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THE EFFECTS OF MANUFACTURING AND ITS CONSEQUENT
COMMERCE UPON THE WELFARE OF THE IMMEDIATE RURAL AREA.

A THESIS

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of Agricultural Economics.

By

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Introduction.

It is a well known fact that Tennessee's development of manufacturing on any extensive scale is of comparatively recent growth. The chief business of the people has been agriculture. The basis of commerce has been largely products of the soil. But there is every reason to believe that manufacturing and its consequent commerce will continue to grow; for with the improvement of farm machinery and the advancement of agricultural science the production per farmer has increased. This will release much labor for other enterprises. Then too, Tennessee is rich in mineral resources and water power.

It is now being recognized as stated by Professor C. E. Allred, Professor of Agricultural Economics, University of Tennessee, in the preface to his bulletin "Economic and Social Study of Tennessee", that "it is not necessary to leave economic and social progress to blind chance, but it is possible for a state or a region to set a definite goal and by the concerted action of all the agencies and people involved to carry the program to a successful conclusion."

If evidence points toward a great industrial development of the state, and if we can by conscious effort direct this development in economic and social channels for the welfare of the entire state, it would seem logical for some agency to chart this course.

It is not within the scope of this investigation however to set up this goal, but rather to see what effect manufacturing and its consequent commerce has had and would have upon the welfare of rural people. Of course when we realize that nearly three fourths of our population is rural, to know the effects of manufacturing and commerce both upon the economic and social well being of these people, becomes of tremendous importance.

The coming of manufacturing is undoubtedly going to affect rural: popu-

lation, agriculture, land values, etc., highway development, schools, churches, health facilities, communication, trading centers, morals, social life; in fact all phases of community life.

It was in an effort to find just what these effects have been and are likely to be in a given territory that this study was made. We have endeavored to get facts and present them along with interpretations, without attempting to prove any preconceived opinions of our own.

As a method of approach, two regions as near equal in soil fertility and topography as possible were taken for study. Surveys, as will be disclosed later, were made within a twelve mile radius of Kingsport, in Sullivan County. Similar investigations were conducted for a like region around Rogersville, in Hawkins County.

These two regions are very similar in soil formation and topography. Both have about the same relative portion of their territory in the Holston River valley. The mineral deposits and other natural resources are not very different. The people of these two regions are similar, being the native East Tennessee stock with practically no foreigners and few negroes in either area.

Kingsport is a small city claiming 12,000 population with a considerable amount of manufacturing. These plants work in the aggregate 3000 or more people. Approximately 1000 of these employes still reside on farms, living in the adjacent territory. The bulk of them live in the immediate territory covered by this study.

This industrial growth of Kingsport has taken place within the past ten years. the city being nothing more than an unincorporated village in 1917.

Rogersville is on the other hand an old town (its citizens claim that it is the second oldest settlement in the state) of about 1500 population. There is little manufacturing in Rogersville.

The following comparisons were made in eight rural communities within a twelve mile radius of Kingsport:

- (1) All Kingsport territory as a whole - now and eleven years ago.
- (2) Those communities near in with those far out - now.
 - (a) Those communities near in with those far out - eleven years ago.
 - (b) Those communities on good roads with those on poor roads - now.
 - (c) Those communities on good roads with those on poor roads - eleven years ago.
- (3) Similar comparisons were made for Rogersville territory as a whole and for eight rural communities with similar proximities to Rogersville as those studied in the Kingsport area.
- (4) All Kingsport territory was compared with all Rogersville territory - now.
- (5) All Kingsport territory was compared with all Rogersville territory - formerly.
- (6) Close in Kingsport communities with close in Rogersville communities - now.
- (7) The same for eleven years ago.
- (8) Far out Kingsport communities compared with far out Rogersville communities - now.
- (9) The same for eleven years ago.
- (10) Kingsport communities on good roads compared with Rogersville communities on good roads - now.
- (11) Same comparisons for eleven years ago.

In making these comparisons every precaution was taken to get accurate information, and eliminate sources of error. The surveys were conducted with

ample time in each community to question a sufficient number of individuals to make the information in a measure accurate. Supplementary to the personal surveys (a) records at the court house were examined to get land values, size of farms, readiness of farm sales, etc.; (b) census figures on population changes, etc.; (c) discussions with great numbers of individuals including farmers, business men and professional men, as physicians, teachers, and ministers of the gospel; (d) personal observations.

It was felt that these discussions with the men in various vocations would give us a better basis for drawing conclusions; sort of composit deductions based on the law of averages.

Our data are inadequate to answer all the questions that might be raised as will be found listed in this thesis. We do feel, however, that the comparisons which we have made, along with supplementary material used, reveal enough facts to show a trend in rural life when it has manufacturing and its consequent commerce introduced in its midst.

The following tables will introduce the local communities in the two counties that were studied. These tables show the following facts about the communities. Location, as to district, distance to the town centers, distance to railroads, kind of highways leading to the markets, and topography. These facts should be borne in mind as an aid in interpreting later tables that are shown.

Location As To District, Distance To Kingsport, Distance To Railroad,					
Kind of Highway, Topography - Sullivan.					
Community	Distr.	Distance to Kingsport	Distance to Railroad	Kind of Highway to Kingsport	Topography
Bell Ridge	1	3 mi.	3 mi.	Macadam(fair)	small valley - very rugged hills.
Bloomington	10	5 mi.	5 mi.	Macadam(fair)	creek valley - rolling hills.
Harbour	7	5 mi.	5 mi.	Concrete(excellent)	creek valley - some rough hills
Horse Creek	13	6 mi.	6 mi.	Asphalt(good)	Holston valley - rugged hills
Rock Springs	13	7 mi.	Local	Graded dirt (good)	valley and part rugged hills
Arcadia	10	7 mi.	7 mi.	Macadam(fair)	creek valley - some hills
Fordtown	14	10 mi.	Local	Graded dirt (good)	Holston valley
Indian Springs	7	8.5 mi.	8.5 mi.	New Concrete(excellent)	valley and rugged hills
Average		6.25 mi.			

Location as to District, Distance to Rogersville, Distance to					
Railroad, Kind of Highway, Topography - Hawkins.					
Community	Distr	Distance to Rogersville	Distance to Railroad	Kind of Highway to Rogersville	Topography
E. & F. Springs	4	3 mi.	8 mi.	Macadam(fair)	Holston valley - hills
Persia	1	6 mi.	Local	Macadam(fair)	Rugged hills, little creek bottom.
Buren	6	6 mi.	Local	Macadam(fair)	Holston valley - bordered by hills
Yellow Store	5	7 mi.	3 mi.	Asphalt(good)	Part in Carters valley-part hill country.
Alumwell	3	7 mi.	7 mi.	Dirt; asphalt under construction.	Rugged hill country
Lake View	2	7 mi.	7 mi.	Asphalt(good)	Medium hills rolling.
Altonville	2	8 mi.	8 mi.	Asphalt 6 mi. 2 mi. dirt.	Creek valley, rugged hills.
Pressmens Home	3	<u>10 mi.</u>	10 mi.	Dirt(asphalt under construction.	Narrow valley; hills very rough.
Average		6.75 mi.			

I

Population.

In considering the effect that manufacturing and its consequent commerce has upon rural welfare, perhaps the first thing of interest is to note its effect upon the population, to note any increase or decrease, and observe the types of newcomers, if any, that are attracted to the new area. This will in a measure throw some light upon other changes in the community life both economic and social.

First a brief review of the census will show that the United States as a whole was substantially rural in its beginning and as recently as 1880 only 28.6% of the population was urban and 71.4% rural. Rapid changes from decade to decade left the proportions in 1920 51.4% urban and 48.6% rural. The movement from rural to urban was greatest in the industrial Northeastern and North Central group as may be seen by the following tables:

Table I.

Relation Between the Urban Movement and Industrial Development.

Geographic Division	Percent Urban.		
	1900	1910	1920
New England	72.5	76.3	79.2
Middle Atlantic	65.2	71.0	74.9
East North Central	45.2	52.7	60.8
West North Central	25.8	33.3	37.7
South Atlantic	21.4	25.4	31.0
East South Central(1)	15.0	18.7	22.4
West South Central	16.2	22.3	29.0
Mountain	32.3	36.0	36.4
Pacific	46.4	56.8	62.4

(1) Tennessee in this group.

Table 2.

This table compares the percentage of urban population in the leading industrial states with the more strictly agricultural states including Tennessee.

States	Percent Urban		
	1900	1910	1920
Manufacturing			
1 Massachusetts	91.5	92.5	94.8
2 Rhode Island	95.1	96.7	97.5
3 Connecticut	59.9	65.6	67.8
4 New Jersey	70.6	75.2	78.7
5 New York	72.9	78.8	82.7
Agricultural			
1 Tennessee	16.2	20.2	26.1
2 Texas	17.1	24.1	32.4
3 Mississippi	7.7	11.5	13.4
4 Iowa	25.6	30.6	36.4
5 Georgia	15.6	20.6	25.1

These data in Tables I and 2 indicate what is well known, that the rural population is much less in proportion to the total population in the manufacturing areas.

The following table will show the relation between manufacturing and population increase in 14 counties in Tennessee. The 7 counties, including Sullivan, having the most manufacturing were compared with 7 counties which include Hawkins.

Table 3.

	County	Value added by mfg. 1920 (000 omitted)	% increase in population 1910 - 1920		County	Value added by mfg. 1920 (000 omitted)	% increase in population 1910 - 1920
1	Shelby	\$50,103	16.6	59	Sumner	226	8.1
2	Hamilton	38,114	29.9	60	Hickman	210	-1.9
3	Davidson	34,556	12.3	61	Cumber.	210	8.2
4	Knox	21,622	19.9	62	Perry	190	-11.9
5	Madison	5,184	11.3	63	Hardin	190	-1.3
6	Sullivan	3,989	28.9	64	Hawkins	174	-2.8
7	Blount	3,878	38.4	65	Houston	161	-0.2
	Total	157,446	157.3			1401	-1.8
	Average	22,492	22.4			200	-.25

The outstanding thing in Table 3 is an average increase of 22.4% in the 7 leading manufacturing counties while the seven counties including Hawkins show an average decrease of .25%. The increase for the state was 7%.

Table 4 will show the relation between manufacturing and rural population increase or decrease in these same 14 counties.

Table 4.

Relation Between Manufacturing in Counties and Rural Population Increase.

Rank	County	Value added by mfg. 1920 (000 omitted)	% increase in rural population 1910 - 1920	Rank	County	Value added by mfg. 1920 (000 omitted)	% increase in rural population 1910 - 1920
1	Shelby	\$50,103	.9	59	Sumner	266	-2.6
2	Hamilton	38,112	4.0	60	Hickman	210	-1.9
3	Davidson	34,556	26.5	61	Cumber.	210	8.2
4	Knox	21,622	-33.4	62	Perry	190	-11.9
5	Madison	15,184	5.9	63	Hardin	190	-1.3
6	Sullivan	3,989	7.4	64	Hawkins	174	-2.8
7	Blount	3,878	4.3	65	Houston	161	-0.2
	Total	157,446	15.6			1401	-12.5
	Average	22,492	2.2			200	-1.8

It will be observed from Table 4 that the rural increase in the manufacturing counties was 2.2% while the other group shows a rural decrease of -1.8%. The actual increase in the first 7 counties is actually very much more than 2.2% for Knoxville, Memphis and apparently other cities within these counties extended their corporate limits. The data at least indicates that the rural population in close proximity to the manufacturing centers of this state has more than held its own while the more remote rural areas have lost ground in the great movement from rural to urban centers.

The foregoing data were presented primarily to compare with our local data and to see if the tendencies in population movements were similar.

The following data will show what has taken place in one area of our surveys.

Table 5.

Kingsport Area.

Community	Population		Increase or Decrease Percentage increase or decrease
	Number 1914	Number 1925	
Rock Springs	500	525	5%
Bell Ridge	200	550	25%
Indian Springs	500	500	0
Harbour	200	225	12.5%
Fordtown	250	250	0
Horse Creek	400	450	12.5%
Arcadia	250	300	20%
Bloomington	530	725	36.7%
Total			111.7%
Average			13.9%
Rural population increase for entire county 7.4%			

Table 5 will show an average increase of 13.9% in the eight rural communities in the Kingsport area from 1914 to 1925, while the rural increase for the county was 7.4% from 1910 to 1920. This is only another evidence that the rural population near in to the manufacturing center increases more rapidly than that farther out. Another evidence of this is the fact that the districts more remote from Kingsport and Bristol, including the 4th, 5th, 6th, 7th, 8th, 9th, 15th, 18th, and 20th, had slight decreases in population, as shown in Table 8; for if the rural increase in the county as a whole was 7.4% while 8 out of 22 districts showed decreases, we would naturally conclude that the increase was greater than 7.4% in the close districts and neighborhoods.

Table 6.

Relation of Distance from Kingsport to Rural Population Increase.

Community	Distance to Kingsport	Percentage Population Increase
1 Bell Ridge	3 mi.	25%
2 Bloomingdale	5 mi.	36.7%
3 Harbour	5 mi.	12.5%
4 Horse Creek	<u>6 mi.</u>	<u>12.5%</u>
Total	19 mi.	86.7%
Average	4.75 Mi.	21.67%
1 Rock Springs	7 mi.	5%
2 Arcadia	7 mi.	20%
3 Indian Springs	8.5 mi.	0
4 Fordtown	<u>10 mi.</u>	<u>0</u>
Total	32.5 mi	25%
Average	8.125 mi.	6.25%

In Table 6 we observe that those communities nearest Kingsport had an average increase of 21.67% while those farther out increased only 6.25%.

This Table 6 bears out the discussion following Table 5 that the rural increase in population is greater near the manufacturing center.

Table 7.

Relation of Roads to Rural Population Increase.

Communities on Hard Surface Roads	Percentage Increase.
1 Bell Ridge	25%
2 Bloomingdale	36.7%
3 Harbour	12.5%
4 Horse Creek	12.5%
5 Arcadia	<u>20%</u>
Total	106.7%
Average	21.5%
Communities on Dirt Roads	Percentage Increase.
1 Indian Springs (1)	0
2 Fordtown	0
3 Rock Springs	<u>5</u>
Total	5%
Average	1.66%

(1) Indian Springs is now on concrete highway but is placed with those having dirt roads because the new road is too recent to have any bearing in this population change.

It will be observed from Table 7 that those communities on good roads show the greater gains in population. The manufacturing greatly influenced the road building but this is discussed in a later chapter.

Table 8.

Increase or Decrease in Population by Districts - Sullivan.

District	1910	1920	Increase or Decrease	Percentage Increase or Decrease
1	1,109	1,126	17	1.5
2	717	787	70	9.8
3	924	966	42	4.5
4	830	772	-58	-7.0
5	1,721	1,705	-16	-0.9
6	928	912	-16	-1.7
7	878	947	69	7.9
8	717	703	-14	-1.9
9	1,129	1,027	-102	-9.0
10	691	821	130	17.4
11) 12)	1764	2761	997	56.5
13	935	965	30	3.2
14	857	882	25	2.9
15	1,298	1,244	-54	-4.2
16	1,484	1,652	168	11.3
17	1,002	1,283	281	28.0
18	912	858	-54	-5.9
19	794	936	142	17.9
20	741	702	-39	-5.3
21	449	490	41	9.1
22	442	457	15	3.4
Average Increase				28.9
Average Rural Increase				7.4

Table 8 shows the increase or decrease by districts. Those including the urban centers show greatest increase, those near by the next greatest increase and those more remote the least increase.

Table 9.
Rogersville Area.

