

AGRICULTURAL UNDERDEVELOPMENT  
IN CAISTOR TOWNSHIP

A Study by  
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A thesis presented to the Faculty of the Department  
of Geography, McMaster University, in partial fulfillment  
of the requirements for the degree Bachelor of Arts.

February 1967

### ACKNOWLEDGMENTS

The author wishes to express his sincere thanks to Dr. L.G. Reeds of the Department of Geography, McMaster University, for his patient guidance and advice and for his constructive suggestions in connection with the preparation of this study. Thanks is also due to the many people of Caistor Township who, through their willing co-operation have greatly facilitated the collection of pertinent information. Finally, the author wishes to thank his wife Margarita for her valuable assistance in the preparation of maps.

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## INTRODUCTION

The purpose of this study is to describe and explain the extent of agricultural underdevelopment in Caistor Township.

Full credit for the author's incentive to investigate this area must go to Dr. L.G. Reeds of McMaster University, who in 1964 conducted a survey of the agricultural conditions in the Niagara Peninsula, on the basis of which a more detailed study of several areas, including Caistor Township, seemed warranted.

The information for this study originated from a variety of sources. The most important of these was direct observations in the field, which after a brief reconnaissance survey in the early part of May, were carried out systematically during the months of June, July, and August of 1966. Interviews were conducted in all parts of the township, in addition an attempt was made to interview all people in four sample block areas. It is estimated that out of a total of 165 interviews, 90 involved the owners of "commercial farms"; other people interviewed were retired farmers, non-farming residents, township officials, clergy men, and store owners.

Field observations provided the basis for the Land Capability Map (Fig.3), for the map showing "Quality of

Landuse" (Fig. 5), while information about the distribution of non-farm dwellings (Fig. 4) and the location of "Century Farms" (Fig. 2) was obtained from the township office and from a 4-H club member respectively.

Other pertinent data was provided by the Dominion Census Report for 1961, which is the most recent source of information on farm classification, farm income, landuse, and values of agricultural products sold. Finally, the Soil Survey of Lincoln County, and the Physiography of Southern Ontario proved to be useful guides in the assessment of the physiographic conditions of the township.

The methodology employed in this study was selected so as to best facilitate the attainment of the stated objective, but limited time for investigation and lack of sufficient quantitative data about individual farms precluded the use of statistical methods.

The study is divided into eight chapters. Chapters one, three and four deal exclusively with the physical conditions and with related problems, while chapter two gives a brief account of relevant historical factors. Chapters five and six examine the status of agricultural development in the township, the findings of which are evaluated in chapter seven. The final chapter contains the summary and conclusion.

## I

THE PHYSICAL LANDSCAPE

Caistor Township occupies 30,283 acres in the south-western part of Lincoln County. In the north, Twenty Mile Creek forms for part of its course a natural boundary between the townships of Caistor and South Grimsby, while to the east the area is bound by the Township of Gainsborough. The adjoining areas to the south and to the west are the counties of Haldimand and Wentworth respectively (Fig. 1).

Being located within the heart of the Niagara Peninsula, Caistor Township shares with other parts of that region the Palaeozoic complex of more or less horizontally bedded shales and limestone. The slightly southward dipping Guelph formation, which is by far the most extensive formation immediately underlying the area, accounts to a large extent for the almost level topography which is characteristic of the landscape. Of local significance, particularly with respect to the present soils, are processes which have been operative during the last glacial and post-glacial period. These have been described by Chapman and Putnam<sup>1</sup>, and it is reasonable to follow their assumption that the parent material

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<sup>1</sup>L.J. Chapman, D.F. Putnam, The Physiography of Southern Ontario, University of Toronto Press, Toronto:1951.

of the present soils did not develop from the underlying limestone, but formed on Ordovician shales which originated at the base of the Niagara escarpment; the pulverized material was later reworked by glacial lake Warren and augmented by lacustrine deposits. The base deficiency and high silt and clay content of the local soils substantiates this theory.

Soil texture and topography are the two decisive factors controlling drainage conditions in the area. Approximately two thirds of the total area of the township, including the entire central and northern part, has a height variation of only thirty feet, while the local relief for the entire township does not exceed sixty feet. The peripheral location of the two major permanent streams, Twenty Mile Creek to the north and the Welland River to the south, adds little to enhance drainage conditions over much of the area which lies in between. Meltwater in spring and accumulations after heavy rains are slowly carried off by numerous, seasonally dry channels and ditches, most of which flow in an easterly direction, combine here and there, and eventually terminate near or beyond the eastern township boundary at their point of confluence with one or the other of the two major streams. The unfavourable drainage conditions are further accentuated by the high clay content of the soil. Under moist conditions this is responsible for an inordinate amount of swelling, rendering the soil virtually impermeable.

By far the most important factor in the process of soil formation in the area has been the nature of the parent-material. Despite its rather low permeability, most of the soils show a moderate amount of leaching and are classified as Grey-brown Podsoles. The degree of eluviation is influenced by local vegetation and by the climate, both of which will be given brief attention at this point.

Reconstruction of the original vegetation prior to white settlement is largely a matter of conjecture, although past and present climatic conditions, early descriptions, and present-day regrowth seem to suggest a complete forest cover of hardwood deciduous trees with oak, ash, beech, elm, and maple being the dominant species. A matter of greater significance is the fact that even today approximately 5,840 acres or 19.2% of the total area are still covered with bushland. One tends to make the inference that bushland amidst areas of cultivated land is an indication of poor drainage conditions and or inferior soils. While this assumption holds true for some parts of the township, quite a different corollary may be drawn from the observation that the trees in many of these forest patches are quite young, and that many fields which show no signs of any physical limitations appear to be abandoned, and are gradually reverting to bushland.

Specific climatic data is not available for the area, but the information presented on Table I "Climatic Data

for Lake Erie Counties" may be regarded as closely representative. With an average growing season of 153 days, an average annual precipitation of 33.8 inches, and a mean summer temperature of 67° Fahrenheit, conditions are nearly optimal for dairy farming and for most crops associate with general farming. Variations in the land-use pattern and in the quality of land use certainly do not relate in any way to local climatic conditions.

Local differences in climate and topography do not appear to be significant factors in accounting for the contrasts in agricultural development; the extent to which soil conditions impose physical limitations will be discussed in chapter four.

TABLE I

CLIMATIC DATA FOR LAKE ERIE COUNTIES<sup>2</sup>

Altitude	600-800'
Mean Annual Temperature	46°F
Mean Winter Temperature	23°F
Mean Spring Temperature	43°F
Mean Summer Temperature	67°F
Mean Fall Temperature	49°F
Extreme Low Temperature	-34°F
Extreme High Temperature	106°F
Average Date of Last Frost (Spring)	10 May
Average Date of First Frost (Fall)	10 Oct.
Average Length of Frost Free Period (Days)	153
Beginning of Growing Season	14 April
End of Growing Season	3 Nov.
Average Length of Growing Season (Days)	203
Average Annual Precipitation	33.8"
Average Annual Snowfall	61.0"
Average Rainfall from 1 April to 30 September	17.1"
Average Summer Rainfall (June, July, August)	8.8"
P-E Index (June, July, August)	12.5"
Frequency of Droughts	20
Percentage of Possible Sunshine in Growing Season	54

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<sup>2</sup>L.J. Chapman, D.F. Putnam, "The Climate of Southern Ontario", Scientific Agriculture, 1938, Vol. XVIII p.444.



Illus. 1. Unimproved Pasture extensively used. Note the many shrubs and small trees in the background.



Illus. 2. Unimproved pasture which appears to have been completely abandoned.

## II

HISTORICAL PERSPECTIVE

A complete discussion of the historical development of Caistor Township is not within the scope of this study. If historical factors elucidate present-day conditions it may well suffice to focus one's attention upon the economic and technological changes which have taken place over the past two decades. On the other hand, the assertion is frequently made that land use of a given area is not only dictated by physical conditions but also by the cultural disposition of the people who occupy the land. It is the purpose of this chapter to determine the relevance of cultural factors.

White occupation in the area began in 1782 shortly after the end of the American Revolution, when thousands of United Empire Loyalists fled to Canada and were established on the land between Lake Erie and Lake Ontario. Early settlement commenced in the south-eastern corner of the township, and advanced westward along the Welland River. Of some interest is the time lag in occupation between Caistor Township and its eastern neighbor, the Township of Gainsborough. By 1817, the former had only twenty-four families, all of whom were concentrated in the south, while Gainsborough settlement at

that time was already well advanced in both, the northern and the southern part of the township<sup>3</sup>. The temptation exists to relate this difference to the frequently noted sequence of occupance from good land to land of lesser quality. However, variations in land quality appear insignificant, and it is more likely that the time lag is related to the general progression of settlement from east to west. Since the Welland River was the major access route, it seems logical that settlement took place in Gainsborough first, and only later further upstream in the southern part of Caistor Township.

With the great influx of immigrants from Great Britain during the second quarter of the nineteenth century, migration into the Niagara Peninsula was accelerated. In Caistor Township this had the effect that now settlement also took place along the Twenty Mile Creek in the north, and gradually advanced southward to join up with the earlier established core along the Welland River. By 1860, occupation of the area was virtually completed.

The graphic presentation of land tenure in 1875 (Fig. 2) shows that the early farms varied in size from 40 to 200 acres, and that both large and small farms could be found in all parts of the township. With the passing of

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<sup>3</sup>Lincoln County 1856-1956, R.J. Powell, B.F.Coffman, ed., Lincoln County Council, St.Catharines; 1956,p.132

time there have obviously been changes in farm size. Individual farms have become larger while others have become fragmented; yet the overall pattern has persisted to the present day. This lack of change may be regarded as a sign of inertia, although more significantly, it is a reflection of the homogeneity of physical conditions. Figure 2 shows that the majority of the original settlers were of British or Scottish origin, and one has no reason to believe that these pioneers were in any way different or less capable than their fellow countrymen who settled in other parts of the country. With the exception of a fair number of recent new-comers to the area, most of the farmers and people living in Caistor today are descendants of the people who settled here a century or more ago.

Cultural factors then do not seem to relate in any direct way to present conditions, and there does not appear to be any basis for the assumption that the lag in settlement noted earlier, was accompanied by an equal lag in progress which one might believe to have been perpetuated to the present day.

In the opinion of this observer the widespread underdevelopment of the agricultural resources in the township is a recent phenomena which resulted from the interaction of a great number of factors, most of which are as contemporary as the problem itself. Before attention will be

given to this point, a more detailed examination of the land itself is warranted.

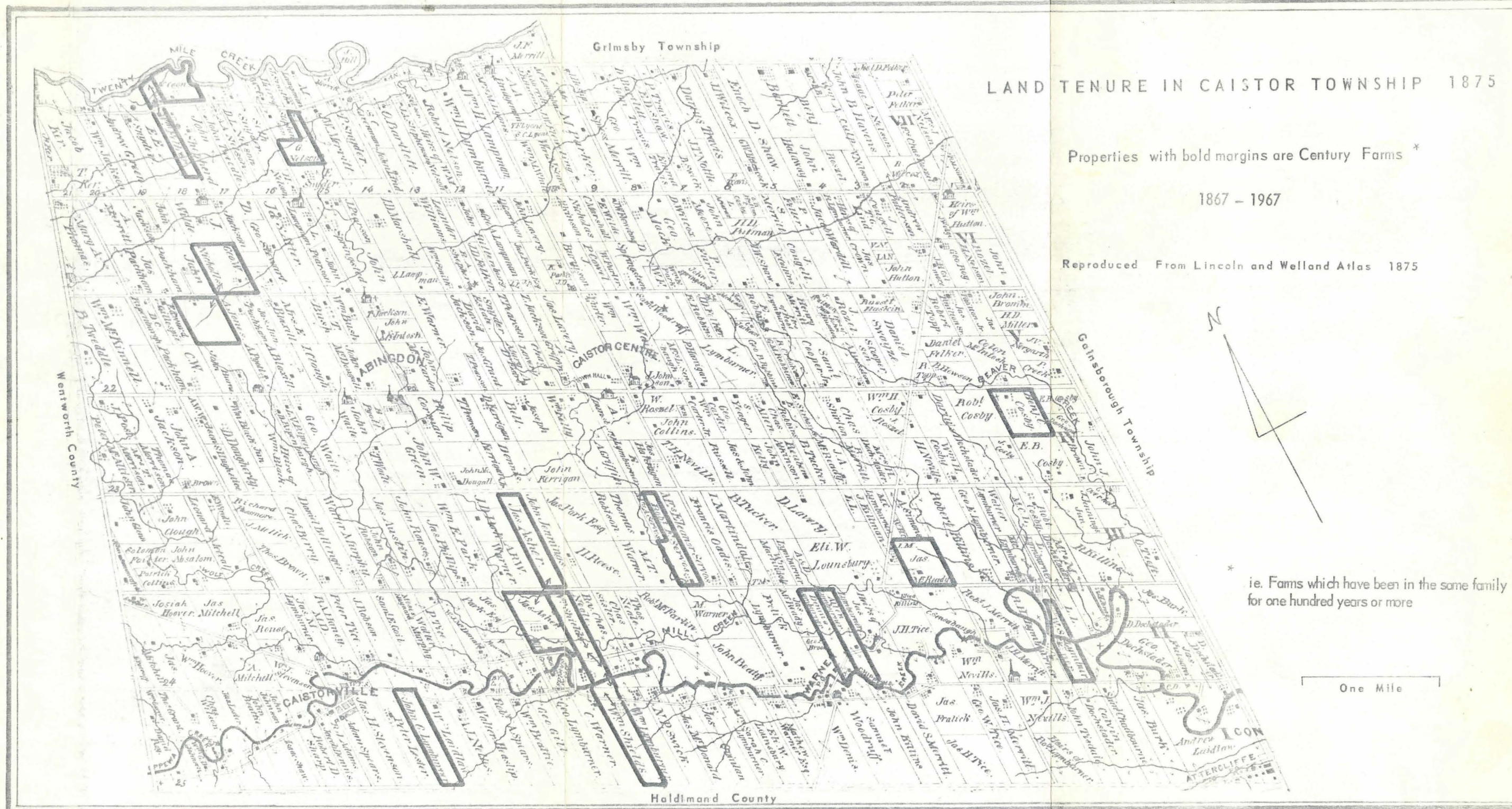


Fig.2

## III

LAND TYPES AND LAND CAPABILITY

The Soil Survey of Lincoln County recognizes only three soil types in Caistor Township<sup>4</sup>. These are Haldimand Clay Loam (28,353 acres or 93.1% of the total area), Smithville Silty Clay Loam (1,930 acres or 6.1%), and Lincoln Clay (290 acres or 0.9%). While there are local textural variations, notably in the area mapped as Haldimand Clay Loam, these are minor in character and are not of sufficient areal extent to be mapped as separate soil types.

