

TO DETERMINE WHETHER THERE IS PARALLEL ADVANCEMENT
IN INDUSTRIAL ARTS AND INDUSTRY IN TEXAS

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TABLE OF CONTENTS

	Page
LIST OF TABLES	iv
LIST OF ILLUSTRATIONS	vi
Chapter	
I. BACKGROUND OF INDUSTRIAL ARTS AND INDUSTRY.	1
II. PROGRESS OF INDUSTRIAL ARTS AND INDUSTRY .	5
III. COMPARISON OF INDUSTRIAL ARTS AND INDUSTRY.	71
BIBLIOGRAPHY	73

LIST OF TABLES

Table	Page
1. Number of Credits and Enrollment of the Basins and Mountains Region by Years, 1920-1940	8
2. Number of Establishments and Number Employed in Industry by Counties of the Basins and Mountains Region by Years, 1920-1940	9
3. Number of Credits and Enrollment in Schools of the Great Plains Region by Years, 1920-1940	11
4. Number of Establishments and Number Employed in Industry by Counties of the Great Plains Region by Years, 1920-1940	15
5. Number of Credits and Enrollment in Schools of the Edwards Plateau Region by Years, 1920-1940	19
6. Number of Establishments and Number Employed in Industry by Counties of the Edwards Plateau Region by Years, 1920-1940	22
7. Number of Credits and Enrollment in Schools of the Rolling Plains Region in Years, 1920-1940	25
8. Number of Establishments and Number Employed in Industry by Counties of the Rolling Plains Region by Years, 1920-1940	29
9. Number of Credits and Enrollment in Schools of the Black Prairie Region by Years, 1920-1940	33
10. Number of Establishments and Number Employed in Industry by Counties of the Black Prairie Region by Years, 1920-1940	37
11. Number of Credits and Enrollment in Schools of the Central Mineral Region by Years, 1920-1940	40

Table	Page
12. Number of Establishments and Number Employed in Industry by Counties of the Central Mineral al Region by Years, 1920-1940	42
13. Number of Credits and Enrollment in Schools of the East Texas Timber Region by Years, 1920-1940	45
14. Number of Establishments and Number Employed in Industry by Counties of the East Texas Timber Region by Years, 1920-1940	52
15. Number of Credits and Enrollment in Schools of the Coastal Prairie Region by Years, 1920-1940	57
16. Number of Establishments and Number Employed in Industry by Counties of the Coastal Prairie Region by Years, 1920-1940	60
17. Number of Credits and Enrollment in Schools of the Rio Grande Plains Region by Years, 1920-1940	63
18. Number of Establishments and Number Employed in Industry by Counties of the Rio Grande Plains Region by Years, 1920-1940	66

LIST OF ILLUSTRATIONS

	Page
Map Showing the Nine Natural Regions of Texas Utilized in This Study	6
 Figure	
1. The Number of Establishments and Number of Credits in the Basins and Mountains Region	10
2. Number of People Employed and Number of Students Enrolled in the Basins and Mountains Region	10
3. Number of Establishments and Number of Credits in the Great Plains Region	17
4. Number of People Employed and Number of Students Enrolled in the Great Plains Region	17
5. Number of Establishments and Number of Credits in the Edwards Plateau Region	24
6. Number of People Employed and Number of Students Enrolled in the Edwards Plateau Region	24
7. Number of Establishments and Number of Credits in the Rolling Plains Region	31
8. Number of People Employed and Number of Students Enrolled in the Rolling Plains Region	31
9. Number of Establishments and Number of Credits in the Black Prairie Region	39
10. Number of People Employed and Number of Students Enrolled in the Black Prairie Region	39

Figure	Page
11. Number of Establishments and Number of Credits in the Central Mineral Region . . .	43
12. Number of People Employed and Number of Students Enrolled in the Central Mineral Region	43
13. Number of Establishments and Number of Credits in the East Texas Timber Region . .	56
14. Number of People Employed and Number of Students Enrolled in the East Texas Timber Region	56
15. Number of Establishments and Number of Credits in the Coastal Prairie Region . . .	62
16. Number of People Employed and Number of Students Enrolled in the Coastal Prairie Region	62
17. Number of Establishments and Number of Credits in the Rio Grande Plains Region . .	68
18. Number of People Employed and Number of Students Enrolled in the Rio Grande Plains Region	68
19. Number of Establishments and Number of Credits in the State of Texas as a Whole .	70
20. Number of People Employed and Number of Students Enrolled in the State of Texas as a Whole	70

CHAPTER I

BACKGROUND OF INDUSTRIAL ARTS AND INDUSTRY

Industrial arts is the name given to a class of subjects which are taught to boys and girls and men and women in which they learn the underlying principles and procedures of each subject. Some of the subjects which are taught in our public schools today are woodwork, metalwork, drawing, printing, carving, leatherwork, electricity, automotive, and welding. The number and type of subjects taught depend upon the size of the school and the kind of community.

The general accepted purpose of industrial arts education is apt to emphasize the contributions of the work to general education, stressing such points as that of aiding young people more intelligently to understand modern industry, providing explanatory experiences of value in guidance, and serving as preparatory courses for entrance to engineering and other technical colleges.¹

The major objectives of industrial arts are:

To further the boys' interests and understanding of modern industry, its materials, processes, and the social-economic life that results.

To give each boy an opportunity to follow his special industrial interest and to learn advanced operations and skills typical of modern practice in the trade or industry.

¹Melvin S. Lewis, "Relationship Between Industrial Arts Education and Vocational Trade Training," Education, LV (April, 1935), 483-486.

To develop consumer intelligence in the selection, care and safe use of the products of modern industry.

To develop wholesome leisure-time interest in craftwork and industrial processes.

To give an increased appreciation of the place of design in machine-made products.

To vitalize training in all instructional areas of the high school curriculum by giving opportunities for learning through real experiments with materials and tools.²

To determine whether industrial arts is meeting the needs of the community in which it is taught, we shall have to compare its progress with that of the industries in that community.

Industrial arts as well as industry is not new, but dates back to the time when man began to live in tribes for protection and to improve his daily habits. It was in these early tribes that industry first started and the teaching of the trades was carried on by the masters of the different trades. As time passed, the needs and desires of man grew, and in order to meet these, industry had to grow. But up until the invention of complicated machinery the laborer was trained at home or in the shop as an apprentice.

The growth of vocational education was slow at first but after the turn of the century sudden widespread changes in technology made it no longer profitable or necessary to employ youth in industry beyond the ability of the unskilled, uncoordinated adolescent.³

²William H. Johnson, "The Major Objectives of the Laboratory of Arts and Industries," Industrial Arts and Vocational Education, XXXII (November, 1943), 368.

³Maurice R. Robinson, "Skillful Hands for Industry," Scholastic, XXVI (February 23, 1935), 97-104.

Therefore it became the duty of the school in the community to meet the demands of industry.

In 1917 Congress passed the Smith-Hughes Act supplementing state salaries paid in the training of vocational workers and administrators. The federal funds cannot be used for vocational buildings or equipment; all of this must be provided by the state, the county, or the community. In this way subjects are taught which will help train the students to begin a life's work in their own community upon high school graduation.

Industry is based upon production of wanted goods at the most economical price. The price of production depends upon the ability of the workers and management of each department. The ability of the laborer will depend upon his mental and physical capacities and their development by his previous training.

