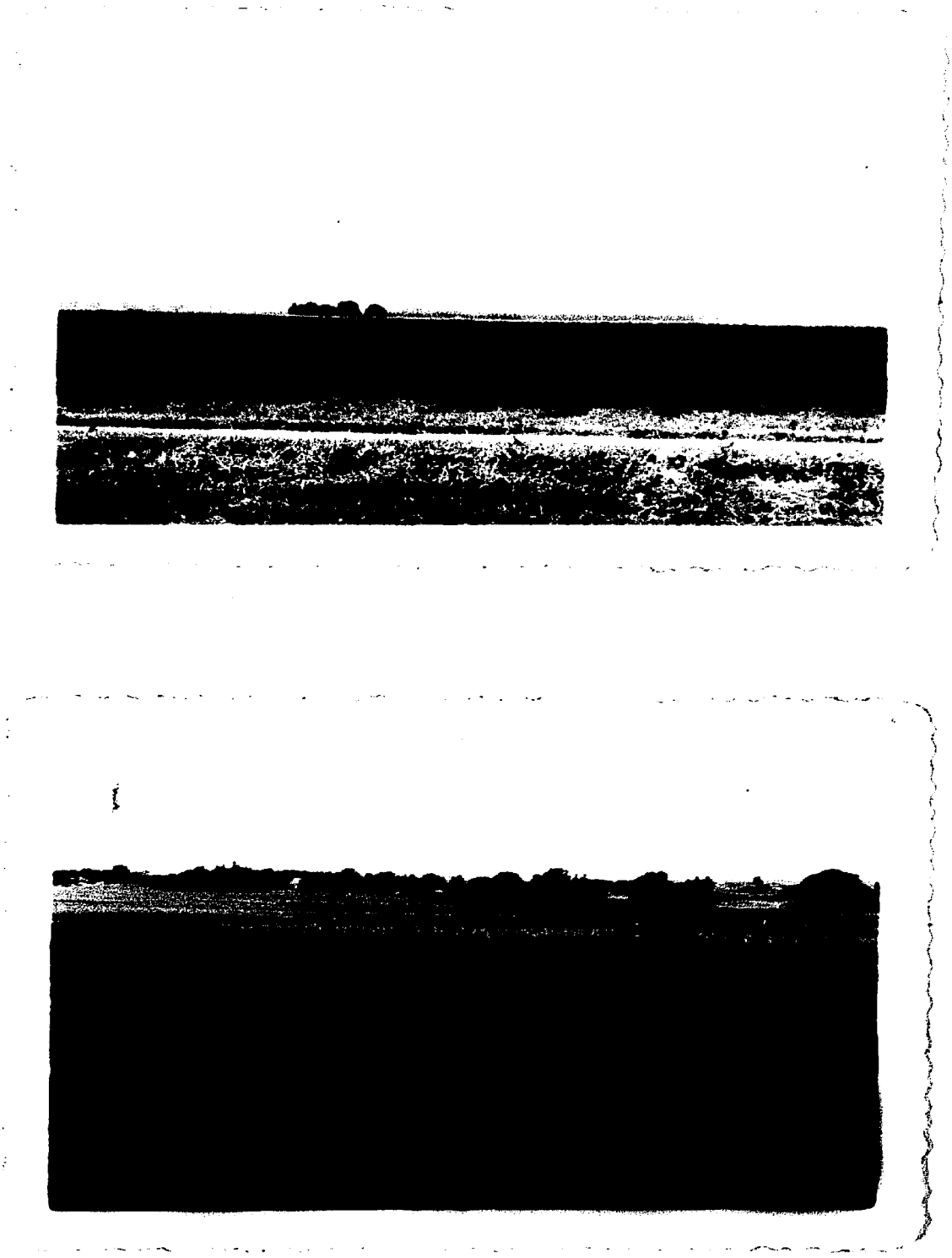
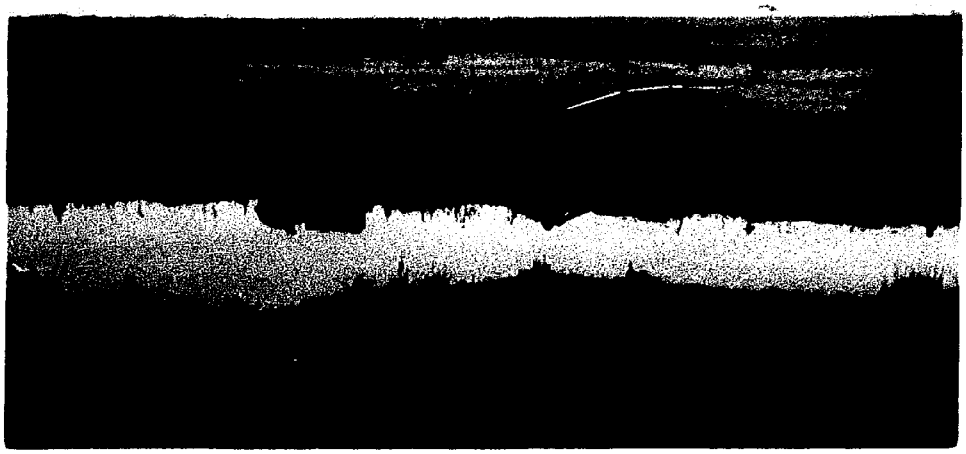


FIGURE 65. VIEWS OF HILL NURSERY. STRIP CROPPING APPEARS IN THE LOWER PHOTO, WITH ALTERNATING CONIFERS AND ROW CROPS



PUMPING WATER FOR TOMATO IRRIGATION



FIGURE 66. A MAIN ALUMINUM IRRIGATION LEADER FROM THE RIVER IN THE BACKGROUND, WITH A FLEXIBLE BRANCH TO THE RIGHT

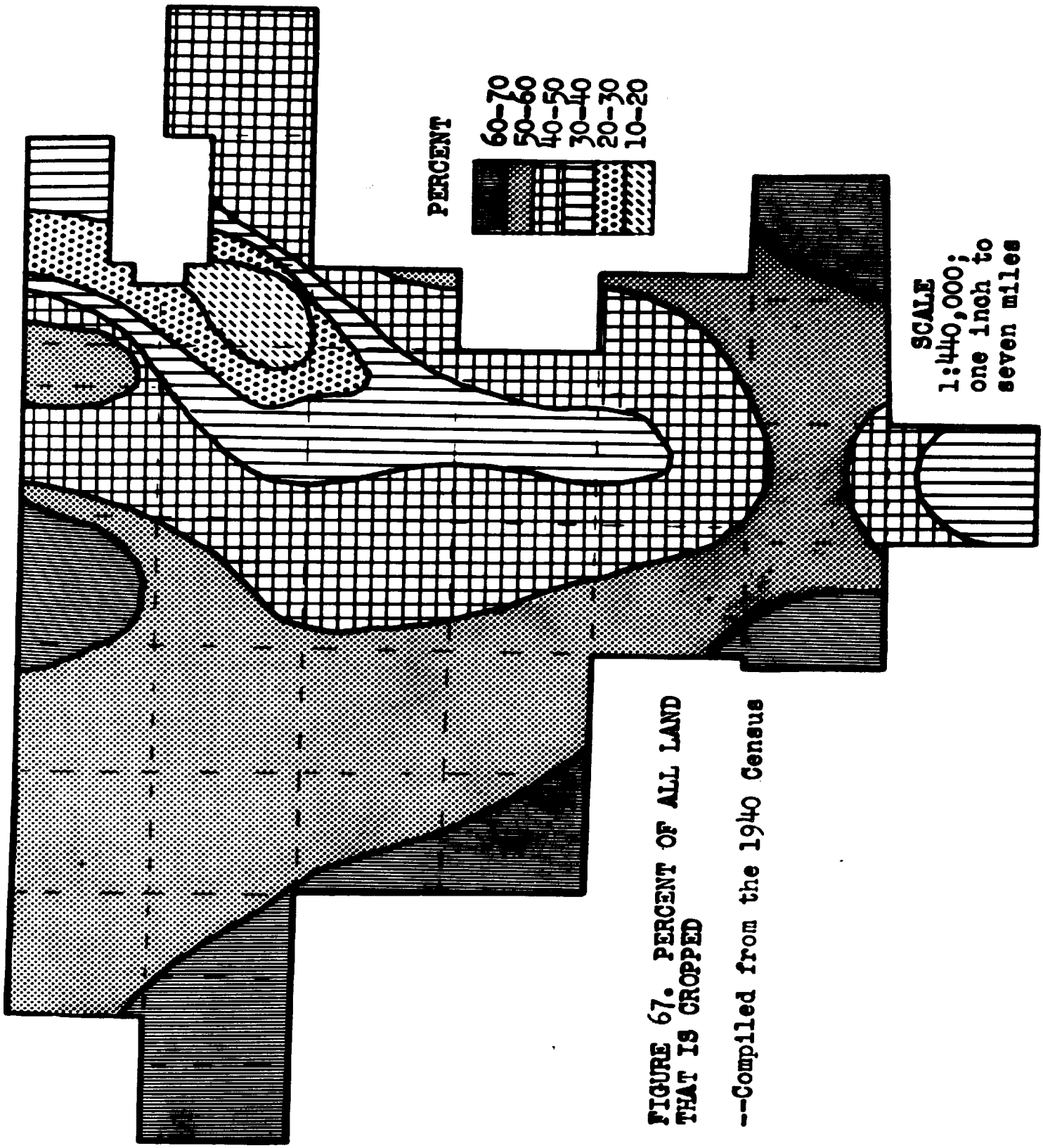


FIGURE 67. PERCENT OF ALL LAND
THAT IS CROPPED

--Compiled from the 1940 Census

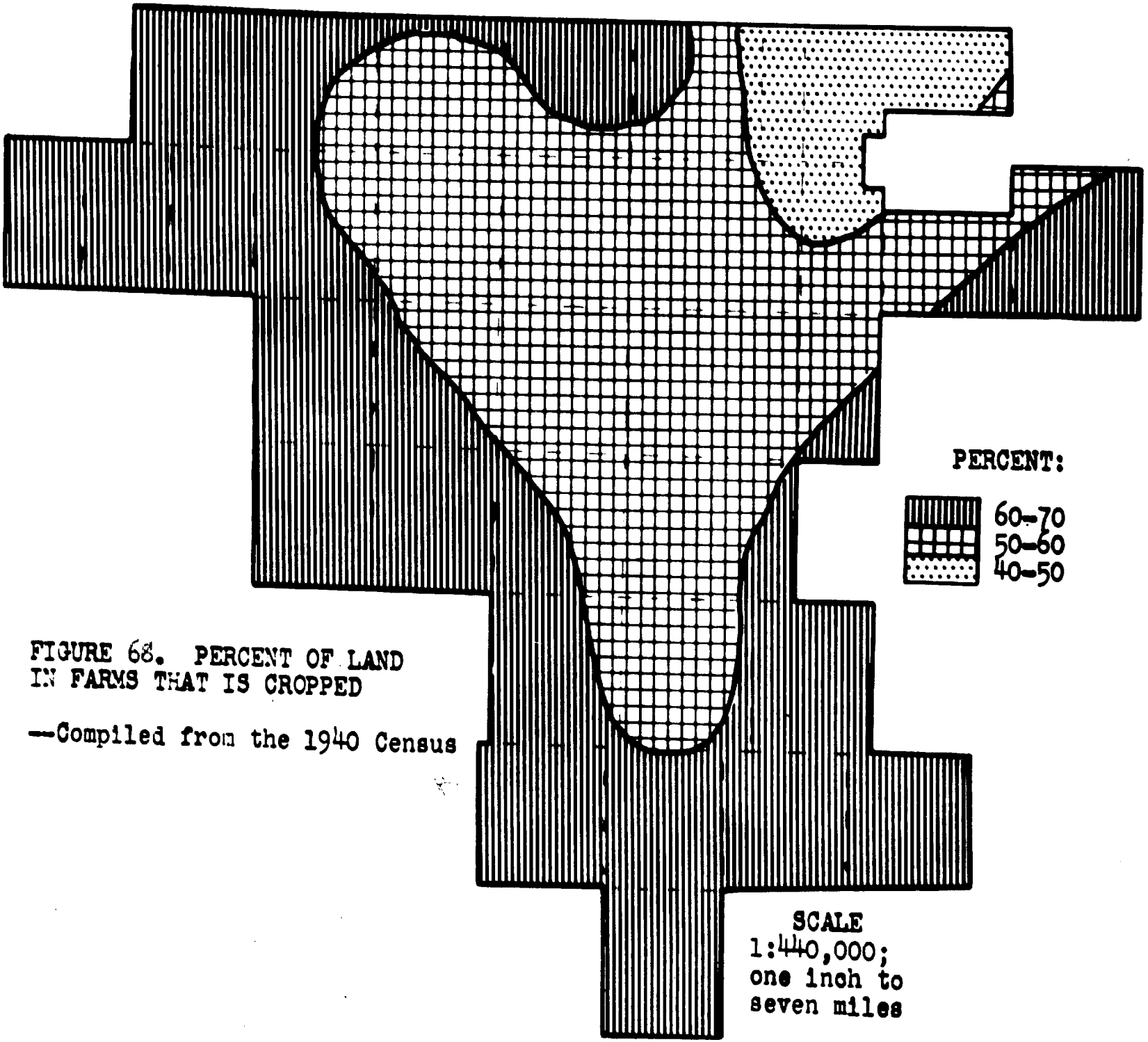


FIGURE 68. PERCENT OF LAND IN FARMS THAT IS CROPPED

—Compiled from the 1940 Census

themselves accounted for only 10% of the farm income. Clearly, a large proportion of the crops is fed to animals which in turn are responsible for 90% of the agriculturist's cash income. Crops themselves brought in only 6% of the amount obtained through the sale of dairy products.

By minor civil divisions the percentage of income derived from the sale of crops varied from less than 1% in Hanover Township and 1% in Burton Township to 33% in Hartland Township. Only six townships in the entire Region obtained 20% or more of their income from the outright sale of crops (Figure 69).

A summary of income in 1944, by chief agricultural categories, indicates the relative importance of dairying compared to other sources:[1]

TABLE VI: REGIONAL SOURCES OF FARM INCOME, 1944

Value of Dairy Products Sold			$17,463,963
Value of Livestock and Products Sold			6,326,860
Value of All Crops Sold			2,902,542
Value of Poultry and Products Sold			1,358,655
Value of All Farm Products Sold			$28,052,020
Dairy Products	62%	85%	Of the Total Farm Income of the Region
Livestock	23%		
Crops	10%	15%	
Poultry	5%		

Dairy Products = 276% of the Livestock and Products Sold
Dairy Products = 602% of the Crops Sold
Dairy Products = 1285% of the Poultry and Products Sold

[1]Compiled from the 1945 Census of Agriculture.