Although over 90% of the total area of the township has the same general soil type, and while clay till is the parent material for all three soil types, one may distinguish between three different land types, each of which exhibits a certain degree of uniformity in terms of texture, topography, and drainage conditions. These will be called Haldimand I, Haldimand II, and Chippewa. Their distribution is indicated by Figure 3.

Haldimand I occurs on virtually level land in the northern part of the township, and includes most of the land in Concession VII as well as sections of Concession V and VI.

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<sup>4</sup>R.E. Wicklund, B.C. Matthews, The Soil Survey of Lincoln County, Report No. 34 of the Ontario Soil Survey; 1963, p.28-32; also Soil Map of Lincoln County.

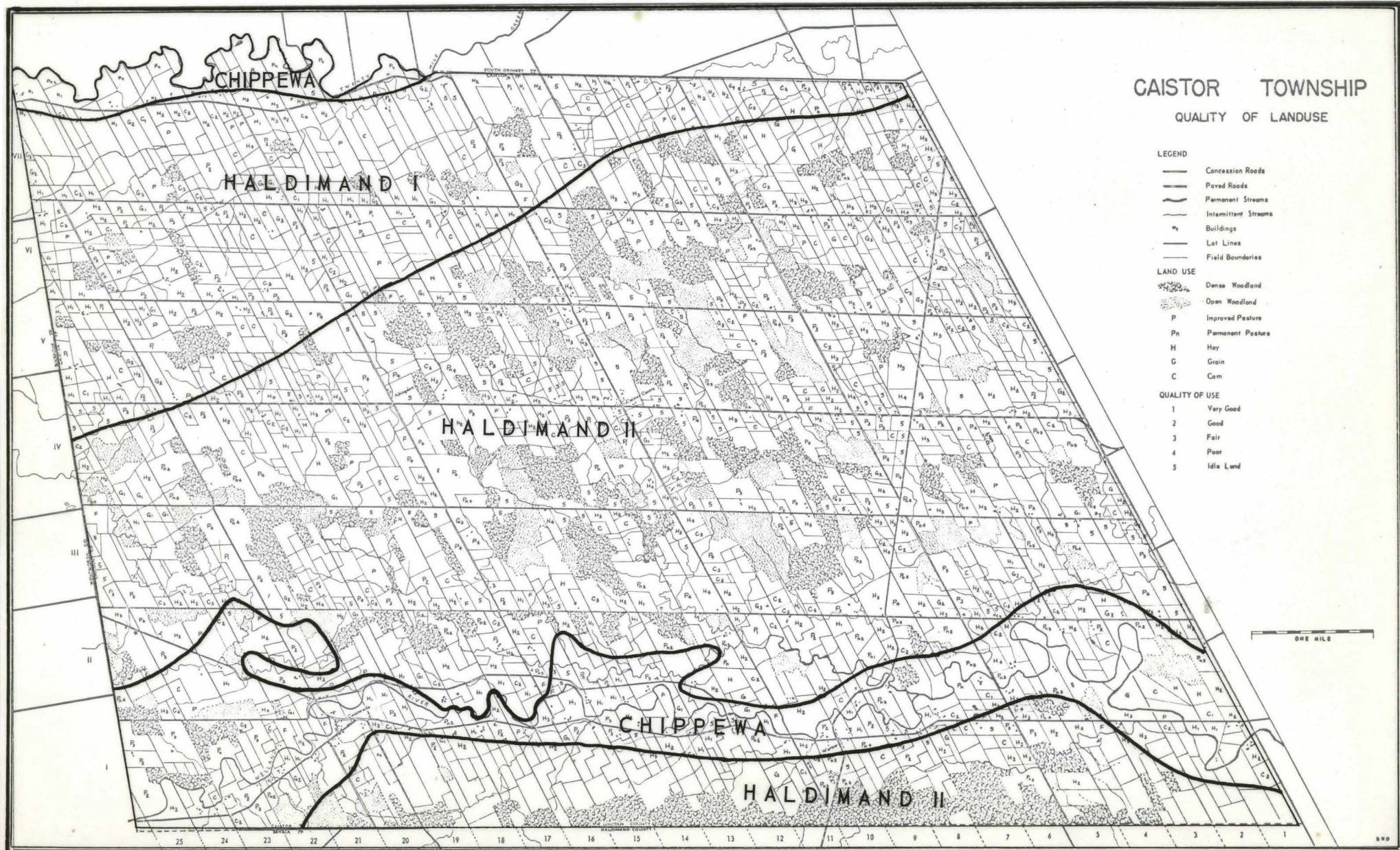


Fig. 3

CAISTOR TOWNSHIP LAND TYPES

The only soil type associated with this land type is Haldimand Clay Loam, of which the following generalized profile description is characteristic:

- A<sub>1</sub> (Ap) 0-4 inches very dark grey clay loam; medium granular structure; friable when moist; pH 6.3; Sand/Silt/Clay ratio 48:21:31
- A<sub>2</sub> (Aeg) 4-8 inches pale brown clay loam; fine subangular blocky; slightly mottled; tends to bleach white when dry; pH 5.8; Sand/Silt/Clay ratio 44:27:29
- B (Btg) 8-18 inches brown clay loam; mottled, coarse blocky; pH 6.5; Sand/Silt/Clay 44:19:37
- C 18 inches (+) dark grey clay till, virtually stone free; prismatic and large blocky structure; compact, hard, calcareous; pH 7.4; Sand/Silt/Clay ratio 18:26:56

The soil is medium in fertility, and generally deficient in lime, nitrogen, phosphates, and organic matter. Response of crops to artificial and organic fertilizer is very good. Internal drainage is considered imperfect, although none of the farmers interviewed reported any serious problems related to drainage conditions.

Haldimand I is the best agricultural land in the township, a fact which appears to be reflected in the greater prosperity of farms on this land, in the comparatively low acreage in bushland, and in the limited number of land severances for non-agricultural purposes. The land capability of this land type may be rated as I and II, but in no place less than Class II; the soils have few limitations that re-

strict their use, they are excellent for hay and pasture as well as for most row crops. Although these soils are not inherently fertile, they do have a high ion exchange capacity which facilitates good response of crops to applications of fertilizer. Only ordinary crop-management practices are required to maintain their productivity; these include the use of fertilizer and lime, the return of manure and crop residues, and the adoption of rotations which give emphasis to sod crops.

The second land type, Haldimand II, occupies the largest area in the township. In the north it adjoins Haldimand I, while in the south it extends to within a quarter of a mile of the Welland River. It also recurs to the south of the river in Concession I. With the exception of 290 acres of Lincoln Clay which have been included in this land type, the soils again are Haldimand Clay Loam. Lincoln Clay occurs in a few small patches along the Welland River between Caistorville and Warner; it has been included in this land type on account of its poor internal drainage and its occurrence on land with gentle to moderate slopes. Haldimand II may properly be regarded as a sub-type of Haldimand I; the difference between the two land types is not always readily apparent, and certainly the northern boundary separating the two types can only be regarded as a line of transition. The essential difference between the two land types lies in the

fact that Haldimand II is not characterized by the same degree of uniformity in soil, topographic, and drainage conditions as is Haldimand I. Many of the farmers interviewed reported some problems related to drainage; some stated that spring seeding may be delayed as much as ten days. Other farmers on the other hand do not seem to recognize drainage as a particular problem, and the more progressive among them point out that even with the least amount of slope, surface drainage can be aided by proper plowing techniques, and by using shallow surface channels which collect excess moisture (Illus. 3). Two farmers have installed tile drainage and have reported considerable improvement in surface and sub-surface drainage.

Most of the bushland and most of the rough pasture fall within this land type; on such land few attempts have been made to correct surface drainage, and profiles frequently exhibit a moderate amount of gleying. On bushland the gleyed profile may be regarded as a natural condition, but where such gleying occurs on land which is in pasture, compaction by years of almost continuous livestock grazing would appear to be an important contributing factor.

One peculiar soil phenomenon which seems to be restricted to this particular land type is the occurrence of small patches of soil which the local people refer to as "loom" (probably a mis-pronunciation of the term loam). This should

be treated as a separate soil type; however, since it rarely covers more than a few hundred square yards in any one area, its distribution has never been mapped. It occurs most frequently along gentle slopes; its high silt content and the fact that it is usually only eight to ten inches in depth and underlain by the same clay till parent material as the other soils in the area, strongly suggests that these patches are isolated remnants of lacustrine deposits. The term "loom" is misleading, the soil has a silt content of over 60%; it is almost structurless, it lacks organic matter, and it has few of the good characteristics which one generally associates with loam soils. Its inertness coupled with a peculiar capacity to retain moisture for a much longer period of time than other local soils limits its use for agricultural purposes. Fortunately, this soil type does not cover large areas; on the other hand, it can represent a considerable nuisance where it does occur. When wet, this soil becomes so soft that it cannot be worked, and while the larger part of a field may be ready for cultivation, a farmer may be faced with the decision of either waiting until all the land has become sufficiently dry, or of ignoring his "loom" patch and leaving it idle. Productivity of this soil is very low, even if fertilizers are used.

A final distinguishing characteristic of Haldimand II is the presence of several hundred acres of gently sloping

land, but slopes rarely exceed 8%, erosion is minimal, and full use can be made of agricultural implements.

Land capability for Haldimand II is more difficult to assess. A conservative estimate would include 60% of the land in Class II with an additional 15 to 20% in the same class provided that adequate drainage is provided; the remaining 20 to 25% are Class III and IV lands including poorly drained and gleyed soils as well as areas with "loom" soil.

The Chippewa land type is found in a narrow band along both sides of the Welland River as well as along the Twenty Mile Creek. The predominant soil type here is a somewhat lighter-textured and better-drained variation of Haldimand Clay Loam. The second soil type is Smithville Silty Clay Loam which occurs west of Caistorville along both sides of the Welland River, and which has moderately good internal drainage. True bottom land does not cover very large areas on either of the two streams, and frequently, cultivated fields are found to extend to within a few yards of the edge of the water. On the other hand, land which is subjected to occasional spring flooding is used as permanent pasture or for the production of coarse hay.

Productivity on Chippewa land is comparable to that of Haldimand I, however, since most of this land has moderate slopes its capability category varies between Class II and IV.



Illus. 3. Soil drainage may be facilitated by means of shallow surface channels.



Illus. 4. "One peculiar soil phenomenon... is the occurrence of small patches of soil which local people call "loom"..."

## IV

PROBLEMS IN SOIL MANAGEMENT AND USE

In the previous chapter the suggestion was made that most of the land in Caistor Township falls into the capability category of Class I, II, or III, with a predominance of land in capability Class II. In the absence of precise data about land quality, such a classification remains highly subjective, and other observers might decide on a lower capability rating. In this connection, however, one should stress the fact that land capability and the quality of land use are not synonymous. An idle field often will be found derelict for reasons other than low capability, a point which is well illustrated by the not uncommon juxtaposition of good farms and of poor farms on land of identical quality. The suggested capability rating then is an indication of the land's potential which presupposes proper agricultural practices, and it is these practices which are of concern here.

It has already been pointed out earlier that the predominant soil type is a heavy clay loam, which, as one might expect, exhibits both favourable and unfavourable characteristics.