It is found that schools can knock off the rough edges of workers, and orient them through shopwork experience. For example, it is uneconomical for a company to pay wages for one to assimilate the large number of new terms, names of tools, and how to use tools when schools can accomplish the same results. Regardless of school training, the employer with whom he finds himself will necessarily have to train him in his own particular methods of production no matter how good the school has trained the youth in the school training program.⁴

In the years following 1920 we were in a period of reconstruction following the World War in which there was

⁴M. J. Ruley, "Shortage of Skill Workers Demands Thousands of Youths to Be Trained," Industrial Arts and Vocational Education, XXXIII (May, 1944), 190.

considerable growth and progress made in Texas. Then in 1930 and the few years following, there was the depression in which great numbers of people were without employment and factories were idle. In 1940 we found ourselves arming for the second World War which we entered December 7, 1941. In this latter period business was growing to a high peak, and jobs were becoming plentiful.

Taking my data from 1920 to 1940, I find according to history that we seem to have covered a cycle of recurring events. If this be true, the findings over this period would be a typical analysis of progress.

CHAPTER II

PROGRESS OF INDUSTRIAL ARTS AND INDUSTRY

In studying the natural resources of Texas, we find a variety of different mineral deposits such as oil, coal, salt, sulphur, copper, lead, gypsum, and so on; located in different regions. The great variance of climate and soil gives us a wide variety of products. And from these products and minerals we have different types of industries in the different regions. The types of industries should determine the number and types of industrial arts credits offered.

In determining the relationship of the advancement of industrial arts and industries in the State of Texas, I have divided the state up into nine regions according to their climate and geographical survey. These divisions are indicated by the map on the following page. By dividing the state up in this way we can compare industrial arts and industry and see whether industrial arts in the school is progressing along with industry.

In assembling my data, I found the number of towns and cities offering industrial arts credits in the schools

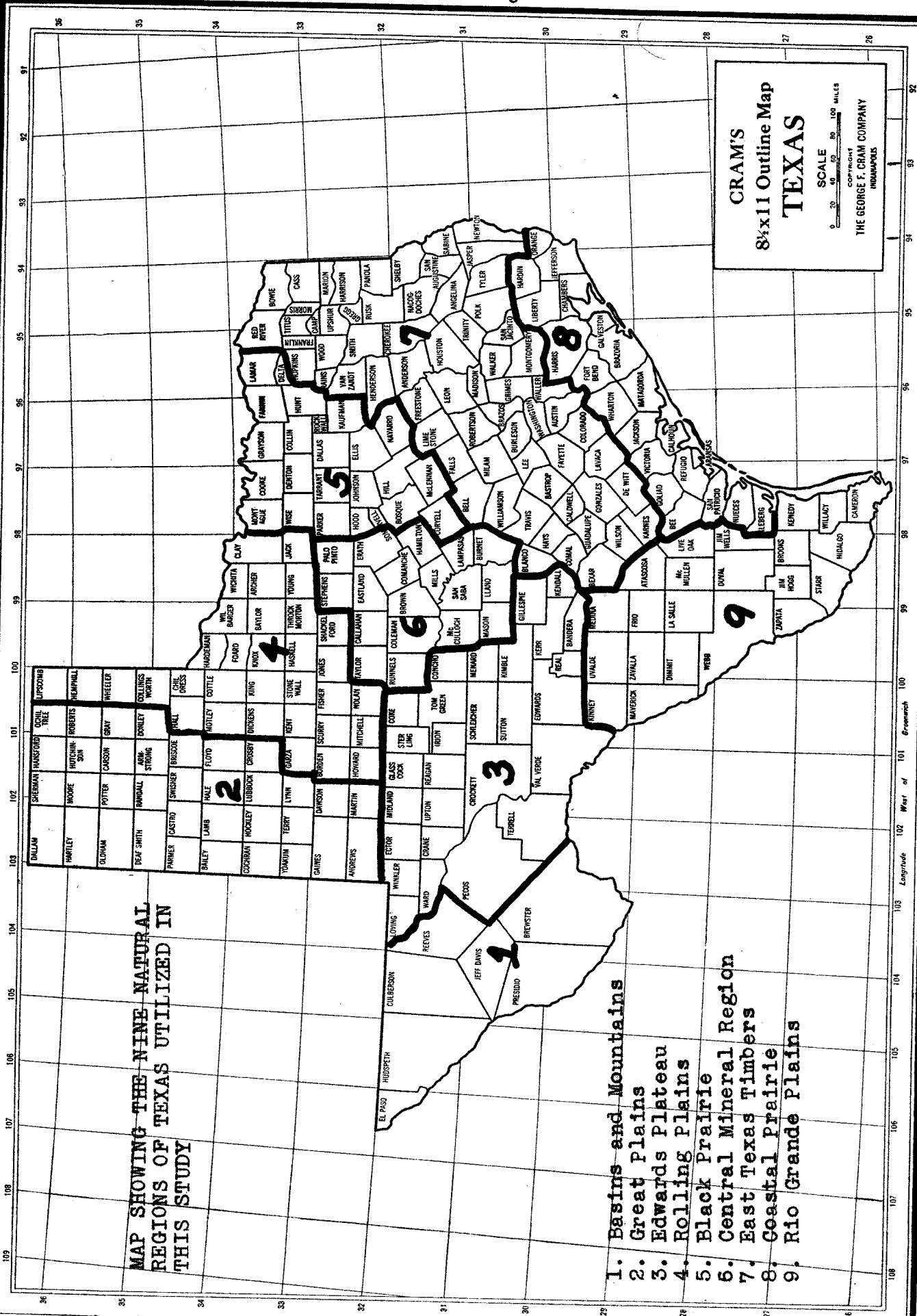
MAP SHOWING THE NINE NATURAL REGIONS OF TEXAS UTILIZED IN THIS STUDY

- 1. Basins and Mountains
- 2. Great Plains
- 3. Edwards Plateau
- 4. Rolling Plains
- 5. Black Prairie
- 6. Central Mineral Region
- 7. East Texas Timbers
- 8. Coastal Prairie
- 9. Rio Grande Plains

CRAM'S
8 1/2 x 11 Outline Map
TEXAS

SCALE
 0 20 40 60 80 100 MILES

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and the number of students enrolled in the schools. The number of students specifically enrolled in industrial arts courses was not available, but this survey will show the number of students who had the opportunity to enroll in industrial arts courses and the number of credits offered to this number of students. This collection of school data is given in the tables for individual towns and cities which are listed under their respective county in the region. The number of industries listed is the total number of industries in each county. The number employed in industry is the number of wage earners and not the owner who operates his own shop.

The tables on the following pages are for the basins and mountains region of Texas, giving the data explained in the preceding paragraph. The graphs following the tables present a summary of the data shown in the tabulations.

Looking at the graphs of this region, we see that there is a gradual increase in industrial arts credits offered while industry declined from 1920 to 1935 and in 1940 had increased slightly. The number of students and the number of employees increased until 1930. In 1935 employment and enrollment both dropped off to about the same level and in 1940 enrollment in the schools went above the 1930 level while employment continued to decline.