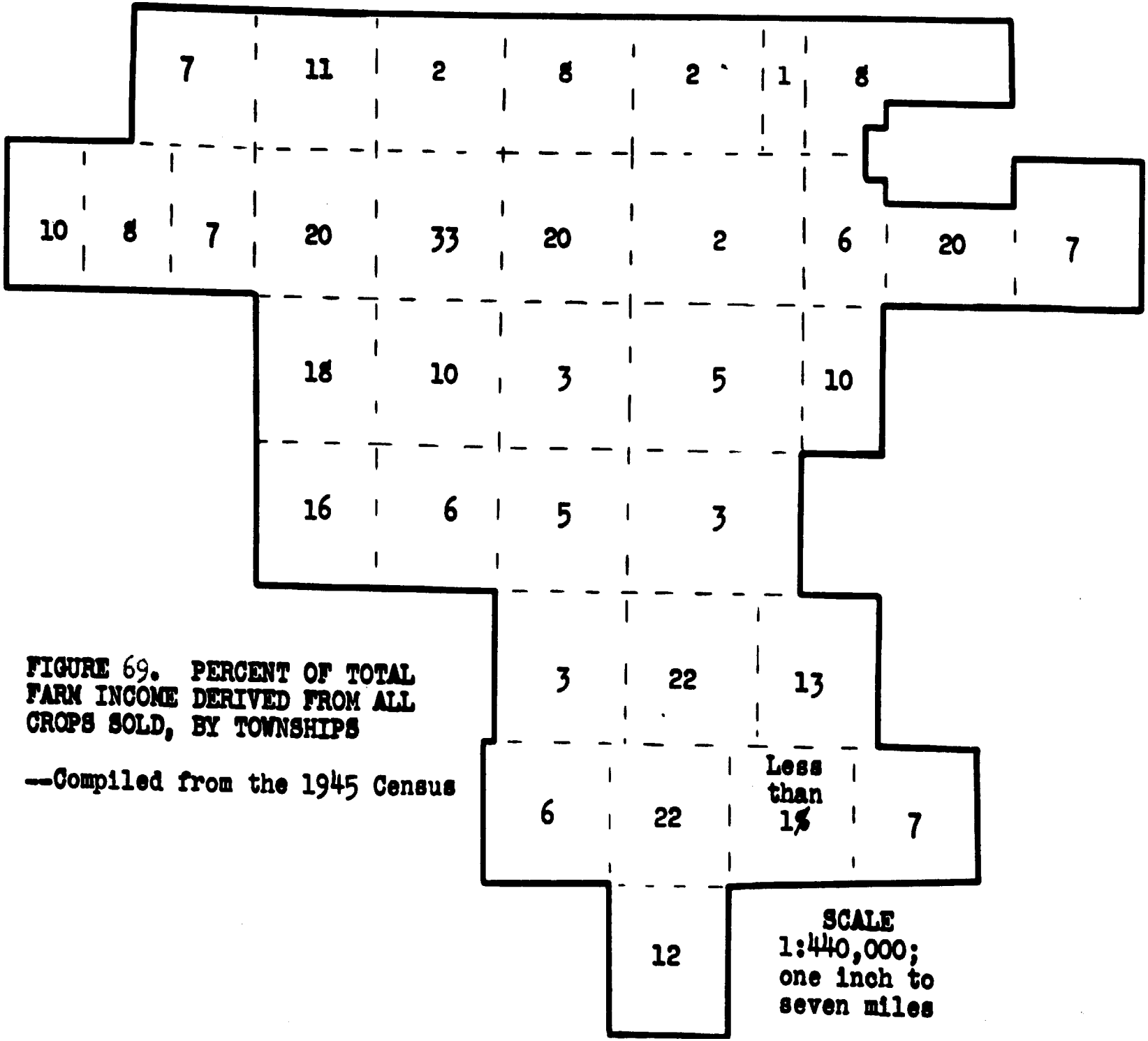


FIGURE 69. PERCENT OF TOTAL FARM INCOME DERIVED FROM ALL CROPS SOLD, BY TOWNSHIPS

--Compiled from the 1945 Census

In order to conserve the land resources and at the same time produce at a high rate of efficiency and have a surplus for E. C. A. countries, the Mc Henry County Mobilization Committee has recommended the following utilization of the County's farmlands:

TABLE VII: U. S. D. A. MOBILIZATION COMMITTEE'S RECOMMENDATION FOR FARMLAND USE IN MC HENRY COUNTY

Land Slope	Number of Acres in County	Percent in Corn and Soybeans	Percent in Small Grains	Percent in Conservation Crops	Percent in Timber
0- 2%	145,789	50	25	25	
2- 5%	127,395	25	25	50	
5-10%	66,820	20	20	60	
10-15%	30,443	15	15	70	
15-20%	2,196			80	20
20-30%	14,276			50	50
30 Plus	2,196				100

The following table shows the actual use of the land of the county in the years 1940, 1945, and 1950, and then gives the 10-year average. The increase of the percent of land devoted to corn and beans in 1945 was the result of conditions during World War II, when grains were needed more than dairy products and when a shortage of farm help made the raising of grains easier than dairy production. Hence hay and rotation pastures decreased at that time. By 1950 the ratio had returned to approximately that of 1940.

TABLE VIII: ACTUAL USE OF MC HENRY COUNTY LAND, 1940-1950

	Corn and Soybeans	Oats and Barley	Hay and Rotation Pasture
1940:			
Acres Sown	83,500	57,000	84,300
Percent of Land Sown	37.1	25.4	37.5
1945:			
Acres Sown	105,000	61,500	77,100
Percent of Land Sown	43.1	25.2	31.7
1950:			
Acres Sown	93,500	66,900	94,500
Percent of Land Sown	37	26	37
10-Year Average:			
Acres Sown	96,380	62,870	80,500
Percent of Land Sown	40.2	26.2	33.6

To summarize the crops and cropland of the Region, the following table is given:

TABLE IX: SUMMARY OF CROPS AND CROPLAND OF THE NORTHEASTERN ILLINOIS DAIRY REGION

Land of the Region that is in Farms	83%
Land of the Region that is Cropped	50%
Land in Farms that is Cropped	60%
Total Farm Income Derived from the Sale of Crops	10%
Value of Crops Sold Compared to Value of Dairy Products Sold	6%
Cropped Land in Hay, Oats, and Corn	90%
Farms of the Region Raising Corn	91%
Farms of the Region Reporting Silage	64%
Farms of the Region Reporting Oats	79%
Farms of the Region Reporting Wheat	< 5%
Farms of the Region Reporting Soybeans	< 5%
Acres of Corn per Square Mile	131
Average Corn Acreage per Farm Reporting Corn	35
Average Oats Acreage per Farm Reporting Oats	22
Average Wheat Acreage per Farm Reporting Wheat	10

4. Major Land Types and Land Use Differences in the Region

From a physical and land use standpoint, there are basically five land types in the Region. Occupying a larger portion of the Region than any other types are the several rolling to steeply rolling moraines (Figure 70). On the margins of the moraines, particularly in the western part of Mc Henry County (and elsewhere to a more limited degree), are extensive outwash plains and their associated lowlands. Six major sections of till plains with their flat to rolling surfaces occupy a total area somewhat over half that of the moraines. And lastly, although less spectacular in size, there are two lake plains with very different occupance. Glacial Lake Pingree Plain (Type IV) is a flat and highly utilized farming area, while the chief Lake District of the Region (and the state), located partially within moraines and partially in the edge of the till plain, is extremely flat to hilly and is little farmed.

In order to indicate the physical and land use differences of these five land types, five small representative areas have been chosen for detailed study, one for each type (designated as Areas A, B, C, D, and E in Figure 70).[1] For comparative purposes, the aerial photos and maps of soils, farm shapes and sizes, and land utilization of these areas indicated accompany the accounts (See Figures 71 to 90).

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[1]The areas cover from approximately one and a half square miles to slightly over two square miles in extent.

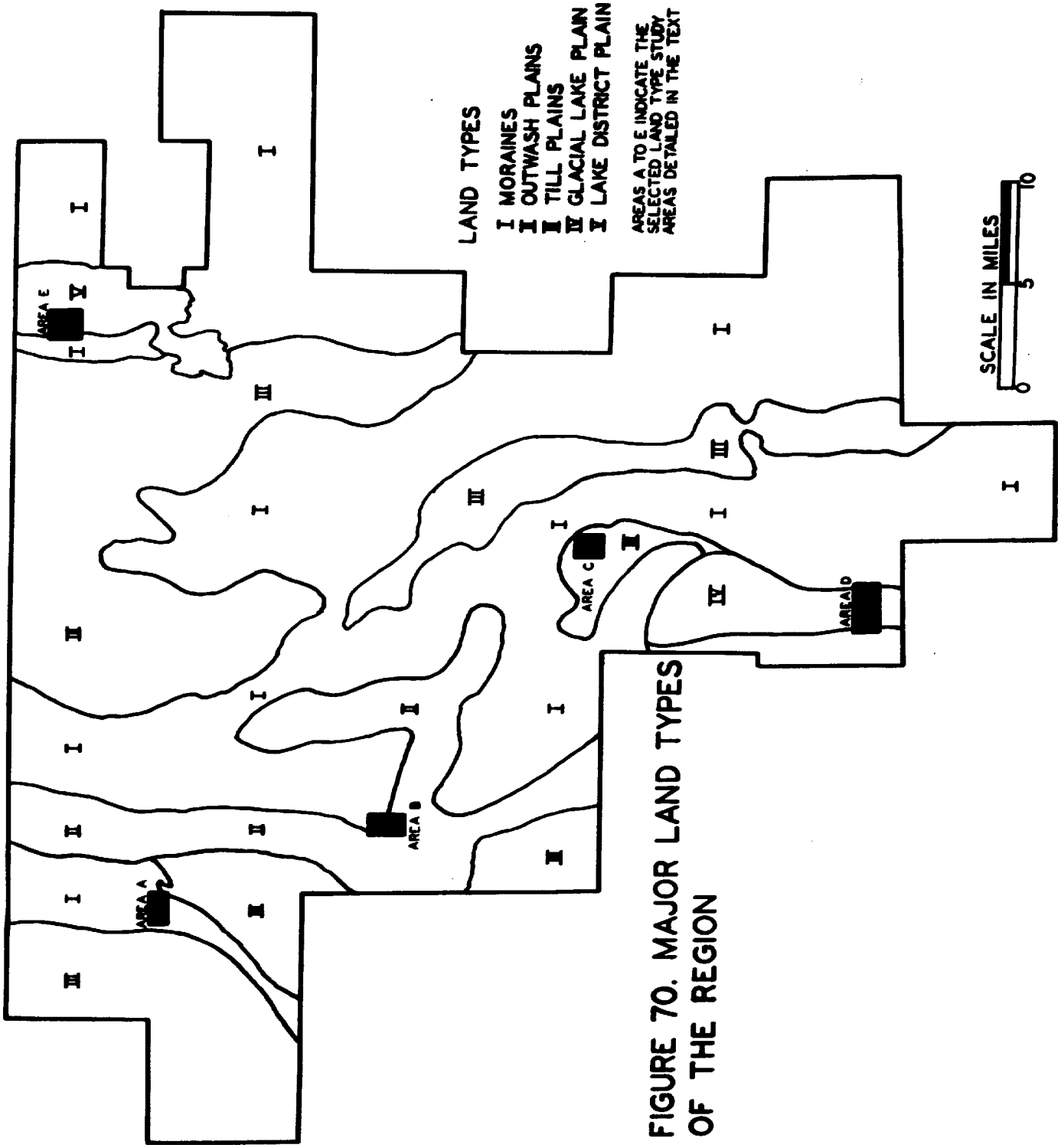


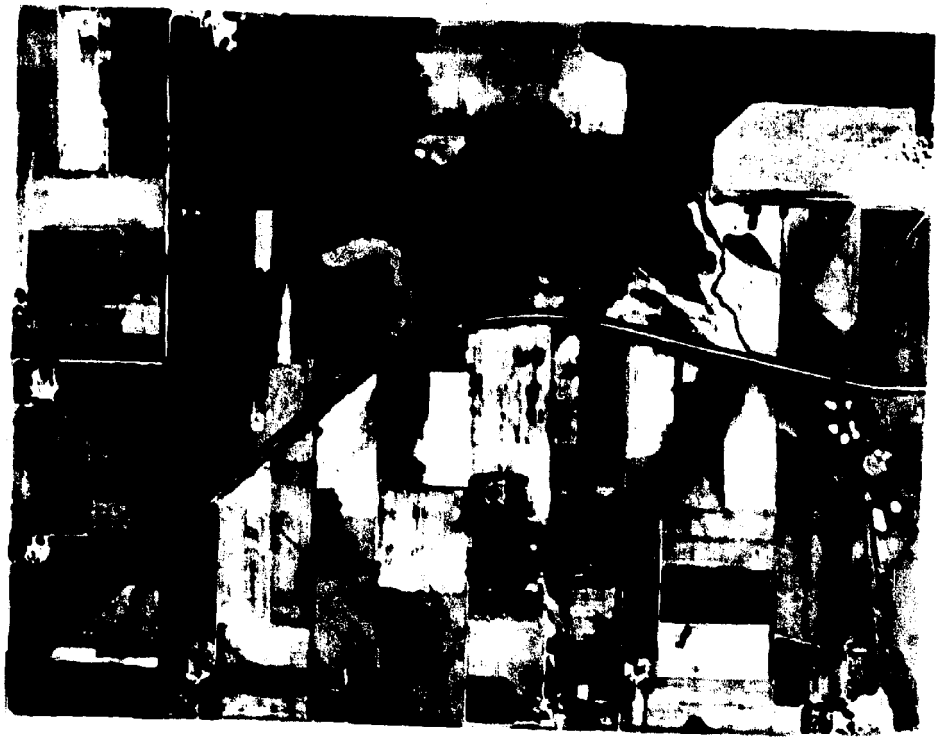
FIGURE 70. MAJOR LAND TYPES OF THE REGION

Area A (Figures 71 to 74) embraces Section 1 and about half of Section 2, Township 45 North, Range 4 East, Boone Township of Boone County. Occupying the eastern edge of the White Rock Moraine, it is an area of fairly mature dissection with a relief of about 75 feet. The most level parts occur along the tributaries of Piscasaw Creek in the northern and eastern parts of the Area, but most of the land is rolling in nature. Where bottomland soils predominate (Muck and Otter Loam), the land is devoted chiefly to lowland pasture in response to poor drainage. In a few cases even silt loams are used as lowland pasture. Woodland pastures and woodlands occur chiefly on silty loams, expecially Miami and Pecatonica, which are Upland Forest Soils. Almost two-thirds of the Area is in crops, despite reliefs of more than fifty feet to the half mile. Farm patterns are variable in size and rectilinear in shape. Individual farms vary in size and are numerous.

Area B[1] (Figures 75 to 78) illustrates the differing utilization of Marengo Moraine, its accompanying outwash plain, and the adjacent bottomland on the north bank of the Kishwaukee River. The relatively good and well-drained outwash, which covers half of Area B, slopes very gently southward to the river. Since this terrace is essentially flat land, crop farming is easy and it occupies almost all of the outwash. Farms, which vary considerably

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[1]Section 22 and the south half of Section 15, Town 44 North, Range 7 East, Marengo Township of Mc Henry County.



