INDUSTRIAL AND COMMERCIAL LANDSCAPE DESIGN

IN

OKLAHOMA

by

ANSEL LYMAN HULL

Bachelor of Science

Oklahoma Agricultural and Mechanical College

Stillwater, Oklahoma

1950

Submitted to the faculty of the Graduate School of
the Oklahoma Agricultural and Mechanical College
in partial fulfillment of the requirements
for the degree of
MASTER OF SCIENCE
May, 1956

INDUSTRIAL AND COMMERCIAL LANDSCAPE DESIGN

IN

OKLAHOMA

Thesis Approved:

Robert G. Ealy
Thesis Adviser

Francis B. Cross

Colvert MacLean
Dean of the Graduate School

ACKNOWLEDGMENTS

The author wishes to express his sincere appreciation to Dr. Robert P. Ealy, Associate Professor of Horticulture for his personal interest and counsel during the course of this study and the preparation of this thesis.

Appreciation is also extended to Dr. Frank B. Cross, Head of the Department of Horticulture, Prof. Fred LeCrone and Prof. W. R. Kays of the Horticulture Staff for their constructive criticism and assistance in writing this thesis.

Gratitude is expressed to the author's wife, Evelyn, for typing the thesis and for her encouragement and assistance during the entire study.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Industrial and commercial landscaping is a relatively new field in Oklahoma and the future possibilities are quite promising. Since the turn of the century, industry from the coastal states has begun to disperse to central states.

In recent years management of industry has realized the human element in employee-employer relationship. In the Southwest area of the country people are free from the traditions of past generations. Although the conditions no longer exist, traditions are still present in the eastern regions of the country. Consequently, industry is interested in expansion to the Southwest area in order to take advantage of the individuality of personnel in this locale. This individualism promotes a more personal attitude of responsibility; thereby producing a higher quality of work and a better attitude toward the end result. This personal incentive creates a competitive spirit toward better production.

Both new business and new expansion of established industry are interested in locating in the Southwest areas because of the available physical resources. Consequently, Oklahoma will receive a portion of this decentralized industry because of its geographic location.

The State Department of Commerce and Industry and the Oklahoma Development Council have received good results from their Oklahoma "salesmen" who have toured Eastern and Northern industries (42). A

report by the Oklahoma University Bureau of Business Research shows that more than 500 new factories were started in Oklahoma in 1955 (37).

Twenty years ago established industry was usually at the outskirts of the city limits or along the railroad lines accessible to rail spurs, but today residential areas are adjacent to older industrial sites. After World War II residential developments were built in urban areas and commercial firms followed suit with the establishment of popular shopping centers. Industrial sites also are found near residential developments or along busy avenues or freeways, frequently in view of the public.

As a result of the above process of events, it has become desirable for industry to beautify such sites to help maintain good community relationships. In recent years the eastern and coastal industrial areas of the United States have made splendid progress in landscape beautification. In 1950 the American Association of Nurserymen launched a campaign, "PLANT AMERICA," one phase of which was to stimulate interest in industrial and commercial beautification contributing to civic pride in our American heritage.

Many firms operating in Oklahoma have kept abreast of latest trends and it is the purpose of this research to determine the status of industrial and commercial landscaping and its place in future plans for site development in Oklahoma.

The American Association of Nurserymen, Washington, D. C., presented Tulsa's Utica Square Shopping Center the national Plant America award in the service classification of industry. Dr. Richard P. White, executive vice-president of AAN made the presentation at the Oklahoma State Nurserymen's Association Convention, January 5 and 6, 1956 (Figs. 1, 2 and 3). This award, a first for Oklahoma, shows that industrial

Figure 1. Utica Square's Medical Arts Building
Tulsa, Oklahoma

Figure 2. Utica Square's Garden Court -
Tulsa, Oklahoma.

Figure 3. South View, Utica Square Shopping Center
Tulsa, Oklahoma.

and commercial firms of Oklahoma are in the forefront in the field of landscaping industrial and commercial sites. In an effort to determine Oklahoma's status in this type of development a questionnaire was sent to 108 industrial and commercial firms throughout the state. The answers to this questionnaire form the basis of this research. In addition, three industrial and commercial landscape designs are included as examples of proper planning and organization of space in relation to such sites.

CHAPTER II

REVIEW OF THE LITERATURE

Industrial and Commercial Landscape Design is a new field which has become prominent since World War II. In 1950 the American Association of Nurserymen launched a program of annual competition for national honors in industrial landscaping which accelerated interest throughout the United States in beautification of industrial and commercial sites (44).

Endorsed by Federal, State and Local Government officials, as well as some 35 organizations representing many millions of members, the "PLANT AMERICA" movement has grown rapidly since its launching in 1950.

The objective of the movement is "to conserve the land, to make it greener and more productive for abundant life, beauty and recreation".

It is believed that the objective of the program can only be accomplished by "replanting our forests, our farms, our cities, our road sides, our churches and schools, our home and factory grounds wherever the need lies".

"PLANT AMERICA" will help to conserve the land and the well-being and health of people.

Early in 1954, the American Association of Nurserymen announced the winners of its first annual competition for honors in industrial landscaping (33). The "Plant America" awards were made "in recognition of achievement in industrial landscaping and beautification contributing to employee and civic pride in our American heritage".

National awards in the general industry classification were made to

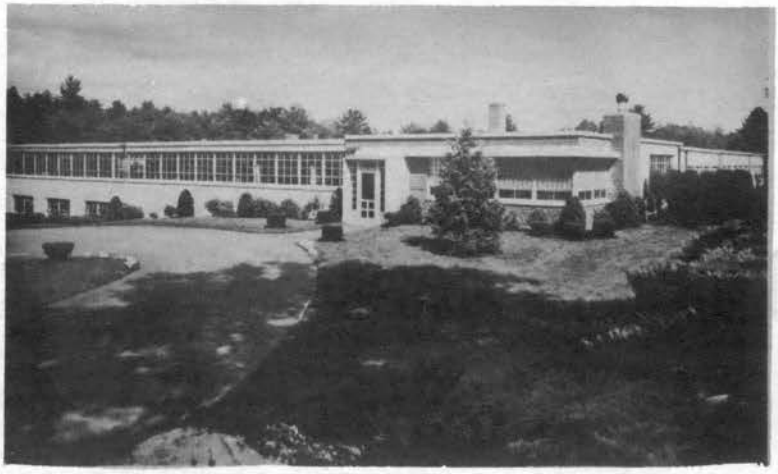


Figure 4. Technology Instrument Corporation - Acton, Massachusetts.

Figure 5. The Cincinnati Milling Machine Company Cincinnati, Ohio.

Figure 6. Tube Distributors Company, Inc. - Garden City, New York

the following companies: Armco Steel Corp., Middletown, O.; Bell Aircraft Corp., Buffalo, N.Y.; Bell Telephone Laboratories, Inc., Murray Hill, N. J. and Consolidated Engineering Corp., Pasadena, Calif. (2).

California's award in the first American Association of Nurserymen contest for industrial landscaping was formally presented to the Consolidated Engineering Corp., Pasadena, California, January 27, 1954, at the meeting of the Los Angeles Chapter of the California Association of Nurserymen (25).

Competing with hundreds of industrial firms throughout the nation, the Pasadena Electronic Instrument Company was accorded top honors in the general industry category of the first annual A.A.N. competition.

A duplicate award was received by Franklin K. Wilcox, Keeling-Wilcox Nurseries, Montebello, California for having carried out the landscaping program. Design and construction of the prize-winning plan were accomplished by Merrill W. Winans, landscape architect for that nursery.

Rapid growth of the instrument firm, which was formed in 1937, resulted in purchase of a 6-acre site in the Hastings Ranch area of Pasadena in 1950. Here, low buildings of modern design, off-street parking and loading facilities, recreation areas and commissary areas were developed amidst lawns, flowered borders, trees and shrubs to provide for executive offices and main operations in early 1951.

Surrounded by residentially zoned property to the west and to the north, Consolidated, in the spring of 1953, was granted a zone variance to permit expansion of research and production facilities on an 8-acre tract to the north of the existing structures. Company officials believe that a major factor contributing to public approval of the expan-

sion project was existing proof of the firm's adherence to high standards of architectural and landscape planning.

The second annual "Plant America" industrial landscaping competition awards were announced in the first part of 1955. The third announcement of the industrial landscaping awards were made in November, 1955. The American Association of Nurserymen's fourth annual Competition (1956) in industrial landscaping is now in progress (4).

Colvin (9) states that factories and industrial buildings have been erected without recognition of the potential beauty of such specialized structures that it will take more and better examples of modern industrial architecture than we yet possess to convince the general public of the great possibilities inherent in their design. Colvin (9) maintains that proper landscaping provides the right grouping and balance of masses by means of trees and shrubs more easily than by means of buildings, but the effect can be achieved either way and modern architectural style lends itself singularly well to this effect. Colvin (9) further adds:

> If industrial use of the land is incompatible with fine landscape, then the future outlook for an industrial country is black indeed. But this theory, which is largely accountable for the existing state of affairs, has been too readily accepted. There are signs that it is being questioned, both by industrialists themselves and by the general public, which is becoming much more ready to raise an outcry when new industries threaten existing scenery.
>
> Public opinion should be exerted to the fullest extent in this respect, making it clear that natural beauty is regarded as a public right belonging to the future as well as to the present generation, not to be destroyed for present profit.