TABLE 1

NUMBER OF CREDITS AND ENROLLMENT IN SCHOOLS OF
THE BASINS AND MOUNTAINS REGION BY
YEARS, 1920-1940

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
BREWSTER CO.										
Alpine....			2	96						
Marathon..									2	38
Sul Ross T. C....									2	195
CULBERSON CO.										
Van Horn..							1	34	1	51
EL PASO CO..										
El Paso...	2	2,238	3	2,437	7	4,247	7	3,310	6	3,938
Ysleta....									3	540
HUDSPETH CO.										
JEFF DAVIS CO.										
PRESIDIO CO.										
REEVES CO.										
TOTAL...	2	2,238	5	2,533	7	4,247	10	3,344	14	4,762

TABLE 2

NUMBER OF ESTABLISHMENTS AND NUMBER EMPLOYED IN
INDUSTRY BY COUNTIES OF THE BASINS AND
MOUNTAINS REGION BY YEARS, 1920-1940

County	1920		1925		1930		1935		1940	
	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.
BREWSTER....	8	22	8	22			4	6	3	5
CULBERSON...	4	4	4	4			1			
EL PASO.....	217	4,816	217	4,316	160	6,224	126	3,270	132	3,081
HUDSPETH....									1	
JEFF DAVIS..										
PRESIDIO....	7	56	7	56	8	27	5	13	5	19
REEVES.....	9	62	9	62			6	37	5	31
Total...	245	4,260	245	3,760	168	6,251	142	3,326	146	3,136

Similar data are tabulated in the following tables for the Great Plains region of Texas:

TABLE 3

NUMBER OF CREDITS AND ENROLLMENT IN SCHOOLS OF THE GREAT PLAINS REGION BY YEARS, 1920-1940

Schools	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
ANDREWS										
ARMSTRONG										
BAILEY										
BRISCO										
CARSON										
Panhandle..			1	107						
White Deer.							1	184	1	263
CASTRO										
COCHRAN										
CROSBY										
Lorenzo....					.5	111				
DALLAM										
DAWSON										
DEAF SMITH										
Hereford...	2	199	2	226						

TABLE 3 -- Continued

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
SHERMAN										
Stratford..									2	106
SWISHER										
Happy.....									2	130
Kress.....									1	95
TERRY										
Brownfield.	2	204	2	133	3	160			3	350
YOAKUM										
Total...	6	1,099	14.5	2,664	20.5	5,107	27	5,957	47	8,813

TABLE 4 -- Continued

County	1920		1925		1930		1935		1940	
	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.
HOCKLEY.....					3	10	3	6	5	23
HUTCHINSON..					21	528	21	1,025	28	1,168
LAMB.....							3	17	9	85
LUBBOCK.....	10	97	10	97	40	489	37	319	66	726
LYNN.....					6	17	3	5	4	11
MARTIN.....									1	
MOORE.....							2		10	243
OCHILTREE...							4	11	7	16
OLDHAM.....										
PALMER.....										
POTTER.....	42	496	42	496	52	1,225	49	772	70	957
RANDALL.....					3	12	2		3	17
ROBERTS.....										
SHERMAN.....							1			
SWISHER.....							3	12	6	25
TERRY.....							3	7	5	23
YOAKUM.....									1	
Total...	93	806	93	806	201	3,043	210	3,074	310	4,142

The growth in the number of industrial establishments and the number of industrial arts courses and credits offered in this region have been continuous and from 1935 to 1940 there was a rapid growth in both. Comparing the number of industrial arts credits offered in 1920 to those offered in 1940, the number is approximately eight times greater in 1940, and the number of industrial establishments is only approximately three times greater. The number enrolled in school has increased approximately eight times and the number of persons employed only five times. Although the number of students enrolled and the number of industrial arts credits offered have increased more rapidly than industry and the number employed, the comparison of the number of credits offered per student to the number of students shows there has been no increase in credits per student in this region.

The tables and graphs appearing on the pages immediately following present data for the Edwards Plateau region.

The number of credits being offered in industrial arts gained very rapidly from 1935 to 1940 and has surpassed industry in growth. The growth of the number enrolled in school has gained rapidly while the number employed has varied and growth has been very slow.

TABLE 5 -- Continued

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
WARD										
Monahans....									4	333
WINKLER										
Kermit.....									4	216
Wink.....									1.5	257
Total.....	4	477	9.5	679	12	1,269	16	1,886	41	4,642

TABLE 6

NUMBER OF ESTABLISHMENTS AND NUMBER EMPLOYED IN
INDUSTRY BY COUNTIES OF THE EDWARDS PLATEAU
REGION BY YEARS, 1920-1940

Counties	1920		1925		1930		1935		1940	
	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.
BANDERA.....									1	
COKE.....							13	99		
CONCHO.....							1		1	
CRANE.....							2		1	
CROCKETT....	9	21	9	21			1		1	
ECTOR.....							7	35	16	117
EDWARDS.....									1	
GILLESPIE...	11	27	11	27	10	49	12	35	10	52
GLASSCOCK...										
IRION.....							1		1	
KERR.....	8	7	8	7	4	16	8	27	6	27
KENDRALL....	10	13	10	13	3	7	2		2	
KIMBLE.....	3	5	3	5			2		3	9
LOVING.....										
MENARD.....					6	15	3	4	2	
MIDLAND.....	7	17	7	17	8	43	5	16	7	36
PECOS.....	5	14	5	14	4	16	7	16	6	15
REAGAN.....							1			

TABLE 6 -- Continued

Counties	1920		1925		1930		1935		1940	
	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.
REAL.....										
STERLING....										
SCHLEICHER..									1	
SUTTON.....							2		1	
TERRELL.....									1	
TOM GREEN...					42	382	33	209	34	246
UPTON.....							6	13	6	16
VAL VERDE...	6	93	6	93	14	97	8	31	8	22
WARD.....					8	70	4	39	11	116
WINKLER.....							3	8	9	44
Total....	59	197	59	197	99	695	121	532	129	700

Tables 7 and 8 and the accompanying graphs show the data for the Rolling Plains region of Texas.

TABLE 7

NUMBER OF CREDITS AND ENROLLMENT IN SCHOOLS
OF THE ROLLING PLAINS REGION IN
YEARS, 1920-1940

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
ARCHER										
BAYLOR										
BORDEN										
CHILDRESS										
Carey.....					1	64	2	85	2	77
Childress..	1	295	2	306	4	414				
CLAY										
COLLINGS- WORTH										
COTTLE										
Paducah....									2	312
DICKENS										
FOARD										
FISHER										
GARZAR										
Post.....			2	149	2	168				

TABLE 7 -- Continued

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
HALL										
Memphis.....			1	264						
HARDEMAN										
Goodlett...							2	63	2	75
HASKELL										
Mattson....									.5	70
O'Brien....							1	57	2	84
Rochester..									2	188
HEMPHILL										
Canadian...									3	255
Allison....									.5	76
HOWARD										
Coahoma....									2	130
Elbow H. S.							1	29	2	
Forsan.....									2.5	132
Garner.....									3	130
JACK										
Perrin.....			2	137					2	124
Jermyn.....							1	55	1	61

TABLE 7 -- Continued

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
JONES										
Leuders....									2	151
Stamford....			2	254	2	290	2	302	2	443
KENT										
KING										
KNOX										
Benjamin....							1	83	1	52
Sunset.....									2	89
LIPSCOMB										
Booker.....							1	103	2.5	73
Higgins....									1	114
MITCHELL										
Westbrook..									1	140
MOTLEY										
Flomot									2	114
NOLAN										
Sweetwater.	1	255	2	388	2	537			3	541
SCURRY										
Pyron.....							1	60	2	78
SHACKELFORD										
Albany.....			2	95	3	220	4	230	4	302

