WEEKLY BULLETIN

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Entered as second-class matter December 9, 1930, at the Post Office at Detroit, Michigan, under the Act of March 3, 1879. Published Weekly
Subscription Price: 50c per year (Non-members $4.00) 10c per copy.

Volume 17 | DETROIT, MICHIGAN, MARCH 2, 1943 | No. 9

FORUM ON CITY PLANNING

Detroit Chapter, A.I.A., M.S.A. and Metropolitan Art Assn., Scarab Club, Wednesday, Feb. 17, 1943, 8:30 p.m.; Talmadge C. Hughes, Presiding

The first of these forums was conducted by Miss Florence Davies, and she does it so well. In her painting forum and "trial by jury" she gave us not only an insight into the workings of the jury system but some of her own personal philosophies as well.

The Metropolitan Art Association was formed some years ago for the purpose of bringing together all of the art interests of the City into some unified activities, and to foster a better understanding among the various groups, including the Detroit Institute of Arts, Art Education in the Detroit Public Schools, the painters, sculptors, muralists and, we are glad to say, the architects. Each year the Association has brought here such men in our field as Dr. Gropius, Dean MacCornack, Dr. Giedion and others.

We are particularly proud that architects are recognized as having a place in such community activities and it is with this same idea in mind that we discuss tonight the subject of City Planning. Since the subject is such a broad one we will limit our discussion to "A Fundamental Pattern for Detroit's Master Plan—What Form Shall It Take?" I am convinced that the form it takes will be, in the final analysis, that dictated by the public. And so it is up to such groups as those represented here to guide the public and to encourage their active interest in the subject.

Modern planning must be team work. It is beyond the scope of any one branch of training. In addition to the planning professions, there are the sociologists, the economists, and others. An awakened interest on the part of all of them should bring to bear on the problem the best elements of each. According to report, Isadora Duncan proposed to Bernard Shaw that it would be wonderful for them to have a child so as to combine her beauty with his brains. It is said that Shaw refused the suggestion on the grounds that the child might be born the other way around.

When we deal with the art that has to do with human health, happiness and general well-being we need all of the help at our command. The charge might well be: The construction and maintenance of those enduring works which all the people need and which may symbolize a great culture.

The citizen of Athens saw the Acropolis and his spirit was lifted up. He was proud to be a member of a community which could produce such a just and lovely thing. No civilization can be reared without a great public architecture to dramatize its greatness to its people. In the Tennessee Valley we are evolving an architecture to fit our mighty engineering works that is as unprecedented as it is noble.

"The Past and Present Functional Development of Detroit" will be discussed by Mr. George F. Emery, City Planner-Secretary of the Detroit City Plan Commission. A question period will follow, so, we suggest that you note the items you would like discussed further.

* * *

(Mr. Emery's talk will be published later)

It is doubtful if history will make mention of the part played by industry and labor in the battle of production and transportation in making victory possible, and even if history does not record these efforts, the records of history would be

See FORUM — Page 4

Blakeslee Elected Architects' Head

L. Robert Blakeslee was reelected president of the Detroit Division of the Michigan Society of Architects at its annual meeting in the Rackham Memorial Building, Wednesday evening.

Blakeslee

Others elected include Eberle M. Smith, vice-president; Buford L. Pickens, secretary; Paul R. Sewell, treasurer; Talmage C. Hughes, executive secretary and Lyle S. Cole, director.

Blakeslee, professor of architectural engineering at the University of Detroit, graduated from the University of Michigan in 1938. He has been a teacher at the University of Detroit for the past twelve years and has also carried on his own private practice. He is a member of The American Institute of Architects, Society for the promotion of Engineering Education, and the Engineering Society of Detroit.

Smith

In his annual report Blakeslee stated that the Division has an active membership of 217. Its committees are working jointly with the State Society and the Detroit Chapter of The American Institute of Architects on post-war plans, he said.