NORTH

Scale 1:20,000

FIGURE 71. AREA A (WHITE ROCK MORAINE, NORTHEAST OF CAPRON)

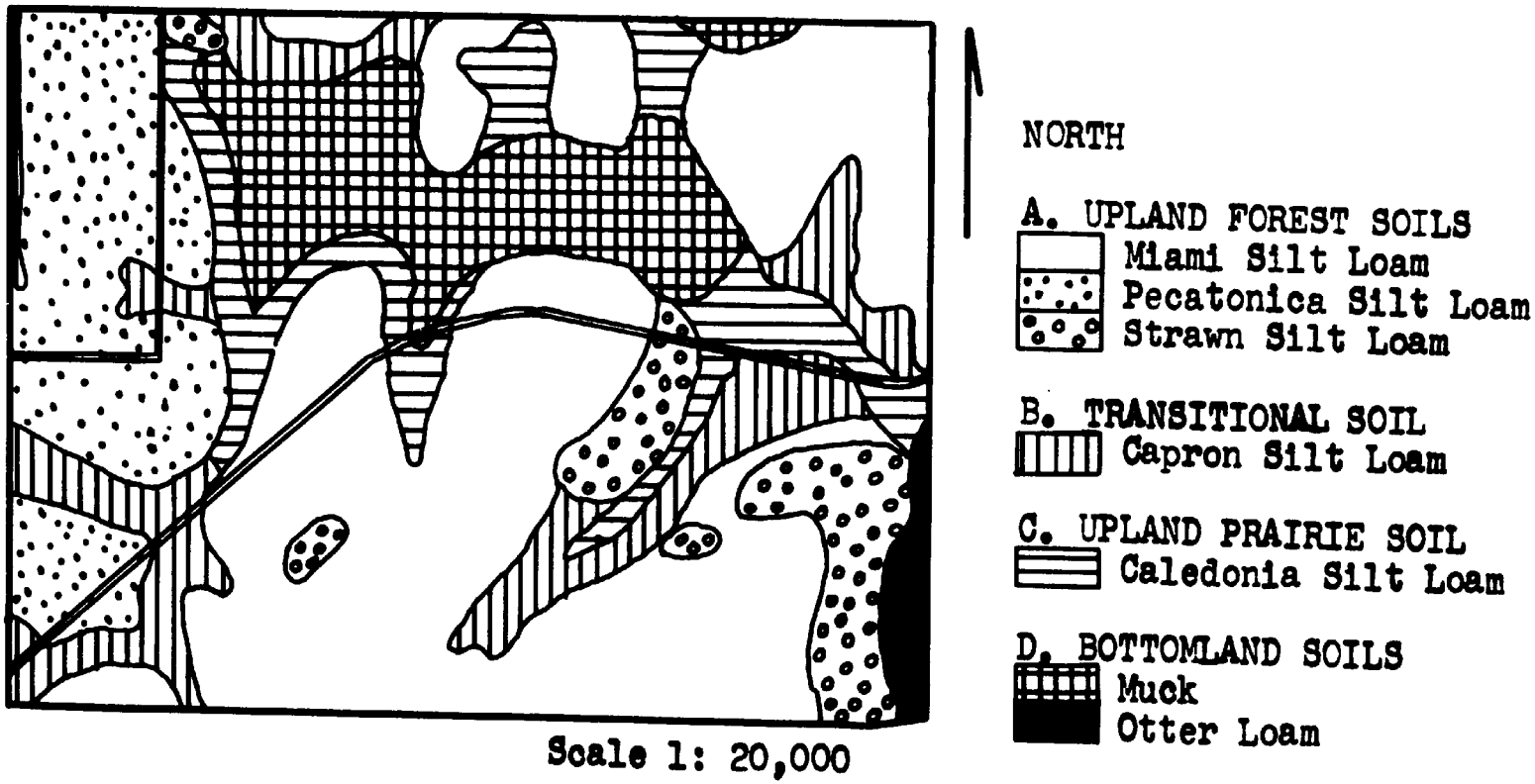


FIGURE 72. SOILS OF AREA A (WHITE ROCK MORAINE, NORTHEAST OF CAPRON)

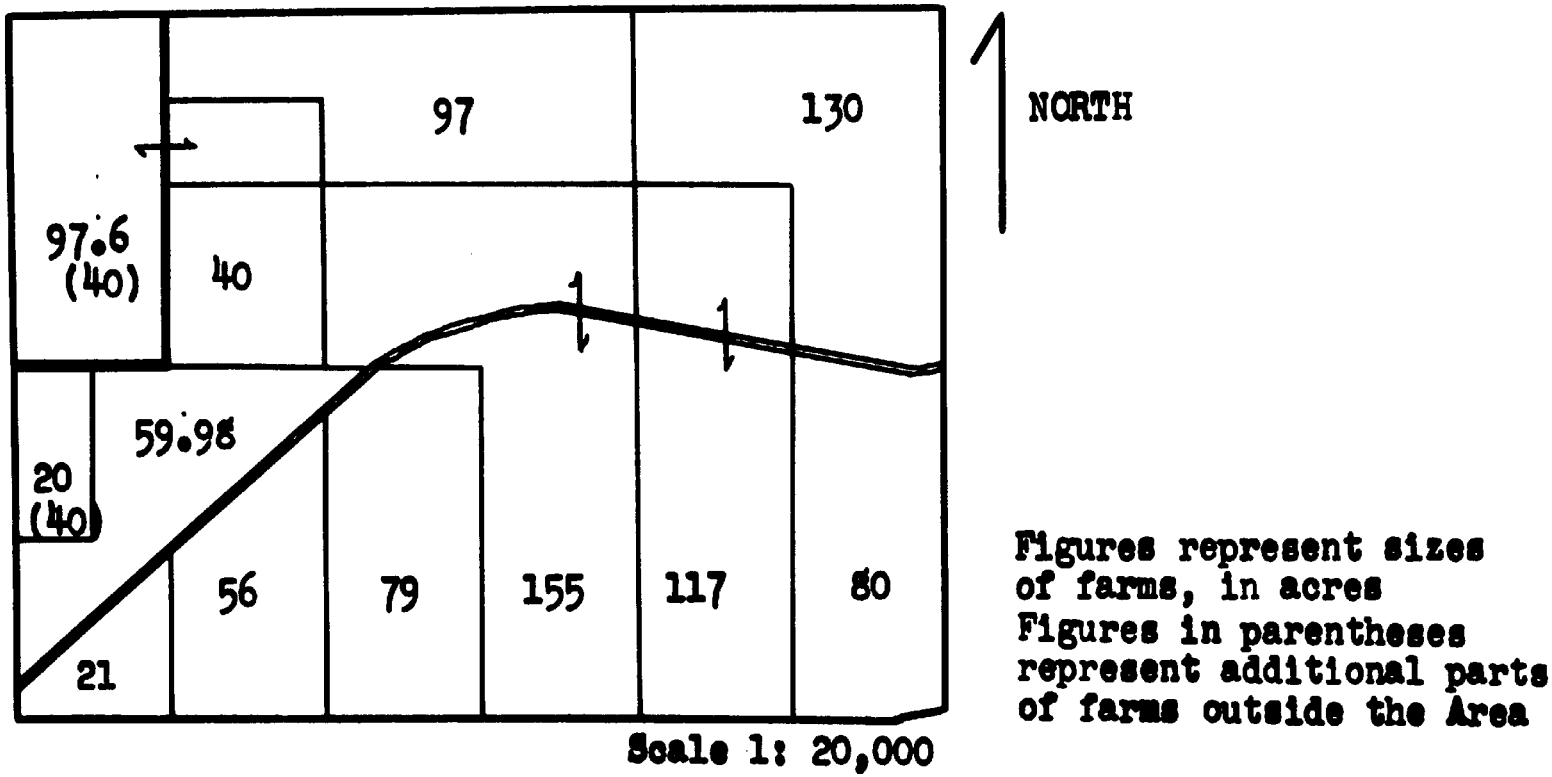


FIGURE 73. FARM PATTERN OF AREA A (WHITE ROCK MORAINE, NORTHEAST OF CAPRON)

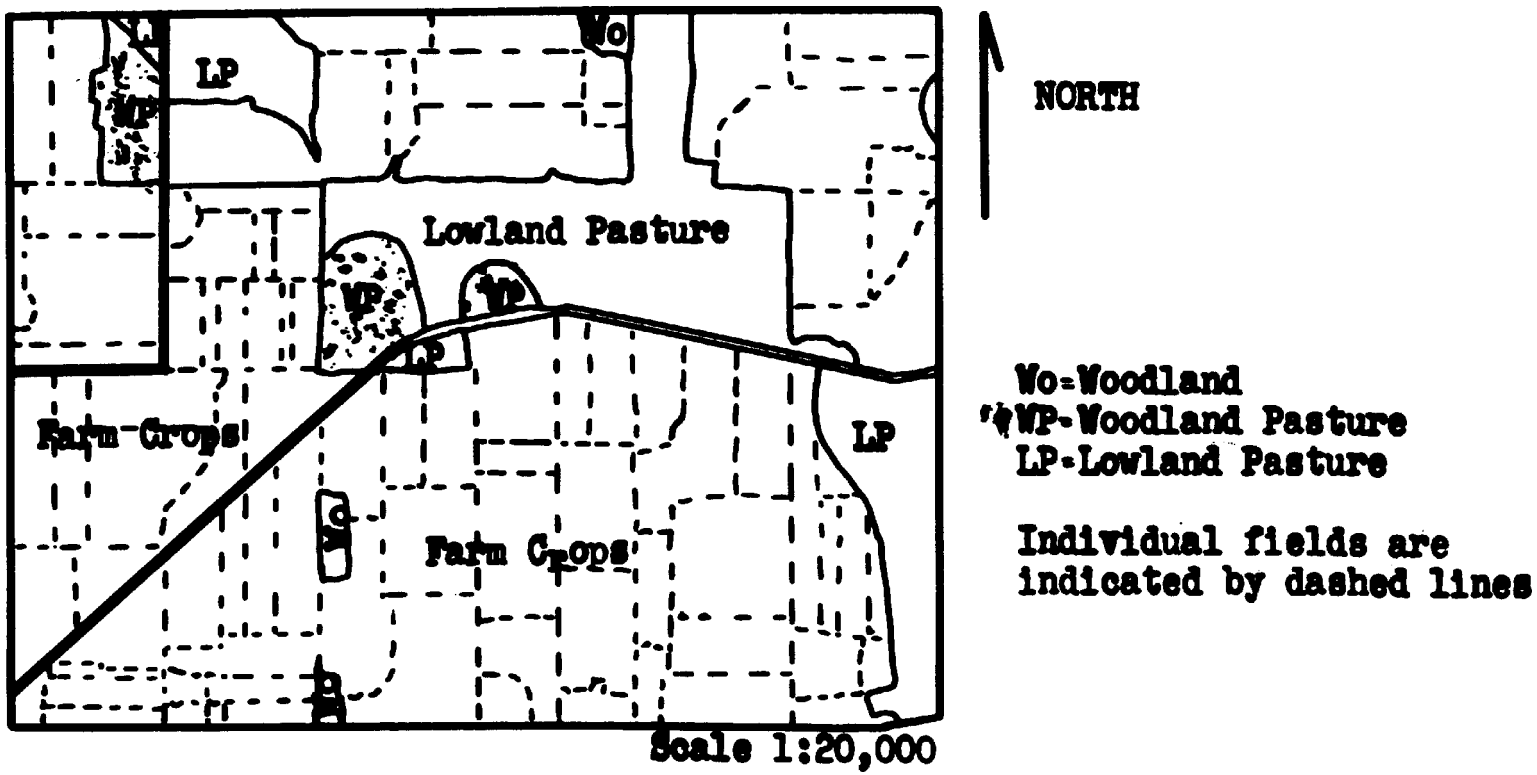


FIGURE 74. LAND USE OF AREA A (WHITE ROCK MORAINE, NORTHEAST OF CAPRON)



NORTH

Scale 1:20,000

FIGURE 75. AREA B (A PORTION OF MARENGO RIDGE AND CONTIGUOUS OUTWASH, NORTHWEST OF MARENGO)

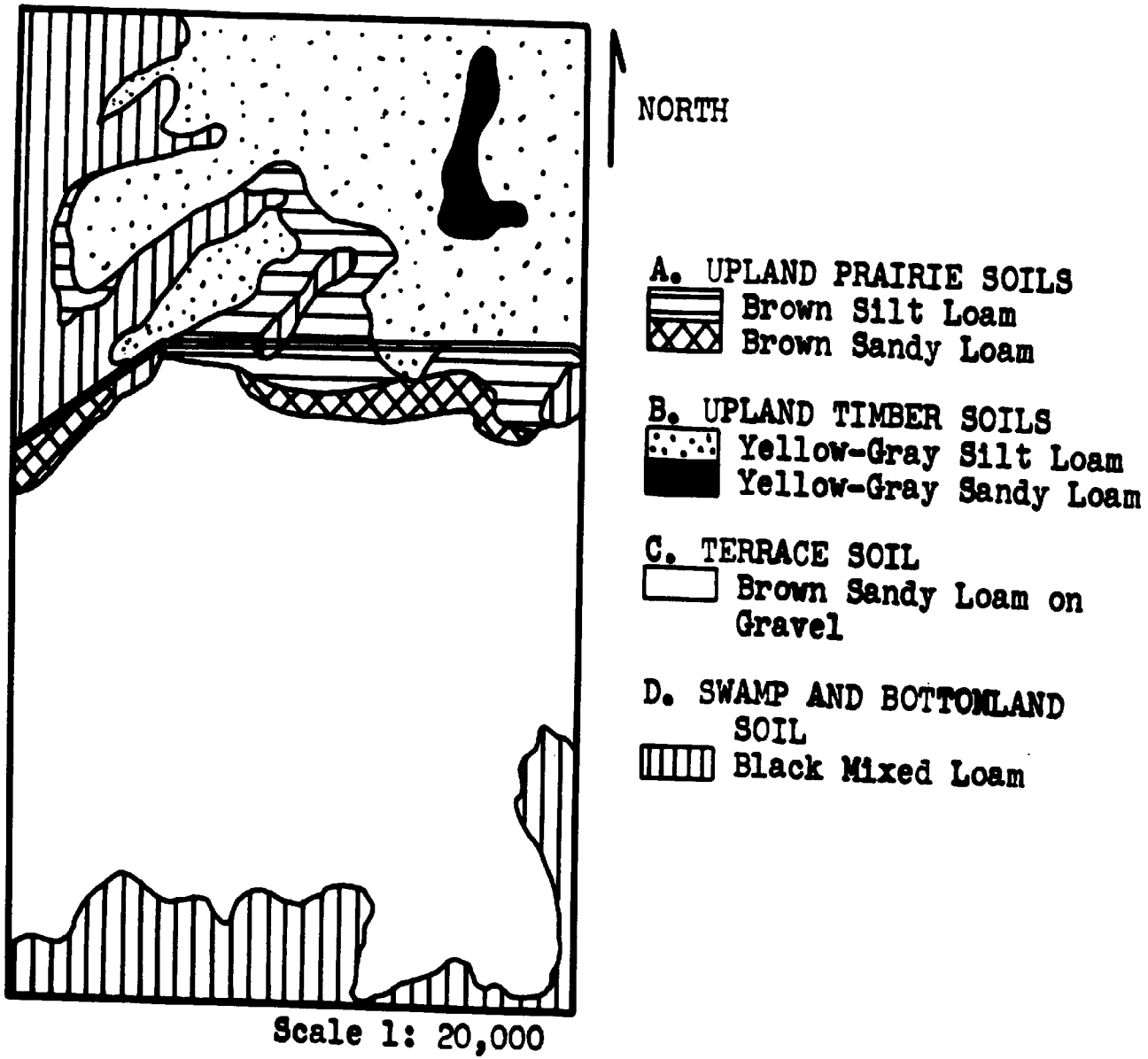
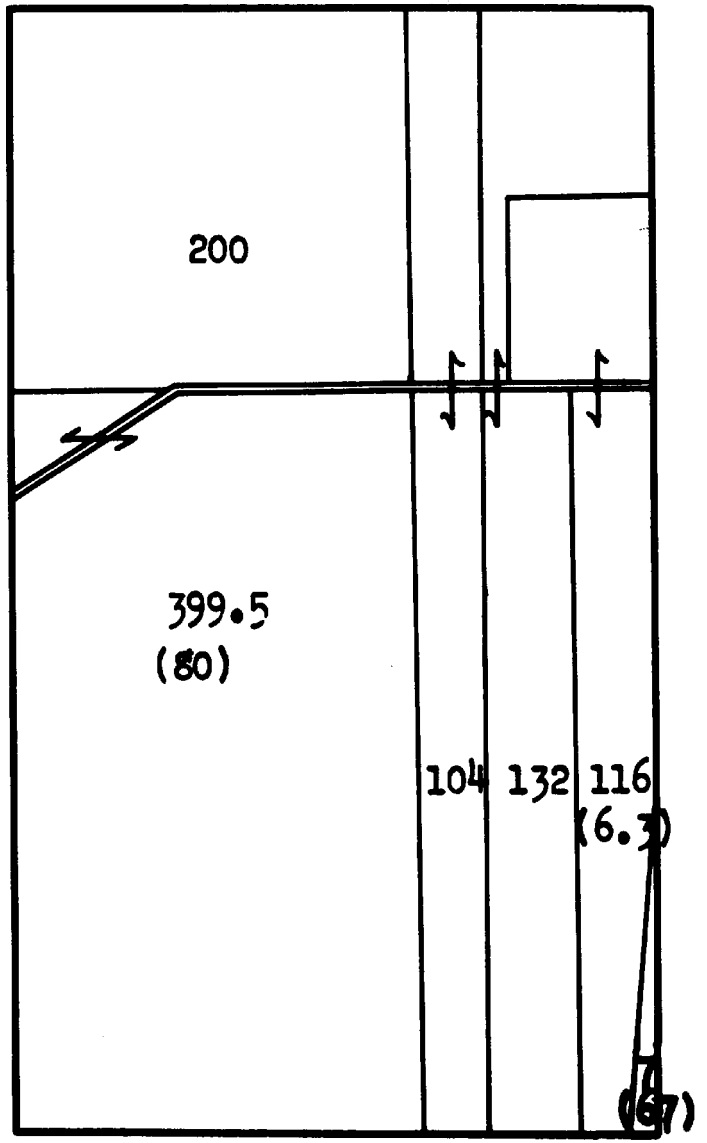