TABLE 7 -- Continued

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
STONEWALL										
Old Glory..									1	71
Peacock....							.5	70	2	93
THROCKMORTON										
Throckmorton			2	94						
WHEELER										
Brisco.....									2	71
Wheeler....									1	174
WICHITA										
Burkburnett			1	318	3	300	3	345	3	432
Electra....			2	473	2	603	2	590	2	709
Fairview...			2	97	2	107	2	75	2	88
Harrold....									2	117
Wichita Fls.	2	1,140	2.5	1,477	4	2,453	4	2,179	4	2,000
WILBARGER										
Vernon.....							1	76	2	92
Oklaunion..									2	144
Vernon.....			2.5	463	4	538	4	635	4	664
YOUNG										
Eliasville.									1	98
Total..	4	1,690	25	4,510	29	5,694	30.5	5,037	77	8,564

TABLE 8

NUMBER OF ESTABLISHMENTS AND NUMBER EMPLOYED IN
INDUSTRY BY COUNTIES OF THE ROLLING PLAINS
REGION BY YEARS, 1920-1940

County	1920		1925		1930		1935		1940	
	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.
ARCHER.....							4	34	3	48
BAYLOR.....					5	27	6	30	5	30
BORDEN.....										
CHILDRESS...					10	500	10	248	10	63
CLAY.....	23	55	23	55	5	9	3	9	2	
COLLINGS- WORTH.....	4	8	4	8	6	21	5	13	3	11
COTTLE.....					4	12	5	13	4	12
DICKENS.....					6	15	4	14	3	18
FOARD.....							2		2	
FISHER.....					9	177	5	79	7	169
GARZA.....							4	103	4	236
HALL.....							5	46	6	53
HARDEMAN....	9	254	9	254	8	221	6	172	8	184
HASKELL.....							2		3	27
HEMPHILL....					5	19	3	6	4	142
HOWARD.....					16	504	15	255	23	279
JACK.....	6	10	6	10			2		5	37
JONES.....	4	80	14	80	19	140	17	101	16	136

TABLE 8 -- Continued

County	1920		1925		1930		1935		1940	
	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.
KENT.....							1		1	
KING.....										
KNOX.....							5	24	5	29
LIPSCOMB....							1		2	
MITCHELL....	4	15	4	15			7	163	6	149
MOTLEY.....	3	1	3	1			1		1	
NOLAN.....	18	86	18	86	18	351	14	284	16	360
SCURRY.....	3	3	3	3	7	30	4	26	5	40
SHACKELFORD.					6	10	2		2	
STONEWALL...										
THROCKMORTON	4	7	4	7			1		3	
WHEELER.....	5	14	5	14	9	78	10	103	11	78
WICHITA.....	96	1,385	96	1,375	101	1,816	80	1,191	108	1,678
WILBARGER...	14	92	14	92	13	171	10	201	18	171
YOUNG.....					16	68	13	139	24	166
Total....	203	1,900	203	1,900	263	4,169	247	3,254	310	4,116

Industry has gained very slowly in this region only from 203 establishments in 1920 to 310 in 1940, while the number of industrial arts credits has gained from four credits in 1920 to seventy-seven in 1940. The number of employees has gained from 1,900 to 4,116, while the number of students has increased from 1,690 to 8,564, showing a very large increased enrollment, while employment in industrial establishments has gained very slowly.

Tables 9 and 10 and the accompanying graphs show the data for the Black Prairie region of Texas.

The number of industries in this region declined from 1920 to 1935 and in 1940 they were still below the number of establishments in 1920. Industrial arts has continued to gain from thirty-two credits to 140 credits in the twenty-year period. There are also two cities that offer a wide variety of subjects. The number of people employed in industry has gained very slowly except for 1935, when there was a decline. The number of students has continued to increase at approximately the same rate each period. In comparing the number of credits offered to the number of students, we find that the number of credits offered has increased a little over four times while the number of students has increased only a little less than three times; therefore more credits are being offered per student in 1940 than in 1920.

TABLE 9

NUMBER OF CREDITS AND ENROLLMENT IN SCHOOLS
OF THE BLACK PRAIRIE REGION BY
YEARS, 1920-1940

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
BOSQUE										
Cranfills Gap.....							1	76	2	123
Iredell....							1	79	2	122
Kopperl....							1	79	2	108
Meridian...									2.5	133
Morgan.....									2	65
COLLIN										
Anna.....									1	123
McKinney...	2	446	3	514	3	653	3	570	3	694
COOKE										
Gainesville.	2	471	2	500	2	573	2	552	2	600
CORYELL										
DALLAS										
Cement City			1	50						
Dallas.....	4	5,411	7	4,589	8	9,903	10	14,442	10	13,945
Highland Pk.			1	310	1	766	1	1,013	1	1,137
Pleasant Gr.									2	272
DELTA										
Cooper.....	2	205	2	175			2	300	2	386

TABLE 9 -- Continued

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
DENTON										
Center Pt..							1	40	1	96
Denton.....			2	810	2	750	2	745	2	669
N.T.S.T.C..					1	23	1	97	1.5	274
ELLIS										
Avalon.....							3	54	3	81
Waxahachie.	3	594	3	538	7.5	519	7	595	8	596
FANNIN										
Bonham.....	2	316	3.5	327	4	351	4	431	4	509
Honey Grove	2	213	2	200						
GRAYSON										
Denison....	2	800	3	869	4	944	4	901	4	1,243
Sherman....	2	866	3	822	3.5	1,017	4	1,052	4	1,071
HILL										
Hillsboro..	1	494	1	649			2	467	3	584
HOOD										
Lipan.....							1	92		
HUNT										
Commerce...									4	332
E.T.S.T.C..			1		1	361	1	112	4	108
Greenville.	2	648	2	643	2	785	2	859	4	1,030

TABLE 9 -- Continued

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
IOOF Home..			1.5	62	2.5	89	2.5	100	2.5	69
State Orphan Home.			2	90	3	162	3	251		
PARKER										
ROCKWALL										
SOMERVELL										
Glen Rose..									1	138
TARRANT										
Birdville..									2	185
Eules.....									1	44
Everman....									2	83
Fort Worth			6	4,817	11	4,214	11	8,999	14	7,932
Haslet.....							2	43	2	70
Masonic Home.....	2	72	2	80	4	157	4	159	4	146
WISE										
Slidell....									1	130
Total...	32	13,724	63	20,976	76.5	27,394	94	38,170	140	40,078

TABLE 10

NUMBER OF ESTABLISHMENTS AND NUMBER EMPLOYED IN
INDUSTRY BY COUNTIES OF THE BLACK PRAIRIE
REGION BY YEARS, 1920-1940

County	1920		1925		1930		1935		1940	
	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.
BOSQUE.....	21	159	21	159	11	74	7	43	7	86
COLLIN.....	42	441	42	441	21	506	18	629	16	650
COOKE.....	31	275	31	275	21	314	2		17	121
CORYELL.....	17	61	12	61	5	50	8	32	7	21
DALLAS.....	492	8708	492	8708	572	13853	551	13599	716	16339
DELTA.....	10	59	10	50	4	36	4	29	5	57
DENTON.....	42	233	42	233	22	125	17	103	18	181
ELLIS.....	61	893	61	893	37	875	23	208	29	426
FANNIN.....	57	413	57	413	21	310	15	239	17	525
GRAYSON.....	137	2750	137	2750	81	2461	51	2197	63	2137
HILL.....	38	411	38	411	17	474	14	255	13	473
HOOD.....									2	
HUNT.....	56	344	56	344	41	449	34	295	32	685
JOHNSON.....	47	1229	48	1229	22	829	18	521	21	215
KAUFMAN.....	29	303	29	303	21	135	17	111	16	167
LAMAR.....	66	996	66	996	38	842	23	573	35	796
McLENNAN....	173	1990	173	1990	124	3186	101	1997	112	2876
MONTAGUE....	30	80	30	80	23	282	8	99	14	176
NAVARRO.....	53	685	53	685	43	738	26	466	26	636
PARKER.....	22	169	22	169	16	220	8	17	16	203
ROCKWALL....	9	12	9	12			1			

TABLE 10 -- Continued

County	1920		1925		1930		1935		1940	
	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.
SOMERVELL...										
TARRANT.....	257	9196	257	9196	246	8600	230	7963	312	8122
WISE.....	23	114	23	114	5	49	5	25	7	76
Total...	1709	29421	1709	29421	1391	34308	1181	29401	1501	34968

The two tables and the graphs which follow present the data for the Central Mineral region of Texas.