Community	Population Increase or Decrease		
	Number in 1914	Number in 1925	Percentage In- crease or Decrease
1 E. and F. Springs	150	150	0
2 Persia	260	260	0
3 Burem	450	475	5.0
4 Yellow Store	175	175	0
5 Alumwell	200	175	-12.5
6 Lake View	375	375	0
7 Altonville	400	400	0
8 Pressmens Home(1)	125	150	20.0
Total (Including Pressmens Home)			12.5
Average (Including Pressmens Home)			1.5
Total (Pressmens Home omitted)			-7.5
Average (Pressmens Home omitted)			-1.0

(1) The International Pressmens Home in this community has been responsible for a few families coming in from the neighboring community of Alumwell. But the effects of this Home will be discussed separately.

Table 9 will show a standstill in the Rogersville area except in 2 communities. As just explained, the Pressmens Home is a special case (although it in a small way shows how local industry might stimulate population increase). Leaving this community out the other 7 show a decrease of slightly more than -1%. The rural decrease for the entire county is -2.8%. Since there is no urban territory in Hawkins County this is identical with the decrease in the county as a whole and includes Rogersville.

Table 10.

Rural Population - Hawkins.

Civil District	1910	1920	Increase or Decrease in Numbers	Percentage Increase or Decrease
1	3,953	3,973	20	0.5
2	3,037	2,937	-100	-3.3
3	3,029	3,183	154	5.1
4	2,186	1,261	-925	-42.3
5	3,000	2,665	-335	-11.2
6	4,002	3,888	-114	- 2.8
7	3,252	3,495	243	7.5
Average Decrease				- 2.8

Table 10 shows population increase or decrease by civil districts. It will be observed that only three districts show any increase in Hawkins County. The increase in the first district is very slight, but probably due to the Pressmens Home. The increase in the third district is probably caused by the main line of the Southern passing through at Bulls Gap. This is not far from Morristown. Bulls Gap is a junction town and has probably increased its population. The increase in the seventh district is probably due to its nearness to Kingsport.

Negroes and Foreigners - No foreigners were reported in either the Kingsport or Rogersville area now, nor eleven years ago. Only three communities, one in the Kingsport area, and two in the Rogersville area reported any negroes. The Horse Creek community, Sullivan County, reported 30 negroes eleven years ago and only 15 now. The E. and F. Springs community, Hawkins, had one negro family eleven years ago and the same family now. The Yellow Store community, Hawkins, reported 6 negro families eleven years ago and 6 negro families now.

Other Facts About Population Changes. - There were eighty families which moved into the eight communities in the Kingsport area from 1914 to 1925. Of these, sixty-six came from Scott County, Virginia, one from North Carolina, eight from Hawkins County, and five moved out from Kingsport. During this same period there were thirty-seven families which moved out of these eight communities, and of these thirty-four went to Kingsport, two to Bristol, and one to California. This makes a net gain of forty-three new families.

During this same period only two families moved into the Rogersville area. They came from Hancock County. Thirty-one families moved out of the Rogersville area, and of these six went to Kingsport, eleven to industrial centers in Ohio, two to Rogersville, twelve to a farming area near Bloomington, Illinois. The Rogersville area reported about one hundred and fifty young people gone to the various industrial centers, about one third of these were girls; about one half of the total were in Kingsport, some in Florida, Detroit, and Knoxville. The Kingsport area reported very few young people gone except those working in Kingsport. Nearly one thousand, including both young people and heads of families, were working in Kingsport.

Summary and Conclusion on Population.

- (1) Six out of eight rural communities in the Kingsport area had increases in population and none showed a loss, while only one of the eight communities in the Rogersville area showed a gain; excepting Pressmens Home.
- (2) The close-in Kingsport communities showed an average gain of 21.67% in population while those further out gained only 6.25%.
- (3) The rural districts in Sullivan County near Kingsport and Bristol showed an increase in population while those more remote showed a standstill or slight loss.
- (4) All the rural districts in Hawkins County showed a decrease, except three districts which showed gains which were due to local enterprises or nearness to Kingsport area.
- (5) The average rural gain in Sullivan was 7.4% while the average rural loss in Hawkins was -2.8%.
- (6) The seven leading manufacturing counties of the state showed a gain in rural population, while the seven counties ranking from 59th to 65th in manufacturing showed a rural loss in population.

The above evidence would seem to prove conclusively that the rural population is increasing near the industrial centers while it is losing further from the manufacturing areas.

This increase is probably due to three causes (a) Those coming in from the marginal areas to farm lands where they will be close to a local market; (b) Those coming in expecting to do a little truck farming while some members of the families work in the nearby industrial center; (c) Those moving out of the city to the nearby rural area.

- (7) Those communities in the Kingsport area on hard surface roads showed a gain of 21.5% in population while those on dirt roads gained only 1.66%.

- (8) The only Rogersville community which showed a gain was on a hard surface road.

These facts indicate that rural communities increase more rapidly on hard surface roads. However, since the Rogersville area showed very little increase in comparison with the Kingsport area, it would indicate also that a good road alone is not a sufficient inducement for increase in rural population, but that there must be a nearby industrial center to which the good road leads. For it appears that part of this large increase on the good roads is not primarily farmers but city people living in the country, who carry on some gardening, trucking, etc. in addition to their regular work in the city.

- (9) There has been no drawing of foreigners or negroes to the Kingsport area. In Sullivan 4.7% of the population is negro, and in Hawkins 5.2%. There was no increase in negro population in the rural areas that were surveyed. No foreigners have moved to either area.
- (10) The people who have moved in came from neighboring areas of marginal farm land and have not been brought in from other regions. This is significant, for it is argued by some who are opposed to the developing of manufacturing that it will bring in an undesirable element of people. This clearly has not been the case in the Kingsport area.
- (11) The Kingsport area had a net gain of 43 families, while the Rogersville area had a net loss of 29 families.
- (12) The Kingsport area lost very few young people, while the Rogersville area lost about 150.

The surplus labor of the Kingsport area in other words finds an outlet in the industrial and commercial activities of Kingsport while the surplus labor of the Rogersville area must go to other regions. This, of course, will effect the economic and social life of these rural communities. The Kingsport communities will be able to retain many of their ambitious youth while the

Rogersville communities cannot expect to keep their most promising young people. Some of these economic and social effects in the two areas will be further discussed in the chapters that follow, in connection with other phases of the study.

If we may conclude that a manufacturing area causes an increase in the nearby rural territory, it is well to consider a few advantages that may come to the rural area because of its increased population, apart from the advantages derived from the manufacturing center itself.

More people per square mile:

- (1) Makes road building more economical; for more people are served per road mileage.
- (2) Simplifies the rural school problem; for
 - (a) More densely populated areas don't have the transportation problem that more sparsely settled communities have.
 - (b) Better teachers are more easily obtained for the better schools in the more prosperous and thickly settled communities.
 - (c) Less school buildings are needed, hence better buildings can be constructed.
 - (d) The per capita cost of school is reduced.
 - (e) The child gets better advantages both in class and on the campus in the larger school.
- (3) Increases church membership
 - (a) Therefore reduces the cost per member
 - (b) Enables church to get better pastor.
- (4) Enables physician to serve more people with less traveling expense, and can reach his patients more quickly.
- (5) Probably makes recreation and social life better; for it enables enough people living close together to form their social

organizations, makes community base ball games, etc. possible.

- (6) Enables farmers to have closer cooperation. (a) Farmers close together can better exchange labor in emergencies than isolated farmers. (b) They can own expensive farm machinery on a cooperative basis, such as binders, tractors, etc. (c) Are in better position to form cooperatives, such as creameries, cheese factories, etc.
- (7) Reduces isolation. This is important especially for the rural women who don't form the social contacts that men do in isolated communities.

While these benefits derived from a more thickly settled community are important we would not care to over emphasize them, for it is a well known fact that automobiles and good roads reduce several of these advantages and makes living in the more sparsely settled communities more tolerable. Then too, certain types of farming, especially the extensive types of farming, to be more efficient require rather large farms, and consequently more thinly settled areas.

II

Agriculture.

Introduction. The effects of manufacturing and its consequent commerce upon agriculture are of great importance, for farming of one type or another is not only a basic industry in the world at large, but it is about the only industry in many rural regions. As has been said by someone "Agriculture is more than all industry. It is a way of life". Any attempt therefore to analyze the economic and social effects of a manufacturing center upon its immediate rural territory would be expected to give this phase of the problem a great deal of consideration. This is true because the progress of the community along many other lines is closely interwoven with agricultural progress.

In this connection one must bear in mind that the somewhat general advance in agricultural science by the Agricultural Experiment Stations and the rather wide dissemination of this knowledge by the Agricultural Extension Service of each state, and by various other agencies, has resulted in making improvement in all phases of farming somewhat general. Yet it is known by every one that there is a direct relation between general business prosperity and agricultural prosperity. During periods of business depression in the nation at large, the farmer often has been the first to feel its effects. Mr. Roger Babson in speaking of the effect of business upon agriculture in the Journal of Farm Economics refers to the demoralized condition of agriculture during the panic from 1893 to 1897. Then, he says "The succeeding period, the 'Age of Steel' carried the farmer out of the abyss to prosperity". He speaks of "every barn in Nebraska and Kansas beaming with a new coat of paint in 1899 compared with the great unpainted West in 1896, with delapidated barns".

If it is true, then, that there is a close correlation between general business prosperity and agricultural prosperity, it would seem that this might be found in a specific agricultural region like Kingsport, where manu-

facturing has been introduced so successfully within the past ten years. As stated in the introduction, the Kingsport and Rogersville areas are quite similar from a natural agricultural standpoint. As an indication of this, in 1919 Sullivan County farmers had 33.1% of their crop acres in corn, while Hawkins County farmers had 33.6% of their crop acres in corn, Sullivan ranking 87 in percentage of crop acres in corn and Hawkins ranking 86. In 1900, Sullivan County's yield of corn was 18.9 bushels per acre, while Hawkins' corn yield was 19.1 bushel per acre. About the same cropping system was practiced in both regions. Both regions have access to the scientific information of the state and federal departments of agriculture and other similar agencies; hence any wide divergence in agricultural practice between the two areas is clearly due to local conditions.

Changes in Kind of Farming and Evidences of Progress.

In farm management studies it is customary to consider a farmer a specialized farmer only when he derives 50% or more of his income from a major enterprise. Using this classification, general farming is the prevailing type of farming in both the Kingsport and Rogersville areas and has been the type of farming prior to the earliest date of our surveys. Yet there have been some changes in both regions, and while all farmers there are still general farmers, the kind of farming has undergone a change. The following tables will show some of these changes.

Table 11.

Increase in Crop Yields - by communities.
1925 over 1914.

Community	Percent Increase	Other changes found
Sullivan		
Bell Ridge	10%	Farmers take better care of land
Bloomington	10%	Take better care of land, follow good rotations; use legume in rotation. Less land in cultivated crops. More seeded.
Harbour	10%	Less land in cultivated crops. More seeded.
Rock Springs	5%	Better rotations. Keep idle land seeded.
Fordtown	20%	Sow more for pastures, better rotation.
Horse Creek	10%	Keep idle land seeded.
Arcadia	15%	Keep idle land seeded, better rotation.
Indian Springs	10%	More legumes in rotation.
Average Increase	11.25%	More legumes, better rotations.

Hawkins.

Table 12.

Burem	5%	Keep land seeded better.
Alumwell	-5%	Less farming. Depend more on public work, as highway, going off to mines, etc. Raise more poultry. General farming about same.
Pressmens Home	same	Raise more poultry. General farming about same.
Persia	-10%	Cropping system about same, land run down.
Altonville	(about same)	Cropping system about same, land run down.
Yellow Store	5%	More idle land seeded down.
E.&F. Springs	10% better	More seeding to pasture (more dairy cows).
Lake View	10% better	More seeding to pasture
Average Increase	1.87%	

Tables 11 and 12 show an average increased crop yield in the Kingsport area of 11.25% while the Rogersville area shows an increase of 1.87%. Perhaps the chief thing in this table is the remarks by the farmers themselves. It will be seen that all eight communities in Kingsport area show progress, while two Rogersville areas show retrogression, two show a standstill, and only four indicate progress.

The same trend was found in both areas toward more cash crops and to better cropping systems. The change caused by the city of Kingsport is largely one of degree, for both areas are growing more cash crop. Kingsport, however, has enabled the farmers of that territory to grow more truck and has stimulated the dairy business. It is readily seen that a city of 2000 will consume more food than a town of 1500.

Table 13.

Purebred Live Stock in Rogersville Area.

Community	1925	Number
Buren	One Jersey male. Two Hereford males. One Angus male. Hogs all pure or nearly so.	1 2 1
Altonville	Six Jersey males.	6
Yellow Store	Few purebred hogs.	0
Persia	Few purebred hogs.	0
Alumwell	None.	0
Lake View	None.	0
Pressmens Home	None.	0
E. & F. Springs	Two Jersey males. Two Poland China males.	2 2
Total number of purebred animals.		14

Table 14.

Pure Bred Live Stock in Kingsport Area.
1925.

Community	Animals	Number.
1. Rock Springs	Short horns.	6
	Jersey	20
2. Bell Ridge	Jerseys (male)	1
	Poland China (male)	1
3. Indian Springs	Jersey (male)	1
	Poland China sows	25
	Poland China (male)	3
	Sheep	3
4. Harbour	Jersey cows	2
	Jersey male	1
	Poland China male	2
	Poland China sows	(several)
5. Arcadia	Jersey male	1
	Holstein male	1
	Poland China male	3
	Poland China sows	2
6. Bloomingdale	Jersey (male)	4
	Shorthorn (male)	2 ⁵
	Duroc Jersey (male)	6
	Shropshire Rams	5
7. Horse Creek	Jerseys	(1 herd)
	Shorthorn	(1 herd)
8. Fordtown	Shorthorn (male)	1
	White Leghorn	(1 flock)
Total Animals Purebred		80

Tables 13 and 14 will show considerable progress in both areas in live-stock improvement. It is well to note, however, that every community in the Kingsport area has some pure bred live stock with a total of 80 head while the Rogersville area has three communities reporting no purebred live stock, and a total of 14 head, with possibly a few purebred hogs in two other communities which our data does not show exact number.

Table 15.
Number of Tractors by Communities.

Rogersville Area.		
Community	Number of Tractors.	
Hawkins	1925	1914
1 Lake View	0	0
2 Pressmens Home	0	0
3 E. & F. Springs	1	0
4 Burem	4	0
5 Alumwell	0	0
6 Yellow Store	2	0
7 Persia	2	0
8 Clouds Creek	<u>0</u>	<u>0</u>
Total	9	0
Sullivan Kingsport Area.		
1 Fordtown	4	0
2 Horse Creek	5	0
3 Bloomingdale	0	0
4 Arcadia	1	0
5 Harbour	0	0
6 Indian Springs	1	0
7 Bell Ridge	1	0
8 Rock Springs	<u>8</u>	<u>0</u>
Total	18	0

Table 15 shows that the two regions had an even start in tractors in 1914, and in 1925 the Rogersville area had 9 tractors while the Kingsport area had 18. Topography usually has a great deal to do with determining

the number of tractors, and if this were the only factor, the Rogersville area would likely have more tractors, for its topography on the average is somewhat better adapted to the use of tractors. It is safe to assume that the manufacturing about Kingsport stimulated agricultural activity and at the same time entered competition for labor. Hence more of the better situated farmers added tractors to their farm equipment there than was the case around Rogersville.

Table 16.
Percentage of Farm Houses Painted.