Sewell

Pickens

Cole

President's Report

At Annual Meeting, Detroit Division, Michigan Society of Architects, February 17, 1943

Tonight we are celebrating our Fifth Anniversary, and it is with a great deal of pleasure that we can now claim a membership of 217 and a sound treasury. This is particularly gratifying in view of the times.

In reviewing the activities of the past year, we will recall that our ex-president was waiting patiently, for the first seven months, for his call to the military service. In September Mr. C. L. T. Gabler was in the Marines with the rating of Captain and on his way—destination unknown. At this time the Vice-President called the Board together and by its action was elected President.

Since September, your President has attended all meetings of the Division and has appointed all committees as required by the By-Laws. He has paid the respects of the Division to Mr. Albert Kahn and Mr. Frank Eurich and written letters of condolence to their families. With the approval of the Board, and in accordance with the By-Laws, he also appointed the following to fill vacancies in the Board of Directors:

Vice-President .....Mr. Branson V. Gamber
Treasurer .....Mr. Eberle M. Smith
Director to State Society.....Mr. Frank Eurich

Two special joint committees were appointed. One was on a matter of practice and the other to study the Mayor's post-war plan.

At the first meeting of the year, in October, the members approved a plan to join with the Detroit Chapter, A.I.A., for the remaining meetings of the year. The meeting was held at The Wardell and later adjounrned to the Art Institute to hear Dr. Sigfried Giedion lecture on "The Changing Aspects of Comfort."

In November, the Detroit Division attended a meeting sponsored by the Detroit Chapter, A.I.A., at the Rackham Building, where Talbot F. Hamlin, guest speaker, gave a very interesting talk on "The Architect, Planning, and The Citizen."

There was no meeting in December.

In January we joined with the Producer's Council and the Chapter at Webster Hall to enjoy a buffet dinner, an educational film, and entertainment.

In looking into the future it would seem that, because of the trying times and the demands upon the members of the Society, it will be necessary to curtail the activities and interesting programs for the duration of the war. With this in mind, and using the words of our ex-president, Capt. Gabler, we would suggest to the incoming officers that "Our profession must mark time and keep in step so that when all is normal we will be ready to advance to the command forward."

In closing this report, your President expresses his sincere thanks to the officers and the members who have aided him in carrying on the activities of the Society.

May the next five years see a continuation of the progress made during the past five.—*L. Robert Blakeslee.*

LAST CALL
FOR M.S.A. DUES — MARCH 1, 1943

The Society's year ends March 1, and the Bulletin will soon thereafter be going to press with the Annual Roster. If you are an architect registered in Michigan don't overlook the opportunity of being listed therein as an active member of the M.S.A. Send $5 to L. E. Caldwell, treasurer, 13606 Stoepel Ave., Detroit, or to the Weekly Bulletin.

Book Show at Detroit Library

Detroit, it seems, is rapidly receiving recognition as a place where fine printing is appreciated. For the second time, this city and New York have been chosen for the simultaneous national opening of the Fifty Books exhibition. This show, now on view at the Main Library, contains the cream of the crop in last year's publications, selected for their artistic and technical excellence by the American Institute of Graphic Arts.

Michigan is well represented in the exhibit. The University of Michigan Press rang the bell with two entries: "Guide to the Manuscript Collections in the William L. Clements Library," compiled by Howard H. Peckham, and "John Mix Stanley and His Indian Paintings," by W. Vernon Kinietz. Paul McPharlin, lately of Birmingham and now of the U. S. Army, received citations for "My Sentimental Zoo" and the "Meditations of Marcus Aurelius," which he illustrated.

Many people think that attractive books are always deluxe affairs that cost a lot of money. Such is not the case with many of these fifty books. Thirty-eight of them sell for five dollars or less and many are two dollars, and some even one dollar. An interesting example of a well designed yet very utilitarian one dollar volume is "The Seaman's Handbook for Shore Leave," published by the American Merchant Marine Library Association. After all, why shouldn't shore leave be made attractive?