TABLE 11

NUMBER OF CREDITS AND ENROLLMENT IN SCHOOLS
OF THE CENTRAL MINERAL REGION BY
YEARS, 1920-1940

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
BROWN										
Brownwood..			2	678	2	777	2	687	2	895
Bangs.....									2	170
BURNET										
CALLAHAN										
Putman.....									.5	79
COLEMAN										
COMANCHE										
EASTLAND										
Cisco.....	2	358	3	515	4	470				
Ranger.....			2	373	3.5	570				
ERATH										
Alexander..									2	131
John Tarle- ton Jr. C..			3		4.5	106	4.5	54	4.5	48
Stephen- ville....							1	324	2	550

TABLE 11 -- Continued

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
HAMILTON										
Carlton....							2	75	2	95
Pottsville.									2	97
LAMPASAS										
LLANO										
MASON										
McCULLOCH										
MILLS										
PALO PINTO										
Mineral W..			2	449	2	435			2	538
Strawn.....			2	121	2	141				
RUNNELS										
Ballinger..			2	208	2	291				
Norton.....							1	86	1	104
SAN SABA										
STEPHENS										
Brecken- ridge....			2	565	2	665	3	725	3	766
Caddo.....			1	50	1	74				
TAYLOR										
Abilene....	2	820	2	1,018	3.5	1,689	2	1,786	3	2,000
Total....	4	1,178	21	3,977	26.5	5,218	15.5	3,737	28	5,473

TABLE 12

NUMBER OF ESTABLISHMENTS AND NUMBER EMPLOYED IN
INDUSTRY BY COUNTIES OF THE CENTRAL MINERAL
REGION BY YEARS, 1920-1940

County	1920		1925		1930		1935		1940	
	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.
BROWN.....	26	283	26	283	28	334	26	157	29	233
BURNET.....	10	9	10	9	3	11	1		2	
CALLAHAN....					5	61	4	20	3	19
COLEMAN.....	8	21	8	21	10	89	10	67	14	88
COMANCHE....	14	63	14	63	11	88	11	53	8	43
EASTLAND....	43	251	53	251	33	133	14	53	24	75
ERATH.....	26	126	26	126	16	158	7	31	11	77
HAMILTON....	12	44	12	44	9	51	8	35	7	36
LAMPASAS....	10	19	10	19	7	24	4	19	5	41
LLANO.....	11	34	11	34	8	53	4	29	7	51
MASON.....	4	6	4	6			1		4	7
MCCULLOCH...	9	29	9	28	10	66	10	46	10	61
MILLS.....	6	5	6	5			2		2	
PALO PINTO..	25	203	25	203	13	197	12	154	14	141
RUNNELS.....	12	53	12	53	15	99	13	50	10	60
SAN SABA....	6	14	6	14	3	6	2		4	11
STEPHENS....					18	190	11	88	17	74
TAYLOR.....					47	495	40	341	49	617
Total....	222	1,159	222	1,159	236	2,055	180	1,143	215	1,634

In this region we find both industrial arts and industry declining in 1935, and also the number employed and the number enrolled in school. In 1940 industrial arts and the number of students enrolled had surpassed the peak of 1930 while industry and employment were still below their previous high levels. In comparing 1920 and 1940, we find industrial arts gaining from four to twenty-eight credits, industry declining from 222 establishments to 215, the number of students enrolled gaining from 1,178 to 5,473, and the number of employees increasing from 1,159 to 1,634. This shows that industrial arts is gaining in the schools of this region, since there were more credits offered per student in 1940 than in 1920.

Tables 13 and 14 show the data for the East Texas Timber region. Industrial arts in this region has continued to advance at a very even rate and in ratio has advanced ahead of the increase of enrollment in the schools. This seems to indicate that students in this region are being given a greater opportunity to prepare themselves for industry. The number of industrial establishments in this region had decreased. While in 1940 the number of employees had increased over the 1920 level, the 1940 number is still short of the 1930 peak of 35,102. It is also well to note that the number of employees is larger than the number of students enrolled in this region.

TABLE 13

NUMBER OF CREDITS AND ENROLLMENT IN SCHOOLS
OF THE EAST TEXAS TIMBER REGION
BY YEARS, 1920-1940

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
ANDERSON										
Palestine..	2	591								
ANGELINA										
Lufkin.....	2	324	2	551	2.5	605	4	697	5	690
AUSTIN										
Wallis.....					1	47	2.5	84	2.5	91
BASTROP										
BELL										
Belton.....	3	362	3	244	2.5	355	2.5	289	2.5	345
Holland....			2	92						
Temple.....									4	654
BEXAR										
Alamo Hts..					1	382	1	463	1	410
Cathedral High S...									1	170
Harlandale.					1	323	2	587		
Los Angeles Heights..			2	72	3	126	4	268	4	354
San Antonio	2	4,562	8	4,753	8	5,985	9		9	7,100
Tex. Mili- tary Inst..									.5	190

TABLE 13 -- Continued

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
BLANCO										
BOWIE										
Texarkana..	2	558	2	529	2	638	2	726	2	1,007
BRAZOS										
A & M Con..					4	93	4	98	4	180
Bryan.....	2	259	2	258	3	362	4	539	5	602
CALDWELL										
Luling							2	304	2	382
CAMP										
CASS										
Huffines...									1	54
Hughes Spr.							1	169	1	171
Kildare....							4	718	1	118
McLeod.....									2	84
COLORADO										
COMAL										
New Braunf.	2	133	2	205	2	170	3	264	3	360
CHEROKEE										
Jacksonvl..			2	384	2	424				

TABLE 13 -- Continued

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
HARRISON										
Marshall...	2	916							1	978
HAYS										
San Marcos.	2	226	3	257	3	277	3	356	3	303
S.T.S.T.C..			2	359	2	207	2	154	2	150
HENDERSON										
HOPKINS										
Cumby.....									2	168
Saltillo...							1	88	1	80
HOUSTON										
JASPER										
KARNES										
Kenedy.....									1	270
LAVACA										
Halletsvle.	2	108	2	85	2	127	2	125	2	172
LEE										
LEON										
LIMESTONE										
Mexia.....			4	382	4	394	4	498	4	595
Shiloh....					1	25	1	33	1	30