The most widely recognized problem on clay soils is that of drainage. Conditions may be particularly critical

in early spring when time to carry out all the necessary field work is limited, and when germination and growth processes depend on a favourable soil temperature, air, and moisture relationship. This problem is partly mitigated by the fact that at the outset only the upper six inches of the cultivated horizon are of importance, and this layer, as has been shown, can be adequately drained by means of surface channels and proper plowing techniques. This does not mean that drainage of the sub-soil is of no consequence, but it follows that with the progression of the season from spring to summer, the water relationship in the lower profile will also gradually improve.

Another problem associated with fine-textured colloidal soils is that of maintaining the soil in satisfactory physical condition or tilth. Tilth depends not only on favourable granulation and its stability, but also to a very large extent on such factors as moisture conditions, degree of aeration, rate of water infiltration, and capillary water capacity<sup>5</sup>. One may readily appreciate that a soil which exhibits a high degree of plasticity and cohesion, coupled with low permeability is far more difficult to keep in satisfactory tilth than a soil with a more favourable sand, silt, and clay ratio. Tillage operations must be carefully

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<sup>5</sup>H.O. Buckman, N.C. Brady. The Nature and Properties of Soils, The MacMillan C., New York:1964, p.65.

timed; if the land is worked when it is too wet compaction results, aeration is reduced, and the soil becomes hard and cloddy when it dries. On the other hand, if plowed when the soil is too dry, great clods are turned up which will not readily break down into a favourable seedbed. Plowing still plays a major role in the structural management of such heavy soils; of particular importance is fall plowing which exposes the soil to frost action and leaves it in a very manageable and friable state after the spring thaw.

Finally, the importance of proper rotations, the use of sod crops and of deep-rooted legumes, the return of manure and of crop residues can hardly be overstressed. The value of such practices is recognized in connection with most temperate soils; on heavy soils they are imperative if tilth and productivity are to be maintained.

If proper soil management and cropping practices are stressed as the prerequisite to successful crop production, and if the assumption is made that such practices are within the reach of any experienced farmer, one may be tempted to come to the conclusion that success or failure of farming such land is entirely the making of the individual. This is only a half truth in that it tends to ignore the fact that higher costs of production, greater risks, and potentially

lower yields are associated with the cultivation of land on which ordinary management practices are inadequate or more difficult to carry out. A few examples may be given to illustrate this point: Most field operations must be timed in accordance with moisture conditions. This not only restricts the farmer's freedom of choice in carrying out various activities, but may also have the more serious consequence of limiting the acreage of land which he can effectively work to a size less than would be economically optimal. Prolonged wet conditions in spring can delay seeding operations, limit the choice of crops that can be planted, and increase the risk of crop failure. On the other hand, wet conditions in fall are accentuated by the low permeability of the soil, which may have the effect of causing delays in the maturing of cereal crops. Soil management requirements are more exacting, more time is likely to be spent in plowing and seedbed preparation, and in providing adequate surface drainage; wear and tear on tractors and fuel consumption is likely to be higher than would be on ordinary soils.

It was pointed out that most of the cultivated land in the township falls within the capability category of Class II. Such land can sustain intensive agricultural production, provided that proper agricultural practices are followed. A recognition of the cost factor associated with these practices is relevant in the analysis of existing conditions.

## V

THE STATUS OF AGRICULTURAL DEVELOPMENT OF CAISTOR TOWNSHIP

Information contained in the Dominion Census Report, field observations, and interviews form the basis for the following study of agricultural conditions in the township.

According to the 1961 Census, the township in that year had a total of 234 farms of which 155 were classified as "commercial farms", that is farms with gross annual incomes exceeding \$1,200. Of these commercial farms, 81 or 52.1% had gross annual incomes ranging from \$1,200 to \$5,000, while the largest percentage in any one income category, namely 46 farms or 29.6% of 155 had gross annual incomes of less than \$2,500, (Table II).

Data compiled by the Farm Economics and Statistics Branch of the Ontario Department of Agriculture (Tables A to E, appendix) shows that the percentage of net income in relation to gross income varies from 28.9% for a Dairy Specialty Farm to 16.6% for a Poultry Farm. If one were to assume that the net income of the average farmer in Caistor Township is 25% of his gross annual income, this would mean that in 1961, 33 farmers had less than \$1,250 to reinvest in their business, while 46 farmers had less than half that amount. Even if these sums represent actual

TABLE II  
CLASSIFICATION OF FARMS BY INCOME

1. Commercial Farms

Gross Annual Income in Dollars	Number of Farms with that income	Percentage
25,000 and over	4	2.5
15,000 - 24,999	6	3.8
10,000 - 14,999	23	14.8
5,000 - 9,999	41	26.4
3,750 - 4,999	10	6.4
2,500 - 3,749	25	16.1
1,200 - 2,499	46	29.6
Total No. of Commercial Farms 155		100.0%

2. Other Farms

\$ 250 - 1,199	57
under 250	22

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Total No. of "Other Farms" 79

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Total Number of Census Farms 234

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Dominion Census of Canada, 1961

savings, after living expenses and the cost of the farmer's own labour has been taken into consideration, such net income is extremely low. A simple calculation could show that under these conditions over 50% of all farmers in the township will have to work anywhere from four to eight years for the purchase of a small tractor, and a much longer period of time to afford the construction of a silo or of a new barn.

Low farm income coupled with a very conservative attitude towards credit is bound to have a very pronounced effect upon the development of the agricultural potential of a farm or of any one area, and it is this group of farms with which the term "underdeveloped" can be associated. In attaching this label, the assumption is made that incomes on these farms could be much higher, and that one is not dealing with a group of small 30-acre farms which have reached optimum production. Township records show that 117 owners hold properties ranging from 100 to 300 acres in size, while an additional 87 owners have properties of 60 to 100 acres (Table V). Since there are only 155 commercial farms but a total of 204 owners with properties larger than 60 acres, it is not unreasonable to assume that the majority of these low income farms are larger than 60 acres. This has been substantiated by field investigations which revealed that, apart from a few exceptions, the larger proportion of these farms are larger than 80 acres. One should mention that

many farms have as much as 20% of their land in bush. This point, however, should not be overstressed as a factor accounting for the low incomes on most of these farms; the operating statement given on Table B shows that for a sample of 84 Ontario Beef/Dairy farms the average cropland area is only 96 acres, yet the gross annual income averages \$11,852 or more than twice the income reported by more than 50% of all commercial farms in Caistor.

One may also point out that most of the low-income farms are located on Haldimand II, but this is more a reflection of the fact that Haldimand II is the predominant land type, than it is an indication of a possible correlation between location and low farm incomes. If a correlation between location and low incomes is assumed it would be difficult to explain the presence of a fair number of farms with gross annual incomes exceeding \$10,000, which are also located on that same land type.

Census data about the "value of agricultural goods sold" (Table III) allows some crude estimates about production per farm and per acre of cropland, and thus provides a further basis for comparisons. In 1961, the total value of agricultural goods sold by all farmers in the township was \$1,050,800, this sum, if divided by the number of commercial farms gives an average of \$6,779 per farm, which again is far below the value of products sold by any of the farm groups represented

TABLE III  
VALUE OF AGRICULTURAL PRODUCTS SOLD, 1961

Product	Value \$	% of Total Value	Number of Farms Reporting
1. Dairy	547,140	52.0	119
2. Cattle	175,110	16.6	178
3. Hens	123,910	11.8	38
4. Pigs	113,970	10.8	92
5. Eggs	28,560	2.7	43
6. Hay, Fodder	19,010	1.8	58
7. Turkeys	14,670	1.4	8
8. Sheep	8,470	.8	20
9. Horses	6,820	.6	11
10. Wheat	5,460	.5	17
11. Other Grain	5,370	.5	21
12. Fruit	1,180	.1	4
13. Wool	1,130	.1	16
Total Value	1,050,800	100.0%	

Dominion Census, 1961

on tables A to E. With a total cropland area of 16,481 acres, Caistor farmers sold agricultural products valued at \$63.7 per acre, while the reference group on Table A produced \$9,780 worth of farm products on 95 acres of cropland, or an average of \$103 per acre.

Of further interest is the actual use of agricultural land in the township (Table IV). Hay with 9,739 acres occupies nearly 60% of the total cropland area of 16,481 acres. This is followed by oats with 4,311 acres, wheat with 1,304 acres, corn for silage with 561 acres, grain corn with 237 acres, and by various other crops each occupying less than 120 acres.

The high acreage of hay can be largely attributed to the predominance of dairy farming, which in 1961 accounted for 52% of the total income from agricultural products sold. Hay also plays an important part in beef production, which stood in second place with 16.6% of the total value of agricultural products sold. In 1961, 58 farms reported the sale of hay and fodder, which is a third factor contributing to the large hay acreage. The production of hay as a cash crop represents a very inefficient use of agricultural land, and deserves an explanation.

Mr. "X" owns 120 acres of level land on Haldimand II, 30 acres are in bush. He is semi-retired and lives with his wife on the farmstead; his three children are grown up and

TABLE IV  
LAND USE IN CAISTOR TOWNSHIP

1. Agricultural (1961 Census)

Use	Acres	%age of cultivated land	Farms Reporting
1. Hay	9,739	59.09	207
2. Oats for Grain	4,311	26.10	190
3. Wheat	1,304	7.90	113
4. Corn for Silage	561	3.40	54
5. Corn for Grain	237	1.43	30
6. Other Fodder Crops	121	.73	3
7. Mixed Grain	52	.30	3
8. Barley	50	.30	4
9. Trees	41	.24	4
10. Oats for Silage	21	.12	3
11. Small Fruit	20	.12	5
12. Rye	14	.08	3
13. Vegetable	8	.04	3
14. Root Crops	2	.01	2

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Total area of cultivated land	16,481 acres	100.00%
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2. Non-Agricultural (Estimated)

1. Bushland	5,840 acres
2. Urban, Residential	1,400
3. Roads, Streams	700
4. Wasteland, Unimproved Pasture	5,862

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Total non-agricultural land	13,802 acres
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Total Area	30,283 acres
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live in Hamilton. All cultivated land is in hay, a mixture of alfalfa, red clover, and timothy. He buys fertilizer and hires help for the initial spring application. The crop is cut two or three times by a local feed mill which uses it for conversion to pellet feed. In a good year, yields will be approximately one ton per acre, and the price paid to the farmer will be \$10 per ton for the first cutting, and \$12 for the second and third cutting. This means that in a good year his maximum gross annual income will be \$3,060, and, since it is unlikely that his cost will ever exceed \$1,000, his net income will be over \$2,000, which, as was suggested earlier, equals the net income of a farmer having a total income of \$8,000. To the retired farmer this type of land use represents perhaps the most ideal solution to his problem, however, the fact remains that a farm which produces only \$3,000 worth of agricultural goods when it could produce goods valued at four or five times that amount must be regarded as underdeveloped.

The acreage of oats, which occupies second place, again relates to dairy and beef farming. Wheat is produced mostly as a cash crop, while the small acreage of grain corn is associated with a few hog farms. It is rather surprising that in 1961 only 561 acres of corn were grown for silage. This seems very low if one considers that over 50% of the total value of all agricultural products sold in that year

came from dairy farms. Many of the dairy farmers interviewed indicated that they do not make use of silage; some explained that putting up silage was too much work, others felt that "there is too much waste", and that "it smells up the whole yard". Few farmers admitted that the efficient use of silage requires skilled management as well as capital investments for silos and equipment ranging anywhere from \$5,000 to \$15,000. Most farmers do not have such funds available and do not wish to borrow it. There appears to exist a very marked relationship between the use of silage and high farm incomes, and the converse, of non-use and low incomes. The author feels that if one were to map all the farms with new silos, one would have located a significant proportion of all farms with gross annual incomes exceeding \$10,000, and certainly all of the four farms with incomes larger than \$25,000.

Low farm incomes and the general lack of prosperity which has been noted, have their parallel in the quality of land use. The results of this part of the field investigation have been recorded on a map showing the "Quality of Land Use" (Fig.5). An explanation about the meaning of the term quality and about the method of assessment is appropriate at this point. The term quality, as it is used here is intended to denote and describe those characteristics associated with the use of agricultural land which are the direct result



Illus. 5. Many dairy farmers do not make use of silage. "It is too much work, there is too much waste, and it smells up the whole yard".

of the action or inaction of man. Thus, an over-grazed pasture, a weed-infested field, unchecked erosion on sloping land, all are aspects of improper use of the land. The choice of crops does not enter into this assessment, and the terms "good" or "poor" should not be confused with the more traditional meaning in which one tends to refer to the wrong choice of crops in a given area as "poor" land use. The variations in the quality of land use have been expressed in numerical symbols ranging from one to five which represent the categories "very good", "good", "fair", "poor", and "idle land", respectively.

Category one or "very good" was assigned to fields, which in the opinion of the author, were perfect in every respect and represented the ultimate in land use that might be expected in a given area, given present technology. A "good" field was one which could not be regarded as excellent, but which still was satisfactory in terms of the appearance and health of the crop, freedom from weeds, uniformity, and so forth. Crops which were weedy or lacked uniformity, but which otherwise indicated a reasonable amount of care, were classified as "fair", while category four or "poor" was assigned to overgrazed pastures, to weed-infested fields, to pastures containing noxious or unpalatable weeds, and to crops showing severe soil deficiencies and disease. Category five was assigned to land which lies idle.