To find the year's outstanding books, the jury examined 575 volumes submitted by 122 publishers. On the jury were Elmer Adler, Research Associate in Graphic Arts at Princeton University and Consutlant, Princeton University Press; George Macy, Director of the Limited Editions Club; and Ray Nash, Associate Professor of Art and Printing Advisor at Dartmouth College.

The exhibit is presented locally by the Public Library in collaboration with the Detroit Group of the American institute of Graphic Arts. It will remain on view until March 19. Admission is free.

FORUM — (Continued from Page 1)

vastly changed without them, and that is glory enough. Detroit is in the forefront of industrial architecture and we are proud of the contributions her architects are making. Key to the post war real estate activity lies in what remigration will occur, and what will be done with the big plants after the war. Most amateur prophets assume people will go back home after the war. They won't, assert the real estate experts, because they never have behaved so in comparable circumstances. One eminently qualified to speak on this is our president of the Detroit Chapter of The American Institute of Architects, Mr. William Edward Kapp.

* * *

(Mr. Kapp's talk will be published later)

In a discussion of City Planning no promised undertaking of the post war period grips the imagination with more vigor than does the rehabilitation of our cities. Every city has its close-in run-down area. Detroit has its "inside the Boulevard," referred to as a blighted area. The president of the Michigan Society of Architects says he prefers to think of it as "the land of opportunity." This difference in viewpoint calls for a broadness of vision and bold courage possessed only by those who refuse to be shackled to the traditions of the past. But vision and courage must be seasoned with realism —I think such a realist is Mr. C. William Palmer.

* * *

Mr. Palmer:

In the development of a comprehensive plan for our city there are, among other things, two major developments to be given serious consideration. They are the development of our water front and the rehabilitation of the property within the Boulevard.

With such an excellent opportunity to help bring back Detroit, the city beautiful, as it was once known, why have we been so neglectful all these years in allowing our river front to become a disgrace to any city, especially when other cities in the country, much smaller in size and with far less opportunity have made their water fronts a source of joy for their own citizens as well as for strangers visiting them?

For many years our excuse was that all this property was used for shipping purposes and for factory sites and would be too expensive to purchase for any beautification purposes.

This excuse holds out no longer, for recent surveys show that the factories are moving outside of the city to inland localities. This is true with but one exception—the Ainsworth Manufacturing Company.

Surveys further show that each year the river is used less and less for transportation of materials, being replaced by the railroads and trucks. This land with its riparian rights can be purchased very reasonably. The only solution of this problem, which will fill the coffers of the city treasury, is to establish a concrete thoroughfare all along this water front, directly in front of this property, moving the harbor line out further into the stream. Then you will find hotels and apartment houses springing up all along this lovely water view. The building of this drive will soon repay the city for its expenditure by the increase in taxes for this property which fronts the river. This is old stuff, I know you have heard it many times, but we must keep repeating it so that nothing will prevent this development from going hand in hand with the master plan for Detroit.

We are pleased to hear that the State of Michigan is working on the Huron-Clinton River Valley Development and has this as a part of its program and are working with our City Plan Commission to this end. Whether a civic center becomes a part of this development is still to be determined. Personally, I see no better location for it than at the foot of Woodward Avenue but I am open to conviction.

With the present condition of our slum areas, many citizens are wondering how we shall plan and what we shall do with property within the Bouelvard. Most of this property is in a state of decay or is rapidly becoming so. I have given this considerable thought and feel that there is a solution for study on the following basis:

First, the property in the immediate downtown area and close to the business area should be planned and given over to apartment dwellings, four-story walk-up type, built of fireproof construction and one step above the ordinary low-cost housing now being built in the city. This would house the clerks, stenographers and white collar class who are now living on the outskirts or commuting on account of the high rentals. These could be rented within their limitations, pay taxes and still show a 3 percent return for the owners, whether publicly or privately owned, and amortized over a forty-year period.