TABLE 13 -- Continued

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
MADISON										
MARION										
Jefferson..									4	305
MILAM										
MONTGOMERY										
Conroe.....	1	197	2	222	3	324	3	549	5	580
MORRIS										
Daingerfield									1	88
NACOGDOCHES										
Nacogdoches	2	461	2	449	1	514	3	588	4	582
NEWTON										
PANOLA										
POLK										
RAINS										
RED RIVER										
ROBERTSON										
RUSK										
Carlisle...									3	151
Gaston.....									2	370
Henderson..									1	572
Leverett's Chapel...							1	184	4	168

TABLE 13 -- Continued

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol	Cr.	Enrol.	Cr.	Enrol.
London.....							4	303	5	265
Overton....							1.5	256	3	272
Rocky Mount									3	64
SABINE										
SAN AUGUSTINE										
SAN JACINTO										
SHELBY										
SMITH										
Troup.....			1	122						
Tyler.....	2	651	2	790	4	1,147	4	1,564	6	1,280
TITUS										
Mt. Pleasant							2	449	1	579
Talco.....									2	207
TRAVIS										
Austin.....	4	1,870	8	1,710	11½	2,044	12	2,859	12	2,061
TRINITY										
TYLER										
UPSHUR										
Glenwood...									1	36
East Mtn...									5	186
Pritchett..									2	85
Union Grove									3.5	155

TABLE 13 -- Continued

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
VAN ZANDT										
Van.....									4	460
WALKER										
Huntsville.	2	95	1	92			3	282	3	379
S.H.S.T.C..			1	241	2	131	2	120	2	120
WALLER										
WASHINGTON										
Erenham....	2	173	3	150	5	246	6	295	6	469
WILLIAMSON										
Taylor.....	2	300	2	325	2	351	2	380	2	397
WILSON										
WOOD										
Winnsboro..	1	174	1	195						
Total...	43	12,677	68 $\frac{1}{2}$	13,414	84 $\frac{1}{2}$	16,303	117	16,726	189	29,567

TABLE 14

NUMBER OF ESTABLISHMENTS AND NUMBER EMPLOYED IN
INDUSTRY BY COUNTIES OF THE EAST TEXAS TIMBER
REGION BY YEARS, 1920-1940

County	1920		1925		1930		1935		1940	
	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.
ANDERSON....	36	1243	36	1243	39	771	21	576	23	222
ANGELINA....	33	1249	33	2249	36	2313	18	1360	32	1817
AUSTIN.....	27	105	27	105	11	111	10	51	6	38
BASTROP.....	26	117	26	117	19	415	12	188	15	227
BELL.....	90	614	90	614	41	565	30	181	30	283
BEXAR.....	328	6860	328	6860	412	9395	318	6134	356	6827
BLANCO.....										
BOWIE.....	47	1068	47	1068	47	1583	38	1113	60	1536
BRAZOS.....	19	96	19	96	10	85	11	109	14	62
BURLESON....							5	269	5	239
CALDWELL....	17	38	17	38	18	111	15	187	14	137
CAMP.....	13	125	13	125	7	197	10	147	13	242
CASS.....	30	157	30	157	24	213	12	390	20	842
COLORADO....	24	103	24	103	17	147	13	198	12	54
COMAL.....	29	331	29	331	20	595	15	628	19	810
CHEROKEE....	55	794	55	794	45	669	25	577	43	1174
DeWITT.....	40	384	40	384	26	433	27	439	30	636
FALLS.....	34	100	34	100	18	119	11	79	15	102
FAYETTE.....	31	81	31	81	29	121	15	123	19	130

TABLE 14 -- Continued

County	1920		1925		1930		1935		1940	
	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.
FRANKLIN....	4	4	4	5			2		2	
FREESTONE...					10	191	4	32	6	27
GONZALES....	22	206	22	206	17	220	10	119	9	303
GREGG.....	35	559	35	559	20	485	55	735	52	704
GRIMES.....	13	87	13	87	15	158	8	98	6	80
GUADALUPE...	19	114	19	114	11	170	10	197	12	188
HARRISON....	42	1767	42	1767	39	2319	22	1442	33	1285
HAYS.....	18	46	18	46	9	53	7	30	6	30
HENDERSON...	17	160	17	160	12	120	4	26	12	189
HOPKINS.....	19	96	19	96	10	162	9	87	14	174
HOUSTON.....	26	204	26	204	21	256	10	98	17	238
JAPSER.....	25	2586	25	2586	22	1748	10	453	15	761
KARNES.....					8	54	9	40	9	55
LAVACA.....	26	554	26	554	23	494	18	130	12	150
LEE.....	12	44	12	44			4	7	3	7
LEON.....	7	2	7	2			2		6	75
LIMESTONE...	20	228	20	228	18	216	10	212	9	265
MADISON.....	5	5	5	5			2		3	6
MARION.....	17	204	17	204	10	207	6	87	7	162
MILAM.....	25	115	25	115	16	149	12	61	12	50
MONTGOMERY..	24	989	24	989	11	764	7	499	28	1028
MORRIS.....	10	24	10	24	4	46			4	63

TABLE 14 -- Continued

County	1920		1925		1930		1935		1940	
	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.
NACOGDOCHES.	26	800	36	800	25	636	20	551	32	1245
NEWTON.....	14	1198	14	1198	13	1461	4	1094	12	1302
PANOLA.....	23	120	23	120	13	127	4	116	6	111
POLK.....	13	1345	13	1345	12	718	10	1066	18	1466
RAINS.....										
RED RIVER...	28	125	28	125	18	118	10	273	12	265
ROBERTSON...	19	179	19	179	9	115	5	53	6	49
RUSK.....	26	125	26	125	28	167	22	256	25	270
SABINE.....	18	1024	18	1024			2		3	417
SAN AUGUSTINE	9	214	9	214	9	316	2		3	33
SAN JACINTO.										
SHELBY.....					22	707	7	20	16	165
SMITH.....	53	832	53	832	46	769	38	663	61	1049
TITUS.....					8	120	8	153	15	292
TRAVIS.....	102	835	102	835	93	958	78	927	96	1220
TRINITY.....	17	980	17	980	8	844	5	480	9	620
TYLER.....					10	697	5	483	19	506
UPSHUR.....	28	110	28	110	21	182	8	104	11	222
VAN ZANDT...	19	275	19	275			5	224	6	151
WALKER.....	11	271	11	271	11	396	7	184	7	337
WALLER.....	10	96	10	96	3	12	2		3	45

TABLE 14 -- Continued

County	1920		1925		1930		1935		1940	
	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.
WASHINGTON..	24	229	24	229	23	300	14	91	14	726
WILLIAMSON..	46	376	46	376	29	347	27	413	30	381
WILSON.....	13	176	13	176	7	204	3	98	6	134
WOOD.....	25	108	25	108	24	253	15	160	21	314
Total..	1799	31778	1799	31778	1517	35102	1128	24511	1434	32038

The data tabulated in Tables 15 and 16 and depicted graphically in the accompanying graphs are for the Coastal Prairie region of the state.