FIGURE 76. SOILS OF AREA B (A PORTION OF MARENGO RIDGE AND CONTIGUOUS OUTWASH, NORTHWEST OF MARENGO)



Figures represent sizes of farms, in acres (Those in parentheses indicate adjacent parts of farms outside the Area)

Scale 1: 20,000

FIGURE 77. FARM PATTERN OF AREA B (A PORTION OF MARENGO RIDGE AND CONTIGUOUS OUTWASH, NORTHWEST OF MARENGO)

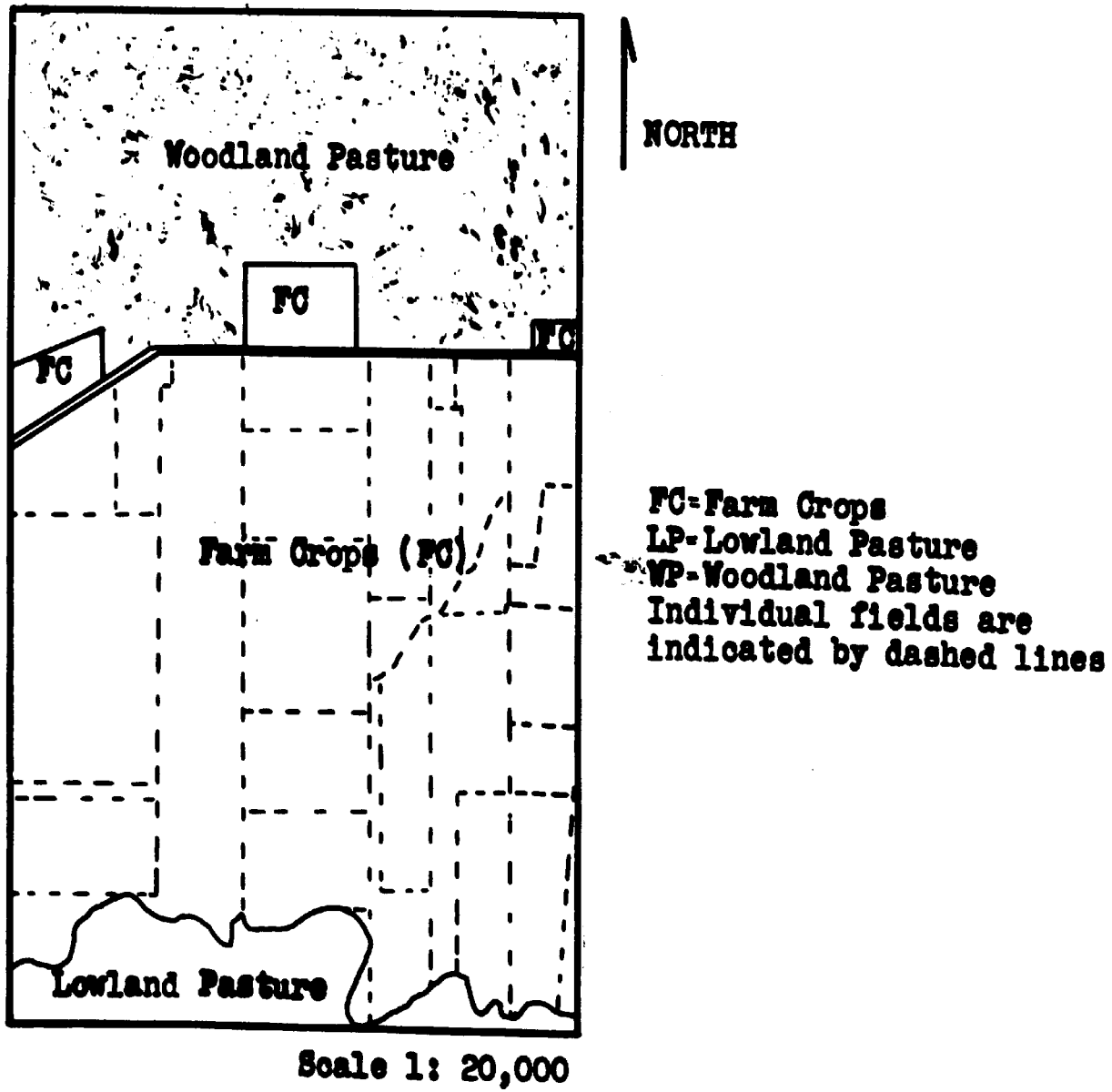


FIGURE 78. LAND USE OF AREA B (A PORTION OF MARENGO RIDGE AND CONTIGUOUS OUTWASH, NORTHWEST OF MARENGO)

in size, are elongate north and south. Two of them extend the full length of the Area, thus partaking of moraine, outwash, and bottomland. Inasmuch as the included portion of the Ridge is steeper than that of White Rock Moraine, a larger portion of the former is used as woodland pasture (this includes considerable lowland, which is partially wooded). The areas of Upland Prairie Soils, however, are in crops. The southern part of the Area is too wet for crops and is used as lowland pasture. About one-quarter of the soils are Upland (Prairie and Timber) and another quarter are classed as Swamp and Bottomland.

Area C[1] (Figures 79 to 82) is entirely till plain, with characteristically level topography and scattered slight depressions with poor drainage. Except for the poorly drained portions with Swamp and Bottomland Soils, most of the Area has Upland Prairie Soils of excellent quality, which is attested by the prosperity of the Area. The low-lying lands are used as lowland pastures, but the remainder (about 85%) is cropped. Farm holdings are more irregular in outline than those of Areas A and B and each farm has some lowland pasture. Fields are rectangular except where they border lowland sections.

Area D[2] (Figures 83 to 86) is chiefly in Glacial Lake Pingree Plain, but it extends slightly into the edge of

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[1]Parts of Sections 25, 26, 35, and 36, Township 43 North, Range 7 East, Grafton Township of Mc Henry County.

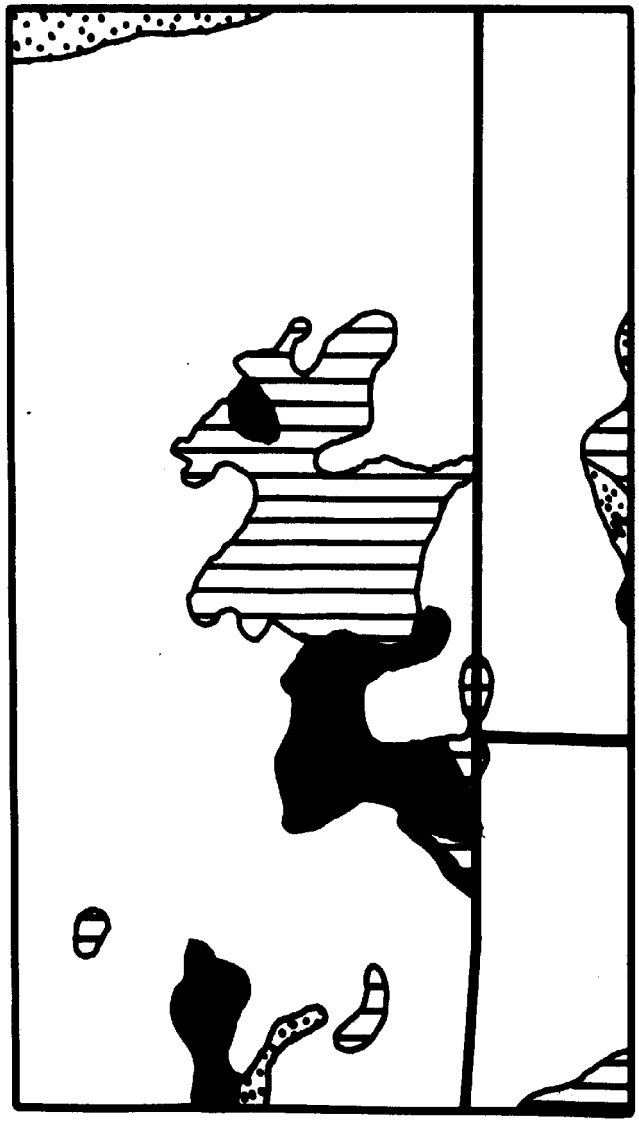
[2]Section 27 (part) and Section 28 of Township 41 North, Range 7 East, Plato Township of Kane County.



NORTH

Scale 1:20,000

FIGURE 79. AREA C (TILL PLAIN, EAST OF HUNTLEY)



NORTH

A. UPLAND PRAIRIE SOILS
Brown Silt Loam
Brown Sandy Loam

B. SWAMP AND BOTTOMLAND SOILS
Black Mixed Loam
Deep Peat

Scale 1: 20,000

FIGURE 80. SOILS OF AREA C (TILL PLAIN, EAST OF HUNTLEY)

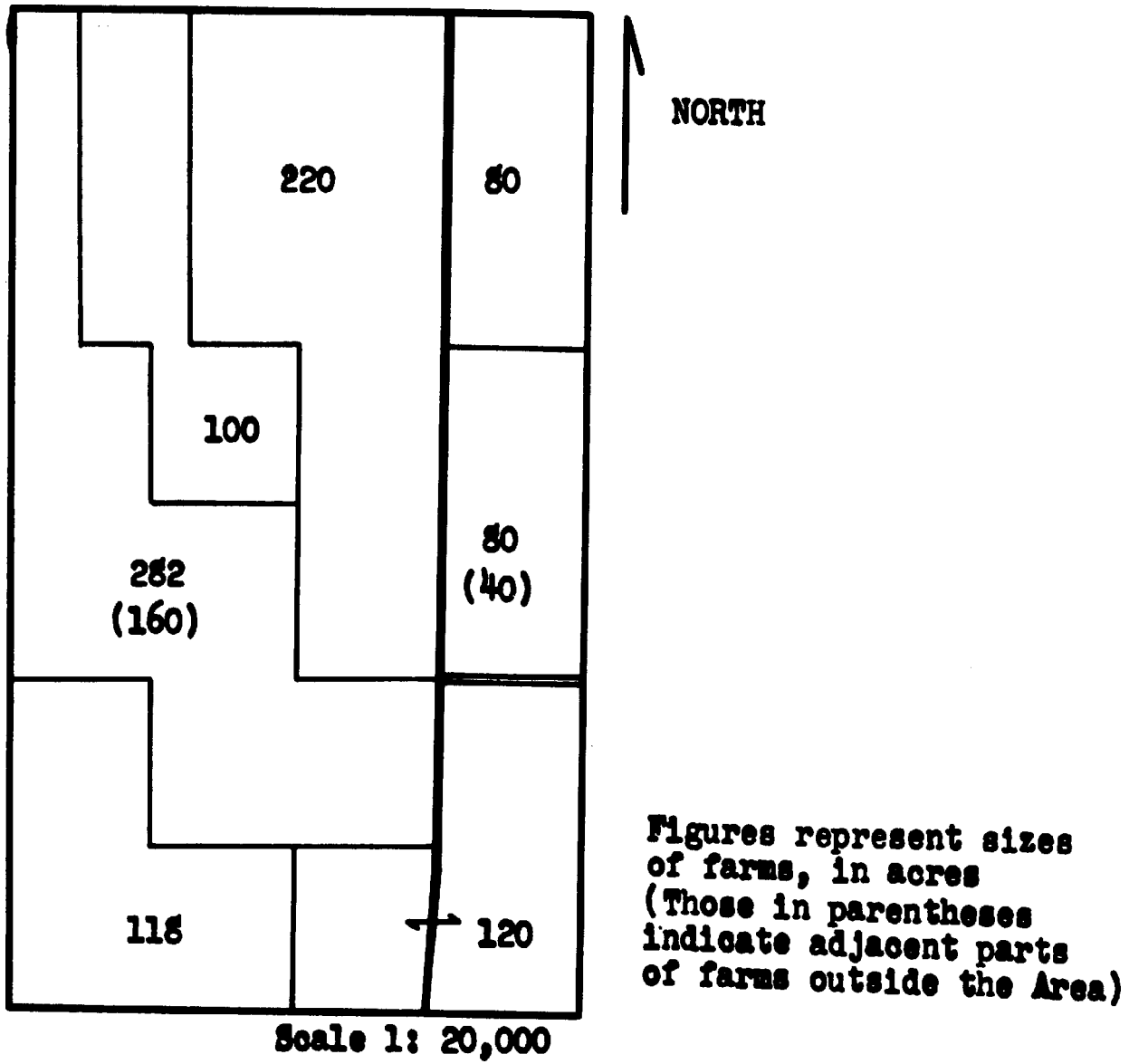
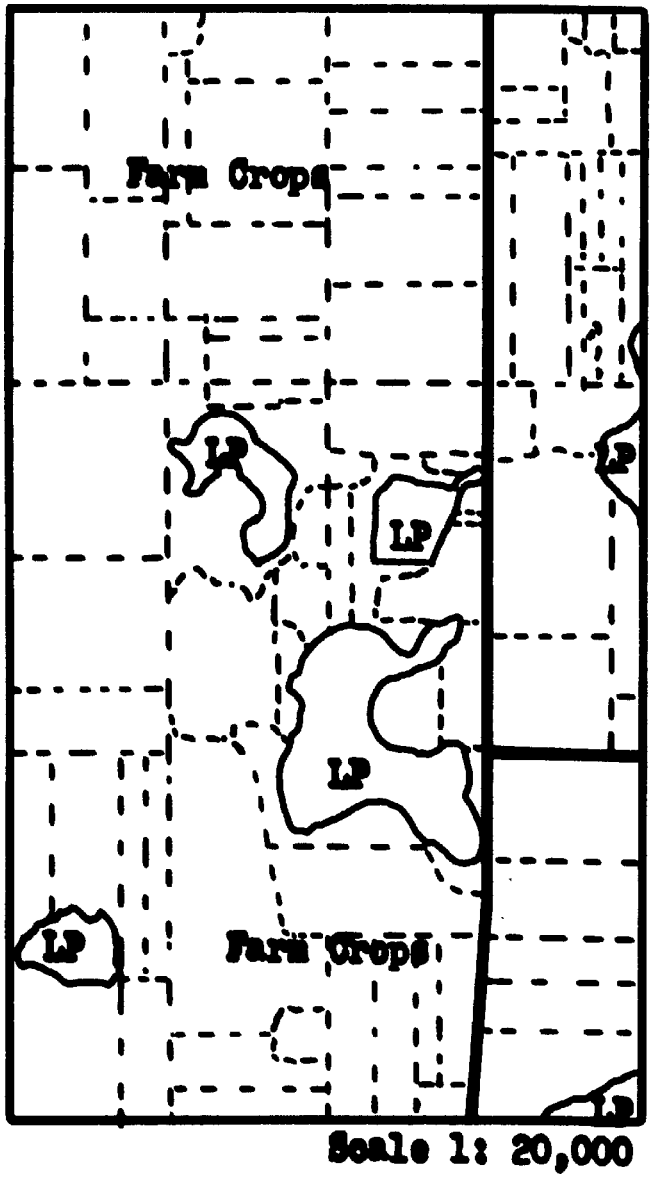