Illus. 6. An "excellent" field of hay; note the uniformity and height of the uncut section in the background.  
(Category one)



Illus. 7. A "good" stand of corn for silage. (Category two)



Illus. 8. A field of hay which has been placed into category three because of many weeds present, and barren spots which have not been reseeded.



Illus. 9 A "poor" field of corn for ensilage. (Category four)

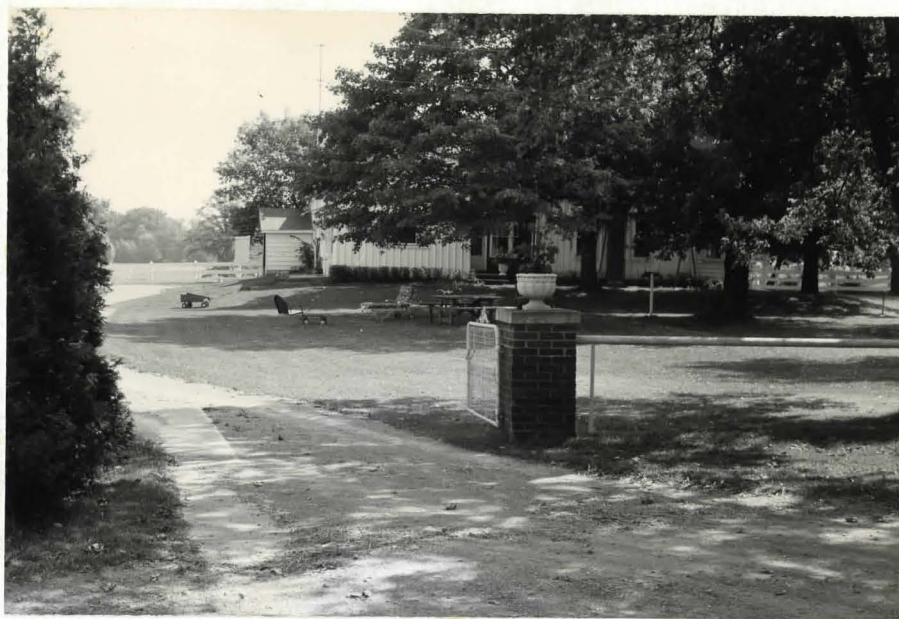


Illus. 10 A severely overgrazed pasture.  
(Category four)

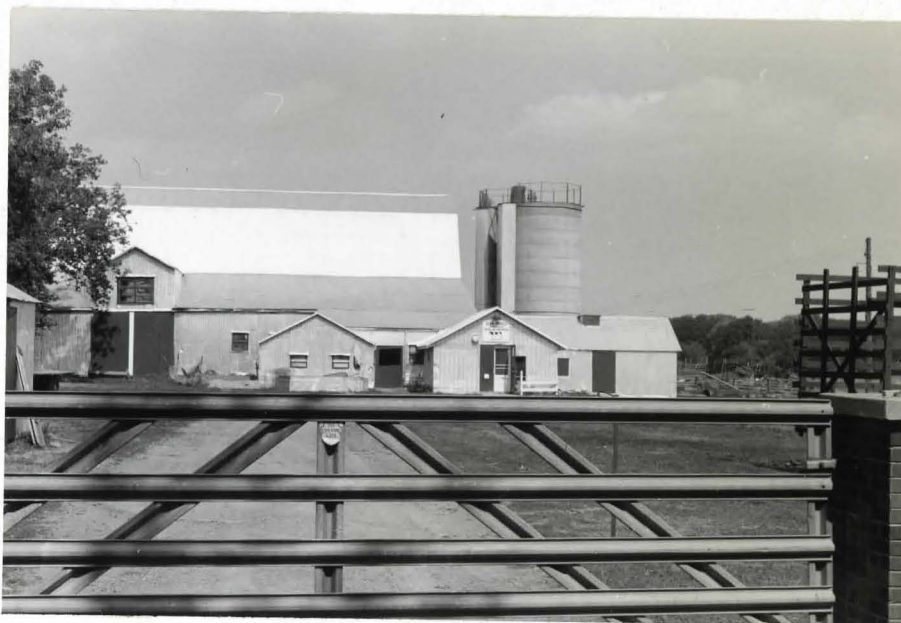


Illus. 11 An idle hay field (Category five)

Actual farm by farm conditions will now be examined. Table II shows that there are a total of ten farms with incomes exceeding \$15,000. While the actual income is rarely revealed in an interview, the author believes that he has spoken to at least five of the owners of farms belonging into this category. It was found that all of them are dairy producers, and that all owned between 150 and 300 acres of land. When questioned about the optimum farm size for their respective areas, three stated that 200 acres of land was adequate, while the other two farmers felt that overhead costs could be reduced by farming 300 acres. On all of these farms, modern techniques and equipment are used. Each of the owners belongs to some dairy producers association, and every one indicated that he regularly reads one or more farm journals. While there was a general reluctance to discuss financial matters, most of these farmers indicated that they are making use of credit for farm improvements. These farmers were also questioned about their opinion concerning agricultural conditions in other parts of the township. Four of the farmers, who own land on either Haldimand I or on Chippewa, stated without hesitation that farming on Haldimand II was not very successful because of "poor soil and drainage conditions". A fifth farmer, who is actually located on Haldimand II indicated that the soils in his area are slightly inferior, but added



Illus. 12



Illus. 12,13. A Dairy Specialty Farm;  
one of several "high income farms" in  
the township

that many local farmers have not kept up with developments in agriculture, and are either too old, or too conservative to change their ways.

Next to this group of model farms, one finds some 64 "middle income farms", that is, farms with gross annual incomes ranging from \$5,000 to \$15,000. This is the most important group of farms, and may well be regarded as the backbone of agriculture in the township. Approximately 65% of these farms are general dairy farms, while the rest are livestock farms with specialization in beef cattle or hogs, and a number of mixed farms.

Because of the diverse characteristics of this group, generalizations are of necessity broad and not valid in every case. Their distribution is roughly as follows: 40% are located on Haldimand II, 35% on Haldimand I, and 25% on Chippewa land. Farm sizes vary from 100 to 200 acres. The fields associated with these farms are generally very clean and the land appears to be well used. Less commendable is the farmstead itself; the farm residence and other farm buildings in some cases are as much as eighty years old, and often are found in a poor state of repair. Occasionally one does see signs of recent improvements, either in the form of a new building, of aluminum siding on barns, or of a new coat of paint, but in most cases very little money appears to be invested in the construction of new buildings or in

the maintenance of old ones.

Quite a number of these farms were visited, and more than once did the author expect to find a retired couple or a part time farmer, but instead was surprised to find quite a different explanation for the run-down appearance of the farmstead. In one case, a young man had recently taken over the farm from his parents, and was investing all of his capital in a dairy herd and in new equipment rather than in building improvements. In another instance a farm was owned by a 52 year old dairy farmer who, over the past twelve years had succeeded in more than doubling his gross annual income from \$6,000 in 1954 to \$13,500 in 1966, yet, without increasing the size of his farm. The difficulty in judging a farm on the outward appearance of the farmstead alone became quite apparent during a lengthy interview with the owner of this particular farm.

The farm is located on Chippewa land, it is 98 acres in size, and all of the land has been cleared; a few acres are in rough pasture on account of poor surface drainage in early spring. The owner stated that 100 acres of land was adequate for his purpose, and that, since he is alone, it would be quite difficult for him to work more land than he has at the present time. Commenting on the soil, he felt that although his soils are heavy, they are as productive as any soils in Southern Ontario, provided one knows exactly

how to work them. He added that the greatest problem he encounters is that of soil compaction by livestock on pasture land; this can seriously impede the growth of legumes and pasture grasses with the ultimate effect that a pasture's carrying capacity is reduced. Another problem which might arise is a feed shortage during a dry period in the later part of summer, which might lead to overgrazing unless supplementary feed or additional pasture land is available. When questioned about financial matters, he explained that he made very little use of credit, but that he considered himself lucky in that, unlike many other farmers, he never needed to resort to large loans which "set a man back for years". In his opinion, a debt-free farm of 100 acres should provide a reasonable income for the owner and sufficient capital to cover such operating costs as fertilizer, veterinary fees and medicine, dairy equipment and other farm implements, provided that the operator is willing to work long hours and to economize wherever possible. He then proceeded to illustrate how he keeps costs at a minimum without reducing production. "I am using this small French-built Diesel tractor; it is comparable in price to Canadian or U.S.-built tractors, but it is far more economical in terms of fuel consumption and maintenance cost, and it will give more years of trouble-free service than many heavier and more expensive tractors". When asked about investments for the

improvement of farm buildings, he explained that he carries out only minor repairs, that his buildings are old but adequate, and that, since he has no children who someday could take over the farm, he sees no justification in the investment of good money in the improvement of old buildings or in the construction of new ones.

The reasons why the low-income farmer fails to improve his farmstead are fairly obvious. Among farmers of the middle income group, the reluctance to invest capital in farm improvements does not seem to stem as much from a shortage of funds as from a desire to divert capital towards ends which will result in a direct increase in farm income in the immediate future. A new coat of paint or a tin roof on a barn to many farmers serves only an aesthetic purpose. Nor is it very difficult to see why a farmer fifty years old or more would be unwilling to borrow improvement capital for investment in a place, which some day might pass into the hands of strangers. The most important factors then, accounting for the frequently observed state of disrepair of farmsteads appear to be the age of the farmer, his uncertainty about the future, his tendency to invest only in areas where returns are assured, and his very conservative attitude towards the use of credit.

One strong exception to this general pattern was noted in connection with several farms owned by younger

people and by people who have come from other areas. Most noteworthy is a small group of farmers of Dutch and other European origin, who over the past ten or fifteen years have established themselves in the township. In most cases they seem to have started out by buying an old farm which, as one observer put it "no one in his right mind would want to buy". They proceed by borrowing heavily, and they seem to take every opportunity to enlarge their holding. Most of these farms are located on Haldimand II, and in some instances are found in the most backward parts of the township. It is not particularly surprising to find that they are not accepted locally, "their ways are altogether strange, they are up before dawn, and they plow by moonlight, they try new crops which will never work here, they put up new buildings and silos, they buy machines and livestock, they never seem to stop, and all are so far in debt that even their children will never own the place their parents established", these are some of the comments made by neighbors. One German and one Dutch farmer did consent to be interviewed.

The German farmer acquired a hundred acre farm some fourteen years ago. In his own words "The place was a mess, the farm house was unfit for human habitation. The roof of the barn had partly fallen in; the barnyard served as manure site and garbage dump all in one. The fields were covered with a solid mat of weeds, and it was almost impossible

to distinguish formerly cultivated land from land which had served as pasture. When I begun the task of breaking the soil I plowed up an old harrow, parts of an old cultivator, yards and yards of barbed wire as well as the fence posts which once had supported it. I cleaned out one ditch near the road which contained no less than six truckloads of garbage, old boards, and broken equipment, and I removed and burned nearly half of a mile of stump fencing". He went on to talk about the people, "When we first bought this place the neighbors told us we were crazy, they discouraged us, but it was obvious that they simply did not want to have any strangers around. When we built our house a few years ago, we had some people here to inspect our indoor plumbing which they felt was an outrageous waste of money, and which apparently was something few had seen before. They could not understand our way of life. Some years ago, in the middle of summer, my wife was wearing shorts while doing some gardening, when an old lady from the neighborhood came by and remarked that the Lord will surely punish her for such indecency and for her bad influence on youngsters".

Today, this farm is still in its formative stage; it consists of a modern farm dwelling, a new silo, several older buildings, and a livestock inventory of some 20 beef cattle. The owner still holds a full-time job in Hamilton, but he hopes to soon terminate his off-farm employment to devote his full attention to his livestock farm.



Illus. 14



Illus. 14,15. The formative stage of a new farm. The owner, a post-war immigrant from Europe, hopes to terminate his off-farm employment in the near future to devote all of his time to beef production.

The Dutch farmer described somewhat similar conditions and circumstances under which he acquired his farm. Today, he has a thirty head dairy herd; he farms 200 acres of land and is seeking to add another 100 acres. He has a new home, uses fairly modern equipment, and is assisted by his sons who appear to be as inured to hard work and as interested in farming as their father. The interview was too short to obtain any details about the financial aspects of his operation, but the author gained the impression that the owner is the hard-working and calculating business type of a farmer, rather than, as some of his neighbors see him, a fool who doesn't know when to stop.

From the many interviews conducted among farmers in this middle income category it became clear that the township does have a fair number of good farmers, even though the appearance of many farmsteads might lead one to a different conclusion. Neither should one ignore the efforts of a small number of newcomers to the area, who, in more than one instance, have demonstrated that land which has been virtually abandoned by others can be farmed successfully. From this discussion of the middle income group of farms, the reader will also appreciate why the term "underdeveloped" cannot be applied to all farms in the area, or to the entire township.

A third group which may be recognized includes

some 81 "commercial farms" with gross annual incomes of less than \$5,000, as well as 79 "other farms" with incomes of less than \$2,000.