TABLE 15

NUMBER OF CREDITS AND ENROLLMENT IN SCHOOLS
OF THE COASTAL PRAIRIE REGION BY
YEARS, 1920-1940

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
ARANSAS										
BEE										
BRAZORIA										
Alving.....									8	289
Angleton...									3	195
Danbury....							4	22	5	67
Pearland...									1	67
CALHOUN										
CHAMBERS										
Anahuac....									2	190
Barbers Hill									3	167
FORT BEND										
Rosenbery..			2	121						
Sugarland..			2	43	2	76				

TABLE 15 -- Continued

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
SAN PATRICIO										
VICTORIA										
Victoria...	1	182	1.5	272	4	256	4	310	4	405
WHARTON.....										
Boling.....									2.5	278
Crescent...									1	66
Total...	21 $\frac{1}{2}$	7,899	50	11,170	61 $\frac{1}{2}$	17,238	82	25,946	129	26,316

TABLE 16

NUMBER OF ESTABLISHMENTS AND NUMBER EMPLOYED IN
INDUSTRY BY COUNTIES OF THE COASTAL PRAIRIE
REGION BY YEARS, 1920-1940

County	1920		1925		1930		1935		1940	
	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.
ARANSAS.....							1		1	
BEE.....	12	43	12	43	8	56	10	95	8	35
BRAZORIA....	22	100	22	100	12	156	7	86	7	106
CALHOUN.....	5	2	5	2			3	9	1	
CHAMBERS....	4	23	4	23	5	18	2		7	73

TABLE 16 -- Continued

County	1920		1925		1930		1935		1940	
	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.
FORT BEND...							7	350	15	581
GALVESTON...					97	2196	70	2045	74	3173
GOLIAD.....	8	7	8	7	4	15	2		3	5
HARDIN.....	27	1447	27	1447	15	1350	9	513	10	1063
HARRIS.....	422	11411	422	11411	475	22131	470	18827	655	22765
JACKSON.....	8	12	8	12	5	15	3	5	6	48
JEFFERSON...					141	14386	109	11942	130	12208
KLEBERG.....	8	499	8	499	8	383	7	393	6	30
LIBERTY.....	18	759	18	759	12	398	9	245	22	370
MATAGOR DA...	27	89	27	89	12	115	9	171	17	197
NUECES.....	24	97	24	97	47	442	48	651	88	1232
ORANGE.....	32	4130	32	4130	25	938	11	254	16	527
REFUGIO.....							2		4	16
SAN PATRICIO	11	67	11	67			12	709	14	629
VICTORIA....	27	161	27	161	14	127	15	106	16	124
WHARTON.....	29	107	29	107	16	111	15	124	20	112
Total...	684	18954	684	18954	896	42737	821	36525	1120	43194

In the Coastal Prairie region of Texas industrial arts, industry, enrollment in school, and the number of employees have continued to advance above the 1920 average. Industrial arts has increased about five times, industry twice, employment about two and a half times, and enrollment in school three times. In comparing the growth from 1920 to 1940, we find that more industrial arts credits are being offered per student in 1940 than were offered in 1920. We also find that there are more people employed per industrial establishment in 1940 than was true in 1920.

Tables 17 and 18 and the accompanying graphs show the data for the Rio Grande Plains region of Texas.

TABLE 17

NUMBER OF CREDITS AND ENROLLMENT IN SCHOOLS
OF THE RIO GRANDE PLAINS REGION
BY YEARS, 1920-1940

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrl.	Cr.	Enrol.
ATASCOSA										
Lytle.....							1	85	2	127
BROOKS										
GAMERON										
Brownsville	2	204								
Harlingen...							1	552	2	700
San Benito.							1	392	2	321

TABLE 17 -- Continued

School	1920		1925		1930		1935		1940	
	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.	Cr.	Enrol.
McMULLEN										
MEDINA										
STARR										
UVALDE										
Uvalde.....	2	264								
WEBB										
Laredo.....			1	297			.5	925		
WILLACY										
ZAPATA										
ZAVALA										
La Pryor...							1	46	2	56
Total..	8	729	9	1,082	8	953	20	3,803	30½	4,421

TABLE 18

NUMBER OF ESTABLISHMENTS AND NUMBER EMPLOYED IN
INDUSTRY BY COUNTIES OF THE RIO GRANDE PLAINS
REGION BY YEARS, 1920-1940

County	1920		1925		1930		1935		1940	
	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.
ATASCOSA.....					8	72	3	7	2	
BROOKS.....							3	15	6	36
CAMERON.....	30	174	30	174	56	456	43	592	69	853
DIMMIT.....	5	6	5	6			2		1	
DUVAL.....									6	27
FRIO.....							2		2	
HIDALGO.....	23	97	23	97	52	277	41	529	62	1,102
JIM HOGG....							2		3	13
JIM WELLS...							5	31	10	67
KENEDY.....										
KINNEY.....	3	1	3	1			1			
LA SALLE....	4	3	4	3			2		1	2
LIVE OAK....							2		2	
MAVERICK....	7	33	7	33	5	62	4	23	4	16
Mc MULLEN....										
MEDINA.....	14	55	14	55	8	81	6	46	5	204
STARR.....	6	8	6	8	4	30	1		3	21
UVALDE.....	13	58	13	58	7	24	5	14	4	14

TABLE 18 -- Continued

County	1920		1925		1930		1935		1940	
	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.	Est.	Empl.
WEBB.....	30	303	30	303	36	394	24	467	20	376
WILLACY.....							7	21	8	26
ZAPATA.....										
ZAVALA.....	4	2	4	2			4	43	3	32
Total....	139	740	139	740	176	1,396	157	1,788	211	2,789

Industrial arts in the Rio Grande Plains region was very slow in advancing; in fact, there were fewer credits offered in 1930 than in 1920, but in 1940 there were over three times as many credits being offered as in 1930. Industry in this region had grown very slowly while employment has grown very steadily even through the period of 1935 when industry declined. Enrollment in the schools, like the increase of industrial arts, was very slow until 1935, when the enrollment increased about three times over the 1920 level. Industrial arts credits offered in this region are behind the increase in enrollment by one and a half times.

In comparing the growth of the different regions, I find that the Rolling Plains section has advanced most in the number of industrial arts credits being offered. It

advanced 1,900 per cent, while the enrollment in schools advanced only five per cent. There were three schools offering credits in industrial arts in 1920 to compare with thirty-eight in 1940. There were only three schools that did not offer industrial arts in 1940 which did sometime during the period from 1920 to 1940.

The Edwards Plateau leads in the largest percentage of enrollment increase -- 1,000 per cent -- and is second in the offering of industrial arts credits -- also 1,000 per cent increase. There were only two schools offering industrial arts credits in 1920 compared to fifteen in 1940, and there was only one school which had dropped industrial arts in 1940.

The Great Plains region leads in both the percentage of new establishments in industry and in the number employed. Industry increased 350 per cent and employment rose 500 per cent. The Edwards Plateau was second in both, with 250 per cent advancement in industry and 300 per cent advancement in employment.

Industrial arts in Texas, as a whole, grew slowly from 1920 to 1935, but from 1935 to 1940 there was a rapid increase in the number of industrial arts credits offered. Industry continued to decline from 1920 to 1935, but from 1935 to 1940 there was a rapid increase in the number of industrial establishments which surpassed the 1920 number of establishments. Employment in industries in Texas

reached a high peak in 1930 but in 1935 it declined and fell below school enrollments. In 1940 employment was still short of the 1930 peak and farther behind the number of students enrolled in the schools.

The graphs on the following page show the comparison of advancement in industrial arts and industry for the State of Texas as a whole.