FIGURE 81. FARM PATTERN OF AREA C (TILL PLAIN, EAST OF HUNTLEY)



LP-Lowland Pasture
Individual fields are
indicated by dashed lines

FIGURE 82. LAND USE OF AREA C (TILL PLAIN, EAST OF HUNTLEY)



NORTH

Scale 1:20,000

FIGURE 83. AREA D (SOUTHERN END OF LAKE PINGREE PLAIN)

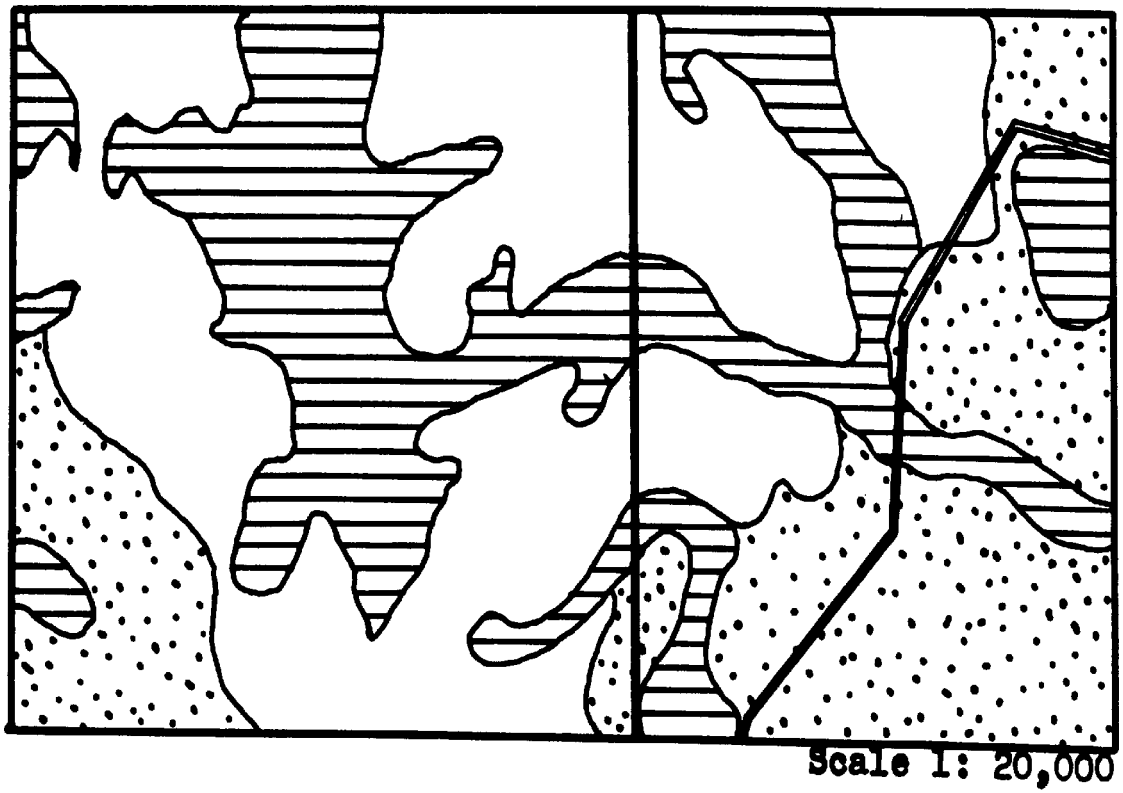


FIGURE 84. SOILS OF AREA D (SOUTHERN END OF LAKE PINGREE PLAIN)

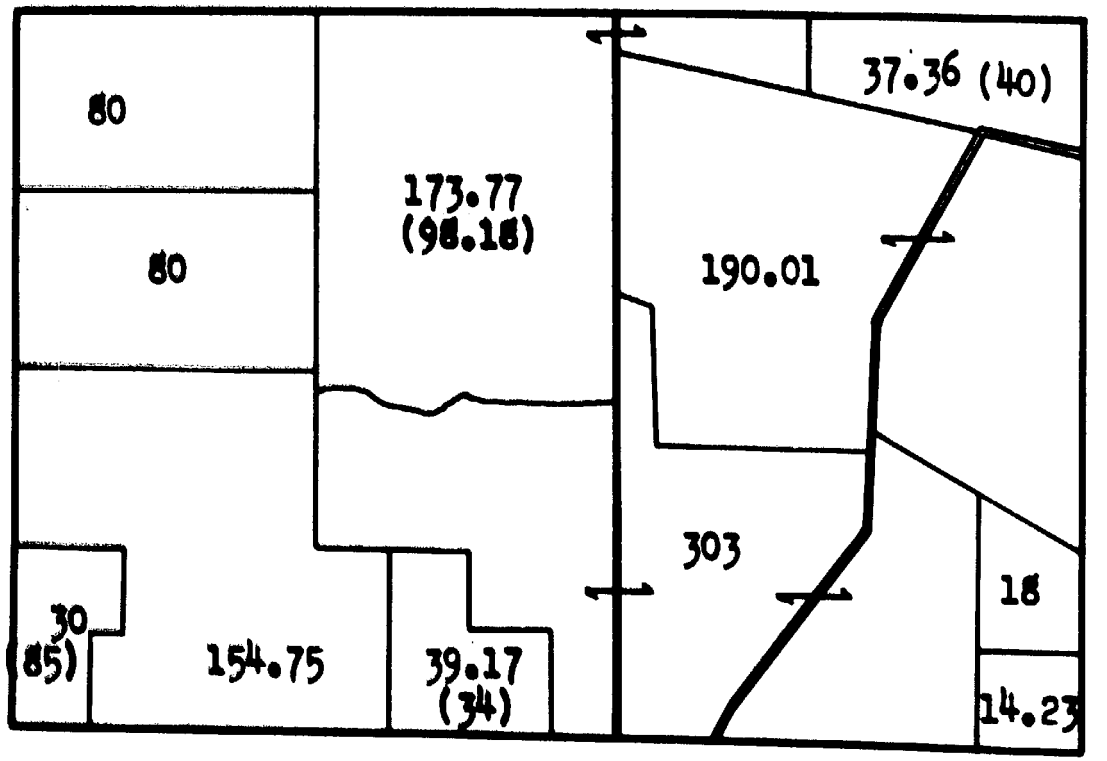


FIGURE 85. FARM PATTERN OF AREA D (SOUTHERN END OF LAKE PINGREE PLAIN)

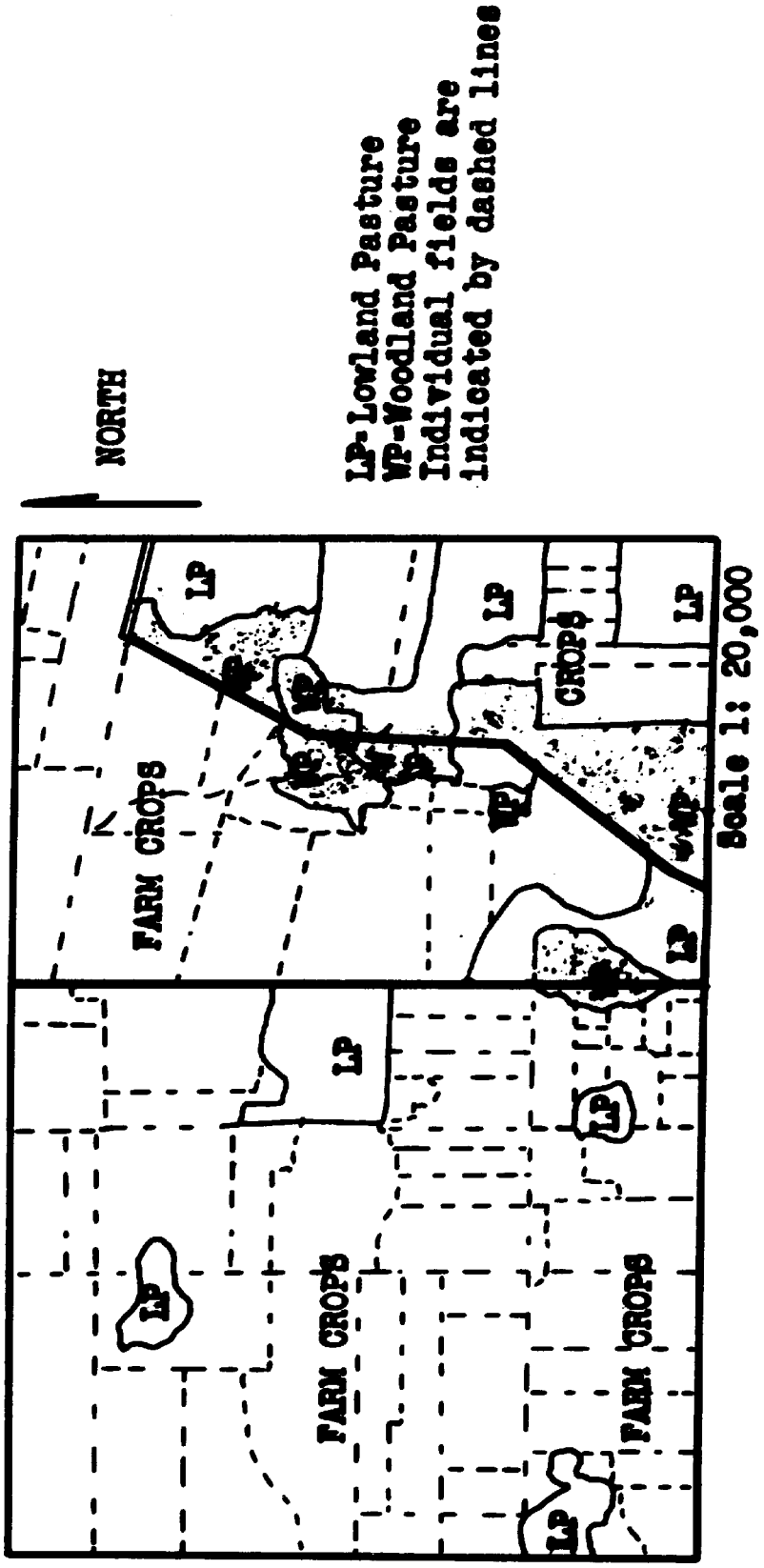


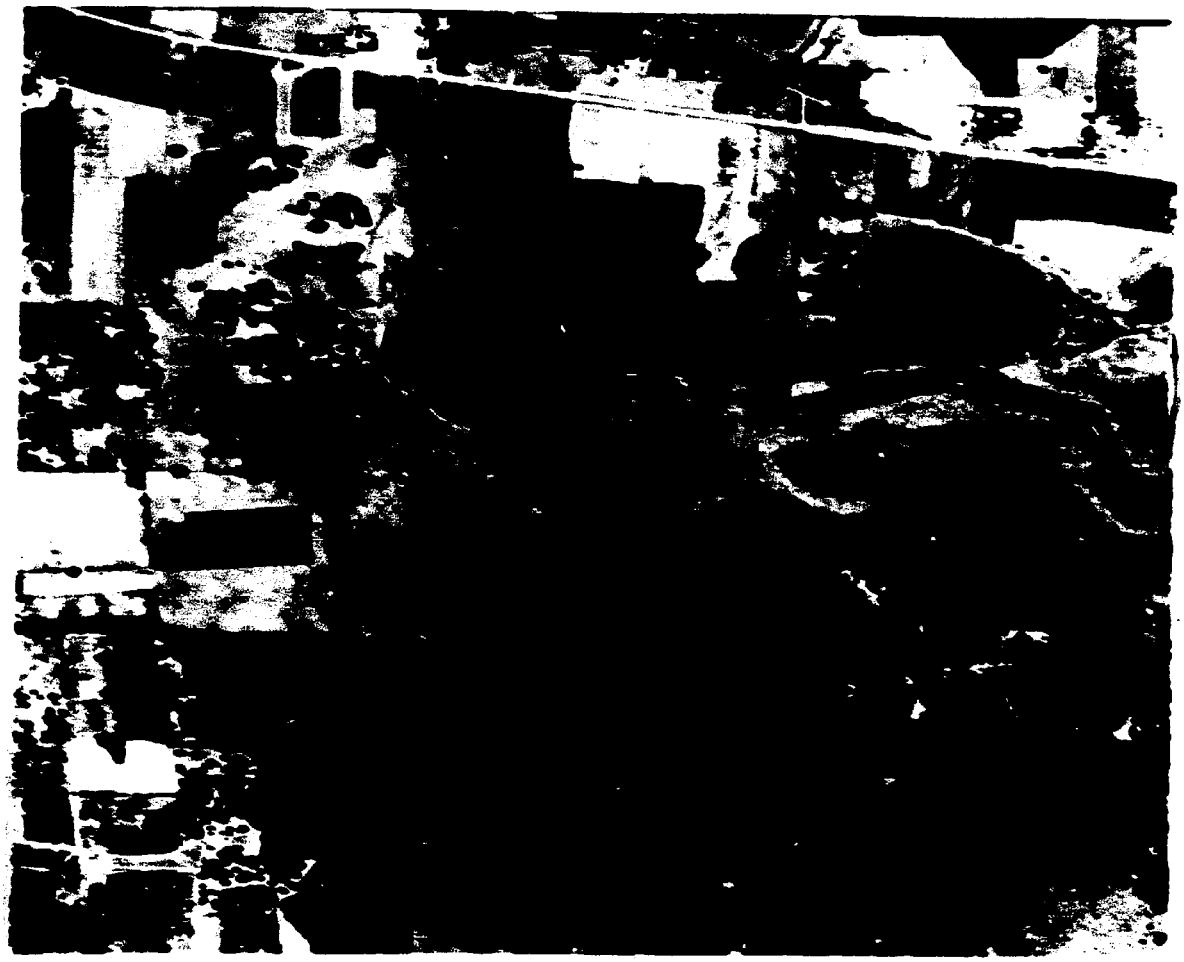
FIGURE 86. LAND USE OF AREA D (SOUTHERN END OF LAKE PINGREE PLAIN)

Marengo Ridge on its western side and into Gilberts Moraine on the east. The former lake bed has a relief of less than 10 feet, but the morainic edges become undulating on the west and rolling on the east, where dissection is greater. The soils pattern is simple, with only three representatives, each occupying about a third of the space. Several woodland pastures occupy the more rolling eastern Upland Timber Soils areas but also extend into intervening bottomlands. While lowland pastures are common and frequently occupy the least drained parts of the depressions and near-fluvial areas, they do not occupy all the areas of bottomland soil. On the contrary, much of the Black Mixed Loam (Bottomland) is sufficiently drained for crop production. Practically all of the Upland Prairie Soils is in crops, and about half of the Upland Timber Soils. Thus about 75% of Area D is cropland. The irregularity of the farm and field patterns is partly the result of alignment with the winding road along Gilberts Moraine, the frequency of drainage ditches, and the preservation of woodland pastures.