With over two thirds of all farms and over one half of all commercial farms falling into this low-income category, it is not surprising to find many parts of the township characterized by lack of development. The fact that a large proportion of these farms are concentrated on Haldimand II only accentuates this situation, nor are conditions ameliorated by the presence of quite a number of middle-income farms whose owners, as we have noted, show little interest in improving their farmsteads. The conditions which one finds in many areas are not only difficult to describe, but also are so unexpected for an area located in the heart of one of the most prosperous regions of Southern Ontario, that the veracity of even the most faithful account must appear dubious.

The problems encountered by the young German farmer in his efforts to rehabilitate the farm he had acquired have already been discussed. His experience dates back to the early fifties, yet, even today dilapidated farm dwellings, idle and decaying farm buildings, broken down fences, and untidy farm yards are a sight as common as idle land, weed-infested fields, stumpfences, and garbage dumps along country roads. Many farms still lack a potable supply of fresh water and, for human consumption, rely on rainwater stagnating in cisterns.



Illus. 16



Illus. 17

Illus. 16 - 23, "...dilapidated farm dwellings, idle and decaying farm buildings, broken down fences, and untidy farm yards are a sight as common as idle land, weed-infested fields, stump fences, and garbage dumps along country roads".



Illus. 18



Illus. 19



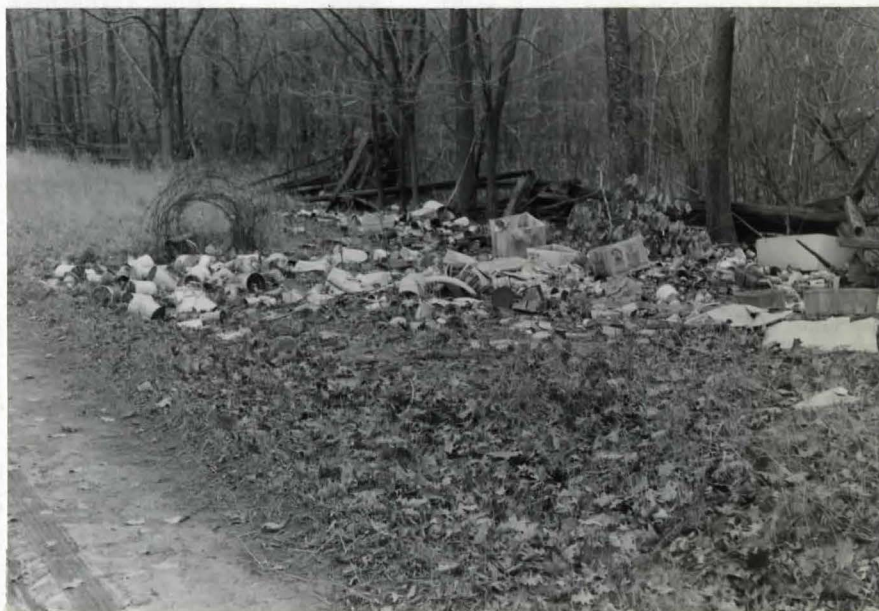
Illus. 20



Illus. 21



Illus. 22



Illus. 23

Sanitary facilities often are found equally inadequate. On some farms milking is still done by hand, and barns have not been painted, white-washed, or disinfected for years. The land around many of these farms lies completely idle, or in cases where crops are grown, they are patchy, choked with weeds, and often show the effects of nutrient deficiencies.

Many of the people seem to be totally indifferent to the conditions under which they live, and towards the use of their land. More than one farmer rationalized his situation by pointing out that "the good old days when a man could make a comfortable living by working the land are gone, farming is no longer what it used to be". Others seem to be oblivious to the changes which are taking place in the "outside" world or even around them. There are some who have no radio, television, or who never read a newspaper. One woman, who may have been in her mid-fifties, actually expressed surprise that anyone would come "all the way from Hamilton" to talk to local people; she remarked that she too had been to the "big city" some thirty or forty years ago when her "kid brother" died in one of the hospitals. She was curious to know whether the cable car was still going up and down the escarpment.

Others expressed their bitter disapproval of the growing number of "outsiders", who in recent years have come to Caistor and who have acquired farms or have built "expensive homes". Most unpopular are the Dutch farmers who have been



Illus. 24 One of several small  
"dairy farms".

fairly successful in establishing themselves. However, "city folk", whether they are Canadians or of European origin are equally unwelcome.

In parenthesis one may note here, that even though these resentments seem quite common among local people, it is difficult to understand why for years no strong opposition has been raised by these people against land severances and the sale of entire farms for purely residential purposes, (Fig. 4). Most of these non-farm residents have been attracted to the township by the availability of cheap land, and even today, a 100 acre farm in some places can be purchased for a much smaller sum than would be required to buy a new one family home in the city of Hamilton. It is quite evident that in instances where such land transactions have been motivated by the buyer's desire to get away from the high cost of city-living on the one hand, and by a desire to make a sound investment on the other, his interest in farming is merely incidental. He may as a matter of expedience and for income tax purposes keep a few goats or chicken, but his contribution to agriculture is as insignificant as his knowledge about farming. His presence, whether he owns ten acres of land or one hundred, only serves the negative purpose of reinforcing already existing conditions.

Returning to the established low-income group of farmers, another very prominent characteristic is the high



Illus. 25 A recently built non-farm residence, surrounded by ten acres of idle land.

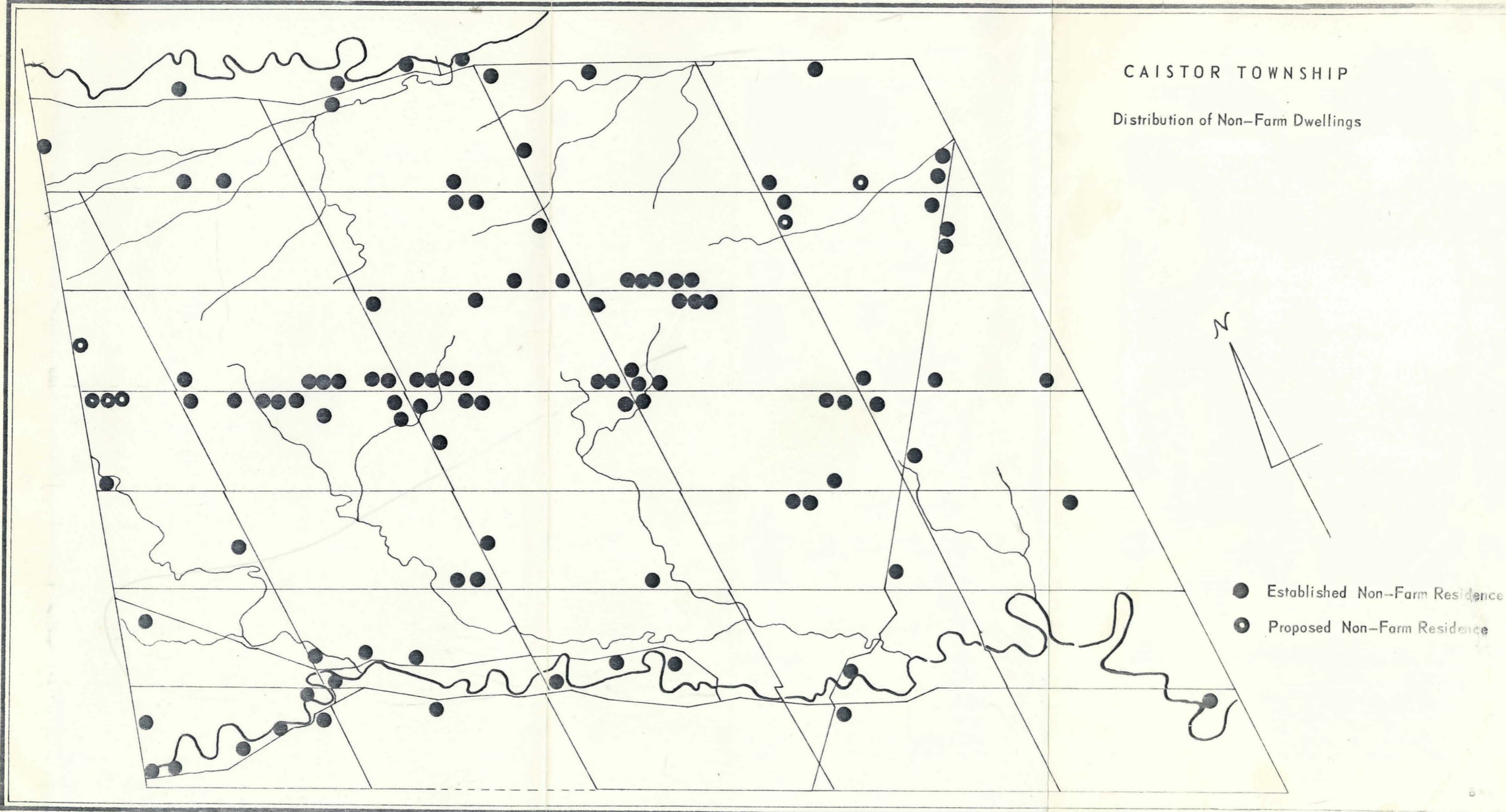


Fig. 4

frequency of off-farm employment. Of a total of 40 farmers interviewed in the sample block areas shown by Figure 5, 28 indicated that they held a full-time outside job. One might assume that they are all owners of small farms, but this is not always the case. Of these 28 part-time farmers, one owned 200 acres of land, seven owned between 100 and 150 acres, eight owned 80 to 100 acres, and twelve owned less than 80 acres. Of the remaining twelve farmers in this sample block study, four had estimated gross annual incomes exceeding \$5,000 on farms 80 to 150 acres in size, one worked off the farm only during the winter months, one stated to be a full-time farmer with 87 acres of land and with a gross annual income of less than \$2,500, six were retired farmers of which two did nothing with their land, three indicated that they lease their land to neighbors, and one grows hay as a cash crop.

On the basis of the interviews conducted in these sample areas, as well as in other parts of the township, the author estimates that of all census farm (234) approximately 70% are part-time farms, that is farms whose owners engage in full or part-time off-farm employment, or whose owners are retired, while among the owners of the 155 commercial farms probably half are engaged in full or part-time off-farm employment. From these estimates it would seem that the low-income farmer no longer augments his

farm income by seasonal outside employment, but rather, that the converse is true, where his main income is non-agricultural, while his farm income represents merely a supplement.

The effects of these conditons upon the over-all development of agriculture in a given area are not difficult to predict, and certainly, many of the observations that have been made relate directly to the frequency of non-farm employment. On the other hand, this is only part of an explanation for the total situation, and one which does not necessarily strike at the root of things. It might be just as correct to regard off-farm employment as one of the many symptoms of rural underdevelopment, rather than as a direct cause.

In the next chapter two interviews have been recorded which illustrate and explain some of the sharp contrasts which have been observed.

## VI

TWO CASE STUDIES

Both of the farms on which the following interviews took place are located on Haldimand II; they are separated by less than one mile; the land on both farms is nearly level, and as far as one could determine, both farms had soils comparable in structure, texture, and fertility; there were no other apparent physiographic differences.

To preserve the anonymity of each farmer they will be given the fictitious names of Miller and Johnson. The information recorded here will correspond as closely as possible to that given in response to the author's questions. Although, in both cases the actual conversation lasted more than one hour, only the most relevant points will be recalled, and the sequence of questions and answers has been rearranged in a more logical order.

First the interview with Mr. Miller will be recalled. Mr. Miller is in his late thirties and farms 200 acres of land.

Q. Mr. Miller, it seems that you have just recently completed the construction of this beautiful home, and there are other indications that you are among the more prosperous farmers in the township. How do you account for your success when so many people in your neighborhood can't seem to make "a go of things"?

- A. Well, for one thing we farm more land than most of our neighbors. The wife had 100 acres here, and after we were married I sold my share of dad's farm, and with the proceeds we bought another 100 acres over here. We work very hard; the wife works when she has time, and the boy helps when he is not in school. And, I guess we also have been just plain lucky.
- Q. Do you feel that 100 acres of the type of land that you have would be adequate to make a decent living without having to engage in off-farm employment?
- A. That is all my father ever had, and we didn't starve. If all the land is cleared and you are prepared to work hard, 100 acres would be sufficient. Of course, the moment you begin to buy expensive equipment you must have a sufficiently large acreage to make your investment worthwhile. This even more true with regard to farm buildings; the cost per animal for a 40 head dairy barn will be considerably less than for a 20 head barn, but to make full use of a larger barn one must have enough land, and it is these considerations which usually lead to farm expansion. Technology is changing very rapidly and it is much easier today to work 200 acres of land than it was to work 100 acres twenty years ago, and it is quite likely that the trend towards larger farm units will continue for some time.
- Q. What are the labour requirements on a farm such as yours? I was told that 100 acres was all that one man can work.
- A. We always seem to manage somehow, and we have never yet hired any outside help. But then, as I have mentioned already, there are three of us working. Also we are using the latest equipment available.
- Q. Just what kind of equipment do you use?
- A. We have three light diesel tractors: a 35 Massey, a 38 Cockshut, and a 45 Newfield; we have a Massey Ferguson power-take-off combine, a baler, a crop chopper, a forage harvester, a manure spreader, and of course all the dairy equipment one needs.
- Q. I am surprised that you keep three different makes of tractors, wouldn't it be cheaper in the long-run to have three tractors by the same manufacturer?
- A. Not really, on heavy soils you have to be quite sensitive

about how you use your equipment and for what jobs. One manufacturer may only put out a 35 hp and a 60 hp tractor when you actually need a machine with 45 hp, so you end up buying a tractor of a different make, but one which meets your requirements. Also, the only satisfactory way of determining the long-range performance of such an expensive piece of equipment is by using it. You were probably thinking about parts when you asked that question, we don't stock parts for any of our machines, and we never keep a tractor long enough to run up a big repair bill.