Community Sullivan	Percentage of Painted Houses.	
	1925	1914
1. Bell Ridge	50%	50%
2. Indian Springs	75%	50%
3. Harbour	75%	20%
4. Arcadia	75%	50%
5. Bloomingdale	80%	50%
6. Horse Creek	90%	75%
7. Fordtown	90%	90%
8. Rock Springs	<u>75%</u>	<u>35%</u>
Total	610%	400%
Average per County	76.25%	50%

Table 17.

Percentage of Farm Houses Painted.

Rogersville Area.

Community Hawkins	Percentage of Painted Houses.	
	1925	1914
1. Yellow Store	30%	30%
2. Alumwell	40%	40%
3. Burem	50%	30%
4. E. & F. Springs	50%	25%
5. Pressmens Home	10%	10%
6. Lake View	50%	50%
7. Persia	75%	75%
8. Clouds Creek (Attenuille)	<u>75%</u>	<u>75%</u>
Total	380%	335%
Average per Community	47.5%	41.8%

The appearance of farm buildings is a significant observation to make in attempting to compare the agricultural progress of two regions, and data on painted houses is probably one of the best indications of agricultural thrift.

We notice that in 1914 50% of the houses in the Kingsport area were painted, and 41.8% of the houses in the Rogersville area were painted; while in 1925 76.25% of the houses in the Kingsport area were painted and 47.5% in the Rogersville area were painted. The Rogersville area made a gain of 5.7%, during the ten year period, while the Kingsport area gained 26.3% or nearly five times as much.

Other Facts About Agriculture.

1. Farm Ownership and Farm Tenancy.

From 1910 to 1920 Sullivan County gained 242 farm owners and Hawkins County gained 42, a little over 1/5 as many as Sullivan. During the same period Sullivan County lost one tenant and Hawkins County lost 185.

During the period of our survey from 1914 to 1925 the number of tenants in 8 Kingsport communities decreased three, and in the 8 Rogersville communities the tenants decreased 20. During this same period the Kingsport area gained 43 families, while the Rogersville area lost 29 families.

It will be remembered that the rural **population of Sullivan county gained 74% while the Hawkins rural population lost -2% from 1910 to 1920.

These figures show the large gain in ownership in Sullivan County and the relatively small gain in ownership in Hawkins County.

It seems clear since tenancy is at a standstill in the Kingsport area and since population is on an increase, the bulk of the new population are home owners. It seems clear then that, since ownership increased slightly in Hawkins while tenancy decreased considering the population as a whole on the decrease, the majority of the rural decrease in Hawkins County were tenants.

The percentage of tenancy to the total number of farmers then are decreasing in both areas. In Sullivan this decrease was from 22.6% to 20.9% from 1910 to 1920 and in Hawkins from 28.5% to 23.9%.

It is clear however that this decrease in percentage of farm tenancy in Sullivan is due to the increase in farm population and farm ownership, while in Hawkins it is due to the tenants leaving the farms and the county .

2. Hired Labor.

Practically no labor is hired in either region, except as tenants, in addition to tending their own crops do a considerable amount of work for their landlords. In the Kingsport such labor usually receives \$1.25 per day, while

such labor in the Rogersville area receives \$1.00 per day. Formerly such labor in both regions could be secured for 50 to 75 cents per day. These tenants usually are furnished a home, garden, and share in the home orchard; hence they are content to work for low wages compared with much higher wages in the manufacturing plants. There is no shortage of farm labor in either area.

3. Size of Farms.

In the Kingsport area the average size farm was decreased from 137.5 acres to 112.5 acres, while the Rogersville area decreased from 127 acre farms to 122 acres. This decrease in the Kingsport area took place more on the old macadam roads from where small tracts were sold off for homes and trucking purposes.

This would indicate that manufacturing has increased the number of small farms for trucking purposes, along the highways close in to Kingsport.

4. Non-resident Land Owners.

There is no indication that manufacturing is causing absentee landlordism as it is commonly thought to do. In the eight Rogersville communities there are 12 non-resident land owners, and only 9 in the eight Kingsport communities.

5. Idle Land.

It was rather difficult to get definite data on idle land, and yet this is a valuable item to have in interpreting farm condition. It seems that in 1914 there was about the same relative proportion of idle land in both areas, from one-fourth to one-half of the cleared land usually remaining idle in the various communities. The practice of cultivating a field a few years and then letting it lie idle to "rest" was responsible for this idle land. This practice is practically discarded in both regions, and all idle land of this kind is seeded to pasture or legumes in a crop rotation. There was no indication that scarcity of labor in the Kingsport area was forcing the farmers into letting large tracts of land lie idle. On the other hand, in the Rogersville

area there was some complaint that there was plenty of labor but that people have "quit working", causing many farms to be neglected. This brings up the mental attitude or psychology of the farmers, of which we shall speak later.

6. Farm Mortgages.

It was rather difficult to get accurate information on farm mortgages. But it is safe to say there are more mortgages in both areas now than ten years ago. This has no significance, however, unless we could have found the exact reason for each mortgage. A mortgage may be an indication of progress, if the mortgage is (1) for purchase price of land, or (2) for improvement. It would not be far wrong to say a majority of the mortgages were for these purposes, for in many instances we learned that this was the case, especially in the Kingsport area where so many people have purchased small farms along the highway. It is safe to say however that speculation during the past war period and immediately following caused a considerable amount of the mortgages that are now prevailing in both areas.

Of course the general condition of agriculture in the two areas will have a great deal to do with the meeting of these mortgages as they become due.

This is a problem alone that would seem to be worthy of research, that is to get the number of mortgages, the percentage of these to the total number of farms, the percentage the mortgage is of the value of the land, and the purpose of each mortgage.

7. Price of Farm Land and Value of Farm Buildings.

This subject will be discussed in a later chapter on Financial Conditions.

8. Markets Available and Marketing Facilities.

The nearest available markets at present for the two areas are the towns of Kingsport and Rogersville. Ten years ago the Rogersville area had this same market practically as it is today while then the Kingsport farmers were from twenty to thirty miles from their markets which were Bristol and Johnson City.

A comparison of the marketing facilities of the two areas is largely relative. Both Kingsport and Rogersville seem to offer the following outlet for farm products.

(1) Local market for:

- (a) Whole milk - retail trade.
- (b) Cream receiving stations.
- (c) Fresh vegetables, fruit, etc.
- (d) Poultry and eggs.

(2) Railway station from which shipment of livestock and other farm products may be made.

(3) Tobacco ware house - in Kingsport only.

Rogersville had these same marketing facilities eleven years ago, but Kingsport offered nothing except the railway station at that time. Since the coming of manufacturing Kingsport established the tobacco ware house which Rogersville has not. The farmers in the Rogersville area must carry their tobacco to Kingsport, a distance of about thirty miles, or to Greenville, a distance of twenty-five miles. The Kingsport area, and in fact the whole county has this market for tobacco. It is a direct result of the industrial growth of Kingsport itself, as the warehouse was promoted and financed by Kingsport business men.

Then the local market for milk, fruits and vegetables is better at Kingsport. For proof of this it is only necessary to recall that Kingsport's population now is about 12,000 compared with 1,500 in Rogersville. Other things that would probably make the local market of Kingsport better are the following facts: (1) The per capita earnings are higher in Kingsport, hence we would expect the per capita consumption of fresh farm products to be higher in Kingsport. Rogersville is primarily an agricultural town while Kingsport is a manufacturing center, hence we would expect the Rogersville inhabitants

to produce more of their own garden vegetables, fruit, poultry, and dairy products themselves. This is a problem for additional research.

Another advantage Kingsport has in marketing is better highways for the farmers use in bringing his products to market. This can be observed by referring to the chapter on highways.

9. Greatest Needs of Farmers.

The question "What was the farmers' greatest need eleven years ago?" was asked every farmer interviewed. Naturally, one would expect the average farmer to interpret the question and give his answer in the terms of his own needs, but the two needs as stated by practically all those in the Kingsport were (1) a closer market, (2) better roads. The answer in the Rogersville area was usually (1) a better market and (2) better roads. The next answer in both areas was usually cooperative marketing.

When asked present needs in the Kingsport area the answers varied without any sign of an outstanding need, except "cooperative marketing". In the Rogersville area the two principal needs mentioned eleven years ago were the leading answers for the present needs.

As stated, these questions were answered in terms of each farmer's own needs, but the answers point out certain facts: that the chief needs of the farmers in the Kingsport area; namely, a nearby market and transportation facilities, has been met by the growth of Kingsport, while the chief needs in the Rogersville area have not been provided for.

10. Farmers Organizations and Movements to Improve Farming.

The data does not show a great difference in the activity, or rather lack of activity, in community organization in the two areas. A scattering community club (no locals of the Farm Bureau, Farmers' Union, etc.) is about all that our data show, yet this is not the whole story. There is both a county agricultural agent and a Home Demonstration agent in Sullivan County, and neither in Hawkins. We cannot say that manufacturing in Kingsport is responsible, yet

we do know that this service is more secure, that is to say, these agencies for farm improvement and agricultural leadership are more likely to be found in counties with strong urban leadership than in more strictly agricultural sections, as will be shown in the chapter on "Benefits of a Town to the Immediate Rural Territory".

These farm agents visit the rural communities. The Home agent, of course, is active in aiding the girls with their serving clubs and the agricultural agent has been instrumental in promoting purebred stock and tobacco. Each community reported that when there is an agent in the county, these agents were important factors in life. The county agricultural agent holds short courses on farm problems in each county, and is aided by the Agricultural Extension Division of the State University, with its corps of specialists.

Then we might say there is no movement which is purely local in either region that is calculated to improve rural life. This work of the agent along with other things of which we will speak in the chapter referred to already on "Benefits of a Town to Its Immediate Rural Territory" are things that will benefit rural life and as we will point out, are indirect results of manufacturing.

Summary, Conclusions, and a Few Miscellaneous Items. -

1. The agriculture of the Kingsport and Rogersville areas was formerly very similar. The crops were about the same. In 1919 Rogersville area had 33.6 of crop acres in corn, Sullivan had 33.1. The topography of the Rogersville area is more even, and the virgin soil of this area was probably more fertile than the soil of the Kingsport area, for in 1900 the yield of corn per acre in Hawkins County was 19.1 bushels, while the yield of corn in Sullivan County in 1900 was 18.9 bushels.

2. Development of Kingsport has caused change in production there to more tobacco, more dairying, more truck, more purebred livestock, more fertilizer to be used, better crop yields. These things have developed around Rogersville

but more around Kingsport.

(a) Kingsport built a tobacco warehouse and employed a tobacco specialist to promote tobacco growing and assist farmers in successful practices.

(b) More dairying and truck is found now in the Kingsport areas because Kingsport is the bigger and better local market for these products.

(c) More purebred livestock near Kingsport, for in Kingsport area 80 purebred cattle were reported and only 14 in the Rogersville area.

(d) More fertilizer used in Kingsport area, as indicated by the following figures of a leading fertilizer company who sells the bulk of the fertilizer used in these two regions. This company sold 1163 tons of fertilizer in Sullivan County and 585 tons in Hawkins County.

(e) Crop yields were 11.25% improved in the Kingsport area and 1.87% improved in the Rogersville area, from 1914 to 1925.

3. Farm labor was found plentiful in both areas, and not scarce in the manufacturing area as is often thought.

4. Farm machinery was more adequate in the Kingsport area as indicated by 18 tractors in the region while only 9 were reported in the Rogersville area. It should be considered in this connection that the Rogersville area as a whole is more suited to the use of tractors, from the standpoint of topography, than is the Kingsport area.

5. Buildings in the Sullivan area are better and more attractive as indicated by the fact that (a) in Sullivan County in 1925 the average value of farm buildings was \$921.00 while in Hawkins County the average value was \$614.00 ; (b) in 1925 in the Kingsport area 76.25% of rural houses were painted, and 47.5% in Rogersville area were painted. (In 1914 50% in Kingsport area were painted, while in the Rogersville area 41.8 were painted).

6. (a) Farm ownership is increasing rapidly in the Kingsport area, and tenancy is at a standstill, hence the percentage of tenancy is decreasing.

(b) Farm ownership is practically at a standstill in the Rogersville area, and tenancy is decreasing, making the percentage of tenancy on the decrease in this area also.

(c) But the cause of the decrease in percentage of tenancy in Sullivan is caused by increased ownership, while it is caused by their moving out of the Rogersville area.

7. The size of farms is decreasing slightly in both areas, but more in the Kingsport area, indicating a tendency for people to buy small farms along the highway near Kingsport in order to do some trucking in addition to their work in the city.

8. In the Kingsport area there were found only 9 non-resident land owners, while in the Rogersville area there were reported 12, indicating that manufacturing in this instance has not increased "absentee landlordism".

9. There was less idle land in both areas than there was ten years ago, but still less in the Kingsport area in 1925 than there was in the Rogersville area the same year.

(b) Better cropping methods were found in the Kingsport areas, as indicated by a beginning in the growing of alfalfa. Five acres were reported in the Kingsport area and none in the Rogersville area.

10. There were more farm mortgages in the Kingsport area, indicating more home buying and improvements in this area.

11. Price of farm land will be found in a later chapter.

12. The average distance to market in 1914 for the Rogersville area was 6.75 miles, and for the Kingsport area about 25 miles. In 1925 the average distance was the 6.75 for the Rogersville area and 6.25 for the Kingsport area.

Note. The distance to a market is based upon the distance of the Rogersville communities to Rogersville in each period, while the average distance of the Kingsport communities was based on distance to Bristol for 1914 and

the Kingsport for 1925. Hence the Kingsport people gained a close market because of the growth of the manufacturing town.

13. The market at Kingsport is better than the Rogersville market because it is (a) Larger; (b) More wealth per capita; (c) Has tobacco warehouse; (d) People in Kingsport grow less of their own garden truck and dairy products.

14. The main needs of the farmers of the Rogersville area in 1914 were (a) better roads; (b) a larger local market. Better roads are being slowly obtained but the larger local market is still lacking in 1925.

15. The main needs of the farmers of the Kingsport area in 1914 were (a) closer market; (b) better roads. Better roads are being obtained and much more rapidly than in the Rogersville area, as seen in the chapter on Highways, and the need for a closer market is fulfilled in the building of Kingsport.

16. Movements to improve farming are better in the Kingsport area because of the activity of the civic organizations in Kingsport, and because Sullivan County maintain a county agricultural agent and a county Home Demonstration agent.

17. Cooperative marketing of tobacco is practiced by Kingsport farmers but not by Rogersville farmers.

18. Observations.

(1) The attitude of the Kingsport farmers was one of optimism while the attitude of the Rogersville farmers was almost universally one of discouragement and pessimism.

(2) From interviews in the eight rural communities of the Kingsport area only one man expressed an opinion that the county agent was not an aid to the farmers. This man was a country merchant.

(3) From interviews in eight rural communities of the Rogersville area men in five of these communities expressed the opinion that they did not need

an agricultural agent. This shows a lack of progressive ideas.

(4) From all the men that were interviewed in Kingsport none of them expressed an opinion that an agent was not needed.

(5) In Rogersville, four men, all of whom we would term public spirited men, stated that the county did not need a county agent.

(6) No farmer that was interviewed in the Kingsport area said that manufacturing in Kingsport had been a harm to farming. Kingsport as a local market was beneficial, which was an admission that manufacturing was an aid, when we consider that manufacturing made Kingsport. As an indication of the attitude toward agencies for rural improvement both in the home and on the farm, the record of the two counties in maintaining the Extension Service will help clear up the matter.