According to Eckbo (11):

> . . .Landscape design may not be affected directly or technically by the Industrial Revolution--trees still come from little seeds--but it cannot evade an auxiliary or secondary reflex to its tremendous impact on architecture, engineering, and the allied arts. When architecture moves from Vignola to Frank Lloyd Wright and Le Corbusier how can landscape design

stay with Repton and Le Notre?

In his chapter on structural elements out-of-doors, Eckbo (11) states:

We must avoid preconceptions as to structure being "unnatural" or merely practical in the landscape. . . .Structures occupy space and Landscape Architects must keep in mind the form and elements of these structures and seek to work unity into their designs.

The landscape architect must consider first the nature of the building and the site as given to him to develop. . .Every site is different, every region is different, every climate is different; hence every problem in the organization of space on the land must be solved individually, independently, and on its own terms, through drawing from the reservoir of experience and theory built up on all jobs.

Eckbo, in Chapter 14 (11) concerning public buildings states:

. . .In the various public building jobs shown as illustration we have endeavored to develop a really thorough and clear integration of building and site in terms of space, form, material and function. Again the introduction of the concept of site-space-form as of primary importance tends to make all the heterogeneous and unrelated elements fall together into a whole that is greater than their mere addition. Trees and shrubs placed so as to form clear strong spatial relations with the building, and based on its form, achieve a quality and importance impossible when they are merely plastered against it, or dotted about. Careful analysis of the way the building is used, which people it is most important to, places the outsider looking in and the insider looking out in proper relation to each other. None of this statement is intended to eliminate broad lawns, specimen plants, foundations, et cetera, from use around public buildings, but only to suggest how these same elements can be used in a stronger and freer way to achieve a new level of experience and expression.

As a result of city planning and redistribution of industrial activity, subsequent abandonment of old sites may open the way for these areas to be used for park and recreation facilities as indicated by Tryon (40).

North (30) said in his book, The Industrial Building, published in 1928, that industry has always been changing and will continue to change in the future. He stated that industrial buildings should be designed with a program or scheme with allowances made for future expansions. Even today architects are designing buildings to fit in the

pattern of present living. With changes in transportation, etc., buildings have changed with the conditions, and we call this mutuation "modern" or contemporary architecture.

Tallmadge (38) contends that the development of the factory buildings is somewhat different than other types of architecture as indicated in the following paragraph:

> . . .The enormous buildings required, particularly for the manufacture of automobiles, make the construction primarily an engineering enterprise. For years beauty was not considered in any way essential and could not be introduced if it entailed any large addition in expense. Re-enforced concrete is the material par excellence for such construction. The architect, therefore, when he got his chance was bound by those very restrictions which were architectural columns, pediments and towers; so were all historical styles in general, for each has a hungry family of attributes which would have to be provided for. The results in the best instances is about as good as anything we have done. I will mention out of hundreds only two examples, the Ford engineering laboratories by Albert Kahn at Dearborn, Michigan, and the Army Supply Base in Brooklyn by Cass Gilbert.
>
> . . .Factory design is more free from the trammels of architectural precedent than any other domain of building, and its future is full of promise, according to Tallmadge.

Architects have made great strides in designing various kinds of commercial buildings, according to Lopez (23):

> . . .The buildings we erect for office work, finance, the entertainment and transportation industries have all changed, in some cases greatly, in some to a lesser extent. At the end of World War II there were portents of developments to come, mostly in the form of design preliminaries. By 1947, when the earliest example here included was first published in Architectural Records, the new ideas were beginning to achieve structural reality. Now it is the exceptional commercial job, generally speaking, that is executed in one of the historical architectural styles. . . . . The changes in building techniques that contemporary design seeks to express have been fostered almost entirely by the need for economy. It is no news that costs are astronomical; but not many realize how much higher they might be if we persisted in putting up buildings adorned with the fripperies we once considered appropriate. We have gone farther; we have begun to give reality to such concepts as the integration of mechanical and structural elements and the rationalization of the structure itself.

With the above changes in architectural design Landscape Architects must also make changes in their designs and the use of plant material in

order to attain harmony of buildings and their environments.

Reid (34) states that during the years 1940 to 1949 industrial work was active, with World War II bringing a huge plant expansion program and in its aftermath the necessity of conversion to the arts of Peace. Industrial buildings were designed during this period which were noted for the development of rapid and economical methods of construction, substantial improvements in the workers' environment, and provision for increased efficiency in the disposition of space. In the information acquired from various architects on the subject of industrial buildings, Reid (34) has shown the trend of industrial design by illustrations of various firms.

An article by H. K. Ferguson in Reid's (34) compilation points out that "Probably the most important single development in factory designing in recent years is the continuing tendency toward large areas of one-story floor space in outlying locations."

> On any preference poll taken in the late twenties or early thirties, Frank Lloyd Wright would have been buried under an avalanche for keeps, instead of surviving to reap the big piles of medals that have since accrued to him from all over the world, after people had a chance to learn more about the intensely human qualities of his work which they had scorned (18).

Most people who are acquainted with Wright's work, know that he refers to his work as organic architecture* and intimately bound to the lives of people (48). In Wright's book (49) is the following quotation from a conversation between Hugh Downs and Frank Lloyd Wright, giving an explanation of organic architecture as related to the field of industrial architecture:

---

*By organic architecture I mean architecture that develops from within outward in harmony with the conditions of its being as distinguished from one that is applied from without.

DOWNS: If you were to plan and build an entire city, including elements of shelter, work, recreation and workshop, as we were just talking about what would you intend to accomplish in doing this?

WRIGHT: Primarily the use of and sympathy with the site (Ed. Note: italics mine), according to the nature of the ground, and the purpose of the city or town, whatever it might be and, of course, the character of the inhabitants would be no little consideration in that connection. In other words, it would be a native and natural performance. Organic architecture is a natural architecture. A natural architecture. Now, what would a natural architecture be? Indigenous, wouldn't it? It wouldn't be some electicism or other something you picked up somewhere by way of taste and applied to the circumstances. You would go into the nature-study of the circumstances and come out with this thing from within wouldn't you?

Well, it would apply to a town, apply to a city, apply to the planning of anything at all.

DOWNS: Even a factory? I wanted to ask--when you build a factory?

WRIGHT: Especially a factory.

DOWNS: Well, what do you consider the most important factors in this case, the building of a factory?

WRIGHT: I think the human values involved. I think the lives of the workers. I don't see why it isn't a more profitable thing to make those lives happy, they'll be more productive. Environment, as we found it to be when we built the Johnson administration building, results in a greatly increased efficiency on their part. If you make them proud of their environment and happy to be where they are, and give them some dignity and pride in their environment, it all comes out to the good where the product is concerned.

The Johnson people have found that out. The Johnson people have a profit-sharing system with their employees and when they got into that building, why, one of the first consequences was tea in the afternoon, and their people didn't like to go home. They loved to stay in the building, be there, come early, enjoy it, became themselves charming features of a very interesting, exciting environment. And it has proved profitable. It does (I think the phrase is) "pay off," isn't it, in our country? And the "pay off" of course is the criterion by which everything is decided? Well, even deciding it by way of the "pay off," a healthful environment in which the workers can take pride is the "pay off."

The principles Wright presented with his theory of organic architecture can well be applied to landscape design. By incorporating landscape design with the building as a whole, unity and harmony can be achieved which is the goal of all landscape architects.

It should be noted that there is considerable accord in the thinking of architects and landscape architects as shown by the opinions of Garrett Eckbo, a noted landscape architect, in his book "Landscape for Living."

Eckbo (11) states:

> . . .Our major objective is the integration, the harmonization, the co-ordination of, or the establishment of good relations between, the physical forms of nature and the physical manifestations of man in the landscape. . . .We must overlap as a beginning, and become increasingly collaborative as we proceed. We must become sensitive and appreciative of the forms of architecture, and the architects must become sensitive and appreciative, not only of the forms of nature, but of the forms of landscape design which can come out of the meeting of architecture and nature. We must--and do--know as much about architecture as they know about landscape design.

It is important that co-operation between the architect and the landscape architect is achieved, but we must go a step farther and include the specific views and requirements of the client. Well designed buildings combined with proper site development helps the manufacturer to obtain maximum results from his investment. J. C. Forney (21) of the Frank G. Hough Company, Libertyville, Ill., states that by having an attractive and well-planned grounds two objectives are obtained: (1) an increase in employee morale and (2) improved public relations.

Such effectual co-operation culminates in a total environment conducive to maximum production.

CHAPTER III

METHOD AND MATERIALS

A. MAILED QUESTIONNAIRE

A questionnaire was designed for the purpose of obtaining information to determine what part landscape design or site development plays in the business concept of Oklahoma industrial and commerical firms.

Precautionary steps were taken to assure the highest possible number of returned answers. In an effort to assure reliable results, the following measures were adopted.