In so planning these houses could be given adequate parking space, playgrounds, etc., and still have from 18 to 20 families to the acre. This class would be glad to live there as it is close to their work and not expensive.

A portion of the remaining area should be given over to single family units, about four or five families to the acre. This, you say, is expensive for the city, as it does not bring in sufficient taxes. I answer by asking what percentage of taxes are now being paid to the city for this property. A very small percentage, as the records will show. Wouldn't it be better to have a small increase in taxes, and a clean, well-planned city, even if the city cannot get a high rate of taxes for this property? If this plan is carried out we will solve the problem for the typical downtown store keeper who is today bemoaning the fact that the several outlying business centers are gradually taking away his trade. If we keep the public in the downtown area they will do their trading there.

The next suggestion is the small factory. While the large factory is moving out beyond the city limits and perhaps should be so placed, there are many small factories that manufacture clean articles, do all their transportation by truck and make a point of keeping their factory sites attractive, with well-kept lawns, trees and shrubbery. If these buildings are well designed by capable architects they are pleasant to look upon.

My thought is to divide this area, after considerable study and advance surveys, to acquire the best need, allowing a small percetnage of increase and definitely restricting certain sections to be used for that purpose only, and when it is entirely built up other arrangements could be made outside to meet the demand whether for factory owner or private home.

These different areas should all be planned with serious thought for through traffic streets and possibly by separating each area used for a different purpose by a green belt and play park if the planning so permits.

Finally, let me state that we must provide our citizens with their needs, whether they be recreation, accessibility to their work or their desire to have homes of their own. If we do not do this they will go where they can get it and thus we miss the issue entirely. A city is well planned when it satisfies the needs of its citizens and when all sections are easily accessible and all property put to a good use.

* * *

Mr. Palmer:

When Mr. Walter Blucher, former Detroit City Planner, now of the National Association of Planning Officials, was a guest of the Detroit Chapter, on the occasion of Dean MacCornack's appearance, he stated that he had ceased to recommend to municipalities that they establish Planning Commissions, because, he said, he knew that the next question would be, "Where can we find a competent man to serve as city planner?" and his answer would have to be "I don't know."

* * *

Mr. Bennett:

The public generally gets what it wants and what it deserves. No city plan will succeed without public demand. Then and only then will our city government act, and rightly so. We can recall when a few talked housing, and they were considered a bit queer, but by and by a few isolated examples were built to show the way. The government does not want to take over these things but it is justified where private industry fails. So, there must be a mighty tide of public demand for a Master Plan for Detroit, housing is but one of its elements.

The Present Status of Unification in Michigan

Report of Kenneth C. Black, Chairman, Unification Committee

At the last meeting of the Unification Committee, over a year ago, it was decided to have the Detroit and Grand Rapids Chapters of the A.I.A. undertake membership drives in an effort to bring about unification by enlisting all registered architects in Michigan under the banner of the Institute. It is now time that we took stock of the progress that has been made in order to determine whether or not unification can really be achieved by this method.

The membership of the Detroit Chapter has grown from 79 to 188 and the Grand Rapids Chapter has increased from 20 to 35, making a total Institute membership in Michigan at the present time of 223. The total membership of the Michigan Society of Architects is 368 of whom 179 are members of the Institute, and some of whom are, in addition, residents of other states. These figures reveal that there are still 189 members of the Society who do not, for one reason or another belong to the Institute. And they also reveal the fact that at least fifty members of the Detroit and Grand Rapids Chapters are not paying dues to the Society.

At first glance one might reason from these figures that unification of the profession in Michigan is impossible except under a series of compromises such as are proposed in Ohio. But if the Chapter's have been able to increase their combined membership by 124 in two years time, why isnt' it reasonable to suppose that if we now make a determined effort to enlist the membership of the 189 non-Institute members of the Society we will be able shortly to reduce the membership differential to such a small figure that the two organizations can actually be combined into one.