The Chamber of Commerce in Bristol in 1915 initiated the move to secure a county agricultural agent by guaranteeing county's part of his salary the first year. Since that time the county court has appropriated regularly to continue the work and also the court put on the womens' Home Demonstration work in 1916 and has kept it continuously since then. Hawkins County began county agent work also in 1915, discontinued in 1917, put it back in 1918, continued until 1922, and failed to appropriate, but the business men of Rogersville secured the funds for six months when the court re-appropriated and continued work until July, 1925, when it again discontinued the work. From 1917 to 1922 Hawkins County maintained a Home Demonstration agent for eight months each year and discontinued in 1922.

During this period the Sullivan court continued the work without a break despite a frequent change of agents, and Hawkins court three times refused to appropriate for the work, even though they apparently had an agent that they were well pleased with and were not continually changing men.

It would seem that the opposition in Hawkins was not opposition to the agents personally, nor to the Extension Service as such, but were, as stated

above, indifferent and failed to see the importance of the work. There was lacking not only a desire for improvement, but also there was lacking a belief or confidence that county agent work was worth its small cost to the county. It should be remembered that the tax money in Hawkins comes almost entirely from farmers, which is not true in Sullivan. One would naturally expect farmers to be more concerned about the improvement of agriculture than are business men in town, since they benefit more directly and to greater extent. But the farmers of Hawkins County have not proven themselves to be so interested.

III
Highways.

It is somewhat difficult to separate the direct influence of a manufacturing area on highway development from other factors that influence the progress in road building, improvement, and maintainance. The road program has been largely in the hands of the county court and more recently the policy with respect to highway development has been left to both county and state highway commissions.

The coming of motor transportation within a comparatively recent period has created such a desire for hard surfaced roads that many counties in the state backed with no great amount of industry except agriculture have sold road bonds and launched ambitious highway construction programs in cooperation with the State Highway Department.

Nevertheless there is clearly evident a rather close correlation between the recent industrial growth of Kingsport and the causes of the recent highway development of the region, as may be seen very readily by the following tables and the other facts that will be presented.

Table 18.

Highways, and Highway Development by Communities - Sullivan and Hawkins.
1914

Communi- ity	Ungraded dirt	Graded dirt	Hard surface			Total Mileage	Total hard sur- face	% of Total hard surface.
			Good	Med.	Poor			
Sullivan								
1 Horse Creek	10	0	0	0	0	10	0	0
2 Ford- town	5	0	0	0	0	5	0	0
3 Bloom- ingdale	0	11	0	0	0	11	0	0
4 Arcadia	0	10	0	0	0	10	0	0
5 Harbour	0	7	0	0	0	7	0	0
6 Rock Springs	10	10	0	0	0	20	0	0
7 Bell Ridge	15	0	0	0	0	15	0	0
8 Indian Springs	<u>9</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>12</u>	<u>3</u>	<u>0</u>
Total	49	38	0	3	0	90	3	3.33
Table 19.								
Hawkins.								
1 Lake View	24	0	0	0	0	24	0	0
2 Alumwell	7	0	0	0	0	7	0	0
3 Burem	20	5	0	0	0	25	0	0
4 Yellow Store	8	0	0	0	0	8	0	0
5 Persia	20	0	0	0	0	20	0	0
6 Clouds Creek	7	0	0	0	0	7	0	0
7 E.&F. Springs	6	0	0	3	0	9	0	0
8 Pressmens Home	<u>8</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>8</u>	<u>0</u>	<u>0</u>
Total	100	10	0	3	0	108	0	2.7

Table 20.

Highways, and Highway Development by Communities - Sullivan and Hawkins.
1925

Community	Ungraded dirt	Graded dirt	Hard surface			Total Mileage	Total hard surface	% of Total hard surface.	c
Sullivan			Good	Med.	Poor				
1 Horse Creek	0	3	0	7	0	10	7	0	
2 Fordtown	0	4	0	1	0	5	1	0	
3 Bloomingdale	0	7	0	4	0	11	4	0	
4 Arcadia	0	8	0	2	0	10	2	0	
5 Harbour	0	0	5	3	2	10	10	0	
6 Rock Springs	3	11	0	6	0	20	6	0	
7 Bell Ridge	9	3	0	3	0	15	3	0	
8 Indian Springs	4	5	3	0	0	12	3	0	
Total	16	41	8	26	2	93	36	38.7	
Table 21.									
Hawkins.									
1 Lake View	15	3	3	0	0	21	3	0	
2 Alumwell	4	1	2	0	0	7	2	0	
3 Burem	2	22	0	1	0	25	1	0	
4 Yellow Store	3	0	4	0	0	7	4	0	
5 Persia	15	1	0	4	0	20	4	0	
6 Clouds Creek	0	7	0	0	0	7	0	0	
7 E.W.F. Springs	6	0	0	3	0	9	3	0	
8 Pressmens Home	0	4	4	0	0	8	4	0	
Total	45	38	13	8	0	104	21	19.4	

Tables 18 and 19 show that in 1914 the eight Kingsport communities had a total of 90 miles of public roads of which 3 miles or 3.33% was hard surfaced; while in the same year the eight Rogersville communities had a total of 108 miles of public roads of which 3 miles or 2.7% was hard surfaced.

Tables 20 and 21 show that in 1925 the same area around Kingsport had 93 miles of public roads, of which 36 miles or 38.7% was hard surfaced; while the area around Rogersville in 1925 had a total of 104 miles of public roads, of which 21 or 19.4% was hard surfaced.

The tables on roads show further that in 1925 of the dirt roads remaining in the Kingsport area 72% were graded, while in the Rogersville area 46% were graded, leaving only 28% of the dirt roads unimproved in the Kingsport area, and 54% of the dirt roads unimproved in the Rogersville area.

It will thus be noticed that the Kingsport area showed a gain over the Rogersville area of 19.3% in hard surfacing its roads, or nearly double in percentage gain. Furthermore, the Kingsport area showed a 22% margin in grading the dirt roads that were remaining.

Nor does this tell the whole story of road development in these two areas. Rogersville had the following advantages over Kingsport: (1) is an older town; (2) is a county seat town; (3) is centrally located; (4) and is the largest town in Hawkins County.

Having these advantages it would be natural to expect the best roads to lead into the county seat; for it is the policy of local authorities to build their best roads into the county seat, and it is the policy of the State Highway Department to connect up the county seats. These strategic advantages of Rogersville are of considerable importance in this connection.

Kingsport, on the other hand, was handicapped by (1) being a small town of no consequence until the arrival of manufacturing; (2) is not a county seat; (3) is not centrally located, but is in one end of the county; (4) Blountville, the county seat in the central part of the county and Bristol, an enterprising

city in the other end of Sullivan County, were the dominating towns in controlling the highway policy of the county.

It would seem fair to assume that the city of Kingsport would not have been anything more than it was in 1916, a mere village, had it not been for the introduction of manufacturing and its consequent commerce. Then it follows that without the growth of Kingsport there would not have been the possibility of the highway development in that area. That has been made possible because of the influence of the city.

There are several civic organizations in Kingsport, and "The Kingsport Improvement Corporation" which has been active within the past few years in fastering good roads. These organizations are a powerful factor both with the county and state highway authorities. Their exact influence is difficult to determine but it is safe to assume that they have been one of the determining influences in getting the following road projects started:

- (1) Macadam road to Gate City, Virginia.
- (2) A concrete road from Bristol to Kingsport, continuing with asphalt to Knoxville.
- (3) The designation of this road by State Highway Department as a national highway. This will bring tourists through this area.
- (4) A hard surface road now being planned to Johnson City.
- (5) Macadam or asphalt roads leading into Kingsport from six of the eight local communities which are included in this study.
- (6) A bridge across the Holston River at Kingsport.

This area is not only able to make more progress in getting the roads improved, but will be more able to maintain the road beds that are now being hard surfaced because of the development of manufacturing which in turn caused the city of Kingsport to be built.

It would hardly seem necessary to mention the advantages of these main thoroughfares to the rural people along their courses, when we find a universal desire and demand for good roads among the rural people everywhere.

- (7) Another example of the influence of a manufacturing area on road building is seen in the Pressmens Home community (see discussion under heading Pressmens Home). This Home is located in a poor section, 10 miles from Rogersville, in a community that, if it depended on agriculture, could never hope to have good roads, nor any other advantages that a prosperous community would be expected to have. But through the influence of the enterprising ability of the President and Director of this Pressmens headquarters, a splendid rock road covered with asphalt is now under construction from the Home to Rogersville. Pressmens Home consists of a magazine manufacturing plant and home and sanitarium for disabled printers.

Summary and Conclusions on Highways.

Referring again to the highway tables and to the discussions following, it was shown that Rogersville had four advantages over Kingsport from the standpoint of developing highways; namely, (1) older; (2) county seat; (3) centrally located; (4) largest town in the county. Kingsport had none of these advantages, and yet its area made much more rapid progress than the Rogersville area made in getting the roads built that were needed. It will be seen that Rogersville has made much progress, too, but not nearly the rapid advance that Kingsport has made. Indications are clear then that a manufacturing region has a tremendous advantage over a non-manufacturing region in solving its

road problem.

The extra wealth in the manufacturing region for the support of roads, as well as for the support of other 'things, will be considered in a later chapter. This is a very important consideration, and gives the Kingsport area a fundamental advantage of the Rogersville area which the latter will never be able to overcome so long as it remains so largely agricultural as it is at present.

Bridges and Ferries. There were no ferries in either the Kingsport or Rogersville area. Both regions had practically sufficient bridges, but the progress of bridge building followed the highway development rather closely in both areas. Rogersville being the older place and the county seat had a bridge across the Holston River before 1914, while the bridge across this river at Kingsport has been built since that time, and is a direct result of a demand made by the growth of Kingsport.

Four of the eight communities in the Kingsport area reported a lack of bridges before 1914, but all reported good bridges in 1925 with no creeks to ford.

Only two communities in the Rogersville area reported a need for bridges prior to 1914, and one of these reported in 1925 a need for two additional bridges.

Along the state aid roads good bridges were being built, these being of concrete where needed on these roads.

The same factors that influence the highway growth, determine the progress of bridge building, and hence there is no need for a repetition of that discussion here.

IV.

Rural Health.

It will be shown in this chapter that there are six or more ways in which manufacturing contributes to the health of the nearby rural area.

(1) By so affecting social and economic conditions of the rural communities that local physicians will remain in the communities.

(2) By making the urban physicians more readily available to the rural communities by improving transportation and communication facilities, such as roads and telephones.

(3) As the city grows more physicians come in and as the population increases a much better type of physicians are available.

(4) The city makes better hospital facilities possible.

(5) These improved health facilities have an educational value.

(6) The growth of population makes more dentists available and also a better type of dentists.

The following tables show the effects on physicians remaining in the communities.

Table 22.

Rural Physicians.

Kingsport Area

Community	Number of Local Physicians and Age.				Distance to Physicians if There Are None Local.	
	1925	Age	1914	Age	1925	1914
Bloomingsdale	1	56	1	45	-	-
Fordtown	1	50	3		-	-
Horse Creek	0	0	1	35	6 miles.	-
Arcadia	0	0	0		2 miles.	2 miles.
Bell Ridge	0	0	0		3 miles.	3 miles.
Harbour	1	46	1	35		
Indian Springs	1	40	1	29		
Rock Springs	1	50	4			
Total	5	242	11			
Average.	0.625	48	1.375	36		

Rogersville Area.

Persia	1	60	1	49		
Buren	1	60	1	49		
Alum Well	0	0	1	0	7 miles	7 miles
Altonville	0	0	1	30	8 miles	
E. & F Springs	0	0	0	0	3 miles	3 miles
Yellow Store	0	0	0	0	3 miles	3 miles
Lake View	0	0	1	30	7 miles	
Presanens Home	0	0	0	0	10 miles	10 miles
Total	2	120	5	158		
Average	.25	60	.625	39		

(1) Table 22 shows 11 rural physicians in Kingsport area in 1914 and 5 in 1925, while the Rogersville area shows 5 in 1914 and 2 in 1925.

(2) The cause of this decrease was 3 deaths and 3 removals from the Kingsport area; and three removals in the Rogersville area.

Therefore, 60% of the Rogersville area decrease was caused by removals and only 28% of the Kingsport area decrease was caused by removals.

(3) In 1914 the average age of the rural physicians in the Kingsport area was 36, and 39 in the Rogersville area, while in 1925 the average age in the Kingsport area is 48 and in the Rogersville area 60. During the eleven years the age increase of the Kingsport area increased 12 years and 21 years in the Rogersville area. This would indicate that the younger physicians are leaving the Rogersville area, and no more going into that area.

(4) In Sullivan County there are 917 people per physician, and in Hawkins County 765 per physician.

(5) A look at the chapter on highways will show the advantages offered by the Kingsport area in accessibility to the urban physicians.

Table 23.

Availability of Dentists.
Kingsport Area.

Community	Dentist or Distance to One. (1925)	Dentist or Distance to One (1914)
Bloomingtondale	Kingsport 5 miles.	Bristol 19 miles.
Fordtown	Kingsport 10 miles.	Johnson City 17 miles.
Horse Creek	Kingsport 6 miles.	Fall Branch 8 miles.
Arcadia	Kingsport 7 miles.	Bristol 17 miles.
Bell Ridge	Kingsport 3 miles.	Gate City 5 1/2 miles.
Harbour	Kingsport 5 miles.	Bristol 20 miles.
Indian Springs	Kingsport 8 1/2 miles.	Bristol 15 miles.
Rock Springs	Kingsport 7 miles.	Bristol 22 miles.
Total (local) Average distance per community	6.25 miles	15.4 miles.

Table 24.
Availability of Dentists.
Rogersville Area.

6

Community	1925	Age	1914	Age
	No dentist or distance to.		Dentist	
Persia	Rogersville 6 miles.		Some	
Burem	Rogersville 6 miles.		Some	
Alum Well*	Rogersville 7 miles.		Some	
Altonville	Rogersville 8 miles.		Rogersville 8.	
Yellow Store	Rogersville 7 miles.		Rogersville 7.	
E.&F. Springs	Rogersville 3 miles.		Rogersville 8.	
Lake View	Rogersville 7 miles.		Rogersville 7.	
Pressmens Home	Rogersville 10 miles.		Rogersville 10.	
Average Distance	Rogersville 6.75 miles.		Rogersville 6.25.	

(1) Table 23 and 24 will show that in 1914 the average to a dentist in the Kingsport area was 15.4 miles and in the Rogersville area only 6.75 miles.

(2) In 1925 the average distance to a dentist in the Kingsport area was 6.25 miles, while in the Rogersville area the distance remained the same as in 1914. Hence the building of Kingsport put dentists in reach of the rural people.

(3) In Sullivan County in 1925 there were 2739 people per dentist, while in Hawkins County there were 7850 people per dentist.

This would seem to indicate that the urban growth increases the dentists per 1000 people.

Table 25.

Improved Nearby Hospital Facilities.

Community	1925	1914
Bloomingsdale	Kingsport 5 miles.	Bristol 19 miles.
Fordtown	Kingsport 10 miles.	Bristol 23 miles.
Horse Creek	Kingsport 6 miles.	Bristol 30 miles.
Arcadia	Kingsport 7 miles.	Bristol 28 miles.
Bell Ridge	Kingsport 3 miles.	Bristol 30 miles.
Harbour	Kingsport 4.5 miles.	Bristol 20 miles.
Indian Springs	Kingsport 8 1/2 miles.	Bristol 15 miles.
Rock Springs	Kingsport 6 miles.	Bristol 22 miles.
Average	Kingsport 6 1/4 miles.	Bristol 23 3/8 miles.

The Rogersville area has the same local hospital facilities that were available 10 years ago, a distance of 6.75 miles, while the Kingsport has gained local hospital facilities as a result of the building of Kingsport. The average distance in 1914 was about 24 miles, and in 1925 6.25 miles. But the table shows very little. The capacity of the hospitals and the type of physicians is the important thing which the following paragraphs will show.