1. An adequate introductory letter designed to produce maximum cooperation was enclosed with the questionnaire (Appendix A).
2. Names of the firms which answered a questionnaire were not requested.
3. A stamped, addressed envelope was enclosed to facilitate answering.
4. A brief, concise, carefully worded questionnaire was developed (Appendix B).

An investigation of various types of surveys of similar nature was made, one of which is the Summary of a Survey on Manufacturers' Community Relations carried out by the American Association of Nurserymen (Appendix C). This national survey proved very helpful in designing the questionnaire used in this reported research (Appendix B).

The following discussion was included in an effort to explain the justification of each question used in the inquiry.

GROUP I.

1. How important do you think good community relations are to your firm?

   a. Of great importance
   b. Of medium importance

c. Of little importance
d. Not important

This question was used due to the attention it received in the national survey. Officials of the firms recognized in the Southern Florist Nurseryman's Brochure indicated the benefits of landscaping and its influence on good community relationships. Dr. Richard P. White (46) has cited various firms' reaction to the value of good landscaping in improving community and employee relations. Ninety-four per cent of the returned answers of the national survey of American industry indicated community relations of great importance.

2. To what extent is your firm's site landscaped?
   a. Extensively
   b. Moderately
   c. Minimum
   d. None

This question was used to determine whether industrial and commercial firms in Oklahoma have been landscaped and if so to what extent. It was anticipated that the answers would give those in the landscape business in Oklahoma an indication as to the possibilities of industrial landscaping.

3. How much better employee productivity would you expect where the surroundings have been well planned and landscaped?
   a. Much
   b. Moderate
   c. Little
   d. None

Environment plays an important part in the efficiency of personnel and because of the contemporary architecture of buildings with walls designed of plate glass to give an indoor-outdoor relationship, this question was considered to be important. The answers of this question would give an indication as to whether business feels that the indirect economic value of landscaped surroundings would warrant added expense.

4. Do you have municipal recreational facilities in your locality that are sufficient for your personnel?
   a. Adequate
   b. Inadequate
   c. None

Recreation is a phase of outdoor living and answers to such a question would be an indication of the importance of making available recreational facilities to employees of industrial firms.

4. (c) If none, would it be financially feasible to provide company recreation areas for the personnel?

From a professional design level, the feasibility of providing facilities for their employees where no municipal recreational facilities were available was of interest. Industrial firms in other parts of the country have in certain instances provided this service and they feel it was financially feasible in that it made for better employee relations.

GROUP II

1. How do you rate the importance of the following factors in building good community relations?
   a. Good housekeeping in plants and offices
   b. Participation in civic activities
   c. Practices regarding visitors
   d. Development of grounds including plantings
   e. Contributions to fund drives
   f. Local advertising and promotion

Because a positive answer was expected to question 1 of Group I, this question was designed to indicate what factors were regarded as important in the influence of good community relations. The order in which these factors were ranked would indicate the comparable importance placed on landscaping.

2. If you have allocated funds in your present budget for improvement of firm's grounds, would it be used for -
   a. Maintenance
   b. Renovation of outdated plantings
   c. Recreational facilities
   d. Planned improvement
   e. Full time employees to maintain grounds

The answers to this question would indicate whether or not the reporting firms have funds set aside for ground improvement; and if they have allocated funds, the results will show where it is being used.

3. How would you rate the following relative to grounds improvement?
   a. Accessibility of pedestrian and vehicle traffic
   b. Adequate convenient service area
   c. Attractive main office entrance design and planting

The above question includes important factors considered in site planning. Information should be obtained to give the relationship of the importance of landscaping to site location and service area.

4. To whom would your company most likely go for advice or plans on landscaping?
   a. Landscape architect
   b. Local nurseryman
   c. Company groundskeeper
   d. Some experienced employee
   e. Landscape contractor

If industrial and commercial firms plan to have their grounds landscaped, it would be of interest to know whom they would seek for advice. The result of the answers to this question would be important to the various nurserymen throughout the state, as it would indicate the degree and type of landscape planning and planting the industrial firms of Oklahoma desire.

B. RESEARCH AND ILLUSTRATIVE MATERIALS

Personal letters were sent to key personnel in the field of industrial and commercial landscaping. Dr. Richard P. White, executive vice-president of the American Association of Nurserymen, Washington, D. C. was most cooperative in making available reference material on the program of the AAN "Plant America" campaign. Dr. White, without a doubt, is one of the best informed men in the country on the timely subject of industrial and commercial landscaping in the United States.

Personal conversation with Mr. Harry Canup, Director of Business Extension Service of Oklahoma A.& M. College was of great benefit in establishing the industrial picture of Oklahoma.

For the purpose of obtaining mailing lists, form letters were sent to the secretary of Chambers of Commerce of various cities throughout the state (Appendix D). Eleven cities selected for industrial and commercial potentialities were Oklahoma City, Tulsa, Muskogee, Ponca City, Enid, Ardmore, Poteau, Miami, Bartlesville, Claremore and Pryor, These were selected for their recognized industrial development and their recent participation in the Oklahoma Development Council's drive to seek new industry in its annual "industrial tours" of the East. Letters explaining the survey accompanied the questionnaire (Appendix A) which was sent to 108 firms in Oklahoma

The Artophone Corporation in St. Louis, Missouri (Plate I), the Miami Civic Center in Miami, Oklahoma (Plate II) and the Ambrose Gasolene Plant of the Cities Service Oil Corporation, Bartlesville, Oklahoma (Plate III) are included as illustrative material to further explain in a concrete way various problems of design as well as clarify points raised by the questionnaire.

CHAPTER IV

PRESENTATION OF DATA

A. RESULTS OF MAILED QUESTIONNAIRE

As indicated in the previous chapter, it was the purpose of this survey to determine the value of industrial and commercial landscaping and its place in future plans for site development. Of the 108 questionnaires sent out, 52 completed questionnaires were returned or 48.1 per cent of the firms answered. As a result of this high per cent return, when compared to 27 per cent return in a similar national survey (Appendix C), it was assumed that the firms which replied were interested in the subject of landscaping grounds and site development (16). However, it must be pointed out that several factors could have influenced such a high per cent return. The fact that the survey was being made as part of a program of graduate research study at the college level could have attracted attention of those receiving the questionnaire.

All conclusions of this questionnaire are based on the 52 firms which replied (48.1%) and not on the 108 firms which received a questionnaire. Results of the questionnaire are listed under Table 1.

Results obtained indicate that those answering considered good community relations to be important to commercial and industrial firms (Table 1). Seventy-five per cent indicated community relations were of great importance while 23.1% indicated medium importance. Seventy-eight and nine tenths per cent indicated that their firm's sites are landscaped

TABLE 1 Tabulated Results of Questionnaire. Mailed 108 questionnaires--received 52 answers, for a 48.1% returned answered questionnaires.

GROUP I

Question		Number	Per Cent
1.	How important do you think good community relations are to your firm?		
	a. Of great importance	39	75.0
	b. Of medium importance	12	23.1
	c. Of little importance	1	1.9
	d. Not important	0	0
	Total	52	100.0
2.	To what extent is your firm's site landscaped?		
	a. Extensively	9	17.3
	b. Moderately	25	48.1
	c. Minimum	7	13.5
	d. None	11	21.1
	Total	52	100.0
3.	How much better employee productivity would you expect where the surroundings have been well planned and landscaped?		
	a. Much	8	15.4
	b. Moderate	21	40.4
	c. Little	17	32.7
	d. None	5	9.6
	No Answer Given	1	1.9
	Total	52	100.0
4.	Do you have municipal recreational facilities in your locality that are sufficient for your personnel?		
	a. Adequate	28	53.8
	b. Inadequate	16	30.8
	c. None -- If none, would it be financially feasible to provide company recreation areas for the personnel?	7	13.5
	1 Yes 6 No		
	No Answer Given	1	1.9
	Total	52	100.0

GROUP II (Table 1 Cont.)

Question		Choices 1st	2nd	3rd
1.	How do you rate the importance of the following factors in building good community relations?			
	a. Good housekeeping in plants and offices	15	9	6
	b. Participation in civic activities	23	13	9
	c. Practices regarding visitors	1	12	7
	d. Development of grounds including plantings	2	5	10
	e. Contributions to fund drives	1	4	9
	f. Local advertising and promotion	8	5	7
	Failed to indicate	0	2	2
	No Answer Given	2	2	2
	Total	52	52	52
2.	If you have allocated funds in your present budget for improvement of firm's grounds would it be used for -			
	a. Maintenance	24	7	4
	b. Renovation of outdated plantings	2	8	7
	c. Recreational facilities	0	4	2
	d. Planned improvement	11	10	5
	e. Full time employees to maintain grounds	5	1	5
	Failed to indicate	0	12	19
	No Answer Given	10	10	10
	Total	52	52	52
3.	How would you rate the following relative to grounds improvement?			
	a. Accessibility of pedestrian and vehicle traffic	23	14	7
	b. Adequate convenient service area	9	20	15
	c. Attractive main office entrance design and planting	18	9	20
	Failed to indicate	0	7	8
	No Answer Given	2	2	2
	Total	52	52	52
4.	To whom would your company most likely go for advice or plans on Landscaping?			
	a. Landscape architect	19	3	2
	b. Local nurseryman	14	5	7
	c. Company groundskeeper	3	1	3
	d. Some experienced employee	4	6	5
	e. Landscape contractor	9	12	7
	Failed to indicate	0	22	25
	No Answer Given	3	3	3
	Total	52	52	52

to some degree. Seventeen and three tenths per cent considered their sites to be moderately landscaped. Improved employee efficiency due to well planned landscape surroundings ranked 88.5 %. Municipal recreational facilities were adequate in 53.8% of the returned answers. Thirty and eight tenths per cent showed recreational facilities to be inadequate. Of the seven firms which indicated no municipal recreational facilities were available, only one firm felt it would be financially feasible to provide those facilities for their personnel.