Q. How many and what type of animals do you have?

A. We usually have around 50 Holstein cows of which we milk between 28 and 30 at any one time.

Q. Other farmers I have spoken to reported difficulties in pasture management, particularly with regard to soil compaction by animals, has this been your experience as well?

A. No, we use a method called "zero grazing" whereby all feed is cut in the field and is brought to the animals which are kept in a feeding yard. There is some compaction by equipment but it isn't very serious, also you try to stay off the land when it is too wet.

Q. Do you ever experience serious feed shortages during dry spells?

A. That's the last thing we could afford. We never have more animals than this farm can support, nor do we rely solely on one type of feed. We have 80 acres in hay, about half of which is used for zero grazing; there are 60 acres in oats and corn every year which is used for ensilage. We have also been experimenting with sudex grass which is a hybrid of sudan grass and sorghum, and which is excellent for silage or as green feed. In addition we have about 60 acres in winter wheat which can always be sold as a cash crop or be exchanged for a greater volume of dry feed.

Q. Do you have any difficulties with the soil?

A. Our soil here is not as good as the soils further north, it is heavier in texture and does not drain as readily. In fact, I have sometimes remarked to the wife that if we had the land some people in the township have, and

if we worked as hard as we work now, we could have retired long ago.

Q. How do you cope with the drainage problem?

A. Drainage isn't really that much of a problem if you know what you are doing. Over the past fifteen years we have one by one filled in all shallow depressions on our land. We also use shallow surface channels to take care of spring run-off and excess moisture after a heavy rain.

Q. You mean to say that you actually levelled your land?

A. That is correct. We use an attachment which you can pull behind the tractor and which works on the same principle as the big earth moving equipment that they use for road construction. It will only pick up two or three inches of top soil which will be scraped into a bucket and which can be evenly distributed wherever it is needed.

Q. Do you have any of this so-called "loom soil"?

A. We used to have a few patches but most of them seem to have disappeared; they are so shallow that you can almost plow them under, and I suppose with years of cultivation the silt has been spread around and was mixed in with the rest of the soil.

Q. I have listened to a lot of farmers complain that fertilizers have no effects on these heavy soils, would you agree?

A. Well, that's nonsense, we wouldn't be here if we didn't use fertilizer. Our crop yields have been comparable to the yields obtained on the best land in Ontario. You may think that I am bragging, and no one else around here believes me, but we have had as much as 100 bushels of grain corn to the acre, we get consistently between 80 and 100 bales of hay per acre. This year was supposed to be too dry for corn around here, yet, we seeded our corn as late as June 24th, and by the time we cut it for silage the entire stand was seven feet tall. Last year we tried this Sudex and it was over eight feet tall.

Q. What is your secret?

A. There is no secret; we use between 200 and 300 lbs. of

fertilizer per acre every year, we return all manure, and we use sod crops and legumes to built up the organic matter content of the soil. Occasionally we also use some lime to reduce the acidity of the soil. The trouble with many farmers around here is that they have tried fertilizer of various kind, but when the miracles they expected didn't follow they blamed the soil for it and gave up. You can't expect to sell your manure year after year and then hope that a dash of fertilizer here and there will revive a depleted soil. Many farmers have no idea about soil deficiencies and nutrient requirements of plants, 'one fertilizer is as good as another', they will apply it at the wrong time and in the wrong quantities. You tell them something about pH or about soil acidity and they'll just stare at you and think you are trying to sound smart; most of them feel that the use of lime is a sheer waste of money.

- Q. It is quite evident that you know a great deal about local conditions and about farming; I am curious to know if you attended an agricultural college, and how you manage to keep so well up to date on all that is new about farming.
- A. Well, to tell you the truth, I was born and raised right here in Caistor. I never went to an agricultural school, although I did finish high school. My father was a very good farmer and taught me all the basic things, and as you grow older you learn by doing things, you get around a little and see what others are doing, and then there are all kinds of good books and journals and all the pamphlets put out by the government. We get several farm journals, and I also belong to two farmers organizations. If you want to stay in this business for very long you simply have to keep up to date one way or another.
- Q. Do you expect your son to take over after you retire?
- A. Naturally, that is what we are hoping for, at the same time we want him to get all the education he can. Right now he has a notion about being a veterinarian some day, and if that's what he wants that's fine with us; if he wants to farm that training won't do him any harm, and the place will always be there for him.
- Q. I have one final question Mr. Miller, which I am somewhat reluctant to ask but which is of interest in

connection with my study. Several people in Caistor have told me that many of these "young upshots" are up to their neck in debts and never seem to know when to stop borrowing money, would you take offense if someone talked about you in this manner?

- A. Oh, I suppose that would all depend on who says it, you know how people are, they like to talk. We have assets here in excess of \$95,000, but I never consider a loan of \$5,000 or \$10,000 a real debt. We borrowed some money a couple of years ago to built a new silo, that has almost been paid back, but in the meantime we have filled the silo twice, we have been able to increase our dairy herd, so the money has been working for us, after all you are not wasting it. I know that there are several young Dutch farmers who are great for taking out loans, but remember that in most cases these fellows have started out with nothing; if they keep working as hard as they are working now, they will be alright. As for ourselves, we make use of loans whenever the need arises, but we have been very fortunate in that we have always been able to see our way clear.

Mr. Johnson, the second farmer interviewed, is in his early fifties, he is a full-time farmer, and owns 87 acres of land.

Q. Mr. Johnson, this farm looks like it has had a long history, were you born here or did you buy the place?

A. I was born in Caistor alright, but not on this farm. We bought the place during the thirties.

Q. What made you take up farming?

A. Well, you know how things were in those days, I came from a large family and never had much chance for an education. There really wasn't much else a man could do in those days and farming looked pretty good to me.

Q. You said that you have only 87 acres of land, is all of that cleared?

A. Most of it is cleared, there are about 4 acres of bush down by the fence there, its a bit wet, but I put the cattle in there once in a while.

Q. Do you find your present acreage adequate or would you want more land?

A. It used to be enough when we started out, but nowadays you pretty well have to go into farming in a big way if you want to make a decent living. I would like to have more land but I am too old for that, besides, my health hasn't been too good, I've got arthritis and trouble with my water works, so I can't even farm the land I have the way I used to.

Q. How is the land?

A. Well, it is heavy clay and you have to plow it, but you can grow fairly good crops on it if you do things right.

Q. Do you make much use of fertilizer?

A. Can't afford it; at one time I used quite a bit, but it didn't seem to make much difference, and I figure that manure is still the best there is, it puts fibre back into the soil.

Q. What is your main source of farm income?

A. We have a cow which we milk for ourselves, we have a few hens for eggs, and we keep about ten head of steers and a few pigs.

Q. I don't know how many cattle you are able to sell every year, but I would guess that you would be making around \$5,000 gross a year?

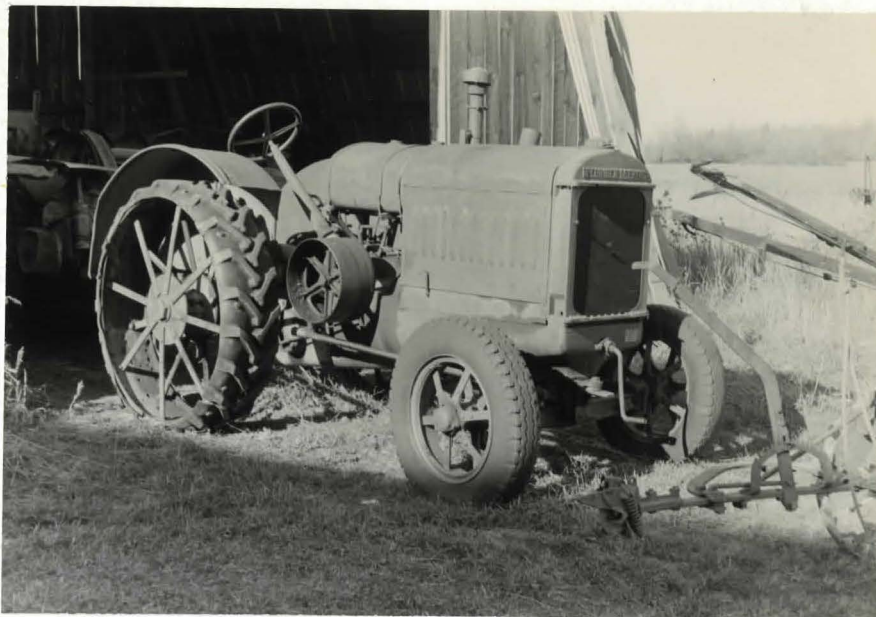
A. (Outraged) Are you crazy or something! I am lucky if I get \$2,000 a year, and that is before I have paid any of my bills. Let me tell you something, the small fellow like myself doesn't make any money, it's the middle man who gets it all; and when you think you have a few dollars to spare you have to pay fuel bills, and taxes, and the hydro, and then something goes wrong with your car or with the tractor. Do you see that shed over there? It's probably 80 years old and I am just putting some tin roofing on it so the machines won't get wet. And do you know how much they wanted for the tin? I paid \$120 for that. Look at that concrete foundation on the barn over there, I mixed and poured all that concrete by myself, you'd probably have to pay over a thousand dollars to have

someone come in and do it for you, and I can't afford that kind of money.

Let me show you some of the equipment I am using. This is a 1927 McCormick Deering tractor which I picked out of a junk pile a few years ago and repaired it; it is still working; and that baler over here, I bought that at an auction sale for \$200, it needed some repairs and a new belt. I had a notion of buying a new belt but they wanted nearly as much for it as I had paid for the entire machine, so I bought myself some canvass, took the slats off the old one and made my own belt for less than \$30. And that hay mower over here, that must be over 50 years old, it was here when I bought the place, and I am still using it. I am also using a little J.I. Case tractor which is over fifteen years old; it is quite light and has been repaired so many times that I am sure nobody else would know how to use it on this heavy soil; I do all my plowing with it, most of my field work, and right now I am cutting my firewood with it. For the heavy work such as making bales I use the big tractor. So, you see, you have to save on every corner to make ends meet, and you still get nowhere.

- Q. Could you not get one of these low-interest farm improvement loans?
- A. At my age? Last winter I was laid up for a couple of months, and we spent so much money on doctor bills and medicine that my whole budget has been upset for a year or more. If you are counting pennies you don't go around borrowing money that you might never be able to pay back.
- Q. Does your family help with the farm work?
- A. They can't help very much; the wife isn't well either, and the girl is still in school. The two boys are married and live in the city, they never bother to show up, they know there isn't much to get around here.
- Q. Have you ever thought about getting a job off the farm?
- A. I have tried that too, but there isn't much work around here and with an old car like mine I wouldn't get very far; and anyway, who would want to hire a 54 year old man?
- Q. Couldn't you make more money by using all of your land to grow hay as a contract crop?

- A. No, you can't have any weeds, and the land is not supposed to have any bumps or depressions because they have a special machine to cut the crop.
- Q. Would you not be better off to sell your farm?
- A. And then what? You know how much they offered me for the land and everything on it? Eight and a half thousand dollars, that isn't cash either.  
No, it doesn't matter which way you look at it, you can't sell the place because you have to live, you can't get a job because there is no work around here, and you can't borrow money because you are too old, so you just carry on and hope nothing goes wrong.
- Q. Do you mind if I take some pictures of the place?
- A. No, go right ahead, just don't put my name under it in that thing you are writing.



Illus. 26. A 1927 McCormick Deering tractor, retrieved from the scrap pile, still being used; in the background to the left the baler.



Illus. 27. A hay mower, originally built to be draw by horses, "it will work just fine behind the tractor".



Illus. 28. The J.I. Case "all purpose" tractor.

## VII

EVALUATION

In the conclusion to chapter four it was pointed out that most of the land in Caistor presently under cultivation is capable of sustaining intensive agricultural production. This, the author hopes, has been amply illustrated by the examples cited in chapter five, and by the interview with Mr. Miller. The basic assumption made throughout this study has been, that in terms of the agricultural resources available, the conditions of underdevelopment which have been observed need not exist.

How then does one account for low farm incomes on more than 50% of all commercial farms? What explains hundreds of acres of idle land, and land use of low quality? Why the prevalence of decrepit and deteriorated farmsteads? And why the high incidence of land severance for non-agricultural purposes?

There is obviously no simple answer to these questions, and ultimately the total situation must be regarded as the product of the complex interaction of a multitude of related factors. On the other hand, certain causal relationships can be recognized.