Hospital Facilities in Rogersville. There is a 10 bed surgical hospital in Rogersville owned and managed by Dr. Miller. He specializes on eye, ear, nose and throat diseases. The service of this hospital is limited to Dr. Miller's patients. Patients of other physicians have no hospital service in Rogersville.

Hospital Facilities in Kingsport. There is a well managed hospital in Kingsport to which all physicians have access. It is well equipped with operating rooms, staff, nurses, etc. It is partly supported by the community chest

and poor people are treated free.

There is also a public health center and free baby clinic. This health center is supported by the metropolitan nurse and a public spirited physician.

*Advantages of Having a Hospital Nearby. It will be observed from Table 25 that the building of a hospital in Kingsport reduced the distance the rural people were to a hospital from 23 $\frac{3}{8}$ to 6 $\frac{1}{4}$ miles, a saving of 17 $\frac{1}{8}$ miles. This has several advantages, namely:

(1) Difficulty of Transportation Is Overcome.

Transportation delays are dangerous, especially in emergency cases. Transportation facilities in rural districts are often crude - but some of these nearby hospitals have ambulances similar to city hospitals.

(2) Expense is Saved.

(a) In transportation; (b) In lower charges. Rates are usually lower than in city hospitals. The latter have expensive buildings, elaborate equipment, etc. not entirely necessary.

(3) Personal Attention is Assured.

Patients and members of the hospital staff are personally acquainted and patient is more likely to be treated as an individual. Patients family can see to it that he gets fair treatment.

(4) Patients Family Can Render Aid.

Being near at hand they can render more assistance and give of their time and company more freely.

(5) More satisfactory to patient's family to have the hospital near.

(6) Follow-up Work is Made Possible.

Often a patient needs to be kept under general observation while convalescing, after leaving the hospital.

(7) Educational and preventative values are derived from the hospital, its staff and nurses, Educational Institutions.

(8) Aids in solving the country-doctor shortage.

(a) Gives him adequate equipment to work with in treating disease.

(b) Where there is no hospital the well-to-do people are forced to the larger towns and cities for serious treatment.

(c) It provides a form of cooperative community support for a physician and for the nurses.

(9) Nurses while in training can stay near home, and after training some of them can remain there.

(10) Furnishes valuable aid in the diagnosis of disease.

Contribution of Rogersville and Kingsport to Rural Health. Rogersville has no organized force to promote sanitation and health, and her contribution is therefore confined to what the physicians do in individual instances. Kingsport, on the other hand, has two graduate nurses (in addition to those at the hospital) furnished by the Metropolitan Life Insurance Company, whose business it is (1) to look after the health of the factory employes who are insured with the Company. The employers carry this insurance for their employees. (2) To do educational work in the Kingsport area that will promote good health and eliminate disease. This agency then is a direct contribution of manufacturing. The manufacturing plants carry insurance for their employees, and the insurance company keeps its nurses on hand for the services just mentioned. If an employee of a factory gets an injury, if a nurse can, by proper dressing of the wounds and by instructing the employees' family how to continue to care for

him, get his wounds healed and get him back on his job more quickly because of her service, it is obviously good business both for the employer, employees, and the insurance company.

These nurses go into the homes of those carrying insurance with their company and give instructions to the families in nursing and care of the sick; in sanitation; and in dietetics. Not only this but they give free inoculation of anti-typhoid serum to all persons who desire it, regardless of whether they are members of families carrying insurance with their company or not. In the summer of 1925 these nurses vaccinated 2000 people, besides those carrying insurance with the Metropolitan Company. This was equivalent to a service to 6000 people, for each one had three inoculations. This service was voluntary on the part of the nurses who wanted to stamp out typhoid fever. Aside from the service to these two thousand people the nurses put on an advertizing campaign, letting the public know they would give this treatment. Undoubtedly, as a result of this, many who did not come in for this free vaccination went to their own physicians and had it done.

The nurses are in Kingsport chiefly to look after the health of their company's policy holders, but they realize that in protecting the community as a whole from contagious diseases they are lessening the probability of disease, and lowering the death rate among their policy holders.

Summary and Conclusions.

- (1) The average age of country physicians in the Kingsport area in 1914 was 36 and the average age in the Rogersville area was 39.
- (2) In 1925 the average age of country physicians in the Kingsport area was 48, and in the Rogersville area the average age was 60.
- (3) There was a removal of 28% of the country physicians from the Kingsport area during the ten-year period, and 60% removal from the Rogersville area.
- (4) There are considerably more physicians per 1000 people in the Kings-

port area than in the Rogersville area.

(5) There is a 30 bed hospital and a free baby clinic in Kingsport, while Rogersville has only a 10 bed hospital.

(6) The coming of manufacturing and the consequent building of Kingsport made these hospital facilities of this area possible.

(7) Prior to the building of Kingsport the people of this area had no hospital facilities nearer than Bristol, a distance of about 30 miles.

(8) The building of Kingsport increased the number of dentists and put them nearer the people.

(9) There is no organized health work in the Rogersville area.

(10) The Kingsport area has two graduate nurses employed by the Metropolitan Life Insurance Company, who devote their time to looking after the health of their company's policy holders, and to doing educational work in public health in the entire area.

(11) In 1925 these nurses gave the anti-typhoid inoculation to 2000 people besides their service to their policy holders and members of their policy holder families.

(12) The work of these nurses is the direct result of the manufacturing interests carrying insurance for their employees.

(14) It is only fair to say that the city of Kingsport, by having more physicians and where competition is keener, has better physicians than Rogersville - or rather there would be expected to be some outstanding physicians. Hence we find Kingsport affording (a) first class oculist; (b) unusually good surgeon; (c) one of the best mechanical dentists in the state.

V.

Rural Finance and Taxation.

This chapter will show that manufacturing and the consequent development of Kingsport has affected the financial status of the rural people of this area in the following ways:

- (1) Increased the value of farm land.
- (2) Increased the assessed valuation of farm property.
- (3) Increased the assessed valuation of other taxable wealth.
- (4) Created new sources of taxable wealth.
- (5) Made available capital for productive purposes more plentiful.

All of these changes are beneficial to the rural people, with some possible harmful effects in (1) and (5). These will be brought out in the discussion that follows:

Table 26.

Increase in Value of Farm Land by Communities.
Kingsport Area.

Community	Value of Farm Land.		Percentage Increase.
	1925	1914	
Indian Springs	\$50 per acre	\$25 per acre	100
Harbour	150 per acre	40 per acre	275
Arcadia	100 per acre	25 per acre	300
Bloomington	300 per acre	25 per acre	1100
Horse Creek	100 per acre	40 per acre	150
Fordtown	75 per acre	30 per acre	150
Rock Springs	75 per acre	30 per acre	150
Bell Ridge	<u>200 per acre</u>	<u>75 per acre</u>	<u>166 2/3</u>
Total	\$ 1050 per acre	\$290	262%
Average	131.25	36.25	262%

Table 27.

Increase in Value of Farm Land by Communities.
Rogersville Area.

Community	Value of Farm Land.		Percentage Increase.
	1925	1914	
Alum Well	\$ 40 per acre	\$ 25 per acre	60
Burem	100 per acre	40 per acre	150
E.&F. Springs	50 per acre	30 per acre	66
Pressmans Home	40 per acre	25 per acre	60
Lake View	50 per acre	35 per acre	43
Persia	100 per acre	40 per acre	150
Altonville	100 per acre	50 per acre	100
Yellow Store	<u>100 per acre</u>	<u>50 per acre</u>	<u>100</u>
Total	\$540	\$270	100
Average	67.50	33.75	100%

Tables 25 and 26 show:

- (1) The average price of land in the Kingsport area in 1914 was \$36.25 per acre and in the Rogersville area \$33.75 per acre; while in 1925 the price in the Kingsport area had risen to \$131.25 per acre, and the Rogersville area the price had risen to \$67.50 per acre.
- (2) The percentage increase in the Kingsport area for the eleven years was 262% and the increase in the Rogersville area was 100%.
- (3) The greatest increases in the Kingsport area are in these communities near in, and on hard surfaced roads, including Bloomingdale, Arcadia, Bell Ridge and Harbour.
- (4) The greatest increases in the Rogersville area are those communities on hard surfaced roads.

The land values in Tables 25 and 26 are based upon the best estimates obtainable from local citizens of each community.

Table 28.
Farm Land Sales by Districts in Sullivan County - 1914 and 1924.

	Total Acres Sold		Total Amount of Sales		Average Sale Prices per Acre.		Percentage of Increase in Sales Prices per Acre.
	1914-1915	1924-1925	1914-1915	1924-1925	1914-1915	1924-1925	1914 - 1925
1	1,174.35	342.00	\$30,148.50	\$14,943.33	\$ 25.67	\$43.69	70.2
2	79.50	216.38	1,078.00	23,112.37	13.56	108.85	688.9
3	198.14	140.50	2,915.00	4,542.00	14.71	32.33	219.9
4	326.68	31.70	6,476.10	3,714.00	19.82	117.16	463.9
5	228.29	385.90	8,461.00	20,621.00	37.02	53.44	44.4
6	74.50	498.30	4,000.00	28,790.00	52.69	58.96	11.9
7	426.39	200.25	20,036.25	20,975.00	46.99	104.74	22.9
8	103.88	416.76	3,395.00	27,759.52	32.68	66.61	103.8
9	139.50	252.25	1,925.00	12,124.00	13.08	48.06	267.4
10	151.50	671.65	2,790.00	35,786.00	25.02	53.28	112.9
11	413.90	344.71	9,146.87	192,335.50	22.10	557.96	2,424.7
12	10.00	163.05	500.00	13,565.00	50.00	83.20	66.4
13	166.70	284.71	5,447.62	17,895.30	32.68	62.85	92.3
14	309.92	309.90	11,121.40	24,490.00	35.88	79.03	120.3
15	625.00	403.10	5,300.00	12,311.25	8.48	30.54	260.1
16	632.00	481.48	14,641.00	29,113.00	23.17	60.47	161.0
17	164.35	99.10	10,725.00	34,193.00	65.26	345.04	428.7
18	394.00	153.50	5,037.00	8,487.00	12.78	55.29	332.6
19	156.75	585.75	1,363.00	7,447.00	8.70	12.71	46.1
20	185.00	114.75	6,560.00	9,060.00	35.46	78.87	122.4
21	112.13	165.00	7,727.25	4,875.00	68.91	29.55	-133.2
22	286.30	267.60	19,365.00	13,805.00	67.64	51.59	- 31.1
Farm Land Sales by Districts in Hawkins County - 1914 and 1924.							
1	975.56	959.64	28,064.84	49,580.00	28.78	51.67	79.5
2	1,957.50	985.08	45,205.00	38,374.00	24.21	38.96	60.9
3	1,828.47	1,020.60	23,726.25	33,235.00	12.98	32.56	150.8
4	1,014.40	730.62	20,519.30	42,998.00	20.23	58.85	190.9
5	1,050.85	619.15	41,435.00	32,558.00	36.00	52.58	46.1
6	1,764.35	1,652.47	16,549.71	57,333.67	9.38	34.70	269.9
7	1,214.25	431.00	39,391.50	19,527.62	31.61	45.31	43.3
8	48.50	72.86	1,775.00	4,860.00	36.60	66.68	82.2

Table 28 shows:

(1) The largest increase in land values by districts are in the 2nd, 4th, 11th, 17th. Kingsport is in the 11th and we would expect the greatest increase here, and Bristol is in the 17th. The other increases seem to be independent of city growth and are not necessarily the districts near in to the towns. Unless we knew the topography of each district we could not give a reason for these increases. The highest increases are probably in the fertile valleys.

Table 27 also shows the highest increases in 4th and 6th districts. The 4th includes Rogersville, and the 6th lies partly within the Holston river valley. These districts are unusually large and contain land ranging from very low to unusually high values.

Table 29.

Personal Property - Sullivan.

Comparative Personal Property Values in Districts including Incorporated with Unincorporated Places.				
District	1914	1924	Increase or Decrease from 1914 to 1924	Percentage Increase or Decrease.
11	\$118,540	\$1,257,680	\$1,139,140	961.0
16	22,990	50,000	27,010	117.5
17	266,885	1,453,360	1,186,475	444.6
Total	408,415	2,761,040	2,352,625	576.0
1	23,350	9,260	-14,090	-60.3
2	37,360	23,120	-14,240	-38.1
3	4,460	3,750	- 710	-15.9
4	60,680	39,122	-21,558	-35.5
5	45,225	81,825	36,600	80.9
6	3,340	19,802	11,462	137.4
7	29,225	29,920	695	2.4
8	6,680	9,350	2,670	39.9
9	8,585	17,980	9,395	109.4
10	17,690	16,800	- 890	-5.0
12	22,805	6,190	-16,615	-72.9
13	9,305	11,900	2,595	27.9
14	5,285	25,605	20,320	384.5
15	16,070	10,135	- 5,935	-36.9
18	20,925	14,170	- 6,755	-32.3
19	330	950	620	187.9
20	5,420	6,825	3,405	99.6
21	13,945	12,010	-1,935	-13.9
22	10,940	15,965	5,025	45.9
Total	354,620	354,679	10,059	3.0

It will be observed in Table 29 that the three districts, 11th, 16th, and 17th, including Kingsport, Bluff City, and Bristol gained 576% in assessed valuation of personal property while all the other districts combined gained only 3%, and of these 10 showed decreases.

It will be observed that in 1914 in the three districts the assessed valuation of personal property was nearly \$100,000 more than the other 19 districts combined, and in 1924 the value in the three districts including incorporated towns, was about seven times more than the other nineteen districts combined.

The outstanding increase of course was in the 11th district, which includes Kingsport which was built during this period. The increase in this district was \$1,139,140. It would not be fair to assume that this district would have decreased had it not been for manufacturing, yet the 12th district, an adjoining district had a decrease. Assuming that the normal increase without the growth of Kingsport had been \$139,140, which would have been over 100% increase, which is 97% more than the average increase outside of districts including incorporated towns, this would leave an increase of \$1,000,000 due to the coming of manufacturing, with a county tax rate of 1.38 (the 1925 county rate). It would mean an increased county revenue of \$18,800.

In this connection the manufacturing plants of Kingsport made a great contribution direct to the county revenues. In 1925 the following manufacturing plant, Clinchfield Portland Cement Company, Kingsport Brick Corporation, Tennessee Eastman Corporation, Cornig Glass Works, Mead Fiber Company, Kingsport Press, Kingsport Hosiery Mills, Ladew Jones Company (Tannery and Extract Plants) Federal Dye Corporation, had a total assessed valuation of \$3,282,761.* With the same county tax rate this would increase county revenues \$45,302.10. Borden Mills is not included for it was under construction at the time, but was assessed at 67,197, which would increase county revenue \$887.31 more.

In 1924 the assessed valuation of Kingsport was \$6,320,132, and that of the county \$23,221,050. This 27.2% of the total. Kingsport then bears over 27.2% of the county tax burden, in addition to the municipal tax.

*This was the total assessed valuation by the Assessor but not been approved by in Equalization Board.

Table 30.

Relation of Manufacturing to Tax Burden of Farm Land.