By giving the first, second and third choices a rating of three points, two points and one point respectively, development of grounds including plantings was considered to be the fifth in importance with a scoring of 24. Participation in civic activities rated a scoring of 103, which was the most important factor in building good community relations (Table 2). The least important was contributions to fund drives. It is interesting to note the similarity between this questionnaire and a similar questionnaire of national scope on factory landscaping. Referring again to a resume of an industrial survey entitled "Summary of a Survey on Manufacturers' Community Relations," (Appendix C) landscaping was rated fourth with 428 points compared to good housekeeping in plant and offices for first place rating with 539 points. Local advertising and promotion was rated last with 356 points. In the Oklahoma survey, local advertising and promotion was rated fourth. Generally speaking, the Oklahoma survey is in agreement with the survey made on a national scope. The value of the above results is evident in the fact that management of commercial and industrial firms recognize landscaping and beautification of grounds as an important part of good community rela-

TABLE 2. Evaluation of Group II of the Questionnaire by scoring First, Second and Third Choices with 3 points, 2 points and 1 point respectively.

QUESTION	CHOICES 1st	2nd	3rd	SCORE
1. How do you rate the importance of the following factors in building good community relations?				
a. Good housekeeping in plants and offices.	45	18	6	69
b. Participation in civic activities.	69	26	9	104
c. Practices regarding visitors	3	24	7	34
d. Development of grounds including plantings	6	10	10	26
e. Contributions to fund drives	3	8	9	20
f. Local advertising and promotion.	24	10	7	41
2. If you have allocated funds in your present budget for improvement of firm's grounds, would it be used for -				
a. Maintenance.	72	14	4	90
b. Renovation of outdated plantings	6	16	7	29
c. Recreational facilities.	0	8	2	10
d. Planned improvement.	32	20	5	58
e. Full time employees to maintain grounds.	15	2	5	22
3. How would you rate the following relative to grounds improvement?				
a. Accessibility of pedestrian and vehicle traffic.	69	28	7	104
b. Adequate convenient service area	27	40	15	82
c. Attractive main office entrance design and planting.	54	18	20	92
4. To whom would your company most likely go for advice or plans on landscaping?				
a. Landscape architect.	57	6	2	65
b. Local nurseryman	42	10	7	59
c. Company groundskeeper.	9	2	3	14
d. Some experienced employee.	12	12	5	29
e. Landscape contractor	27	24	7	59

tions. The importance of these features to management is more evident and will undoubtedly continue to increase in importance as commercial and industrial firms throughout the state become aware of the benefits of good design in the development of their sites.

It is difficult to determine what degree of landscaping as reported in the questionnaire was considered extensive or moderate; but the results indicate that 67% of those reporting have appreciable amounts. The remaining 33% have very little or no landscaping. It might be well to mention that some firms possibly did not have space for landscaping around their facilities, especially commercial firms (Table 1).

Of the firms which have allocated funds for grounds improvement in their budget, 69% used the funds for maintenance with a scoring of 90. However, the next use of the funds was for planned improvement with a scoring of 58. The next use was renovation of outdated plantings with a scoring of 39. It should be pointed out that the firms which have set aside funds for planned improvement will from the indication of the questionnaire, acquire professional assistance in developing their sites. Landscape architects were preferred as a source for advice or plans on landscaping. Local nurseryman and landscape contractor were next. In the national survey (Appendix C) which was made in 1947, industry indicated Local Nurserymen would be the first choice to whom they would go for advice with a rating of 52, and Landscape Architects close behind with a rating of 40 as their second choice. However, in nine years time as indicated by all sources of information on the subject of Industrial Landscape, the trend in the past two or three years has been that management of industry is interested in professional assistance in their landscape programs. Those nurserymen and landscape contractors who do

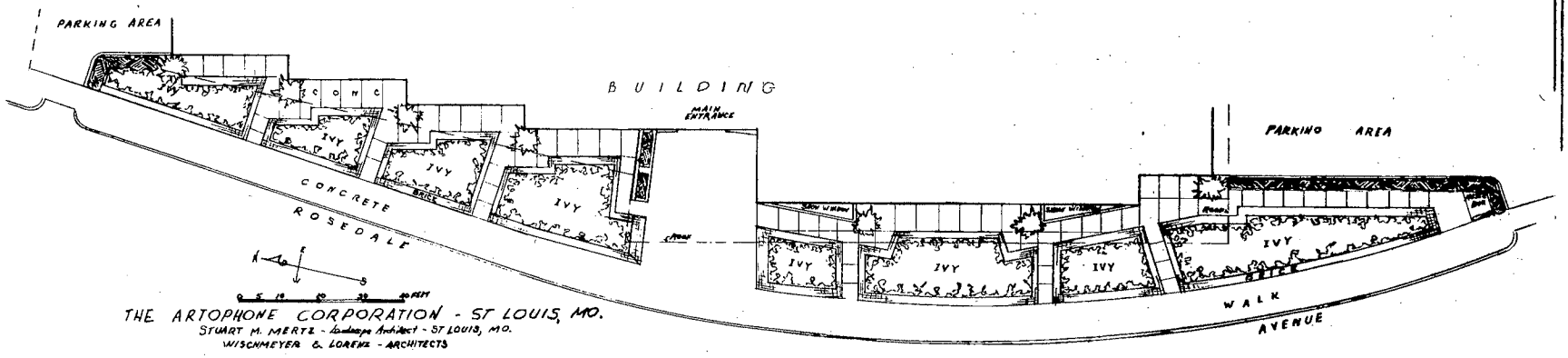
not have qualified personnel with their firms to give professional landscape design service indicate that they are interested in seeking landscape architects to join their staff (10). This might indicate that men in the field of landscaping are interested in providing professional service to industry as well as industry realizing the importance of landscaping and beautification of industrial sites (21).

B. TYPICAL LANDSCAPE DESIGNS OF INDUSTRIAL AND COMMERCIAL SITES

Three site designs, one by S. M. Mertz and two by the author, are presented and discussed to illustrate by specific example, typical commercial and industrial site development. These plans show solutions to problems with which the landscape architect might be faced(Plates I-III).

The area to be designed and planted by the Artophone Corporation in St. Louis, Missouri is on the inside of a curve, varying in width from approximately 10 to 32 feet at the widest point, and over 340 feet long (Plate I). The side and back areas of the building site were paved for parking and service facilities (26).

The area to be planted was approximately level and partly covered by a building overhang varying from 5 to 15 feet. While there is very little pedestrian traffic in the area, there is considerable movement from the parking lot to the building, and at times there are group meetings conducted in the auditorium which has a capacity of 250 persons. The architectural design is of a contemporary nature and reflects the separate functions of the offices and display rooms in the facade design. Thus there are office windows on one side of the main entrance, and show-room windows and large wall areas on the other side. Views out of the windows from the office interiors, as well as lines and masses that would direct the eye to the show windows, were considered



THE ARTOPHONE CORPORATION - ST. LOUIS, MO.
STUART M. MERTZ - Landscape Architect - ST. LOUIS, MO.
WISCHMEYER & LORENZ - ARCHITECTS