Area E[1] (Figures 87 to 90) has a very different utilization, in response to its differences in soils, topography, and drainage. While it is located in the Lake District, it actually contains only a few resorts and vacation units, although they are encroaching somewhat from the north, east, and south. Poor drainage is the chief deterrent

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[1]Sections 10 and 15, and parts of 9 and 16, Township 46 North, Range 9 East, Antioch Township of Lake County.



NORTH

Scale 1:20,000

FIGURE 87. AREA E (IN THE LAKE DISTRICT, NORTHWEST OF GRASS LAKE)

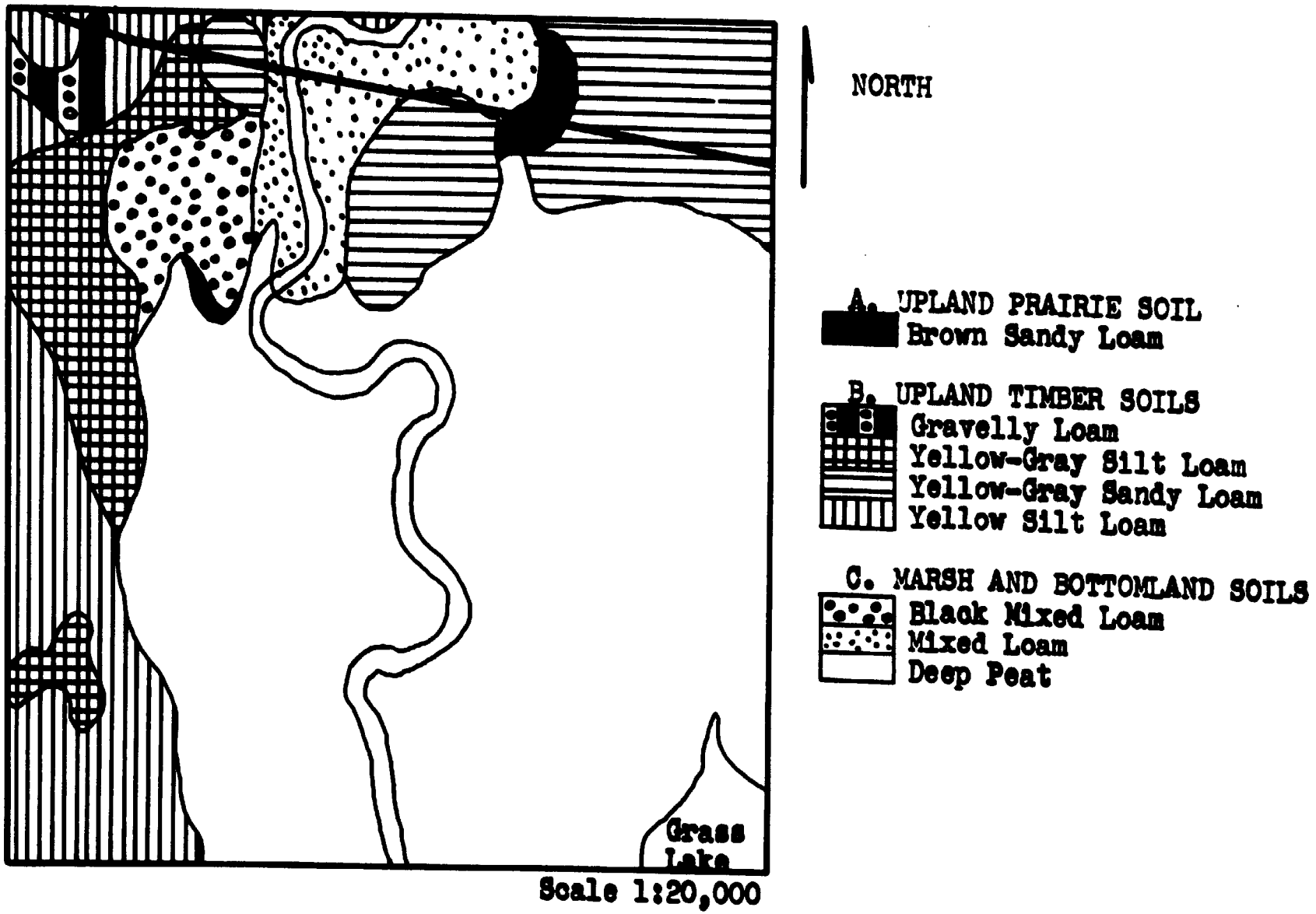
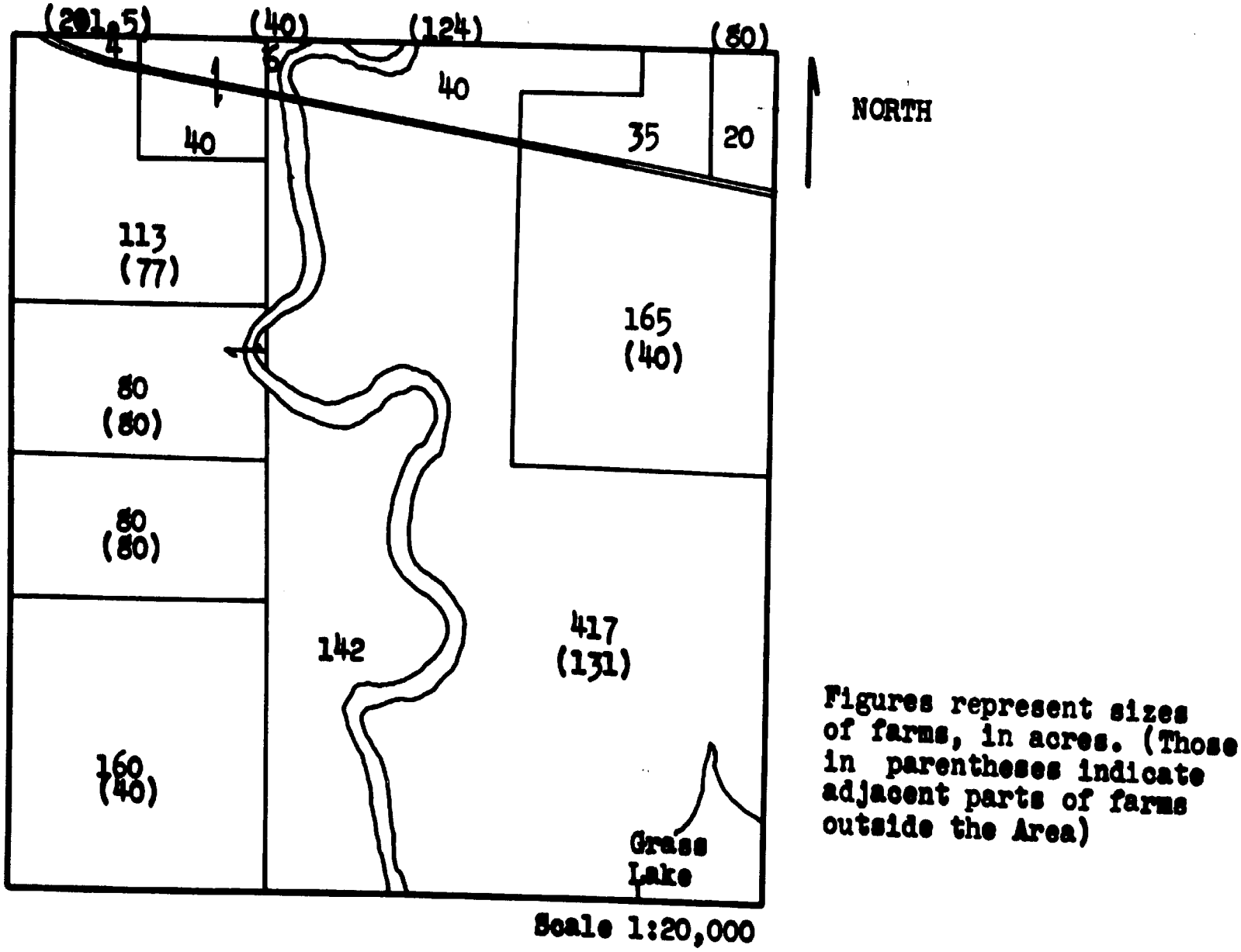
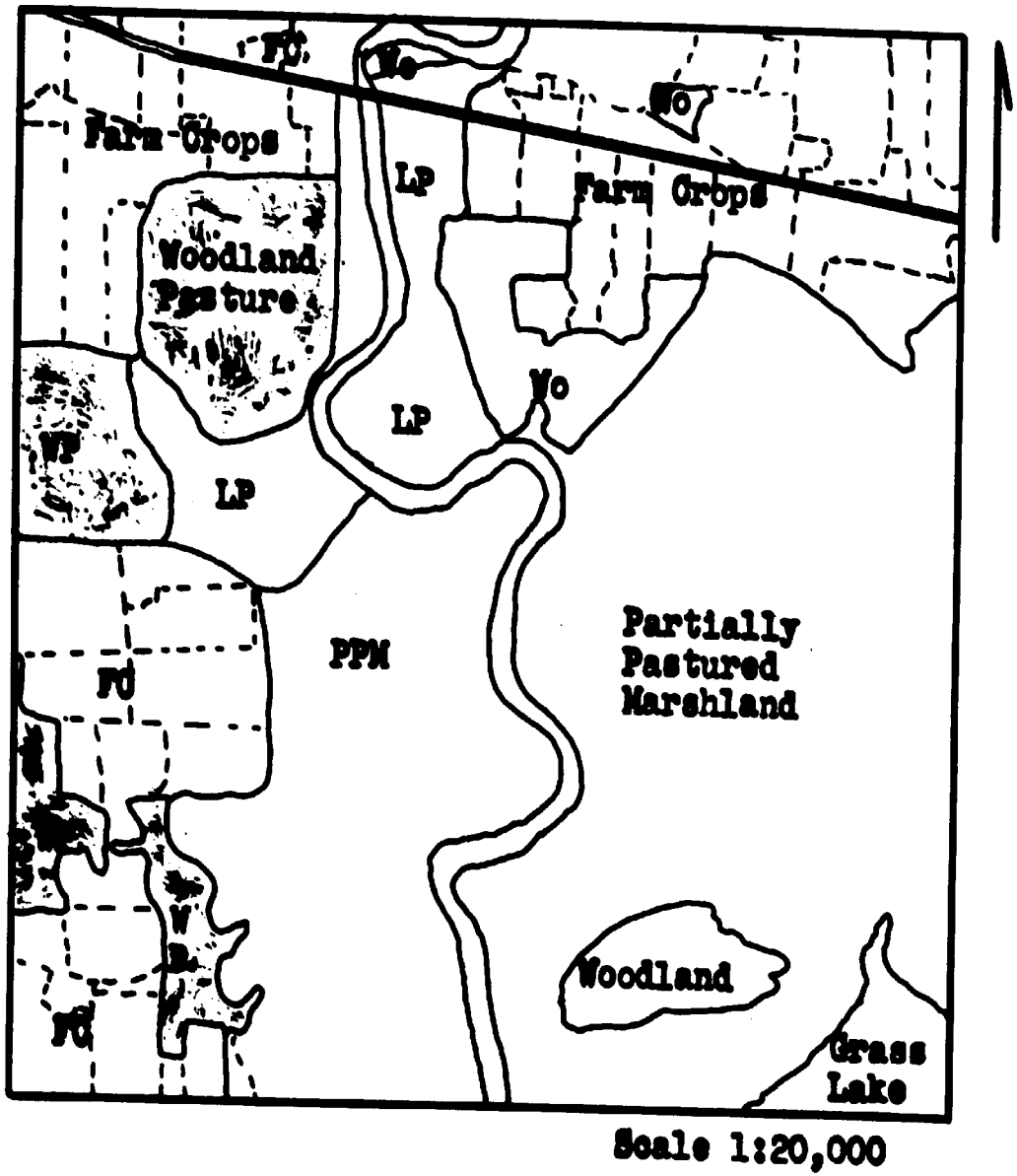


FIGURE 88. SOILS OF AREA E (IN THE LAKE DISTRICT, NORTHWEST OF GRASS LAKE)



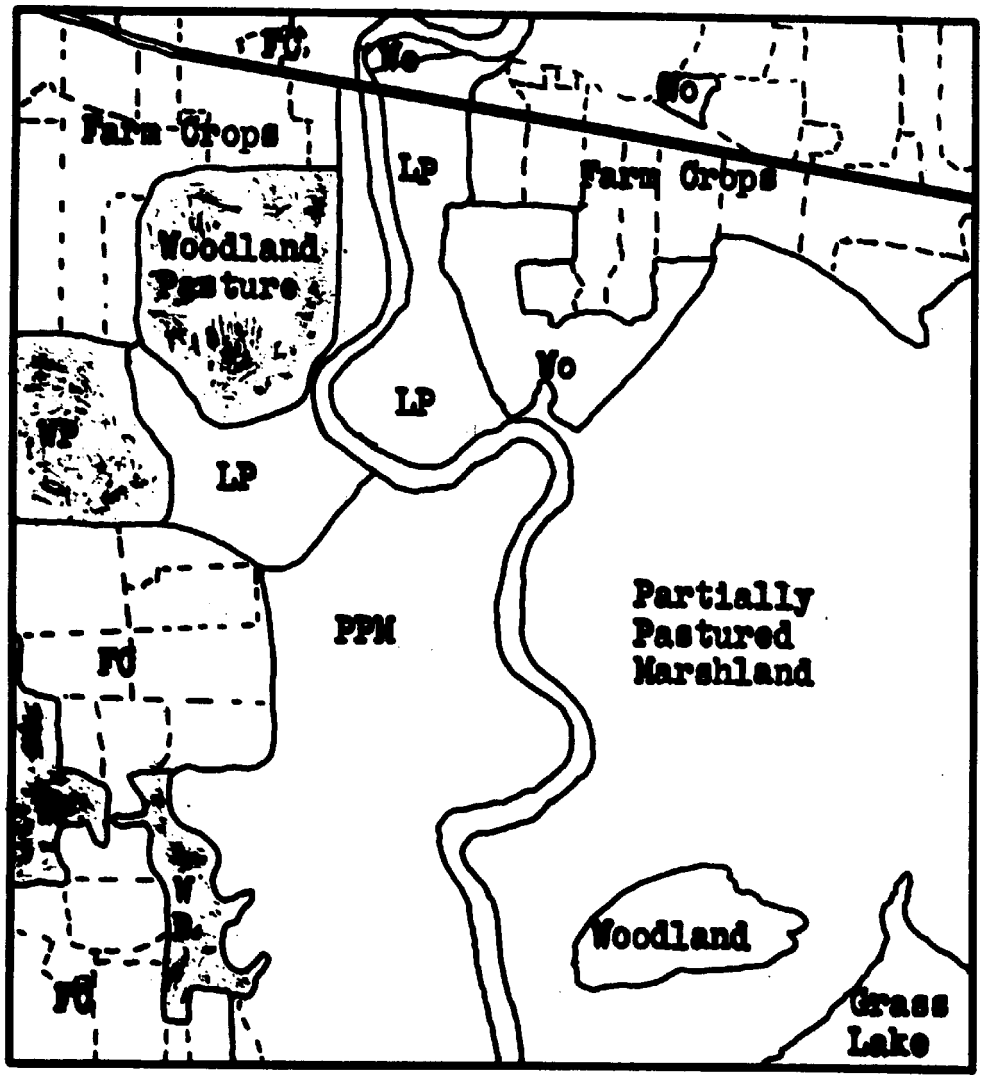
Figures represent sizes of farms, in acres. (Those in parentheses indicate adjacent parts of farms outside the Area)

FIGURE 89. FARM PATTERN OF AREA E (IN THE LAKE DISTRICT, NORTHWEST OF GRASS LAKE)



FC Farm Crops (Individual fields indicated by dashed lines)
LP Lowland Pasture
WP Woodland Pasture
Wo Woodland
PPM Partially Pastured Marshland

FIGURE 90. LAND USE OF AREA E (IN THE LAKE DISTRICT, NORTHWEST OF GRASS LAKE)



NORTH

FC Farm Crops (Individual fields indicated by dashed lines)
LP Lowland Pasture
WP Woodland Pasture
Wo Woodland
PPM Partially Pastured Marshland

200

FIGURE 90. LAND USE OF AREA E (IN THE LAKE DISTRICT, NORTHWEST OF GRASS LAKE)

to resort expansion within the Area. Sixty percent of the soils are Marsh and Bottomland types, including Deep Peat, which alone covers over 50% of the Area. The Marsh and Bottomland Soils are marshy throughout and are only partially pastured by dairy herds or remain in lowland pastures (except in limited parts where sufficient drainage has been effected). The Upland Prairie and Upland Timber Soils are about half in farms and half in woodland and woodland pasture. One woodland occurs in Deep Peat west of Grass Lake on land slightly above the level of the marsh. Farm units and even individual fields are relatively regular in shape, especially in contrast to the irregular shapes of the woodland pastures, woodlands, lowland pastures, and the partially pastured marshland. Only the western part of the Area and a small portion of the northern part have reliefs of more than 10 feet. There is a rather rapid ascent in the southwestern corner of the Area from the marshy lands toward the crest of the moraine,[1] which is just outside this Area. It is chiefly the hillier and better drained portions of the moraine that are cropped, whereas the more gentle slopes are in woodland pasture or lowland pasture. This indicates better drainage in the rolling land.