Mention has already been made of the prevalence of

off-farm employment. The inimical effects upon agricultural production and land use need hardly be stressed. A farmer may start out on his "other job" with the best of intentions. He may reason that he will still have the evenings and weekends on which to work his land, but in reality he finds himself forty hours at work in a factory or at some other job, and an additional ten or fifteen hours commuting to and from his place of employment, which makes even the longest evening or weekend too short to work his land effectively.

Another very important factor is that of land tenure by non-farmers and by retired farmers. Figure 4 gives some indication about the frequency of land severance for non-agricultural purposes. Local people have expressed a very strong desire to "stay rural", yet, their indifference towards the problem of land severance represents a strange paradox. The township has no zoning by-law, and all land transactions are simply governed by the Ontario Planning Act which stipulates that a farmer, in order to sell less than ten acres of his farm or to keep less than ten acres requires special consent by the minister. The inefficacy of such control requires little elaboration. Farmers until now have either made application to the minister through the township to sell a lot of less than 10 acres, and only in exceptional cases have been turned down, or they simply have by-passed this regulation by selling twenty, thirty, or fifty acres

of land, mostly to non-farmers. Under these circumstances it is not surprising to find that over the past decade or more, a great amount of land has passed into the hands of people who have no interest in farming and who buy land as a residential property, or for purely speculative reasons. Several hundred acres of land are owned by real estate companies, by non-residents, and in one instance by an individual living in Montreal.

In this connection one must add that quite a number of farms, often 100 acres in size and larger, are owned by retired farmers; such land may be rented out, it may be used to grow hay as a cash crop, or as is often the case it may simply lie idle. Estimates made by the author indicate that approximately 10,000 acres of land in the township, or roughly one third of the total area is owned by people who are either non-farmers, retired farmers, or non-residents (Table V). This means that 10,000 acres of land, much of which is agricultural land, is potentially neglected.

A third factor of importance is the attitude of the established farmer. Comments have already been made about the reluctance among farmers to make use of credit facilities for farm improvement. This has its parallel in a very conservative attitude towards technological changes and the adoption of innovations which could lead to larger profits through increased efficiency of production.

TABLE V  
LAND TENURE IN CAISTOR TOWNSHIP

Number of Owners	Acres Owned	Average Size of Property	Status of Owner		Area potentially neglected
			Farmer	Non-Farmer or Retired	
180	Less than 1	0.42	0	180	75.6
65	1 - 9.9	3.70	0	65	240.5
69	10 - 29.9	14.30	0	69	986.7
100	30 - 59.9	38.90	16	84	3,267.6
87	60 - 99.9	87.40	54	33	2,884.2
110	100 - 199.9	144.60	88	22	3,181.2
7	over 200	235.30	7	0	0.0

Approximate area of potentially neglected land = 10,635.8

Note: The information given in this table is based upon 1965 Township Records; it should only be regarded as an approximation, and the following sources of error exist:

- a. A person may own more than one property, but each title is recorded separately.
- b. A farmer may have all or part of his land registered in the name of his wife.
- c. Not all land owners stated their occupation
- d. Retired or non-farmers may lease part or all of their land to other farmers.
- e. This estimate is based on all the land in the township, hence some of the acreage termed "potentially neglected" includes bushland as well as urban residential properties.

The author also noted a general lack of communication between farmers with high incomes and those less successful, and the division between high, middle, and low-income farms which has been made is not nearly as arbitrary as it may seem. The farmer with a high income regards farming not just as a way of life, but as a business to which he must devote his full energy and attention. He owns modern buildings and equipment. He is likely to take advantage of the latest agricultural innovations, and he keeps up to date on all that is new in farming through publications and through active participation in farm organizations. When he talks about input-output ratios, about livestock breeding, or about protein contents of a new crop, he even talks a different language than his much less prosperous neighbor. Thus, the high income farmer, instead of being emulated by others becomes a source of animosity and idle gossip, and his success is either attributed solely to luck, or is explained away by pointing out that even the shirt he wears is mortgaged. The low income farmer on the other hand seems to be eternally preoccupied with the grim realities of day to day existence in a world which to him seems hostile, and in which government and private business compete alike to oust him from his land by manipulating forces over which he has no control. When he meets with his neighbor conversation rarely centers on ways and ideas to improve conditions, but on the weather,

on fuel and hydro bills, on taxes and the high cost of living, and on Bill, John, or Jimmy who seems to be doing so much better since he got himself a job in the city.

The middle income farmer stands somewhere in between those extremes. He may either be a young farmer or a newcomer to the area, who aspires to succeed by ignoring conditions around him, or he may be an old and experienced farmer who has been sufficiently flexible to respond to changing economic and technological conditions.

A fourth and final factor to be mentioned in this list is that of farm size. The large number of "other farms", which for the most part are owned by non-farmers need not concern us here; it is the Johnson farm with 87 acres and numerous other farms with less than 100 acres which tend to raise the question as to whether or not an operation with less than 100 acres can be regarded as a viable economic unit. There are several 100 acre farms in the township which have incomes exceeding \$10,000 per year. Findings based upon interviews suggest that on the best land at least 80 acres of cleared land are required for a minimum gross annual income of \$5,000, while on poorer land the acreage should be much larger to achieve the same income. In some cases larger incomes have been achieved through specialization, without increasing the size of the farm. If on the other hand any of the high income farms is used

as a criterion, it would appear that under present conditions, the optimum farm size lies between 200 and 300 acres, which is a size not typical for most farms in the township.

Farm size then does seem to have an important bearing upon present conditions. However, the fact that several farmers with properties of 150 or even 200 acres in size are engaged in off-farm employment strongly suggests that not all farmers would benefit from an adjustment in farm size.

In summary, the most immediately apparent factors relating to present conditions in the township are a high rate of off-farm employment, ownership of land by retired or by non-farmers, the attitude of the established farmer, and farm size.

These factors represent only a few links in the long chain of cause and effect, and numerous other questions are bound to arise at this point. One may well ask, what invokes a man who owns hundred or perhaps two hundred acres of land to seek off-farm employment? What special attraction has the area to invite such a large number of outsiders to buy up local land? What are the reasons why the retired farmer will cling so tenaciously to his land? And how does one explain the conservatism of the local people in the face of rapidly changing conditions?

The answer to any or all of these questions is not readily apparent. Suggested here are three additional

factors which have been catalytic in the process of development leading to the present conditions. These are, changing economic conditions, rapidly evolving technology, and finally the land itself.

The income disparity between rural and urban areas is a well-established fact, and there are no indications that in the foreseeable future this gap will diminish. Where alternative employment opportunities exist in close proximity to rural areas, the low income farmer has a strong incentive to take advantage of such opportunities. This is particularly true when his off-farm income can be as much as three times as high as the income he derives from working his land.

A point of no less importance are present price-cost relationships which tend to place the small farmer with limited managerial ability at a decided disadvantage.

His dilemma is further accentuated by rapid improvements in agricultural technology and by his inability to take full advantage of technological innovations. In many cases, he lacks the necessary capital to purchase expensive equipment, and he frequently belongs to an age group which is more concerned with security in old age than with profit maximization based upon farm improvements and borrowed capital. Should he be tempted to invest in new machinery, it may well be that it will be under-utilized and fails to be effective. On the other hand, if he does not change his technique,

his standard of living will fall increasingly below that of his competitors.

The third and final factor relates to the land itself. We should ask the question here, would the conditions which have been described exist if the land favoured the production of tobacco, onions, asparagus, or any other high-value cash crop? Would farmers seek off-farm employment if their land could produce crops valued at two hundred, five hundred or even a thousand dollars per acre? Would land severance for non-agricultural purposes be the same problem? Would farmers persist in their stubborn, conservative attitude when they are sitting on a "gold mine"? And would retired farmers have any difficulty obtaining adequate proceeds from the sale of their land? One is not likely to answer any of these questions in the affirmative, and it is difficult to escape the conclusion that in the final analysis the land itself represents the first link in the long chain of causal relationships.

This assertion appears to represent a serious contradiction, on the one hand the assumption is made that most of the land in the township is capable of sustaining intensive agricultural production, on the other hand, the statement has been made that the land itself may be at the very core of the problem.

At this point it may be well to recall the case study of the Miller and the Johnson farm. The reader will recall

that both farms are located on land of virtually the same quality, but that one farm had an estimated gross annual income exceeding \$20,000, while the other farm produced only 10% of that amount. The reasons for these income differences are apparent from the interviews. On the Miller farm the most recent farming techniques are applied, which, coupled with the owner's initiative and sound knowledge about agricultural practices spelled success, despite the fact that this farm is located on land of lower quality than most of the other high-income farms in the township. In addition, efforts to maximize production and income has led to a farm unit larger than is typical for the area.

On the Johnson farm, on the other hand, financial problems were predominant. The author does not contend that Mr. Johnson is a particularly inept farmer, on the contrary, it is quite likely that fifteen or twenty years ago his farm ranked among the better farms in the township, but this is no longer the case. Farm expansion did not take place, there have been no adoptions of recent innovations, instead, techniques which may have been adequate two decades ago but are no longer now, are still being adhered to, and equipment is being used which has museum value, but which has no place on the modern farm.

One might argue that the land has no great influence upon a farmer's decision to adopt new techniques and innovations

in response to changing economic and technological conditions, but that the farmer's attitude is the decisive factor. It is hardly necessary to point out that the farmer and not the land is the decision maker, but attitudes not only influence his decisions, but are likely to be influenced by his prosperity, and prosperity in farming ultimately is a function of the productivity of the land. In this connection an observation made by O.E. Baker some four and one half decades ago is instructive:

"The history of agriculture in the United States shows that with each advance in transportation facilities, in agricultural technique, and in economic organization, the correlation between the four physical factors of topography, soil, moisture, and temperature, and the use of the land has become closer. The control of geographic conditions over agricultural development, instead of being mitigated by the progress of science and invention, has been intensified and enforced. The commercialization of agriculture and the keen competition resulting between different regions makes the production of a crop sensitive even to the more minute advantages or disadvantages in geographic conditions which a district may possess, and compels shifts in crop production or in the use of land to be made with an alacrity unknown in previous ages"<sup>6</sup>.

Has time altered the validity of this observation?

One would be hard-pressed to deny the fact that today, as much as ever, fertile land responds more favourably to modern technology than poorer land, and that capital and labour invested in good land will bring much higher returns than the same investment would bring on land of lower quality. If this is true, is it surprising to find that farmers on poorer land will not expand their holdings, when returns on the land

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<sup>6</sup>O.E.Baker. "Increasing Importance of Physical Conditions Determining the Utilization of Land", A.A.A.G. XI, 1921, p.23

which they already own are only marginal? That they will not use fertilizer after they have discovered that the results claimed by others did not materialize on their land? And that they will not adopt innovations and new techniques until they are convinced that they will benefit from them.

The statement that most of the land in the township is capable of sustaining intensive agricultural production presupposes that all farmers will use modern techniques and methods such as are in practice on the Miller farm. On the other hand, the limitations of the local soils, are one of a number of reasons why the majority of local farmers have failed to respond positively to economic and technological changes. The subsequent results are low farm incomes, off-farm employment, and other such related conditions as poor land use, deterioration of farmsteads, land severances and fragmentation.

## VIII

SUMMARY AND CONCLUSION

Caistor Township is located in the central portion of the Niagara Peninsula. It is part of the physiographic region known as the Haldimand Clay Plain, which is characterized by nearly level topography, heavy clay soils and poor drainage. Surface drainage is by numerous small streams which flow into the Twenty Mile Creek to the north and the Welland River to the south.

The original vegetation consisted of a continuous cover of hardwood deciduous trees; today 19% of the total area is still in bushland. The climatic characteristics include warm summers, a relatively long growing season, and adequate rainfall to support general farming, dairy as well as livestock production.

All of the local soils have developed on the same clay till parent material, and differ only slightly in drainage conditions and in slope. The better-drained and more productive soils are found in the north-eastern part of the township and in the south along the Welland River; these areas correspond to the land types Haldimand I and Chippewa respectively. Imperfectly drained soils occur throughout the central part of the township and to the south

of the Welland River; these constitute the Haldimand II land type.

Much of the land falls within the capability category of Class II, which is capable of sustaining intensive agricultural production. In addition there are tracts of land with a predominance of gleyed soils and soils with a very high silt content; these are of lower capability and are suitable in the main for pasture only.

Inadequate drainage and difficulties in maintaining the land in favourable tilth are the two principal soil problems related to soil management and the use of the land. Drainage problems can be partly overcome through installation of tile drainage, or by means of surface drainage channels. Soil management practices should stress fall plowing, rotations emphasizing the use of sod and legume crops, and the incorporation into the soil of a maximum amount of organic matter. The difficulties associated with the management of these heavy clay soils will be reflected in higher production costs than on lighter-textured and better-drained soils.