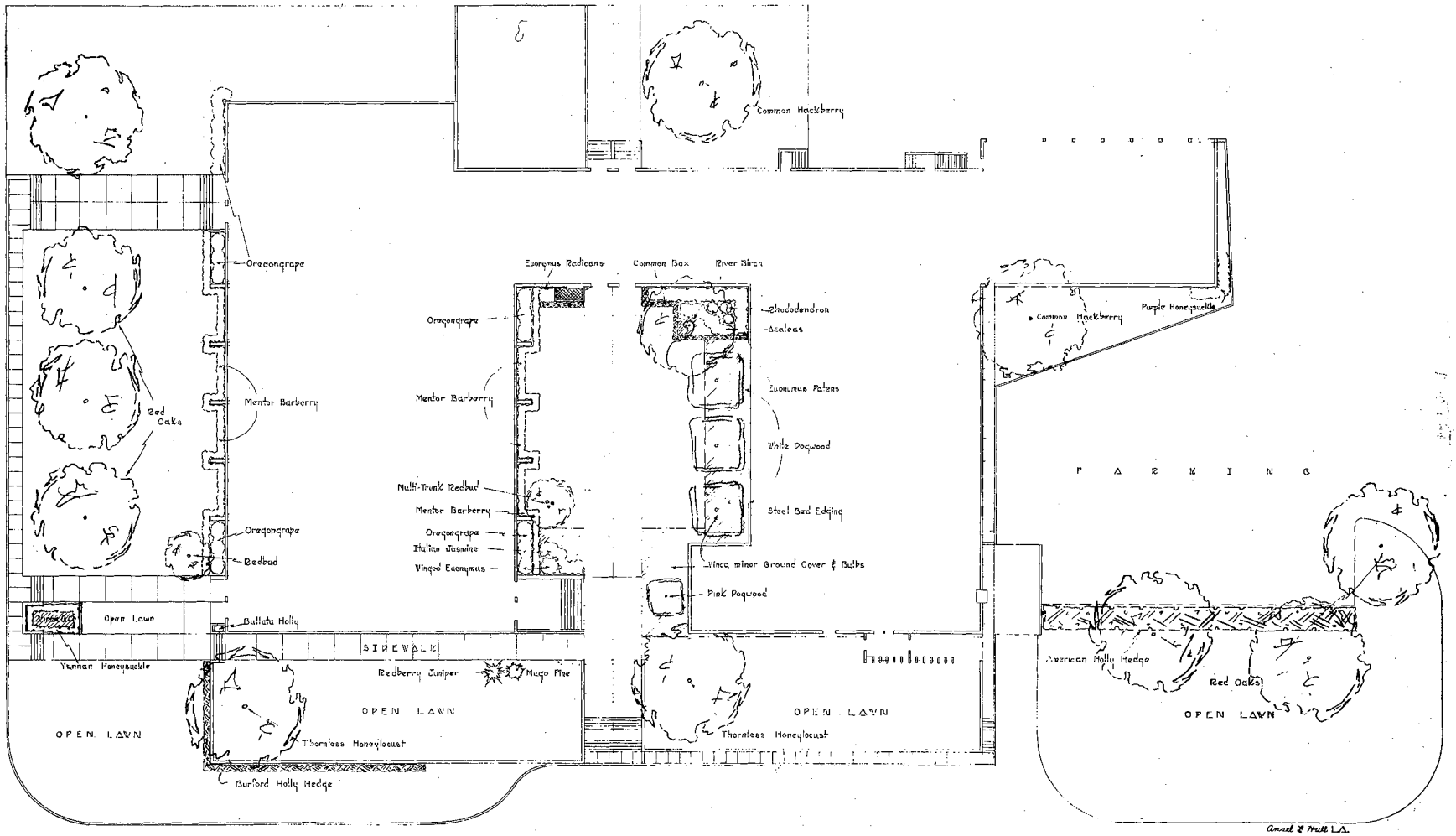
LANDSCAPE DESIGN of the ARTOPHONE CORPORATION

PLATE I

important factors in the design.

The final design consists of Ivy beds and pavement, with some specimen accent plantings and hedges. For interest in the pavement pattern a combination of brick and concrete was used, both reflecting materials used in the building. The main areas were planted in beds of Baltic Ivy to give year-round green and to eliminate the maintenance of grass areas. To enhance the three dimensional aspect of the design further and to protect the Ivy from trespass, the Ivy beds were raised above the level of the adjacent pavement by a strip of corrugated cement asbestos twelve inches high, half of which is above the level of the finished pavement. This cement asbestos also repeats one of the materials in the building, as it was used above the roof level and kept in its natural color. Columnar Japanese Yews (Taxus cuspidata HV) were planted as accents, and Japanese Holly (Ilex crenata) was planted to serve as a year-round green hedge at either end of the building and as a foreground screen for the parking area. The Spreading English Yew (Taxus baccata HV) was planted in the raised plant box immediately at the left of the main entrance door.

The landscape design of the new civic center in Miami, Oklahoma is an illustrative example of a commercial design (Plate II). The architecture of the civic center is of contemporary design. The layout of the entire site is one of functional design and simplicity and economical use of material in construction has been considered. Likewise, the design of the grounds has been kept simple and the selection of plant material in beautifying the landscape was kept to a minimum. Since the lawn is the foundation of any landscape, U-3 Bermuda is recommended. U-3 Bermuda was selected because of its deep rich color, drought resis-



LANDSCAPE DESIGN for

MIAMI CIVIC CENTER

MIAMI, OKLAHOMA

PLATE II

SCALE 1" = 10'

tance and slow growth with low flat habit of growth. Maintenance of U-3 Bermuda lawn is considerably less than that of common Bermuda which is an important item to consider in civic area developments. Shade trees were selected for their growth habit and hardiness in the Miami, Oklahoma area. The Thornless Honeylocust (Gleditsia triacanthos HV) in the front areas was used because of its open-type branching habit and umbrella shape. The Honeylocust trees were located so that maximum views of the facades of the buildings might be seen by motorists driving either east or west. The linear aluminum fins in the architecture of the buildings are the accent and care was taken to allow these architectural features to be viewed from a distance.

One objection the citizens of Miami had to the site which was selected was that it was one block off the main street. Consequently, techniques that could be used to help the view from the main street were considered in the landscape design. Trees were omitted purposely in the grassed island to the east in order that a maximum view could be had by motorists traveling north or south on the main street one block to the east of the Civic Center site.

The building to the left of the main entrance is the auditorium and basketball gymnasium. It is a Lamella-type design and the roof line is a curve which meets the straight roof line of the covered walk to the building at the right of the main entrance (Figs. 7 and 9). A Redberry Juniper (Juniperus pinchoti) was used to break this abrupt change in design lines. This columnar Juniper again repeats the vertical lines of the aluminum fins on the front of the buildings. A Mugo Swiss Pine (Pinus mugo mughus) to the right of the Juniper repeats the lines of the auditorium building and the two plants, which incidentally are the

Figure 7. Architect's Model of Miami Civic Center- Miami, Oklahoma.

Figure 8. View of Open Court, Miami Civic Center - Miami, Oklahoma.

Figure 9. Facade View of Miami Civic Center - Miami, Oklahoma.

only plant material in front of the buildings other than the shade trees, serve as accents to the front entrance and the open court between the buildings. A Burford Holly hedge (Ilex cornuta HV) was used to soften the exposed faces of the retainer wall and also to repeat the lines and foliage texture of the American Holly hedge (Ilex opaca). The American Holly hedge serves as an evergreen screen for the parking area to the right of the office building. A simple planting at the East entrance steps was designed as a secondary accent to the buildings. Open lawn was left between the walks at this entrance because of a maintenance problem which would occur if a formal planting were undertaken. People using this entrance would tend to dispose of their cigarette butts, candy wrappers and etc. which would mean a littered area or a "catch all" if this space were in a flower or shrubbery bed. At best with an open lawn there still will be some problem of litter in this area.

Eastern Red Oaks (Quercus borealis maxima) were used at either side of the buildings for enframement as well as shade. This particular oak is native in the Miami area and offers a beautiful autumn color. Also the shade pattern on the lawn is continually changing, giving a different interest and beauty throughout the day.

Concrete buttresses on either side of the auditorium presented a problem in that children could climb up and on to the roof. Mentor Barberry (Berberis mentorensis) which is a very thorny evergreen was used to discourage the climbing of the buttresses.

The open court surrounded by buildings on all sides except the north was an excellent location for intensive landscaping and the use of specimen materials. Again, because of the contemporary design of the architecture, the design of the court was kept simple both in design and use

of materials. (Fig. 8)

The majority of the circulation of pedestrian traffic would be up the main entrance steps, along the front walk, into the auditorium with secondary traffic through the court. Therefore, the southwest corner of the open court was selected for an accent view. This corner of the court was an ideal location for Azaleas, Rhododendrons, and Boxwood. These plants provide very interesting color, texture, and form. Normally they cannot be grown in Oklahoma without protection from the southwest winds and sun in the summer and unless provided with acid soil. One of the more satisfactory techniques employed to obtain an acid soil is to incorporate a quantity of peat moss with it, consequently the area in which this type of plants was used was kept comparatively small. Since the open court was asymetrical in shape, the landscape design of the court followed an asymetrical pattern. With the use of Common Boxwood (Buxus sempervirens) the horizontal lines of the architecture were repeated in the Boxwood hedge with Azaleas and Rhododendrons as specimen plants and Spreading Euonymus (Euonymus kiautschovicus) as a green background.

A River Birch (Betula nigra), with an exotic habit of growth and peeling bark, serves as an interesting accent plant and gives a shadow pattern across the court lawn. Ceiling to floor glass panels and terrazzo paneling between the glass panels off the cafeteria and dining room were left exposed by using Common Periwinkle (Vinca minor) as a ground cover under the White Dogwoods (Cornus florida). A specimen Pink Dogwood (Cornus florida HV) at the entrance to the open court provides an accent plant and still allows maximum view through the court.