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[1]Maximum relief is almost 100 feet in spite of the very level nature of 50% of the Area.

D. Nonagricultural Uses of the Land

1. Manufacturing

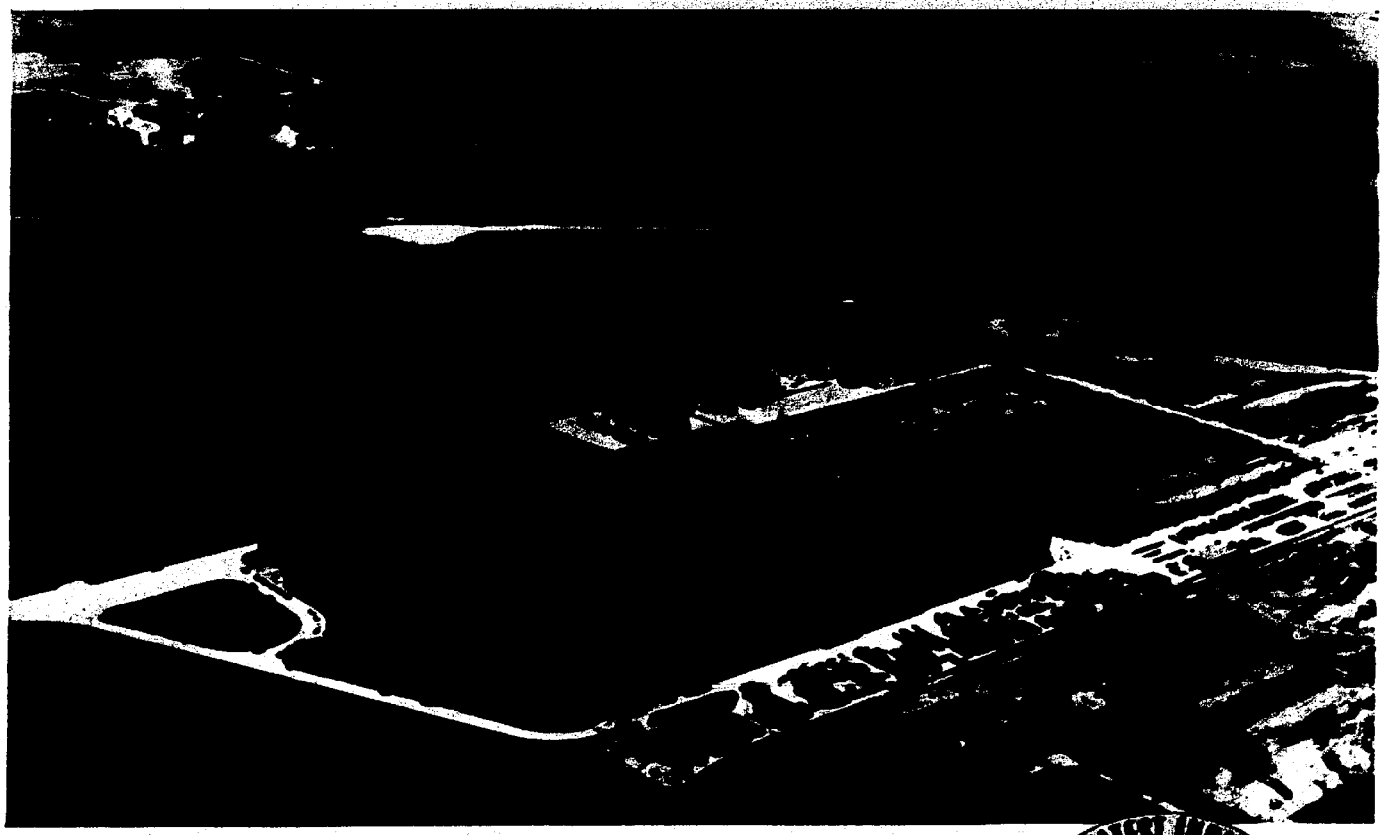
For six years the Territorial Information Department connected with the Commonwealth Edison Company and the Public Service Company of Northern Illinois has advertized the virtues of the Chicago Area and Northern Illinois for manufacturing, with such slogans as "You'll find it in Chicago and Northern Illinois!" In promoting expansion in industry some 14 advantages are claimed in addition to "elbow room" (Figure 91). That department's data attest the fact that the Chicago Area, which includes the Fox River Valley Industrial Section, is the number 1 industrial metropolitan area in the United States in terms of new factories established since July, 1945.[1]

Historically, manufacturing on a small scale began in the Northeastern Illinois Dairy Region soon after settlement started. Among the first established manufactures were flour from grist mills at the falls in Elgin, at Mc Henry, and elsewhere; tanneries and shoemaking in several towns; several pickle factories, especially in Woodstock; the old Oliver Typewriter Company, which became the Woodstock Typewriter Company and more recently the R. C. Allen Typewriter Company; the processing of foods, notably dairy products; and the making of butter tubs, cheese boxes, and milk cans for milk products.

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[1] Commonwealth Edison Company and Public Service Company of Northern Illinois, Industrial Expansion, 1945-1951 (Chicago: Territorial Information Department, 140 South Dearborn, 1951).

INDUSTRIAL "ELBOW ROOM"



In addition to room for expansion, employee housing, parking, and recreation, this giant Northern Illinois plant, manufacturing heavy-duty equipment, has excellent rail and water transportation facilities.

You'll Find it in Chicago and Northern Illinois!

THE versatility of American production, so vital to the defense and the domestic economy, is typified by the industrial development going on these days in Chicago and Northern Illinois. Here, the production of heavy-duty equipment and light manufacturing both find the transportation, labor, and materials in the abundance they need.

But equally important to all manufacturing plants locating in this area is the room for expansion—*industrial elbow room*—room for later development.

Add to these natural advantages, the tremendous resources that this area has developed for itself—transportation, marketing, research, education, fine cultural and living facilities—and you have reasons why the Chicago and Northern Illinois area has come to be the greatest industrial center of the United States.

A LETTER TO US . . . describing your requirements will bring you a careful analysis of this area's advantages as they apply to your business. Or if you wish, we will send you a carefully screened list of the available buildings or sites that would be suitable for your operations, based on the information you give us.

We keep all such inquiries confidential. Just write us.

Industries in the Chicago area have these outstanding advantages: *Railroad Center of the United States • World Airport • Inland Waterways • Geographical Center of U. S. Population • Great Financial Center • The "Great Central Market" • Food Producing and Processing Center • Leader in Iron and Steel Manufacturing • Good Labor Relations Record • 2,800,000 Kilowatts of Power • Tremendous Coal Reserves • Good Government • Good Living • Good Services for Local Tax Dollars.*

TERRITORIAL INFORMATION DEPARTMENT

Marquette Building—140 South Dearborn Street, Chicago 3, Illinois

COMMONWEALTH EDISON COMPANY • PUBLIC SERVICE COMPANY OF NORTHERN ILLINOIS

FIGURE 91. A BID FOR INDUSTRIAL EXPANSION

Manufacturing has grown steadily both in the number of firms concerned and the number of people employed as well as in relation to other ways of making a living. Also, indicative of its growth is the changing nature of the products manufactured to those of a more complex order. While certain census statistics are not available by minor civil divisions, data for Mc Henry County and for the city of Elgin aid in showing the importance of manufacturing in the Region.

In 1939, 24% of the wage earners of Mc Henry County were employed in its 40 manufacturing establishments.[1] Both the number of employees and the number of factories represented 1½% of those of the state. The average factory employed 88 persons while the largest hired 1400. Manufacturers of transportation equipment, chemicals, printing and publishing, paper and allied products, apparel, textiles, and food products employed an average of less than 25 persons per factory, while those manufacturing machinery and nonferrous metals employed over 100 per unit. The average number of wage earners for the year was 2622, wages were almost $3,000,000, value of products was over $11,000,000, and value added by manufacture was almost $7,000,000. By classes, the most numerous factories were

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[1]U. S. Bureau of the Census, Sixteenth Census of The United States, Manufactures (Washington: Government Printing Office, 1942), III, 232ff; and, U. S. Bureau of the Census, Sixteenth Census of the United States, Population (Washington: Government Printing Office, 1942), II, Pt. 2.

those manufacturing food and kindred products (14); printing, publishing, and allied industries (8); machinery (5); apparel (2); furniture (2); and iron and steel (2).

Recent information indicates that there have been many new factories added in Mc Henry County in the past decade. Woodstock employs over 2500 in 22 industries, chief among them being those manufacturing typewriters, radio and television parts, folding beds, sporting goods, auto parts, dresses, dairy products, tools and dies, plastics, and wallpaper. Crystal Lake has 10 concerns, manufacturing chiefly radio and television sets, wallpaper, crop dryers, and auto accessories. Algonquin manufactures wicker articles and both home and industrial ironing machines. Huntley has manufactures of industrial sewing machines, cellophane and aluminum foil, and dairy products. Harvard specializes in radio parts, meat packing, and dairy products, while Union produces building and industrial papers and fishing supplies. Mc Henry has flour mills and ornamental iron works, Hartland manufactures wallpaper, and Ringwood's Edwal Laboratories turn out photographic chemicals for large wholesale and retail concerns. One of the best-known terra cotta works in the nation is located near Crystal Lake. Almost every hamlet of 100 or more persons now manufactures something or at least bottles milk for Chicagoland.

Almost three-fifths of the industrialized part of the Fox River Valley (which extends from Aurora to

Algonquin) is located within the Region. While all the towns manufacture a variety of goods, Elgin is pre-eminent. In 1939 it had 66 factories, employed almost 4500 people, paid wages of $5,000,000, and sold products valued at $22,000,000. By 1950 there were over 120 establishments and the wages and values added by production had much more than doubled that of 1939. The largest industry in Elgin, The Elgin National Watch Company (Figure 92), now employs over 4500. Other concerns manufacture watch cases; tools and dies (8 plants); foods of various sorts; various iron and steel fabrications (over 30 plants); plastics; leather goods; religious literatures; clothing; shoes; canvas products; paper and paperboard articles; caskets and burial vaults; pharmaceuticals; and farm articles (silos, windmills, and machinery). St. Charles's 16 concerns turn out tubular metal furniture, moulded fibre products, tape recorders, communications equipment, glass, iron and steel products, and paper articles. Dundee is noted for various art products, especially Haeger Pottery, Beaux Arts Lamps, wooden dishes, and metal articles.

The Boone, Lake, and Cook County parts of the Region are less important in manufactures. However, Antioch has two china manufacturing concerns, while Barrington is known as the home of the Jewel Tea Company, processor of foods (Figure 93).



FIGURE 92. ELGIN NATIONAL WATCH COMPANY
--Courtesy of the Company





FIGURE 93. JEWEL TEA COMPANY, BARRINGTON

2. Saxiculture

For two reasons the inclusion of minerals within the Region is quite limited: (1) The underlying rocks are exclusively sedimentary and thus nonmetaliferous; neither are they coal-, gas-, or oil-bearing in nature, (2) The mantle of glacial drift contains only small fragments of redeposited metallic minerals and a small variety of nonmetals.

Sand and gravel are widespread throughout the Region. They appear as outwash deposits, as kame deposits, as small inclusions in clayey drift, and as extensive and varied pre-Valparaiso deposits underneath the Valparaiso System. But even in the latter case their depth is not great.

Commercially, the maintenance of sand and gravel pits, especially in the more populous eastern part of the Region, is an important activity. The Cary Moraine has unusually good grades of clean deposits, useful for building purposes. One of the largest and oldest deposits, which is both stratified and unstratified, is on the west slope of the Fox at Cary (See Figure 10). Northeast of the town is another large working, in one of the best kame-and-kettle sections of the Region.

Although glacial boulders are of little use except for occasional barn and house foundations, they are commonly encountered as cairns or along roadsides (Figure 94), even on some of the best till plains. If sands and



A ROADCUT IN BOULDERY GRAVEL

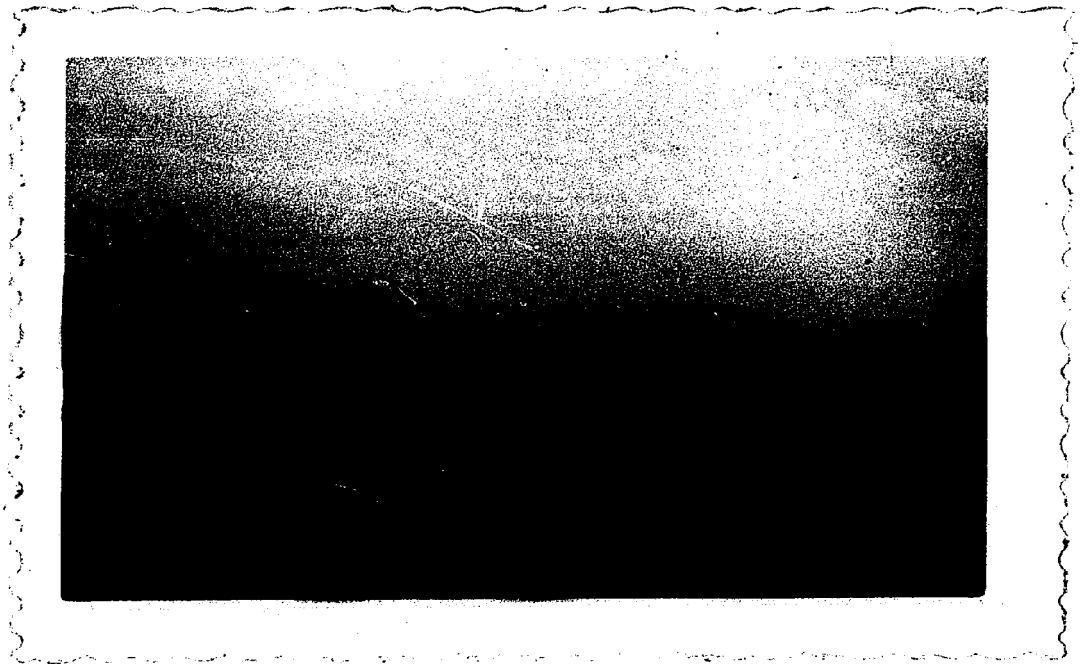


FIGURE 94. GLACIAL BOULDERS TAKEN FROM FIELDS

gravels were not so plentiful, granite erratics would be more frequently utilized.