During the membership drives of the Chapters practically all registered men in Michigan have been canvassed, irrespective of whether they were members of the Society or not. While such a procedure is both laudable and logical, it seems to me that the process of unification can now be speeded if the Chapters concentrate for a while on the men who are members of the Society but not of the Institute. Such men are organization minded or they wouldn't even belong to the Society. And most of them, I feel sure, simply need to be convinced of the fact that the reasons for the prejudices they formerly bore toward the Institute no longer exist.

The original suggestion on which the committee began its work, was that the Society be designated as the Michigan Chapter of the Institute and that its various Divisions remain in substantially their present form. This plan would have meant the abolition of both the Detroit and Grand Rapids Chapters of the Institute as they are now constituted. And this plan, it turned out, was not acceptable either to the Institute or to the Grand Rapids Chapter. The Detroit Chapter was willing to proceed on such a basis but it is obvious that for a unification plan to succeed it must be acceptable at least in principle, to all parties concerned.

Therefore, on the assumption that an intensive membership drive can reduce the membership differential between the two organizations to a workable basis, I would like to suggest that we now give consideration to the following plan of action:

First: That the Michigan Society of Architects withdraw from its present status as a State Association Member of the Institute.

Second: That Institute members in cities where the Society now has Divisions but where the Institute does not have Chapters (such as Lansing), hold meetings and decide among themselves whether they wish to remain as members of the Detroit and Grand Rapids Chapters or whether they wish to form their own local Chapter.

Third: That the By-Laws of the Society be changed to provide that the Board of Directors be composed of representatives of the Chapters of the Institute in Michigan as well as of the Divisions of the Society—and that as soon as the Institute membership in any local Division becomes 80% of the Divisions total membership, the Division be automatically abolished provided a Chapter exists in the territory served by the Division.

Fourth: That individual memberships and dues in the Society be abolished and that the By-Laws be changed to make the Society simply a Congress of Chapters and Divisions, supported by the Chapters and Divisions, but with each member of either a Chapter or a Division being entitled to vote and hold office in the Society as at present and with all members in good standing in their local Division or Chapter being entitled to call themselves members of the Society.

Under such a plan it seems to me that the Society could very shortly replace most of its Divisions with Chapters and during the process could continue to represent both Institute and non-Institute men as effectively as it does at present.

We in Michigan showed the rest of the States how to organize and operate a State Society at a time when the Chapters of the Institute failed to realize that their restrictive membership policies were forcing a large majority of the architects to depend on some organization outside the Institute for their professional contracts. Now that the Institute has publicly recognized the principles for which all State organizations have been fighting, why shouldn't Michigan again point the way toward real unification? And in pointing the way let's decide on a form of organization which will do away with all quibbling about classes of membership; let's forget about privileged voting rights; let's forget about restrictions on the holding of office and all the other compromises which have heretofore been the basis for suggested unification plans.

In the eyes of the people of the State of Michigan we are all architects. As architects we owe an obligation to ourselves to join with our fellow architects in furthering the interest of our profession. As architects we should all have a right to belong to a State and National organization on an equal footing with all other architects. The Institute, and its Michigan Chapters, now say "Welcome" to all registered architects in the State. This type of aggressive and understanding leadership deserves the support of the entire profession and under such conditions there is no longer any need, or any excuse, for two organizations.

There are no longer any bars to unification except the bars of misunderstanding and personal prejudice. We can correct the misunderstandings by a little educational work and we should completely disregard personal prejudices in arriving at a solution of the problem. There is no real reason why unification should not become an accomplished fact in Michigan, and I hope it will come soon.

Lecture Series Announced

March 2—Alex Linn Trout, Present Status of Planning in Detroit.

March 9—Arthur C. Schiefle, Study of the Huron-Clinton Metropolitan Authority.

March 18—Jose Louis Sert, On Urbanism vs. Suburbanism—Auspices Metropolitan Art Assn.