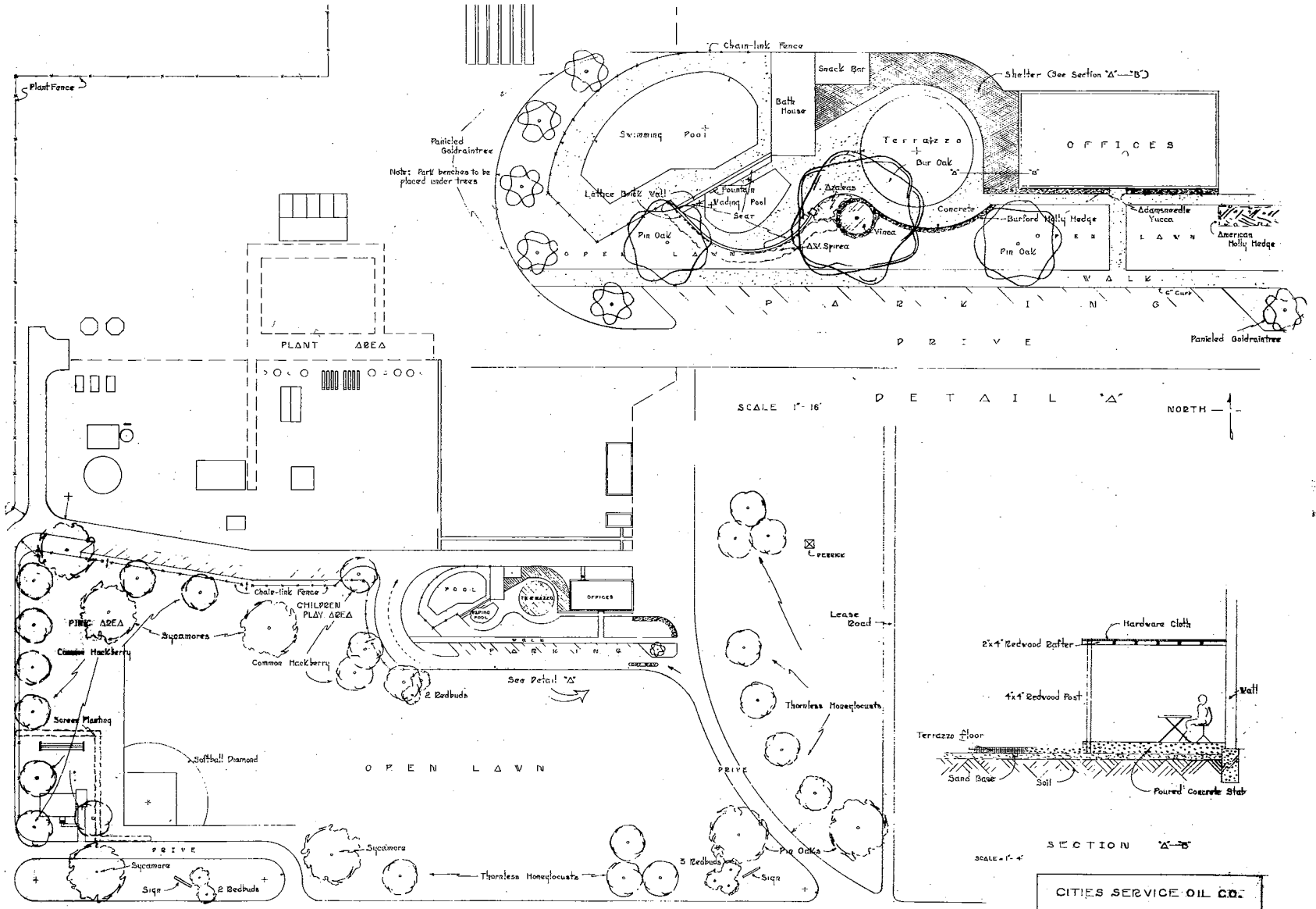
A multi-trunk Redbud (Cercis canadensis), Italian Jasmine (Jasminum

humile) and Winged Euonymus (Euonymus alatus) provide an attractive corner for any pedestrian traffic from the rear of the open court as well as view from the cafeteria and dining room windows.

In the selection of the plants, color and time of bloom was considered. Spring colors will be provided by a variety of blooms found on pink Redbud, yellow Jasmine, white Dogwood, pink Azaleas, purple Rhododendrons, and blue Vinca minor. Various bulbs such as Jonquils, Tulips, Hyacinths, etc. in the ground cover under the Dogwoods would add to spring color. Caladiums would make an excellent foliage color behind the Boxwood hedge which would give color throughout the summer. Annuals and Perennials could be used to advantage in maintaining color during the summer months.

Industrial site planning has just begun to receive some interest in Oklahoma by industrial management. The landscape design for a typical industrial site (The Ambrose Gasolene Plant of the Cities Service Oil Co., Bartlesville, Oklahoma) is presented illustrating what might be done to obtain maximum use of indoor-outdoor space relationship (Plate III).

A definite number of employees (40 to 45) and their families were used as a basis for determining the facilities required for this problem. An average of 5 members per family was used thus making a total of 200 to 225 people using these facilities. Visitors and guests of the employees would make a total of 250 to 300 people which might use the facilities for their recreational needs. However, this number probably would be present at the same time only once or twice a year when the entire personnel might have a company party or reunion on July 4th and/or Labor Day. It was assumed that one third of this total or from 75



LANDSCAPE DESIGN for a

TYPICAL INDUSTRIAL SITE

to 100 persons would be the maximum number using the facilities at any single occasion during the remainder of the year. The average number was anticipated to be 40 to 70 per day.

Circulation for traffic and adequate parking facilities have been designed to care for approximately 40 to 45 automobiles on the premises at one time. One-way traffic has been designated in front of the office and around the aquatic recreational area and a children's play area as a safety measure to prevent pedestrian accidents. Also a chain-link fence surrounds the children's play area, picnic area and along the south side of the softball diamond to lessen the possibility of a child dashing in front of a moving car.

Company signs have been placed to allow maximum viewing by motorists who pass by the site. Small ornamental trees have been arranged to add background material for the signs.

The softball diamond was oriented so that home plate would be in the northwest corner. Protection of batter and catcher is most important and satisfactory results are generally secured with this orientation. This arrangement makes it possible for spectators to watch games without facing the sun. Bleachers should be placed on the west side of the diamond. Parallel parking along the drive by the softball diamond can be provided by making the drive one-way traffic.

A natural enframement of the open lawn by the placement of trees and other plant materials produces a pleasing view of the intensive area adjacent to the offices. Such a view gives a three dimensional effect to the grounds as seen by the public from the highway. Also, the open lawn area allows for mass participation in recreational games.

In the design of the indoor-outdoor relationship of the office

building and adjacent area, care was taken to obtain harmony and unity with the overall design by repeating lines and using some of the same plant material as used in the foreground areas. For example, Pin Oaks (Quercus palustris) were used as shade trees in the intensive area to repeat their use at the entrance of the drive. Redbuds also give the same effect especially when they are in full bloom in the spring. The shelter with a snack bar serves a dual purpose. During office hours when weather permits, personnel can make use of the snack bar for their coffee breaks. With tables and chairs provided under the shelter it is an ideal place to relax in the atmosphere of flowers and shrubbery while making conversation over a cup of coffee.

Azaleas, Anthony Waterer Spirea (Spiraea bumalda HV) and bulbs in the ground cover are used for spring colors while red berries of the Burford Holly and American Holly screen and autumn color of trees provide fall colors. Likewise, the personnel can make use of the area during their lunch hour--an environment conducive to relaxation and refreshment while on the job.

With the facilities of the swimming pool and wading pool, it is assumed that management of such a layout would have to have restrictions and rules for the employees and their families. Since a life guard would have to be employed in such a recreational layout, it probably would be most logical to have the pools open from 3:30 or 4:00 p.m. until 10:30 or 11:00 p.m. This arrangement would allow for a full time employment of a life guard during the summer season. With the above hours the snack bar would be available to the swimmer and others in the various areas and allow usage of the refreshment facilities during the evening hours.

A chain-link fence has been placed around the swimming pool to

permit bathers only. Benches are suggested on the outside for spectators. Seats are designed along the lattice brick wall for the convenience of parents attending their children who are using the wading pool.

The terrazzo floor is designed to allow evening parties of dancing, etc., for families of the personnel. An orchestra can be set up in the shelter to provide music or juke box machines can be installed.

A large oak tree is located to provide shade in the shelter area in the early morning and mid-day. The shelter gives an open air effect by the use of Hardware cloth with vines growing along the sides and on the top (Plate III). (See Section "A -B").

CHAPTER V

SUMMARY AND CONCLUSIONS

This study was designed to determine the present status of Industrial and Commercial Landscape Design in Oklahoma and the future of landscaping in the industrial and commercial fields.

A questionnaire designed to determine the value of industrial landscape design in Oklahoma; whether or not landscape design is financially feasible; and whether industrial and commercial firms in Oklahoma are interested in professional help in their future plans, was sent out to representative firms throughout the state.

Personal correspondence and conversation with key personnel interested in this timely subject of industrial and commercial beautification was undertaken. In addition, research was made in the literature on this subject and the closely related field of architectural design of commercial and industrial buildings. Progress in the field of landscape design is illustrated by the designs of firms receiving awards in the American Association of Nurserymen contest and commercial and industrial site designs by the author of typical sites. These illustrate new ideas in landscape design in keeping with the contemporary designs of the buildings and the selection of materials used as well as consideration of the changing social pattern.

As a result of this study of Industrial and Commercial Landscape Design in Oklahoma, the following conclusions were reached:

1. Management of Oklahoma industrial and commercial firms is

definitely interested in landscaping their firms' sites.

2. Oklahoma firms agree with industrial and commercial firms from other parts of the country that financially, landscaping and beautification of their installations has proved worthwhile.