Clay--for bricks, tile, terra cotta, and pottery--is common. Some of the best and lightest-colored clays occur beneath peat bogs, but most of the bluish ones are direct products of the drift.

Peat bogs cover between 4000 and 5000 acres in Mc Henry and Lake Counties and are often encountered in northern Kane County. One of the largest covers 2½ square miles near Hebron, along Nippersink Creek. Some bogs occasionally burn; one has been burning for years near Richmond. Although they are obstacles to the utilization of the land, partly because they extend six to ten feet deep, some bogs are capable of drainage and use for pasturage. In earlier days, peat was frequently used for fuel, since there was no local coal. It was once the basis of heating for the Woodstock tile and brick factory.[1] Little is used for fuel now, but a number of peaty mucks are being successfully cultivated for crops.

Bog iron ore and copper were reported in the 1870s west of Capron in Boone County, but apparently no commercial mining ever ensued.

Building stone, except for erratics and gravel, is limited to very few outcrops. Several outcrops have been reported along the Fox, but only one has been

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[1]H. M. Bannister, "Mc Henry and Lake Counties," Economical Geology of Illinois (Springfield: H. W. Rocker, State Printer and Binder, 1882), II, 387f.

commercially utilized. At South Elgin a quarry was maintained for some years, though little is taken from it now. It is of low-grade limestone, useful for crushed rock and some fertilizer.

The best outcrop occurs a few miles west of Marengo, near the Boone County Line, just south of Highway 20. The removal of very little overburden has exposed an area about a quarter of a mile square, from which buff and bluish, little fossilized, Cincinnati Limestone is quarried (Figure 95). Most of it is crushed for fertilizer, roads, and building purposes, principally foundations, terraces, and walls. This quarry is in the area where rock is nearest the surface. Other limited outcrops are reported along the meandering Kishwaukee just north of the quarry.

3. Recreation

Ease of access from Metropolitan Chicago, rolling lands of moraines and till plains, wildlife in forest and prairie, and attractive resort sites on lakes and rivers have transformed parts of the Region into recreational grounds. Whereas some sections of the Lake District are fairly well occupied, there is room for considerable expansion in most recreational spheres and facilities are increasing. Actually, considering the large population of the Chicago area, the total resorting and recreational opportunities are not as well developed as in some other heavily populated parts of the country.

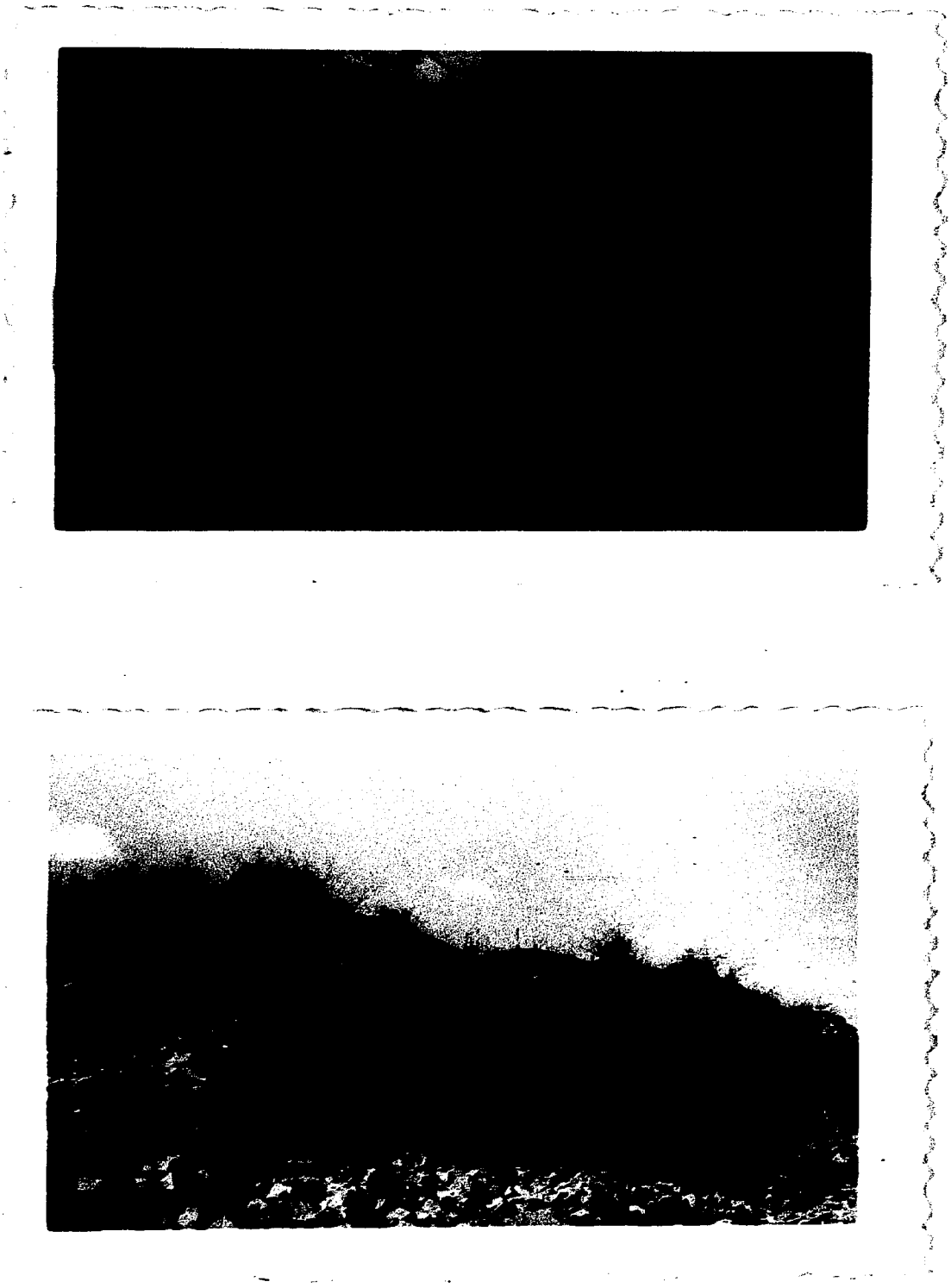


FIGURE 95. LIMESTONE QUARRY WEST OF MARENGO

Resort units, either commercial or private, line most of the lakes in the Lake District in varying degrees. The long-occupied nucleus of lakes near Antioch has relatively few lake fronts for sale. Only the less desirable spots are now available. Channel Lake, Lake Catherine, Lake Marie, Bluff Lake, and Petite Lake have many superior types of residences (Figure 96), many of them occupied throughout the year. Surrounding them are very few commercial resorts, although both public and private golf courses and restaurants occur. Numerous estates and some summer camps occupy choice sites.

In contrast, the southern end of Fox Lake, Pistakee Lake, Nippersink Lake, and Grass Lake are somewhat more commercial. Their rental facilities are chiefly moderate to poor (Figure 97). South and east of the Antioch-Fox Lake section of the Lake District several new nuclei of settlements have had rather rapid growth in the last decade. Included in this group of permanent and semipermanent developments of modest quality homes are such settlements as Long Lake, Round Lake Beach, Round Lake Park, Hainesville, and Grays Lake. Many of the occupants are employed in the growing Lake County industries of Waukegan and other lake ports east of the Region.

In Mc Henry County, Wonder Lake and Lake of the Hills are being developed into first class resorts, mostly of private homes, but with limited commercial facilities for transients also. The small lakes east of Woodstock are



FIGURE 96. THE SUPERIOR TYPE OF HOMES SURROUNDING CHANNEL LAKE





FIGURE 97. POORER TYPES OF CABINS FOR RENT

characteristically non-commercial, with scattered, good quality, privately-owned homes.

All of the towns along the Fox are commercial resorts. However, as is true of many of the lakes also, there are relatively few cabins, motels, hotels, or other housing facilities that are available for overnight tourists. Somewhat more of them are available for the season, or by the month, but the majority of them are non rentable, owner occupied throughout the season or the year. Commercial activities are limited chiefly to providing wharves, fishing equipment, fishing sites, food, picnicking facilities, swimming beaches, and sports opportunities for summer residents or for those enjoying a single day's outing.

The presence of lakes, in addition to both woodlands and prairies, provides the Region with a variety of animals to entice hunters. As a result, the Region has long been known as one of the chief hunting grounds of the state, for local inhabitants, downstaters, and Chicagoans alike. For many years the duck hunting season has brought thousands of hunters into the Lake District until the drain of the migrants has been cause for concern. Restocking the lakes is now a carefully regulated service of the Conservation Department and hunting restrictions are vigorously enforced. A number of private hunting clubs (Figure 98) have resulted, in addition to the establishment of public hunting grounds, such as Chain of Lakes State Park on the west side of Grass Lake. Private clubs and individuals commonly





FIGURE 98. A PRIVATE HUNTING CLUB NEAR HUNTLEY

raise as many as 7000 or 8000 pheasants annually for their own sport, while the state keeps vigil over the birds it releases each year until the season is open. Lesser game includes rabbits, quails, predatory animals, and various wild geese. That farmers are both conservation conscious and desirous of protecting their interests is reflected in the fact that a large percent of the farms is posted. In fact, with the exception of road signs, the most common sign in the Region is NO TRESPASSING!! (Figure 99).

Winter sports are increasing slowly. Ice fishing is attracting sportsmen in greater numbers and tobogganing and ice skating are of local and Regional interest. But the chief winter sports attraction is the Cary Ski Slide (Figure 100), one of the few in the Midwest.

4. Summary of the Nonagricultural Uses of the Land

Whereas the area devoted to manufacturing and mining is negligible, the total nonagricultural land is 197.6 square miles, which is 17.3% of the Region. Towns and cities occupy 81.3 square miles[1] or almost 41% of the nonfarm area. The only towns and cities occupying three or more square miles are Elgin (10), St. Charles (4), Crystal Lake (3.2), and Woodstock (3).

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[1]Towns and cities occupy 2.6 square miles of Boone County (i.e. the portion within the Region), 32.8 square miles in Mc Henry County, 24.6 square miles in Kane County, 4 square miles in Cook County, and 17.3 in Lake County. Figures are based both on statistics and estimates.



FIGURE 99. THE MOST COMMON FARM SIGN IN THE REGION!



FIGURE 100. THE CARY SKI SLIDE IN THE DISTANCE

Roads and railroads of all classes, including their rights-of-way and contiguous fence areas, cover respectively 8 and 3 square miles of area. Together their coverage represents less than 6% of the nonfarm area and not quite 1% of the Region.

Lakes, marshes, and rivers, including their unused banks and peripheries, make up 100.3 square miles of the Region.[1] This is slightly over half of the nonagricultural land (51%) and 8.8% of the Region.

Miscellaneous nonagricultural lands (mostly rural) occupy an estimated 5 square miles or 2½% of the nonfarm area. Occupance of these lands is devoted to subdivisions and resorts not otherwise included, airports, rural factories, institutions and various other public buildings and grounds, and saxicultural activities.

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[1]Lakes cover 18.7, marshes 72, and rivers 9.6 square miles, respectively.

CHAPTER IV. Conclusions

It has been noted that a big portion of the land is devoted to dairying, as is proved by the great number of pastures and the large amount of forage crops produced on most of the farms, the many herds of milk cows and heifers, the farm buildings that reflect the housing and feeding of dairy cattle, the milk collecting stations and bottling plants, the vast amount of fluid milk produced and marketed, and the various means of conveying milk into Metropolitan Chicago. No other farm activity receives such stress; no other farm product is exported from the Region in large quantities; no other major type of farming utilizes so large a proportion of its crops locally in the production of one product so universally used and required by humans.

Not all metropolitan areas draw the bulk of their milk from such a short distance as does Chicago. Indeed, the establishment of such a high degree of fluid milk concentration is dependent upon more than one fortuitous factor. In a state where corn and soybeans occupy millions of acres of level Corn Belt soil, the extension of their production into the Northeastern Illinois Dairy Region might be assumed highly profitable. But this assumption is not correct. As a whole, over a period of years, the sale of milk has brought more money per investment into the hands

of individual Illinois farmers who could be assured of a close and steady market than was true of those facing fluctuating grain prices. Thus dairying has been profitable and is the best type of farming in the Region for the majority involved.

In the first place, and in contrast to the Corn Belt, for best and most complete utilization, the topography of much of the Region requires that cover crops of hay and pastures be used on sloping lands rather than intertilled crops such as corn and beans. Likewise, the presence of wet lands in many parts of the Region dictates that they be best used for pastures or moisture-resistant hays rather than for row crops, if they are used at all. In addition, many of the woodlands, either on uplands or in steeply rolling areas, provide some pasture for cows, whereas they could not be used effectively for crop production. Furthermore, a shorter growing season with lower summer temperatures and a larger proportion of summer precipitation in the form of slower-falling rains than is true of the Corn Belt retards the ripening of corn, so that much of that crop is better used as silage than as matured corn. Some soils are also too poor for good crop production but produce useful grasses. Thus, through experience and the active advice of conservationists, farm advisers, and soil experts, from a physical standpoint the most efficient current use of the land appears to be animal industries, and dairying in particular.

However, not all farms of similar physical nature necessarily specialize in dairying. Frequently they raise cash crops. Hence, other factors beside the physical are responsible for the prevalence of milk production in the Region. Proximity to Chicago and the city's ability to purchase huge supplies of fresh milk daily are the most important reasons for the existence of the Northeastern Illinois Dairy Region. As shown in Figures 1 and 22, all parts of the Region are within easy and rapid reach of the heart of the city and transportation expenses are thus minimized compared to more distant places. A very small part of the Region is more than 70 miles away and three-fifths of it is within the 55-mile radius. On the other hand, New York City brings in much of its milk from such places as the Lake Champlain Lowlands, 300 miles distant. Other lesser but congested Seaboard areas also must rely on fairly distant supplies.

Other cultural and economic factors have aided in the establishment and continuation of the dairy complex in northeastern Illinois. For example, although the Chicago Metropolitan Area is expanding in population and size and is thus slowly but surely encroaching upon the Region, thus far the pressure of population has resulted in only a small percent of the farmers selling out in favor of real estate promotions. Similarly, whereas the establishment and expansion of industries is both welcomed and encouraged, not much farmland has been so diverted since the industrial

expansion of the Fox River Valley. The labor situation affecting the marketing of milk has been generally favorable to the farmer, in spite of occasional violence. Unions have been powerful in obtaining prices that were usually satisfactory to both sides of the bargaining. The bringing about of marketing regulations through the Market Milk Administrator has further secured the position of the dairy farmer.

In conclusion, it is evident that dairying has adjusted itself well to the land. It has grown both in response to its physical setting and to its location near a large purchasing population. The latter factor has been the more important. The Region will undoubtedly continue to supply much of Chicago's milk until the centrifugal forces of expanding population and industry place higher premiums on the land than dairying can stand, or until other forms of farming become more lucrative and/or less consuming of time, or better and cheaper methods of transporting milk from greater distances minimize the advantages of proximity, or perhaps substitutes render cows' milk obsolete. When any of these changes transpires, the Northeastern Illinois Dairy Region will take on a new look, both culturally and to some extent physically.

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