In comparing the 124.5 credits offered to 41,711 students in 1920 to the 695.5 credits offered to 132,636 students in 1940, we see that more credits are offered per student in 1940 than in 1920. This seems to prove, then, that the students who are graduating from the public schools today are better qualified to meet the demands of industry than in 1920. I will not say that industrial arts is advancing beyond the demands of industry, but it is advancing to meet the demands. As machinery is becoming more intricate, the ones who operate it must be more skilled; therefore, industrial arts courses must continue to improve in type and methods as well as in number, and this survey deals only with number.

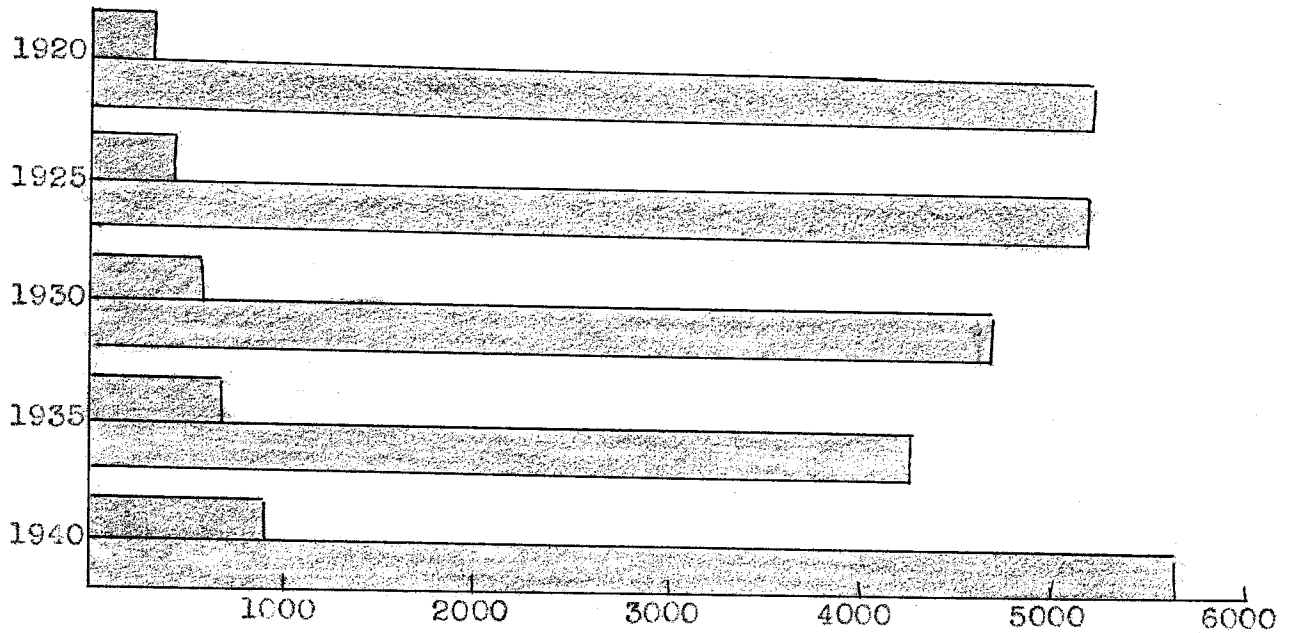


Fig. 19. -- Number of establishments and number of credits in the state of Texas as a whole.

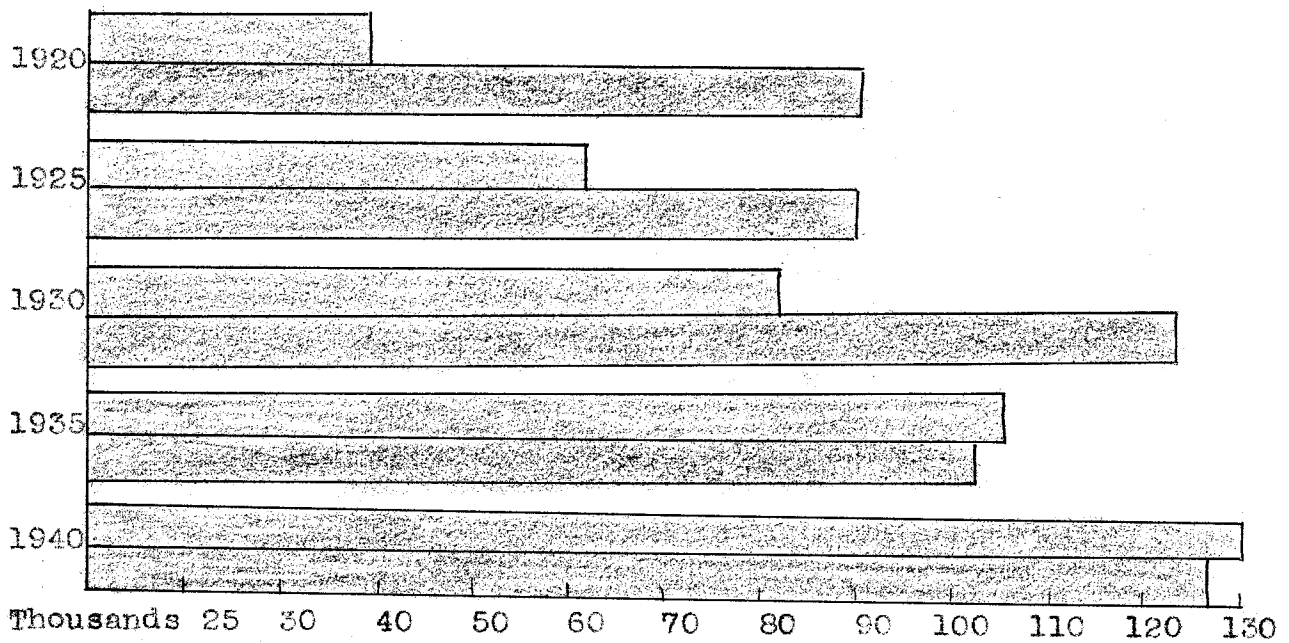


Fig. 20. -- Number of people employed and number of students enrolled in the state of Texas as a whole.

CHAPTER III

COMPARISON OF INDUSTRIAL ARTS AND INDUSTRY

In training the student to meet the needs of industry we must not forget that "the students' prime reason for attending school is to get education and education comes through surmounting obstacles"¹

It is evident that we must prepare youth to live in a "Power Age." The basic elements of this type of training are to develop in the student the ability to give sustained attention, to analyze each job as it presents itself, and to react correctly and promptly. . . .

The best vocational tool to meet a universal need is the ability to act understandingly, having been informed by word or reading. Getting things correctly the first time is the very essence of good management. Spoilage, waste, and lost time are thus avoided.²

The increase in industrial arts credits in the past twenty years, especially in the last five to ten years, is partly due to growing popularity of small machine tools which are being used more and more in all types of industries as well as the larger power tools. These small power tools are very economical and can be easily afforded

¹Percy S. Hawkins, "Commercializing the Industrial Arts," Industrial Arts Magazine, XVII (February, 1928), 46-47.

²Vernon Olson, "Industrial-Education Needs as Seen by Industry," Industrial Arts and Vocational Education, XXXII (November, 1943), 368.

by nearly all schools. In the purchasing of these small power machines, industry is demanding that they get men and women that have had experience in their operation. It is this demand which industrial arts is having to meet as well as to develop the ability to meet and solve problems. In learning to master small machinery and know its working parts, one can learn more easily how to operate the larger and more complicated machines; therefore, industry is demanding that the schools offer more industrial arts credits and in meeting this demand more new industrial arts credits are being offered in the state of Texas than there are new industrial establishments being build in 1940.

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