3. The results of the questionnaire sent to Oklahoma firms indicated that proper site development brings about good public relations which in turn promotes business.

4. The trend in the last two or three years has been for management of industry to use professional assistance in their landscape programs as shown by a comparison of current Oklahoma data and the national survey.

Due to the fact that there is a minimum of literature written specifically on the subject of industrial and commercial landscape, this study was expanded to include personal correspondence with people closely associated in the field, newspapers and brochures from various sources.

This study on Industrial and Commercial Landscape Design in Oklahoma has been vitally interesting and educational to the writer and it is hoped that it may prove to be of value to others who might take the occasion to read its contents.

LITERATURE CITED

(1) Anonymous. A.A.N. Announces New Landscaping Contest. American Nurseryman, Vol. XCIX, No. 10, May 15, 1954. p. 8.

(2) _____. Awards Announced for Industrial Landscaping. American Nurseryman. Vol. XCIX, No. 1, Jan. 1, 1954. p. 43

(3) _____. Industrial Landscaping Benefits Chicago Firm. American Nurseryman. Vol. XCIX, No. 2, Jan. 15, 1954. p. 54

(4) _____. Plant America Competition for 1957 Announced by AAN. Southern Florist and Nurseryman. Vol. LXVIII, No. 51, Mar. 2, 1956. p. 85.

(5) _____. The Community and Industrial Development. Urban Land Institute, Technical Bulletin No. 21, Washington D.C. 1953.

(6) _____. Urban Dispersal - Fact or Fancy? Urban Land Institute, Technical Bulletin Vol. 14, No. 1, Washington D.C. 1955. p. 2.

(7) Balogh, Frank L. Industrial Landscaping--Its Benefits. The Garden Journal of the New York Botanical Garden. Vol. 4, No. 3, May - June, 1954. p. 74.

(8) Canup, Harry. Director of Commerce Extension, Oklahoma A.& M. College. Personal Conversation. 1956

(9) Colvin, Brenda. Land and Landscape. Hazell, Watson & Viney, Ltd., London and Aylesbury, 1947. p. 223.

(10) Ealy, Robert P. Assoc. Prof. Horticulture, Hort. Dept., Okla. A.& M. College. Personal Conversations. 1955

(11) Eckbo, Garrett. Landscape for Living. F. W. Dodge Corp., 1950 pp. 2, 117, 1183.

(12) Edgerton, Harold A., Britt, Steuart H., and Norman, Ralph D. Objective Differences Among Various Types of Respondents To A Mailed Questionnaire. American Sociological Review, Vol. 12, No. 4. Aug. 1947, p. 435.

(13) Eichstedt, Edward A. Landscape at the General Motors Technical Center. Landscape Architecture, Vol. 42, No. 4, July, 1952. p. 166.

(14) Garrabrant, R. B. Industrial Council Holds Plan Analysis Session. Urban Land. Vol. 14, No. 1, Jan., 1955. p. 6

(15) Garrett, J. C. Extension Landscape Specialist. Okla. A.& M. College. Personal Conversations. 1955.

(16) Graybill, Franklin A. Assoc. Prof. Math. Math. Dept. Okla. A.& M. College. Personal Conversations. 1955.

(17) Gunn, C. A. Motels and Resorts. Landscape Architecture. Vol. 45, No. 1, Oct., 1954. pp. 5-11.

(18) Haskell, Douglas. Criticism vs. Statesmanship in Architecture. Architectural Forum. Vol. 98, No, 5, May, 1953. p. 97.

(19) Hamblen, John Wesley. Ass't. Prof. Math. Math Dept., Oklahoma A. & M. College. Personal Conversations. 1956.

(20) Heck, Bessie. Sooner Nurserymen Score a 'First' in AAN Award; Fleming Named President. Southern Florist and Nurseryman. Vol. LXVIII, No. 45, Jan. 20, 1956. p. 67.

(21) Hulme, Louie L. Editor, Southern Florist and Nurseryman's Industrial Landscape Brochure. Southern Florist and Nurseryman, 120 Saint Louis Avenue, Fort Worth, Texas.

(22) Hunziker, Harold E. What is a Landscape Nurseryman? American Nurseryman. Vol. CII, No. 4, Aug. 15, 1955. p. 11.

(23) Lopez, Frank G. Commercial Buildings. F. W. Dodge Corp., 1951.

(24) Lundberg, George A. Social Research. Longman's Green and Co. New York, London, Toronto. 1942. p. 182.

(25) McNeill, Ed. California Firm Wins Landscaping Award. American Nurseryman. Vol. XCIX, No. 4, Feb. 15, 1954. p. 82.

(26) Mertz, Stuart M. An Office and Warehouse Building in St. Louis. Landscape Architecture. Vol. XLII, No. 3, April, 1952. p. 126.

(27) Myerson, Martin and Margy Ellin Myerson. Abstract. Journal of the American Institute of Planners. Vol. XX, No. 4, Fall, 1954. p. 213. "Some Aspects of Industrial Locations", Colin Hill Journal of Industrial Economics (Oxford), Vol. 11, No. 3 August, 1954. pp. 184-192.

(28) Morgan, Arthur E. Industries for Small Communities. Community Service, Inc., Yellow Springs, Ohio. 1953. pp. 108.

(29) Muncy, Dorothy A. Land for Industry--A Neglected Problem. Harvard Business Review. Vol. 32, No. 2, Mar.-Apr., 1954. 51.-63.

(30) North, Arthur T. The Industrial Building. No Publisher /Washington, D. C./ 1928. pp. 1-18.

(31) Osborn, David G. Geographical Features of the Automation of Industry.

The University of Chicago, Department of Geography, Research Paper No. 30. The Univ. of Chicago Press, Chicago. 1953. p. 106.

(32) Price, D. O. On the Use of Stamped Return Envelopes with Mail Questionnaires. Reid American Sociological Review, Vol. 15 No. 5, Oct. 1950. p. 672.

(33) Quadland, H. P. American Association of Nurserymen--Public Information Service, New York 17, N. Y. Plant America--For More Natural Living.

(34) Reid, Kenneth. Industrial Buildings. F. W. Dodge Corp., 1951.

(35) Self, Peter. The Planning of Industrial Location. University of London Press Ltd., London. 1953. pp. 47.

(36) Stevens, Dwight E. Assoc. Prof. Architecture. Okla. A.& M. College. Personal Conversations. 1956.

(37) Stillwater (Okla.) Daily News-Press, Tuesday, Jan. 31, 1956.

(38) Tallmadge, Thomas E. The Story of Architecture in America. W. W. Norton and Company, Inc., New York. 1936. p. 285.

(39) Tarver, James D. Assoc. Prof. Sociology & Rural Life. Okla. A.& M. College. Personal Conversations. 1956.

(40) Tryon, A. Russell. Recreational Development on Buffalo's Waterfront. Landscape Architecture. Vol. XLII, No. 1, Oct. 1951. p. 13.

(41) Tulsa Daily World, Feb. 6, 1956. p. 1

(42) _____. Feb. 24, 1956. p. 9

(43) Tyrwhitt, Jacqueline. The Size and Spacing of Urban Communities. Journal of the American Institute of Planners. Vol. 15, No. 2, Summer, 1949. p.10.

(44) Webster, Donald H. Director, Bureau of Governmental Research, Univ. of Washington, Seattle. Standards of Recreational Facilities. Report No. 61. April 1946.

(45) Werthamer, Shirley K. and Newell B. Landes. Redevelopment for Light Industry. Redevelopment Information Service, Special Publication No. 6. National Association of Housing Officials, Chicago. 1953. p.13.

(46) White, Richard P. Executive Secretary, American Association of Nurserymen, 635 Southern Bldg., Washington 5, D. C. Personal Correspondence. 1956.

(47) _____. Executive Secretary, American Association of Nurserymen, 635 Southern Bldg., Washington 5, D.C. Plant America Industrial Landscape Awards Brochures 1954, 1955 and 1956.

(48) Wright, Frank Lloyd. Frank Lloyd Wright. 1923 p. 125

(49) _____. The Future of Architecture. Horizon Press, New York. 1953. p. 25.

APPENDIX A

17A College Court
Stillwater, Oklahoma
November 15, 1955

Gentlemen:

The attached questionnaire is being sent to a number of industrial and commercial firms in this state. The information obtained will be used in the writing of a Master's Thesis titled "Industrial and Commercial Landscape Design in Oklahoma". The analysis of this questionnaire will be available to you on request.

Industry is becoming more aware of the value of good site selection and development in the efficient operation of plants. The proper landscaping of portions of the area where plants are located is an important part of this development as attested by firms that have already provided attractive and convenient environments. The strictly functional structures of the past have given way to modern buildings possessing aesthetic qualities foreign to older installations. This has given rise to the demand for landscapes suited to the design of contemporary industrial architecture.

In recent years, the eastern and coastal industrial areas have given consideration to landscape design in the development of their grounds. The following quotation from the Southern Florist and Nurseryman's Industrial Landscape Brochure of 1955 points up this situation. "The Bomac Laboratories, Inc., at Beverly, Mass. are beautifully landscaped for a more businesslike reason than love of pretty shrubs. Bomac officials are convinced that the landscaping is a big factor in good management-employee relationships and pays off in advertising for the firm". Other firms have found that the careful planning of their industrial and commercial sites by competent Landscape Architects is of great value.