The history of the township shows broadly the same general pattern as is characteristic of other parts of the Niagara Peninsula. White occupation began towards the end of the eighteenth century with the immigration to Eastern Canada of a large number of United Empire Loyalists from

the United States. The peak period of settlement in Caistor Township came somewhat later than in Gainsborough; this appears to be related to the advance of migration and settlement from east to west, rather than to differences in the quality of the land. Original farms varied from 40 to 200 acres in size with a predominance of 100 acre farms. While there have been changes with time, the over-all pattern of farm size and land tenure has remained relatively unchanged, and several farms are still in the hands of the same families that had settled the land a century or more ago. The original settlers were mostly people of British and Scottish origin, of whom the majority of present-day farmers are descendants. Past cultural factors do not appear to have an important bearing upon present conditions. The lack of agricultural development which is characteristic of the area today, can be considered a post-war phenomenon, the analysis of which will rest upon an understanding of some of the economic and technological changes which have taken place over the past two decades.

Today, as in the past, agriculture is the only economic activity in the township which is of any importance. There are many indications, however, that the status of agricultural development is not at par with the development which one might expect to have taken place, considering the area's favourable physical conditions and its accessibility

to markets. There are also marked contrasts between the development of individual farms within the township. It is these contrasts, namely the existence of high-income farms and of a larger number of low-income farms on land of virtually the same quality, as well as associated conditions which justify the use of the term "underdeveloped" in connection with a large number of local farms.

Information about local conditions has been obtained from the 1961 Census, as well as from actual field observations. Census data shows that in 1961, 81 or over half of the 155 commercial farms in the township had gross annual incomes of less than \$5,000. If the average net income is estimated to be 25% of the gross income, then half of all farmers had less than \$1,250 to reinvest in their business. Since most farmers are very reluctant to make use of borrowed capital, the funds at their disposal are totally inadequate to undertake major farm improvements, or to expand their holdings. Low farm incomes cannot be blamed on farm size alone. It was found that most of these low-income farms were over 80 acres in size. A comparison with data compiled for other Ontario farms further showed that 84 Beef/Dairy farms with an average cropland area of 96 acres had an average gross annual income of \$11,852. While most of the high-income farms are located on the better land types of Haldimand I and Chippewa, and the poorer farms on Haldimand II,

this correlation is not consistent, since the majority of middle income farms as well as several high income farms are also located on Haldimand II, while farms in the lowest income category also occur on very good land.

Data about the value of agricultural goods sold in 1961 showed that the average production per acre of cultivated land is \$63.7, as compared with \$103 per acre for the reference group.

Particularly instructive is the actual land use. Nearly 60% of the total cropland area of 16,481 acres is used for the production of hay and for improved pasture. This can be related to the predominance of dairy farming, and to a lesser extent to beef production. It is also related to the production of hay and fodder as cash crops. This represents a very inefficient use of land and is an indication of land ownership by a large number of retired farmers, and in some cases by non-residents.

In 1961, 119 farmer reported the sale of dairy products. Yet, the acreage of corn grown for ensilage seemed surprisingly low. Interviews showed that the majority of local farmers do not make use of silage; most farmers lack the necessary capital for investment in silos and accessory equipment. A correlation between the use of silage and high farm incomes and the converse, of non-use and low incomes is apparent.

Low farm incomes and the general lack of prosperity were found to have strong parallels in the quality of land use. Quality was defined as those characteristics associated with the use of agricultural land which are the direct result of the action or inaction of man. The findings of the field survey were recorded on a map showing five qualitative categories ranging from "very good" to "idle land". An examination of the map (Fig. 5) will support the assertion that much of the land in the township is not being used effectively. It also illustrates that on all land types, idle and poorly used land may be found in juxtaposition to land which is used intensively.

Field observations and interviews provided the basis for the assessment of conditions on the farm level. Three general farm groups were recognized: a high-income group with gross annual returns exceeding \$15,000, a middle-income group with incomes ranging from \$5,000 to \$15,000, and a low-income group with incomes of less than \$5,000.

Most of the farms in the first category are found on the Haldimand I and on the Chippewa land type, although, one farmer interviewed, and belonging to this group, is located on Haldimand II. Farmer interviewed in this first category have specialized in dairy production. Their holdings range from 180 to 300 acres in size. In every case, modern techniques and the most recent equipment are used. The land

associated with these farms is used very intensively.

Farms in the middle income group represent the most important category. These are distributed roughly in proportion to the area covered by each of the three land types. To this group belong general dairy and livestock farms, as well as a number of mixed farms. Land associated with farms in this category is used intensively. However, the farmstead and its buildings is not generally indicative of the farm's prosperity. It was found that the frequently-observed state of disrepair of farm buildings was related to the age of the farmer, his uncertainty about the future, his tendency to invest only in areas where returns are assured, and his reluctance to make use of borrowed capital. An exception to this pattern was observed in connection with a small number of younger farmers who in recent years have established themselves in the area and who have relied heavily on credit.

The last group includes some 81 commercial farms with incomes of less than \$5,000. This group owns approximately half of the total area of cultivated land, and it is with farms belonging to this category that the term "underdeveloped" is associated. The conditions here often defy adequate description. The land in most cases is very poorly used, and weed infested fields, overgrazed pastures, and idle land are a common sight. The farmstead usually

consists of a number of old buildings which have been neglected for years and have been allowed to deteriorate very badly. Farmyards often are untidy; sanitary conditions for people as well as for animals are rarely adequate and there may be a lack of a good supply of potable water. many of the older people seem to live in a world of isolation of their own making. Few are exposed to common news media. Often they are distrustful of strangers and resent the presence in the township of a growing number of outsiders. Middle-aged and younger people, on the other hand are almost all engaged in off-farm employment.

Finally, conditions are accentuated by the presence of a large number of non-commercial farms, and by an alarming increase, in recent years, of land severances for non-agricultural purposes.

From this study, one can conclude that the present conditions of underdevelopment in Caistor Township relate, firstly, to the frequency of off-farm employment and its undesirable effects upon the use of the land. Secondly, to land tenure by retired farmers, non-farmers, and non-residents. Thirdly, to the conservative attitude of many established farmers, their reluctance to make use of credit, and their failure to communicate with, and borrow ideas from the successful farmer, or from published sources. Fourthly, to the size of farms, which on the best land should be at

least 80 acres to be economically viable, while the optimum farm size lies well over the 200 acre mark, which is not typical for most farms in the township.

A second group of very important related factors can be recognized. Firstly, changing economic conditions have in recent years, among other things, tended to further increase the income disparity between rural and urban areas. This, in part at least, has encouraged the farmer with a low income to seek outside employment wherever appropriate opportunities exist. Secondly, a rapidly evolving technology has placed older farmers and people with limited managerial ability and lack of financial resources at a decided disadvantage.

Finally, the land itself must be regarded as an important factor accounting for the present conditions. Success in farming is not only dependent upon a farmer's education and skills, but also is a function of the productivity of the land. Capital and labour invested on good land will bring higher returns than the same investment would bring on poorer land. This point is well epitomized by a statement made by one of the best farmers in the township: "...if we had the land some people in the township have, and if we worked as hard as we work now, we could have retired long ago". It is clear therefore, that with an increase in the limitation of the land, the attainment of certain goals

becomes increasingly more difficult. In Caistor Township, the farmer with greater skills and knowledge has been able to select appropriate measures to mitigate the limitations inherent in the land, while on the other hand, such a response was not evoked among many older farmers and people with limited skills, education, and incentive. The results are contrasts of unexpected proportions, such as are illustrated by a comparison of the Miller and the Johnson case.

Therefore, it is the complex interaction of physical, social, and economic factors that account for the agricultural underdevelopment in Caistor Township. To gain some measure of insight into the functioning of, and relationships between these factors represents the first step towards a solution of the problem.

\* \* \*

## APPENDIX

Tables A to E , Operating statements for different types  
of farms in Ontario.

TABLE A

OPERATING STATEMENTS FOR SOME DAIRY SPECIALTY AND  
DAIRY GENERAL FARMS IN ONTARIO

	Type of Dairy Farm	
	Dairy Specialty Farms	Dairy General Farms
Number of farms in group	270	290
Number of cows in herd	29	19
Number of animal units in dairy herd	44.9	32.8
Number of animal units in other livestock	3.3	7.6
Number of man equivalents of labour	1.8	1.4
Total farm area	234	204
-acres-		
Cropland area:		
Hay	67	46
Grains	43	41
Corn	10	6
Other	1	2
Total	121	95
Capital investment:	- dollars -	
Real Estate	24,808	17,135
Livestock	10,960	8,129
Machinery	10,122	5,570
Feeds and Supplies	3,100	2,424
Total	48,990	33,258
Returns:		
Sales of farm products	15,433	9,780
Miscellaneous income	624	472
Inventory Increase	1,228	1,097
Total	17,285	11,349
Expenses:		
Cash operating	10,339	6,971
Depreciation	1,938	1,148
Total	12,277	8,119
Net Farm Income	5,008	3,230
Net Farm Income as Percentage of Gross Annual Income	28.9	28.4

Source: Ontario Farm Management and Accounting Report, 1961  
 Pub. 315, Farm Economics and Statistics Branch, Ontario  
 Department of Agriculture, Toronto, Ontario

TABLE B

## OPERATING STATEMENTS FOR SOME BEEF FARMS IN ONTARIO

	Type of Beef Farm	
	Beef Cows Milked	Beef Cows Not Milked
Number of farms in group	84	120
Number of cows in herd	18	22
Number of animal units in beef herd	38.3	41.4
Number of animal units in other livestock	9.7	8.1
Man equivalents of labor	1.4	1.4
Total Farm area	228	-acres- 255
Cropland area:		
Hay	46	51
Grains	43	45
Corn	5	4
Other	2	1
Total	96	101
Capital investment:		-dollars-
Real estate	16,697	19,716
Livestock	8,842	9,453
Machinery	5,750	6,352
Feeds and supplies	2,652	2,861
Total	33,941	38,382
Returns:		
Sales of Farm products	9,756	8,213
Miscellaneous income	562	921
Inventory increase	1,534	1,429
Total	11,852	10,563
Expenses:		
Cash operating	7,714	7,041
Depreciation	1,122	1,303
Total	8,836	8,344
Net Farm Income	3,016	2,219
Percentage of Gross Income	25.4	21.0

TABLE C

## OPERATING STATEMENT FOR SOME BEEF FEEDER FARM IN ONTARIO

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Number of farms in group	95
Number of steers fed	80
Number of animal units in other livestock	14.1
Number of man equivalents of labour	1.5
	-acres-
Total farm area	284
Cropland area:	
Hay	51
Spring grain	47
Other crops	25
Total	123
	-dollars-
Capital Investment:	
Real Estate	25,604
Livestock	16,797
Machinery	7,941
Feeds and supplies	4,278
Total	54,628
Returns:	
Sales of farm products	23,768
Miscellaneous income	964
Inventory increase	4,438
Total	29,170
Expenses:	
Cash operating	22,856
Depreciation	1,643
Total	24,499
Net Farm Income	4,671
Percentage of Gross Income	16.1

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TABLE D

## OPERATING STATEMENTS FOR SOME HOG FARMS IN ONTARIO

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Number of farms in group	86
Number of hogs marketed	280
Number of animal units in hogs	31.0
Number of animal units in other livestock	31.0
Number of man equivalents of labour	1.5
	-acres-
Total farm area	179
Cropland area:	
Hay	34
Spring Grain	45
Other crops	21
Total	100
Capital Investment:	-dollars-
Real estate	21,756
Livestock	10,044
Machinery	6,611
Feeds and supplies	3,240
Total	41,651
Returns:	
Sales of farm products	18,998
Miscellaneous income	729
Inventory increase	1,580
Total	21,307
Expenses:	
Cash operating	15,903
Depreciation	1,459
Total	17,362
Net Farm Income	3,945
Percentage of Gross Income	18.5

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TABLE E

## OPERATING STATEMENTS FOR SOME POULTRY FARMS IN ONTARIO

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Number of farms in group	38
Number of laying hens	2,110
Number of animal units in other livestock	26.4
Number of man equivalents of labour	1.7
	-acres-
Total farm area	198
Cropland area	
Hay	31
Spring grain	38
Other crops	29
Total	98
Capital investment	-dollars-
Real estate	22,131
Livestock	8,140
Machinery	7,170
Feeds and Supplies	2,985
Total	40,426
Returns:	
Sales of farm products	23,649
Miscellaneous income	709
Inventory increase	1,366
Total	25,724
Expenses:	
Cash operating	19,862
Depreciation	1,586
Total	21,448
Net Farm Income	4,276
Percentage of Gross Income	16.6

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# CAISTOR TOWNSHIP

## QUALITY OF LANDUSE

**LEGEND**

- Concession Roads
- Paved Roads
- Permanent Streams
- Intermittent Streams
- Buildings
- Lot Lines
- Field Boundaries

**LAND USE**

- Dense Woodland
- Open Woodland
- P Improved Pasture
- Pn Permanent Pasture
- H Hay
- G Grain
- C Corn

**QUALITY OF USE**

- 1 Very Good
- 2 Good
- 3 Fair
- 4 Poor
- 5 Idle Land

**STATUS OF OWNER OR OCCUPANT FOR SELECTED AREAS**

- Full Time Farmer
- Part Time Farmer
- Sample Areas



Fig. 5