Community Sullivan	Assessed Valuation			Percentage Farm Land is of Total.		
	1914	1920	1924	1914	1920	1924
Total assessed valuation.	6,720,554	30,338,620	23,382,090	3		
Farm Land	2,102,880	14,915,070	8,641,602	31.2	49.1	36.9
Public Util- ities.	1,648,184	3,920,535	4,250,529	24.5	12.9	18.1
Personal Property	751,545	2,737,890	3,135,719	11.1	9.0	13.4
Town Lots	2,217,945	8,765,125	7,354,240	33.0	28.8	31.4
Hawkins						
Total assessed valuation.	3,088,494	13,658,487	10,259,138			
Farm Land	1,948,345	9,428,565	6,878,279	63.0	69.0	67.0
Public Util- ities.	653,884	2,199,787	1,969,462	21.1	16.1	19.1
Personal Property	269,580	1,171,795	604,952	8.7	8.5	5.8
Town Lots	216,685	858,340	806,445	7.0	6.2	7.8

(1) Table 30 will show that farm land in Sullivan is assessed only \$64,533 more than farm land in Hawkins in 1914 but in 1924 Sullivan farm land is assessed nearly \$2000,000 more than Hawkins farm land.

(2) Even though Sullivan farm land is assessed at nearly \$2,000,000 more than Hawkins, Sullivan farm land bears 36.9% of the total county tax burden and Hawkins County farm land contributes 67% of the total county tax burden.

(3) Town lots in Sullivan County contribute 31.4% of the county tax, and in Hawkins 7.8%.

(4) Personal property in Sullivan County contribute 13.4% of the county tax and in Hawkins 2.8%.

Table 31.
Average Assessed Value of Farm Land Per Acre by Districts.
Hawkins County.

District	1914	1916	1918	1920	1922	1924	Increase 1914-'20	% Increase 1914-'20	Decrease 1920-'24	% Decrease 1920-'24
1	8.23	7.94	7.79	36.17	31.70	24.92	27.94	339.5%	11.25	-31.1
2	7.13	7.20	7.19	30.51	29.67	25.49	23.38	327.9	5.02	-16.5
3	4.77	4.54	4.69	21.44	9.88	20.59	16.67	349.50	.85	-3.9
4	9.26	9.42	9.34	49.73	43.21	32.94	40.47	437.0	16.89	-34.0
5	7.60	7.54	7.63	37.29	33.69	24.81	29.69	390.7	12.48	-33.5
6	4.67	4.37	4.24	21.58	21.02	16.31	17.41	417.5	5.27	-24.4
7	7.54	7.42	7.52	40.99	37.88	29.46	33.35	442.3	11.43	-27.9
8		13.44	13.67	60.20	52.08	42.08			18.12	-30.1
Average for county.	6.87	6.81	6.75	32.66	30.73	24.12	25.73	375.30	8.53	-26.1

Table 32.
Average Assessed Value of Farm Land Per Acre by Districts.
Sullivan County.

Distr.	1914	1916	1918	1920	1922	1924	Increase 1914-'20	% Increase 1914-'20	Decrease 1920-'24	% Decrease 1920-'24
1	\$ 2.79	\$3.10	\$2.87	\$5.30	\$24.04	\$19.46	\$32.51	1,165.2	-\$15.84	-44.9
2	13.99	16.25	16.51	73.55	63.13	44.68	59.56	425.7	-28.87	-39.3
3	3.89	5.54	3.88	25.96	21.67	16.57	22.07	467.4	- 9.39	-36.2
4	9.14	9.16	8.74	42.62	31.24	27.57	33.48	366.3	-15.05	-35.3
5	11.32	11.39	12.22	72.38	48.13	35.55	61.06	539.4	-36.83	-50.9
6	8.78	6.75	7.07	48.35	32.54	24.20	41.57	613.1	-24.15	-50.0
7	8.56	8.72	9.80	67.33	36.90	28.83	58.77	686.6	-38.50	-57.2
8	6.97	8.38	7.35	46.30	23.66	24.66	39.33	564.3	-21.64	-46.7
9	10.23	10.36	9.44	49.63	39.95	34.19	39.40	385.1	-15.44	-31.1
10	7.94	8.10	8.73	63.20	38.73	26.39	55.26	696.0	-36.81	-58.2
11	9.68	13.27	48.41	331.46	136.91	210.04	321.78	3324.2	-121.42	-36.6
12	8.65	10.82	9.03	65.72	44.24	35.81	57.07	659.8	-29.91	-45.5
13	6.97	7.23	8.10	40.87	32.99	29.29	33.90	486.4	-11.58	-28.3
14	8.91	9.25	9.12	58.73	44.66	30.66	49.82	559.1	-28.07	-47.8
15	6.66	6.70	7.26	30.05	25.18	23.65	23.39	351.2	- 6.40	-21.3
16	7.08	7.05	7.34	40.99	31.32	23.81	33.91	478.9	-17.18	-41.9
17	53.43	53.96	49.46	170.50	141.32	116.76	117.07	219.1	-53.74	-31.5
18	7.67	7.71	8.17	54.32	32.95	30.31	46.65	608.2	-24.01	-44.2
19	1.31	1.21	1.38	6.11	9.90	8.93	4.80	366.4	2.82	46.2
20	9.36	8.84	8.61	35.85	31.63	25.16	26.49	283.0	-10.69	-29.8
21	11.45	12.03	11.71	48.75	30.43	26.46	37.30	325.8	-22.29	-45.7
22	9.17	8.52	8.02	54.69	45.83	36.57	45.52	496.4	-18.12	-33.1
Average for county.	8.05	8.42	10.16	58.66	40.58	37.75	50.61	628.7	-20.91	-35.6

(1) Assessed valuation of farm land rose in Sullivan from 1914 to 1920 from \$8.05 per acre to \$58.65 and Hawkins farm land rose from \$7.04 to \$32.65.

(2) The percentage increase in Sullivan was 628.7 and in Hawkins 375.3, a little over 1/2 the percentage increase in Sullivan County.

(3) The decrease in Sullivan from 1920 to 1924 was from \$58.65 to \$37.75 or 35.60% decrease. The decrease in Hawkins from 1920 to 1924 was from \$32.65 to \$24.12 or 26.1%.

(5) After the decrease the assessed valuation in Sullivan remains \$13.65 per acre more than Hawkins.

(6) The greatest increase in Sullivan County from 1914 to 1920 was in the 11th district including Kingsport.

(7) The decrease on the other land in this district from 1920 to 1924 was about an average with the other districts.

(8) The highest assessed valuations in Sullivan in 1924 are found in the 11th including Kingsport and the 17th, including Bristol.

(9) The highest assessed valuations in Hawkins in 1924 is not found in the 4th district, including Rogersville, but in the 8th district, which includes Bulls Gap, which is near Morristown.

Table 33.
Comparisons of County Revenues.

Date	Assessed Valuation	County Rate	County Taxes	Amt. Hawkins rate exceeds Sullivan	Amt. Sullivan revenues exceeds Hawk.
Hawkins	Hawkins	Hawkins	Hawkins		
1916	\$3,057,325	\$2.25	\$69,014.70		
1918	3,391,216	2.75	93,253.55		
1920	13,209,400	1.09	143,983.00		
1922	12,615,369	1.52	191,753.62		
1924	10,652,151	1.70	181,188.53		
Sullivan	Sullivan	Sullivan	Sullivan		
1916	\$6,738,945	\$1.55	\$104,453.57	\$0.70	\$35,438.87
1918	8,323,772	1.70	141,504.09	1.05	48,245.54
1920	30,459,490	0.74	225,400.23	0.35	81,417.23
1922	25,552,749	.88	224,952.20	0.64	33,196.58
1924	23,221,050	1.33	320,450.49	0.32	139,261.93

(1) Table 33 will show Sullivan County in 1924 revenues exceeding Hawkins County revenue \$139,261.93 or nearly double Hawkins revenue with a tax rate \$0.32 less.

(2) The tax rate in Sullivan has been consistently lower than in Hawkins and the revenues greater.

(3) The tax rate in Sullivan could be only $1/2$ the Hawkins rate and have still a slightly higher income.

(4) It will be recalled in this connection that Kingsport bears 27% of the Sullivan tax burden.

Available Credit.

(1) In the 16 districts in the lower end of Sullivan including Kingsport there were only 25 Federal Farm Loans. This agency is in Kingsport for the farmers' service, but there is evidently plenty of available credit or farmers would take advantage of this Federal Agency in larger numbers.

(2) At Kingsport Insurance Companies make first mortgage loans on farms at $6\frac{1}{2}\%$. The only cost in addition is \$25.00 for an abstract deed. Money in first mortgages can be had for 50% of value of the land.

(3) There are three banks in Kingsport which loan money to farmers at 6% interest.

(4) A second mortgage can be had for 25% of the value of the property at interest rate of $7\frac{1}{2}\%$, making a total of 75% of value of property that can be placed under mortgage for borrower's money.

(5) These Insurance Companies do not go into isolated sections nor where land is poor. Hence the farmers near Kingsport have better credit.

(6) There were three banks in Rogersville and credit seemed to be about as available there as in Kingsport. However, farmers are having to pay 8% in this area which is 2% above the legal rate.

(7) There were 40 Federal farm loans in Hawkins County, 28 of which were

in the first civil district.

(8) Sullivan County stood 7th in banking resources in 1923 and Hawkins County stood 39.

(9) There was no indication of extreme poverty or extreme wealth among the rural people of the Kingsport area. It is sometimes suggested that manufacturing so upsets the economic equilibrium as to cause these two extremes of wealth and poverty in the same community. This is not the case in the Kingsport area. On the other hand, there is a more even distribution of wealth and the wealth per capita is increased as indicated by (1) better type of agricultural practice; (2) better crop yields; (3) more home owners in proportion to tenants; (4) better market for farm products; (5) available employment in Kingsport for surplus labor.

Summary and Conclusion.

(1) Land values have risen in the Kingsport area from 1914 to 1924 262%, and in the Rogersville area 100%.

This increase may be beneficial if the production of the soil has increased as it has done in each area, and with a better local market at Kingsport. It may be harmful in the Rogersville area when no local market has been built up and freight rates to general markets have increased.

(2) The greatest increase in land values is in the 11th district including Kingsport and the next greatest increase is in adjoining districts along hard surfaced highways.

(3) The personal property increase in the 11th district, including Kingsport, from 1914 to 1924 was 961% and 576% for the three districts of Kingsport, Bristol and Bluff City.

(4) The increase in personal property for the rest of the county was 3% while 10 of these rural districts showed a decrease in value of personal property.

(5) The increase in assessed valuation of personal property in Kingsport

is probably something over 1,000,000 due to manufacturing.

(6) The manufacturing plants of Kingsport in 1925 contributed \$46,189.41 to the county revenue in taxes.

(7) Kingsport bears 27.2% of the entire tax burden of Sullivan County.

(8) Sullivan farm land bears 36.9% of the tax burden, while Hawkins farm land bears 67% of the tax burden.

(9) Town lots in Sullivan bear 31.4% of the county tax burden, while town lots in Hawkins bear 7.8% of the county tax burden.

(10) The greatest increase in assessed valuation of farm property from 1914 to 1920 was in the 11th district including Kingsport, but the decrease there was about the average for the county, indicating that a district near a manufacturing center will hold up better in a period of depression.

(11) Sullivan County had a tax rate in 1924 \$0.32 lower than Hawkins County and a tax revenue \$139,261.93 greater than Hawkins County.

(12) The tax rate in Sullivan could be only 1/2 of that of Hawkins and the county still derive about the same revenue.

(13) There were only 25 Federal farm loans in the Kingsport area, and 40 in the Rogersville area, indicating that local capital was more plentiful and at a lower rate in the Kingsport area.

(14) The banks in Kingsport do not discriminate against the farmer on short loans, but loan them money at 6%, the legal rate. In Rogersville the farmers must pay 8% at the banks.

(15) The general level of Prosperity in the Kingsport area has been raised because (1) of the growth of a local market for farm products; (2) ample employment for their surplus labor; (3) increase in taxable wealth thereby partly relieving tax burden on farm lands; (4) by making capital more available and on easier terms.

It is clear that a county needs other sources to tax besides farm land, for

during a depression the burden is scattered over many industries and the county is more certain of an increasing income.

VI.

Rural Education.

There are four or more ways in which manufacturing and its consequent commerce may contribute to the education of its immediate territory.

(1) By adding to the county revenues through taxation. This will benefit the entire county.

(2) By causing the growth of a city such as Kingsport, and permitting the surrounding communities to patronize the schools of the city which, as is well known, are better than the rural schools.

(3) There are other ways (a) such as the establishment of trade schools by manufacturing concerns; (b) by gifts, endowments, etc. by philanthropists who have accumulated wealth through manufacturing. Our survey does not record any benefits by this latter method, but there is a considerable contribution to education by manufacturing of Kingsport by the first three ways mentioned.

A Few Comparisons of the Two Areas. As was seen by the preceeding chapter the county revenue in Sullivan County was greater than in Hawkins and a large part of this revenue was paid by the manufacturing concerns of Kingsport. As a result in 1925 the length of the school term in the Kingsport area for rural elementary schools was 145 days while in the Rogersville area it was 128 days, or 17 days less. This lacks only 3 days being a month less (counting 20 days a school month.) It might be said in this connection that the state has a new law effective beginning in the school year 1925-1926 to make the elementary school terms uniform throughout the state of 8 months. This is done by a so-called "equalization" fund whereby the state subsidizes the poorer counties. This is nothing more than a contribution by the wealthier manufacturing counties to the poorer counties that have little taxable property. Of course this law does not prevent those communities that are able to maintain a longer term than 8 months from doing so, and very likely Sullivan County will be one of the first counties to so extend its term.

(2) Along with a longer term in Sullivan County the physical equipment is better than that of Hawkins County. The average value in Sullivan is \$3574 per school house, desks, etc. and grounds, while that of Hawkins is \$1402, or less than 1/2 that of Sullivan.

(3) The library facilities while inadequate in both areas, are somewhat better in the Kingsport area, there being an average of 34 volumes per school in this region and only 12 volumes per school in the Rogersville area, or practically a ratio of 3:1 in favor of the Kingsport area.

(4) The expenditure per pupil enrolled in Sullivan in 1925 was \$26.43 and in Hawkins \$16.65. The fact that Sullivan has better buildings, more teaching days, better libraries and spends more money per pupil enrolled make it clear why Sullivan's illiteracy is 3.6% less than illiteracy in Hawkins County, the illiteracy being 10.5% in Sullivan and 14.1% in Hawkins.

(5) Perhaps one of the most significant things about rural schools is the fact that in 1914 in the Kingsport area 5 of the rural schools were one-teacher schools, and only 3 of the schools in the Rogersville area were one-teacher schools, while in 1925 the Kingsport area only had 1 one-teacher school and the Rogersville area had 4 one-teacher schools. This would seem to indicate a decrease in rural population in the Rogersville area, a lack of school interest and possibly a scarcity of funds to maintain the two- and three-teacher elementary schools; and would seem to indicate a growth in population in the Kingsport area, an increased school interest, and ample funds to employ extra teachers when needed. The Kingsport area employs 18 teachers which is an average of 2 to each school with 1 four-teacher school, while the Rogersville area employs 13 teachers which lacks 3 teachers averaging 2 teachers per school.

(6) Since 1914 three new school houses have been built in the Kingsport area and one other had an extra room attached, while the Rogersville area has had only one new building during this period.

High School Facilities. The high school facilities of both areas seem to be ample for their needs when it is recalled that the average distance to Kingsport and Rogersville is not over seven miles, and there are junior high schools in the outlying areas. But the facilities are better in the Kingsport territory.

(1) In the Kingsport area there is a junior high school at Indian Springs and one at Rock Springs and just out of the area of our survey there are high schools either at Gate City, Virginia, and Blountville. Hence none of the communities surveyed are more than 7 miles from good high schools, with junior highs within local range in two communities and bordering two more making 4 out of the 8 communities within a three-mile limit of junior high school facilities - and the other four communities are within a 3- or 4-mile range of Kingsport. Summing up for the Kingsport area all communities are within an average distance of 7 miles to a first class 4 year high school and 1/2 the area is within a 3 mile average of junior high schools.