The enclosed questionnaire is designed to obtain information concerning site development plans and programs of industrial and commercial firms in Oklahoma and surrounding areas. Many firms in Oklahoma have kept abreast of latest trends and it is the purpose of this survey to determine the value of industrial landscaping and its place in future plans for site development.

Thanking you in advance for your cooperation in this matter, I remain

Sincerely yours,

(Signed) Ansel L. Hull

APPENDIX B

QUESTIONNAIRE

GROUP I - Please check one

1. How important do you think good community relations are to your firm?
   a. ___Of great importance
   b. ___Of medium importance
   c. ___Of little importance

2. To what extent is your firm's site landscaped?
   a. ___Extensively
   b. ___Moderately
   c. ___Minimum
   d. ___None

3. How much better employee productivity would you expect where the surroundings have been well planned and landscaped?
   a. ___Much
   b. ___Moderate
   c. ___Little
   d. ___None

4. Do you have municipal recreational facilities in your locality that are sufficient for your personnel?
   a. ___Adequate
   b. ___Inadequate
   c. ___None--If none, would it be financially feasible to provide company recreation areas for the personnel?
      ___Yes ___No

APPENDIX B (Cont.)

GROUP II - Please evaluate first (1), second (2) and third (3) choices.

1. How do you rate the importance of the following factors in building good community relations?
   a.___Good housekeeping in plants and offices
   b.___Participation in civic activities
   c.___Practices regarding visitors
   d.___Development of grounds including plantings
   e.___Contributions to fund drives
   f.___Local advertising and promotion

2. If you have allocated funds in your present budget for improvement of firm's grounds, would it be used for -
   a.___Maintenance
   b.___Renovation of outdated plantings
   c.___Recreational facilities
   d.___Planned improvement
   e.___Full time employees to maintain grounds

3. How would you rate the following relative to grounds improvement?
   a.___Accessibility of pedestrian and vehicle traffic
   b.___Adequate convenient service area
   c.___Attractive main office entrance design and planting

4. To whom would your company most likely go for advice or plans on landscaping?
   a.___Landscape architect
   b.___Local nurseryman
   c.___Company groundskeeper
   d.___Some experienced employee
   e.___Landscape contractor

APPENDIX C

Summary of a Survey July, 1947

on Manufacturers' Community Relations

Over the signature of Dr. Richard P. White, executive secretary of the American Association of Nurserymen, a letter and questionnaire on factory landscaping were mailed April 29, 1947, to executives of 510 corporations. The National Garden Institute provided the list. The companies comprise a cross-section of large, small and medium-sized plants located in all sections of the country; their manufacturing operations are representative of American Industry; they have about a million employes.

Between May 2 and June 4, a total of 138 compilable replies was turned over to the Verne Burnett Organization for tabulation and study. This represents a 27 per cent return.

* * *

Question No. 1: "HOW IMPORTANT DO YOU THINK GOOD COMMUNITY RELATIONS ARE TO YOU AS A MANUFACTURER?"

Of great importance	131
Of little importance	3
No response	4
Total	138

Question No. 2: "HOW DO YOU RATE THE IMPORTANCE OF THESE FACTORS IN BUILDING GOOD COMMUNITY RELATIONS? (Labor Relations purposely omitted.). (PLEASE RANK 1, 2, 3, ETC."

	Ratings *weighted
Good housekeeping in plants and offices	539
Participation in civic activities	472
Practices regarding visitors	438
Landscaping	428
Contributions to fund drives	364
Local advertising and promotion	356

*(Weighted means greatest emphasis is given to mentions for first place, less for second place, and so on.)

Question No. 3: "IF THERE IS AVAILABLE GROUND AROUND YOUR FACTORY,

FACTORIES, OR OTHER PLACES OF BUSINESS, IS SUCH GROUND NOW LANDSCAPED?"

Extensively	49
To some extent	60
Not at all	19
No response	10
Total	138

Question No. 4: "ARE YOU CONTEMPLATING ANY ADDITIONAL LANDSCAPING OF COMPANY GROUNDS?"

In 1947	27
In 1948	11
A continuing program	17
Later on	19
No	1
No response	63
Total	138

Question No. 5: "TO WHOM DO YOU BELIEVE YOUR COMPANY MOST LIKELY WOULD GO FOR ADVICE OR PLANS ON LANDSCAPING?"

Local nurseryman	52
Landscape architect	40
Company groundskeeper	29
Some experienced employe	24
Landscape contractor	15
Other	3
Total	163*

Question No. 6: "WHAT TYPES OF NURSERYMEN'S PRODUCTS WOULD APPEAL TO YOU AS BEING MOST SUITABLE FOR YOUR INDUSTRIAL LANDSCAPING? (PLEASE RANK 1, 2, 3, etc.)"

	Ratings weighted
Shrubs	682
Evergreens	662
Shade Trees	440
Hedges	371
Flowering Trees	312
Perennials	155
Vines	139
Roses	89

Question No. 7: "IN CONSIDERING LANDSCAPING FOR A COMPANY'S GROUNDS, IS IT YOUR IMPRESSION THAT YOU WOULD HAVE MORE CONFIDENCE IN DEALING WITH A MEMBER OF THE AMERICAN ASSOCIATION OF NURSERYMEN--OR WOULDN'T IT MAKE ANY DIFFERENCE?"

I have no opinion	53
More confidence	50
Makes no difference	23
No response	12
Total	138

Question No. 8 "PLEASE NAME THREE OR FOUR FACTORIES AND THEIR LOCATIONS WHETHER BELONGING TO YOUR COMPANY OR TO SOME OTHER MANUFACTURER--WHICH YOU CONSIDER TO BE GOOD EXAMPLES OF INDUSTRIAL LANDSCAPING."

Sixty -- nearly half -- of the respondents answered this question. These 60, however, names 137 companies. Among those most frequently mentioned are:

Ethyl Corp. Laboratory	Ferndale, Mich.
Pratt & Whitney	Hartford, Conn.
Olds Motor Works	Lansing, Mich.
Merck & Co.	Rahway, N. J.
Thompson Products Co.	Cleveland, O.
General Electric Co.	Cleveland, O.
Raymond Bag Co.	Middleton, O.
American Rolling Mills Co.	Middleton, O.
Jewel Tea Co.	Chicago, Ill.
Olsen Rug Co.	Chicago, Ill.
Swift & Co.	Fort Worth, Tex.
	Cleveland, O.
National Cash Register	Dayton, O.
Coca Cola Bottling Co.	Grand Forks, N.D.
	Atlanta, Ga.
International Harvester	Louisville, Ky.
	Evansville, Ind.
National Biscuit Co.	Denver, Colo.
	Atlanta, Ga.

Forty-nine of the respondents volunteered general remarks and comments. These summarized as follows:

19 stated that industrial landscaping is an aid to employee morale.
13 said that it builds pride in the community.
12 made general comments in favor of well-kept grounds and entrances.
3 said it is an incentive for beautifying homes of employes, and public buildings.
2 said that industrial beautification builds respect for the company.

APPENDIX D

The following letter was sent to the Chambers of Commerce in the following cities of Oklahoma: Muskogee, Ponca City, Enid, Ardmore, Poteau, Miami, Bartlesville, Claremore, Pryor, Oklahoma City and Tulsa.

17A College Court
Stillwater, Oklahoma
October 1, 1955

Secretary
Tulsa Chamber of Commerce
Tulsa, Oklahoma

Gentlemen:

As a graduate student in Landscape Design at Oklahoma A. & M. College I am presently planning to write a thesis entitled "Industrial and Commercial Landscape Design in Oklahoma." I am preparing a questionnaire to be sent to industrial and commercial firms in Oklahoma and would appreciate your sending me a mailing list of such firms in the Tulsa area who might be interested in landscape development or who have recently done some landscaping.

I will sincerely appreciate receiving such a list at your earliest convenience.

Very truly yours,

(Signed) Ansel L. Hull

VITA

Ansel Lyman Hull

Candidate for the Degree of

Master of Science

Thesis: INDUSTRIAL AND COMMERCIAL LANDSCAPE DESIGN IN OKLAHOMA

Major Field: Landscape Design

Biographical:

Personal data: Born at Drumright, Oklahoma, October 4, 1925, the son of Wyllys L. and Edna J. Hull.

Education: Attended grade school in Drumright, Oklahoma; graduated from Drumright High School in 1943; received the Bachelor of Science degree from the Oklahoma Agricultural and Mechanical College with a major in Horticulture in May, 1950; attended Kansas State College, Manhattan, Kansas the fall term of 1951; completed requirements for the Master of Science degree at the Oklahoma Agricultural and Mechanical College in May, 1956.

Professional experience: Entered the United States Army in 1944; Served 17 months duty in Europe and was discharged in 1946. Recalled into the United States Army as a Reservist in 1950 and was discharged in July, 1951. Employed by the Wichita Park Department, Wichita, Kansas from February 1952 to December 1952. Employed by D. S. Kauffman and Associates, Tulsa, Oklahoma as a Landscape Architect until August, 1954.

Organizations: Phi Sigma

Date of final examination: May, 1956