(2) The Rogersville area has enough high schools apparently, but they do not circle Rogersville as they should, but rather follow the state highway, passing through the county. There is a high school of course at Rogersville, then one at Mooresburg and one at Surgoinsville. Of the communities surveyed, Ebbing and Flowing Springs, Yellow Store, Lake View, and Altonville are within a reach of these schools. All the other communities are within 7 miles of Rogersville except Pressmens Home. However the outer edge of these latter communities are considerably further than 7 miles from Rogersville, some of them as far as 10 miles. The Pressmens Home community is 10 miles from Rogersville with the lower end some 12 or 13 miles from Rogersville. There is a high school at Bulls Gap apparently 7 or 8 miles from Persia, and the Persia community would appear to be amply provided for by patronizing Rogersville on the one side and Bull's Gap on the other. This would leave the people on the outer edge of the Buren community and the Pressmens Home community without adequate high school facilities.

Of the total enrollment in Hawkins in 1923 5.8% were in high school. No data for Sullivan County was available, but for the Kingsport area it figured 8%; that is, for the rural area, and for the Hawkins area 6.2%.

A few other comparisons:

(1) In 1923 Sullivan's county tax for elementary schools was 40¢, while Hawkins' elementary school tax was 37 1/4¢. And it will be recalled from previous chapter that the Sullivan county tax rate for all purposes was lower than the Hawkins rate and yet their revenues were about twice as great. This would indicate clearly that Sullivan County is spending more money for elementary purposes. It has been pointed out already in this chapter that the expenditure per pupil was greater in Sullivan and also that illiteracy was less in Sullivan.

(2) In 1923 30.5 of the Hawkins' elementary teachers were without previous experience, while only 22.7 of Sullivan teachers were without previous experience.

(3) In 1923 the average annual salary of elementary teachers in Hawkins County was \$453, while Sullivan elementary teachers received an average annual salary of \$563. Sullivan ranked 10th in the state of the counties paying highest salaries to elementary teachers and Hawkins ranked 43rd.

(4) In 1923 66% of Hawkins rural elementary schools were one-teacher schools while only 54% of Sullivan rural schools were one-teacher schools.

(5) The percentage of enrollment in average daily attendance was practically the same in both counties, being 63.5% in Hawkins and 63.4 in Sullivan.

(6) In 1926 in the Kingsport area there were 8 students away in college, an average of one per community, while in the Rogersville area there were only 3 away in college.

School Facilities of Kingsport. Whatever school advantages are offered by Kingsport are caused by the growth and consequent demands of the city itself, but it is a great benefit to the immediate rural area.

Kingsport has the following schools:

(1) Sevier High School, costing \$150,000

- (2) Junior High School, costing \$25,000
- (3) Two elementary schools each costing \$50,000
- (4) One under construction, costing \$250,000.

The Kingsport schools are under local control and supervision independent of the county and receive pay from the county for the high school pupils coming from without the city limits, but admit rural elementary pupils free.

(1) The Kingsport High School has installed a radio which brings in educational programs which of course are free to the rural pupils enrolled as well as the urban pupils, and is free to the public, including rural people, on occasions when public programs are given.

(2) This school has installed also a moving picture machine to show educational pictures. This too will be free to the public as well as pupils of the immediate rural area.

(3) It goes without saying that the teachers of Kingsport are very much better prepared and trained than the rural teachers, and consequently it behooves all rural people in reach of Kingsport to patronize these city schools.

(4) The city merchants of Kingsport have advertisement put up in rural school areas and pay the schools for thus advertising their wares. This adds revenue to the rural schools and helps to maintain a friendly attitude between the city and the rural communities.

(5) The Kingsport high school offers business courses which prepare pupils for immediate positions in bookkeeping, stenographic, short hand, etc.

Summary and Conclusion.

(1) The length of school term in the Kingsport area was 145 days while in the Rogersville area it was 128 days.

(2) The school property in the Kingsport area is worth about 2 1/2 times as much as the school property in the Rogersville area.

(3) The libraries in the Kingsport area average 34 volumes per school while there were only 12 volumes per school in the Rogersville area.

(4) The expenditure per pupil in the Kingsport area was \$26.43 and \$16.65 in the Rogersville area.

(5) The Kingsport area had 5 one-teacher schools in 1914 and one one-teacher school in 1925, while the Rogersville area had 3 one-teacher schools in 1914 and 4 one-teacher schools in 1924.

(6) Since 1914 3 new schools have been built in the Kingsport area and one new school has been built in the Rogersville area.

(7) The Kingsport area has ample high school facilities in Kingsport with two county junior high schools in the area and senior high schools in nearby territories. The Rogersville area has ample high school facilities in only 6 of the 8 communities.

(8) There is a higher percentage of the total school enrollment in high school in the Kingsport area than in the Rogersville area.

(9) In 1923 Sullivan had a higher school tax than Hawkins when her total tax rate was less, despite the fact that Sullivan's assessed property was greater and her revenues greater.

(10) Hawkins County pays lower salaries to teachers than Sullivan County.

(11) Hawkins County has a larger percentage of teachers without previous training.

(12) The Kingsport area has more students away in college than the Hawkins area.

(13) Kingsport has a radio and moving picture machine in her equipment.

(14) The Kingsport area had 40 rural pupils in the Kingsport high school in 1925.

(15) Illiteracy is 3.69 higher in Hawkins County.

(16) Business courses are offered in the Kingsport high school. Many rural girls take advantage of these courses.

Supplementary material. It is frequently said that in manufacturing regions agricultural education will lag, resulting in a possible decline of the farm-

ing industry. The following figures will show what happened in the New England States compared with the South Central States.

Table 34.

Agricultural College Enrollment	New England States.	South Central States (including Tennessee)
Per 1000 white farm population	1.67	0.25
Per 1000 white farm tenants	6.69	1.28
Per \$1,000,000 white farm property	0.89	0.18
Per \$1,000,000 value of all farm products.	3.27	0.70

This table would indicate that higher agricultural education is better in the manufacturing states.

Aside from the fact that manufacturing contributes to education in the ways discussed in this chapter, the industries along with their consequent commerce are on a rather keen competitive basis, and would seem to act as a stimulant to enable people to see the necessity of education both in regular academic and vocational subjects. This point is probably made clear by the fact that there is a higher percentage of pupils in high school in the Kingsport area than in the non-manufacturing Rogersville area; and also more pupils away in college from the rural homes in the Kingsport area.

VII.

The Rural Church.

The relation of the rural church to the life and welfare of its community is so vital that it deserves more consideration than we have been able to give it in this study. If a manufacturing center has any effect upon the church and morals of its immediate rural area this topic alone would be sufficient for extended investigation to find out what these effects might be and whether they were beneficial or harmful.

Our local surveys were in school communities, with the school as the community center, and church and school centers do not always coincide. Parishes may be found overlapping each other, and sometimes a school center does not include a church, but the people go to neighboring communities to church. The automobile is given credit for affecting the rural church also.

But with these factors in mind there are certain things that our data show from which some conclusions may be properly drawn.

Denominations. Northern Methodist, Southern Methodist, Missionary Baptists, and Presbyterians were the four denominations maintaining church organizations in both areas. Apparently they ranked in strength just as listed.

(1) No changes have been brought about in frequency of services in either area since 1914. The services are monthly at each church with a revival during the summer.

(2)*Membership seemed to hold about 35% of the population for each period in both areas.

Attendance in both areas was reported as being irregular and uncertain. It was explained that this was caused by people who owned cars leaving the community church if a special program happened to be offered in another place.

In 1916 36.4% of the total population in Hawkins County were church mem-

* Exact number of members was obtained only in four of the sixteen communities. From these four and estimates from local citizens of the other twelve, these figures were derived.

bers, and in Sullivan County 34.3% were church members. Hence our data for the two areas is in harmony with the county material for 1916.

Sunday Schools. (1) In 1926 all the 8 communities in the Kingsport area reported Sunday Schools, and six of the 8 communities in the Rogersville area reported a Sunday School. These two communities that had none in 1925 reported Sunday Schools in 1914.

(2) In the Kingsport area only two communities reported their Sunday School classes smaller than they were eleven years ago, and these two reported a number of their people as attending Sunday School in Kingsport.

(3) The other six communities reported larger classes than formerly with a larger attendance of young people, and more interest in Sunday School.

(4) Of the six communities in Rogersville area reporting Sunday School 3 reported smaller Sunday School classes, the other three reported about the same size classes as formerly. All reported less young people.

The above report on Sunday Schools would not of course indicate that rural people in the Kingsport area were naturally more religious but would indicate merely that conditions are more favorable for interest to be maintained in Sunday School classes, because the area is a little more thickly settled, and because the young people have not left the region as they have in the Rogersville area. A statement in the Rogersville area was "There are no young people attending Sunday School".

Condition of Buildings. There has been very little change in the condition of church buildings in either region.

In the Kingsport area every community reported its church buildings to be in good state of repair and painted and comfortable, while in the Rogersville area two communities reported uncomfortable houses and the need of new buildings.

The lack of comfortable churches houses in the rural communities is a big

factor in keeping people away from church in the winter. A church building may be well built and yet lack a few inexpensive things to make it comfortable. For instance, the stove may be in one corner of the house, and a few window lights broken out. Usually the church is in a grove, and the fuel is obtained from this grove. The wood is usually green and often wet and soggy. This condition could be corrected with little expense. (1) The window lights could be replaced, (2) a wood shed could be built, (3) and the stove could be moved to the center of the building. These three things would add to the comfort and consequently to the increased attendance of many rural churches, with relatively little cost.

Budget. The pastor's pay is the chief item in the budget and seems to be inadequate in each area to support the type of pastors that the people ought to have. The pastor's salary in 1925 ranged from \$125 to \$225 annually in the Kingsport area, and from \$75 to \$150 annually in the Rogersville area, making an average \$175 annually in the Kingsport area and \$112.50 for the Rogersville area, while in 1914 the average annual salary for Kingsport area figured \$100 and the Rogersville \$87.50.

It is customary for a pastor to have 4 churches. This would make the annual salary of the Kingsport rural pastors \$700 and the rural pastors of the Rogersville area \$450. These salaries would seem poor, and are too little in both areas, but the preachers get extra pay through the "revival" seasons, and some contributions for preaching funerals, performing marriage ceremonies, fifth Sunday services, etc. Then many of them have other occupations such as teaching country schools, farming, and so on.

Education of Pastors. Only one community in the Kingsport area reported a poorer pastor in 1925 than in 1914 and the other 7 communities reported better pastors, while 3 communities in the Rogersville area reported better pastors; 3 reported about the same type, and two reported poorer pastors.

I happened to be talking with a man in the hotel at Rogersville who introduced himself as a minister of the Gospel, and a regular pastor in the area that we were surveying. In the course of his conversation he told me of being on his way to one of his regular appointments to preach when his horse became lame. He stopped at a blacksmith shop and had his horse's hoof examined. The blacksmith pulled a rusty nail out of the frog of the hoof and filled the wound with turpentine, and then drove the nail in the ground, explaining that this precaution of driving the nail in the ground would keep the horse from remaining lame. The preacher got on his horse and he said that by the time he reached his church the horse had recovered from his recent lameness. This preacher later cut his leg with a hand axe while cutting up pumpkins for his cow and in the performance of this task his axe slipped and cut his leg. He immediately drove the blade of the axe into the ground and let it remain until his wound healed. Later he went to a physician and had his wound dressed. This story is rather absurd, but is an actual experience we had with a prominent country minister in the Rogersville area and may shed some light upon the superstitions that still exist among people that ought to have more intelligence. We do not presume to say all the ministers are this superstitious. Many of them may be otherwise. We tell this incident however to explain that superstitions are difficult to eradicate so long as preachers and teachers hold to them. A preacher is a man of influence in his community and so long as the ministry is ignorant we cannot expect the rural church progress.

Morals. There is some complaint of immorality in both regions, but no more in the Kingsport area than in the Rogersville area. It does not seem fair to blame a town or city with being the cause of immorality. Possibly the manufacturing of automobiles in the world and their rather wide dissemination have made immorality convenient and easy to indulge in. It would be hardly right to say all manufacturing caused it.

Every community in both areas reported less rowdiness and better behavior at public gatherings than in 1914. Manufacturing would not seem to have any bearing either way. Many parents are prejudiced and say that the town is the cause of immorality because they happen to know of some one who has gone astray in the city. This is often caused because the boy or girl in question was cut loose from the restraining influences of home life.

Summary and Conclusions.

(1) Buildings and physical equipment of churches was better in the Kingsport area.

(2) Better pastors, of higher intelligence are employed in the Kingsport area.

(3) The average annual salaries of rural pastors in the Kingsport area is \$250 more per year. This ought to insure a somewhat better average preacher.

(4) Sunday Schools seemed to be thriving in the Kingsport area.

(5) There are more young people in Kingsport area and they attend Sunday School.

(6) The coming of manufacturing and the consequent building of Kingsport has not apparently increased the immorality of the rural area, nor interfered with the church, but has increased the educational facilities of the people, and improved the financial status of the area, as seen in previous chapters. This in turn has created a demand for better pastors, and enabled the people to pay their pastors better salaries. This ought to strengthen the rural church, and apparently has done so.

VIII.

Rural Transportation and Communication.

Automobiles.

(1) In Sullivan County there are 13.7 people per passenger automobile, while in Hawkins County there are 20.2% people per car.

(2) In Sullivan 29.4% of passenger cars are other than Fords while in Hawkins 20.4% are other than Fords.

(3) In the Kingsport area there were 11.8 people per passenger car and in the Rogersville area 18.9 people per passenger car.

(4) Farmers in the eight communities of the Kingsport area have 22 trucks or an average of $2 \frac{3}{4}$ per community, while there were eight trucks in the Rogersville area or an average of one per community.

It will be seen that both regions are fairly well supplied with automobiles. The rural people in the Kingsport area have an advantage over those in the Rogersville area in the service they get from their cars. Many working in Kingsport drive to and from work in their own cars. Others who do not own their own cars contract with their neighbors who have cars to take them to and from work each day. This is a saving to both parties. The owner, while going into his own work charges for the service, yet it is much less than he could afford to charge if he were making a special trip.

Many farmers go in to Rogersville every day. There is no employment for them there, hence it is an economic waste of time and cost on the upkeep of the automobile.

The trucks in the Kingsport area do a great deal of the hauling both of farm produce to town and farm supplies back to the farms. Professor C. E. Allred found that the passenger rate from Church Hill, 10 miles away, was \$2.00 per week. This would be $33 \frac{1}{3}\%$ per day for a haul of 20 miles. That is less than $1 \frac{3}{4}\%$ per mile which is reasonable for the passenger, and a means of getting his own transportation cost reduced to the owner.

The truck supply is probably adequate in the Kingsport area, for two or three trucks in each community can do a considerable hauling for the entire community. Especially since each farmer may carry much of his lighter produce in his car. There is probably six times as much hauling in the Kingsport area as there is in the Rogersville area.

Railroads.

There happens to be the same railroad mileage in both counties, 51 miles each, but the assessed valuation in 1922 of these railroads in Sullivan were \$3,205,000 and in Hawkins \$1,955,000, indicating better roadbeds and better railway service in Sullivan.

Rogersville is on a branch line of the Southern Railway and the people feel that this area needs better facilities badly. They would like for the Norfolk and Western to come from Bristol to Kingsport and then on through Rogersville and buy out the Grainger County branch of the Southern which is to be abandoned, and thus go into Knoxville. But there is apparently no prospect of this taking place at present.

Kingsport is on the main line of the C.C. & O. Railroad which is now under control and a part of the Louisville and Nashville Railroad Company.

The same people who established Kingsport built the railroad and of course they wanted to increase their business from manufacturing products. This C.C.&O. Railway is 300 miles long and instead of following the valley as the other railroads do, it crosses them and in 150 miles of this road it connects with 12 different railroads.

This railroad bought 200 acres of land recently from the Kingsport improvement corporation and expect to build railroad yards and shops there.

This road makes daily shipments from Kingsport of the following:

Cement, 25 cars; brick 25 cars; kodak, 15 cars;
books, 2 to 5 cars; paper, 8 to 10 cars; leather
1 car; hosiery, 1 car; cloth, 1 car.

A railroad doing this volume of business and connecting with other roads as it does would naturally be expected to give the farmers better services than the branch road running through Rogersville.

Of the eight communities surveyed in the Kingsport area the railroad serves only one community locally, and in the Rogersville area the railroad serves two local communities. Of course manufacturing has nothing to do with this but this would indicate an original advantage to the Hawkins area.

Telephones.

There are telephones in both areas and have been since before the coming of manufacturing to Kingsport, but the service is not so very good in either area.

In 1925 of the eight communities surveyed in the Rogersville area 5 reported telephone service as being poor, with 3 communities reporting service as being fair, while in the Kingsport area no communities reported the service poor, 5 reported service fair, and 3 reported good service.

There were about 40% of the houses in the Kingsport area without phones, and 60% of the Rogersville homes without phones.

Summary and Conclusion.

(1) Motor transportation was more plentiful in the Kingsport area, there being 13.7 people per passenger car in Sullivan and 20.2 people per passenger car in Hawkins.

(2) The farmers were better supplied with trucks in the Kingsport area.

(3) Cars were more serviceable in the Kingsport area in carrying workers to and from their work in Kingsport.

(4) There is 51 miles of railroad in each county but the valuation of the railroads in Sullivan is nearly 3 times as high as the railroad in Hawkins, indicating a better roadbed and more serviceable roads in Sullivan County.

(5) The railroad in Sullivan has better connections with other railroads than the railroad in Hawkins. Then, railroad advantages of Kingsport area are not necessarily caused by manufacturing at Kingsport, but Kingsport being one

of the big shipping centers and one of the best patrons of the railroad is an incentive for the railroad company to keep their roadbed up in good condition and keep their rolling stock up to maximum efficiency.

(6) Telephones are not as efficient as they ought to be in either area but are better in the Kingsport area.

(7) More people in the Kingsport area have telephones in their homes.

These transportation and communication facilities, especially the telephone and the automobile, are the two outstanding helps to the more or less isolated country people in getting quick service in emergencies of sickness and urgent business transactions.

IX.

Problems and Discussion.

Problems. In the study we made we could not get complete data on every problem of interest in the time allotted to our work. Then as the work progressed problems occurred that had not been thought of in the original survey. Consequently we felt as if some of these ought to be listed as being worthy of future consideration by some one interested in the subject. There may be research material assembled on some of these problems, but we do not think the field is exhausted.

(1) Standards of living in rural areas in manufacturing regions, compared with living standards in rural areas in strictly agricultural regions.

(2) Living costs of a given standard in rural regions near a manufacturing center compared with living costs of a similar standard in a rural region of a strictly agricultural region.

(3) A comparison of the services that a manufacturing city offers its immediate rural area with a city of similar size supported chiefly by agriculture and agricultural commerce.

(4) A study to see if the services of a town are proportionally increased with the growth of the city.

(5) A study to determine the dominant reason for young people leaving the farm; that is, a study that might determine the ranking of both economic and social reasons in the order of their importance.

(6) a- A study to see if manufacturing plants can operate as economically in rural areas as they can in centralized urban centers, or rather a study to see which industries lend them to operating in the agricultural areas depending upon local farm labor.

b- Would the "dilution of agriculture with industry be profitable to manufacturers as well as beneficial to the farmers?

(7) If an agricultural area is decreasing in population and losing ground economically, is it justified in subsidizing manufacturing plants by low taxes, furnishing ground, buildings, etc. in order to get them to locate in the region?

(8) A study to determine the extent to which a rural area utilizes the services offered by a town or city especially the services of schools, libraries, church, physicians, and hospitals.

Discussion. As has been stated, manufacturing is entirely responsible for the development of Kingsport. Had it not been for manufacturing Kingsport would have been a village instead of a city of 12,000 people. This city renders services to the rural area as a city, and it is much better for the people to have a city with its services near at hand than to have to go to Bristol, Johnson City, and Gate City for these services. And the services of Kingsport are much superior to the services of a smaller place, such as Rogersville, hence in this way manufacturing makes a splendid contribution to the welfare of this rural area.

Rural Leadership. We found no movements among farmers of either region to improve agriculture. This leadership usually originates in the town or city. Kingsport is aiding the farmers in this respect. (1) For example, the business men of Kingsport employed three tobacco experts and placed them at the disposal of the farmers in the Kingsport area to teach them the best methods of growing tobacco.

(2) The business men put up a tobacco ware house in Kingsport, which enables farmers to dispose of their tobacco locally.

(3) The Kingsport Improvement Corporation owns 1,000 acres of farm land and farm this scientifically and have experiment plots on it. This is an important project from which the local farmers may derive benefits.

The chapters on Agriculture show the general effects of the manufacturing on the agricultural area. The advantages that Kingsport has to offer over those

of Rogersville are observed in the foregoing chapters, in health facilities, school facilities, libraries and church.

Kingsport is a superior trading center for the merchants do a larger volume of business.

Then Kingsport is a bigger social center, giving a larger group of organizations both fraternal and religious for people to select from in joining such fraternities.

There are possibly two outstanding prejudices in the mind of country people against the manufacturing town. (1) Takes farm labor away. (2) Increases immorality. This latter prejudice of course is common against any town or city. We did not find a scarcity of labor in the Kingsport area nor did we find immorality any worse in the Kingsport area than in the Rogersville area, hence there is no reason for these common prejudices. In fact, if there were a drawing of labor beyond the surplus it would mean only one thing; namely, that agriculture was not as profitable as manufacturing and needed readjusting. The manufacturing might take away the labor but it would seem to develop a local market as it has done in Kingsport which would make farming more profitable for the farmers.

Appendix A.

This appendix on the manufacturing plants of Kingsport is put in to show something of the extent of manufacturing there, and the rapidity of its development, some idea of the type of manufacturing, and the value of business of same. This appendix will also show some of the services which Kingsport is rendering to the rural people. This material is taken from the Knoxville Sentinel of January 30, 1926.

Kingsport is nine years old.

The population is twelve thousand.

The city was incorporated in March, 1917. The charter was compiled by the bureau of municipal research in the Rockefeller Foundation. It provides for the city manager form of government.

The city plan was made by a noted town planner in advance of the development of the city, and was designed from the beginning to provide for a city of fifty thousand people. Farm land was available for the development of the plan, free from the obstacles incident to any previous development work. With the growth and expansion of our present industries, and the location of other large ones, which now seem imminent, it is confidently believed that this plan will be fulfilled before another ten years have passed. It doesn't take much imagination to believe that within the first nine years more than half the work has been done. There are three thousand acres within the corporate limits. Ample provision has been made for parks, open spaces and land for recreational purposes.

More than seventeen miles of paved streets are within the city, including twelve miles of concrete paving. Modern systems of storm and sanitary sewers were designed and have been built by competent engineers.

The Domestic Water System. - Affords soft water sufficient for thirty-five thousand people. The source of supply is a reservoir of 250,000,000 gallons,

located at the top of Bays mountain at an elevation of six hundred feet above the town.

The School System.- In this period of nine years has grown from a one-teacher school of thirty pupils, with a term of four months, to a modern school system embracing the twelve grades. The system is organized on the 6-2-4 plan - the first six grades being taught in two thoroughly modern fifteen-teacher elementary schools. The remaining six grades are done in junior and senior high schools.

From thirty pupils the attendance has grown to 1875.- Taught in a one-half million dollar plant, by 56 teachers, carefully selected, many of them representing the best American universities.

Graduates from the high school are admitted upon recommendation of the principal to the freshman class of any college or university belonging to the Southern Association of Colleges and Secondary Schools, as well as to colleges and universities in other sections belonging to associations with which this southern association is affiliated.

Of the graduates who attended the standard colleges of this association the past year, not one failed a single course.

The city is building a thoroughly modern \$250,000 high school building, along with an additional grade building to take care of a 40 per cent increase in the school population in school year 1925-26.

Kingsport is a Rapidly Growing Industrial Center. - In addition to the successful industries which have been developed by local capital, the city, by its many natural advantages, has attracted a number of nationally known industries.

In encouraging an industry to locate in Kingsport, care has been taken to see that our natural advantages are such as would contribute to the success of that particular industry. Equal care is taken to see that the industry has a broad and liberal conception of its responsibility to the people who contribute to its success. There are many happy evidences that this policy has been worth while.

All of the manufacturing establishments in the community cooperate in furnishing to their employes, without cost to the employes, group insurance, which provides life, health and accident features in connection with which a nursing service is furnished in case of illness of the employes or their families. A public health center is conducted under the guidance of the Metropolitan Insurance company of New York City, which gives Kingsport the most advanced public health information and service.

Freight received and sent out from Kingsport's manufacturing plants during the year 1924 filled 47,450 freight cars. These shipments of raw materials and manufactured products produced \$2,750,000 of freight revenue.

Corning Glass Works.- Southern Division. Manufacturers of the famous Pyrex ovenware. This is one of the most modern glass plants in the United States. Its capacity is about four million pieces of Pyrex tableware annually. Kingsport was selected as a strategic location for assembling sand and coal, which are the principal raw materials. High grade sand is received from large quarries located twelve miles north of Kingsport on the Clinchfield railway. The coal is brought from the Clinchfield mines sixty-five miles north of Kingsport.

The Kingsport Brick Corporation.- Manufacturing facing and common shale brick, has thirty-one kilns. It mines and manufactures into brick daily a million pounds of shale. It has two hundred and fifty efficient employes, most of whom have been with it for over five years, and a great many since it began operations. The output of this plant is forty million bricks annually. Its product is shipped as far south as New Orleans and St. Petersburg, Florida, and east and north as far as New York and west to Cincinnati.

The Clinchfield Portland Cement Corporation.- Product - "Clinchfield" Portland Cement.

Capacity - 1,400,000 barrels 5,600,000 bags per annum.

Employs - 275 persons.

Rock quarried - Annually 400,000 tons.

Coal used exclusive of power, which is purchased from Kingsport Utilities, Inc. - 90,000 tons.

Power used - 22,000,000 k. w. h.

Bags used during year contain 5,680,000 yard 30 in. wide cotton cloth.

The annual business of the plant requires the use of 17,000 railroad cars.

Markets - Virginia, West Virginia, Kentucky, Ohio, Tennessee, North Carolina, South Carolina, Georgia and Florida, as well as for export.

Equipment - The various departments of the cement plant have a total floor space of six acres.

The Ladew Jones Company. - Of Boston, represented at Kingsport by the Kingsport Extract Corporation and the Slip-Not Belting Corporation, operates:

A Tannery.

A Tanning Extract Plant.

A Belting Factory.

A Currying Shop.

Floor space totaling five acres is used in these operations and two hundred and fifty men are employed.

About three thousand cars annually are required for in-bound and out-bound shipments.

The Tennessee Eastman Corporation. - This company is a subsidiary of the Eastman Kodak Company, of Rochester, New York. The plant site consists of three hundred and seventy-five acres.

The business is established principally to manufacture important chemicals and supplies used by the Kodak Company. At present it is manufacturing chemicals obtained from the distillation of hard woods. One hundred cords, or two hundred and fifty tons, of wood are consumed per day.

Outgoing and incoming shipments from this plant are approximately six thousand cars annually.

The Kingsport Utilities, Inc.- With a plant of 16,500 horse power, furnishes power to the Kingsport industries on a cost plus basis, which gives them power on favorable competition with hydro-electric developments.

The Mead Fibre Company.

Statistics.

Wood used, approximately.....50,000 cords per year
Soda Ash, approximately..... 4,000 tons per year
Liquid Chlorine..... 1,900 tons per year
Lime, approximately.....14,400 tons per year
Coal, approximately.....60,000 tons per year
Shipments 6 cars per day
Incoming raw materials.....21 cars per day

The Kingsport Press (J. Little & Company, Inc.) - Now has in place equipment to manufacture 100,000 books daily.

The volume of business which is now being offered the Kingsport Press by the large and well established publishers, is so far in excess of the capacity of the present equipment that plans already are being devised to increase the production capacity to 250,000 books per day.

The Pulp Mill, the Paper Mill, and the Kingsport Press.- Working in combination can manufacture the wood as it comes from the cars into pulp, into paper and finally into finished books within the space of twenty-four hours.

The Kingsport Hosiery Mills.-Has beenⁱⁿ operation for the past eight years. This mill has a normal capacity of 600,000 dozen pairs of hose yearly.

It furnishes employment to 300 people.

The Borden Mills (American Printing Company of Fall River, Mass.) - This is Kingsport's newest manufacturing plant. The buildings have just been completed and production started.

The Borden Mills employs 875 men and women.

Appendix B.

Pressmen's Home

The Pressmen's Home community is one of the poorer agricultural regions in the Rogersville area and ordinarily would be expected to show little progress, but owing to the establishment of headquarters in this place of the International Pressmen's Union there are some features about the community and about the services of the Pressmen's establishment to the people that need pointing out separately from the other communities.

The topography of the region is rough. The Pressmen's headquarters are located in a narrow valley bounded by abrupt foot hills and mountains and it is back in these hills and mountains that the people live.

It has been pointed out that this community is one of two of the eight communities of the Rogersville area that had an increase in population. In counting this increase we did not include officials of the Pressmen's Union except their local employees.

It might be well just here to say a word about the Home itself. The International Pressmen's Union established their grand headquarters here at the foot of Clinch Mountain, obtained about 1150 acres of land, and have equipment in the way of buildings, etc. probably worth near a million dollars. They print their organizations Journal here and have also their trade school and sanitorium. They have their own dairy herd, and produce much of their own food. They have their own physicians, churches and ministers, and their recreational facilities. The Home and all its facilities are for members of their own craft, however this institution in a sense is similar to a manufacturing plant in the community and serves the community as such.

The following services are being performed for the community:

- (1) Furnishes employment more or less regularly for 60 local men to

work on the farm, in the dairy, on the grounds, carpentry work, etc.

(2) Buys 10 cases of eggs and 200 pounds of poultry weekly from local farmers.

(3) Responsible for getting a hard surface road which is now under construction from the Home leading into Rogersville.

(4) Uses considerable building material, much of which is bought from a local saw mill.

(5) Has competent physicians for its own members and employes, who will make calls in the community in emergencies.

(6) Will bring patients of the community to their hospital for treatment.

(7) Has a magnificent church with an able pastor. The public is invited to attend this church.

(8) Has a moving picture show which is open to the public for the same price that members of the craft pay.

(9) Has a public swimming pool.

(10) Has a good base ball team. The public can attend the games.

This list will show a very decided influence of the Pressmens Home upon the welfare of the people in the community and demonstrates in a definite way a few of the beneficial effects that may be expected when a manufacturing enterprise is placed in a community. Of course the average manufacturing plant does not have its hospital, religious and recreational facilities open to the public, as does this institution. But manufacturing in larger units sometimes have these facilities, and if they do not they are responsible for improving the economic status and increasing the number of people in the community to such an extent that the people may provide these facilities for themselves.

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