March 23—George F. Emery, On Detroit's Master Plan.

Are you interested in knowing what will happen to the "Arsenal of Democracy" after the war when accumulated demands for Detroit's peace-time products will make a new surge of activity in the world's greatest industrial city?

Through the courtesy of the Detroit Art Commission the Citizens Housing and Planning Council has arranged a series of lectures to be given in the small auditorium of the Art Institute at 8:30 p.m. on the evenings indicated.

Alex Linn Trout who opens the series is a special lecturer on Housing and Planning at Wayne University, a consultant for the National Resources Planning Board and Executive Secretary of the Citizens Housing and Planning Council of Detroit.

Fenestra Announces Architectural Competition

Much has been said and written about post war planning, but the Detroit Steel Products Company has put words into action by announcing its Fenestra Competitions, which offer $2,000 in cash prizes.

While all D.S.P. facilities are bent toward producing the sinews of war that will make victory possible, it is realized that "If we are to build sensibly, pleasantly, well and profitably when we have won the war," we should begin planning now for war's aftermath.

"The architect, more than most other types of professional men, is trained to see clearly what is needed, and how to satisfy the need with a plan, with men, materials, equipment and direction," says Mr. H. F. Wardell, executive vice-president of the Detroit Steel Products Company, in issuing invitations to architects to enter the competitions.

"These comptetions, we feel, can help stimulate the kind of progressive planning the nation needs at this time: the kind of planning that will help the transition from war to peace, that will bring us victory in peace, as in war," Mr. Wardell concludes.

Professional advisor for the competitions is Mr. C. William Palmer, president of the Michigan Society of Architects.

The competitions are for hospital windows and small house windows, and first, second and third prizes in each are $500, $300 and $200, respectively.

All architects, engineers, designers and students are eligible to compete, with the exception of employees of the sponsor, and a competitor may submit any number of solutions and is eligible to win any number of awards.

The competitions are approved by the Committee on Competitions, the American Institute of Architects. Jurors include Edwin W. Conrad of Cleveland, Branson V. Gamber and Amedeo Leone of Detroit, John N. Richards of Toledo, Alfred Shaw of Chicago and R. W. Reed of Detroit Steel Products Co., representing the sponsor.

Closing date is set at 5:00 p.m., March 26, 1943. Programs may be obtained by addressing the professional advisor, Mr. C. William Palmer, % Prince & Co., 5031 Grandy Ave., Detroit, Mich.

Detroit Chapter, A.I.A.:

Today the American Institute of Architects wrote from Washington that upon your recommendation the dues of my husband have been waived for the duration. It was most kind of you to write them about this matter, and thank you for doing so.

Don's address now is: Lt. Don W. Hunter, U.S.N.R., Navy 8130, Fleet Post Office, San Francisco, Calif.

—Irma Hunter.

Editor's Note: Dues in the Detroit Chapter, A.I.A., in the Michigan Society of Architects, and its Detroit Division are also waived. The Bulletin is interested to know of all Michigan architects in service.

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FIRESIDE PRINTING & PUBLISHING CO. — Phone TEmple 2-4900 — 4728 ST. AUBIN

WEEKLY BULLETIN

MICHIGAN SOCIETY OF ARCHITECTS

Entered as second-class matter December 9, 1930, at the Post Office at Detroit, Michigan, under the Act of March 3, 1879. Published Weekly
Subscription Price: 50c per year (Non-members $4.00) 10c per copy.

Volume 17 | DETROIT, MICHIGAN, MARCH 9, 1943 | No. 10

The Functional Pattern For Detroit's Master Plan

Presented by George F. Emery, City Planner, at the Joint Meeting of the Metropolitan Art Association with the Michigan Society of Architects and the Detroit Chapter of the American Institute of Architects, held at the Scarab Club, February 17, 1943.

The first step in the preparation of a Master Plan for Detroit involves the collection and interpretation of a large amount of factual material bearing upon its past and present condition and development. A considerable amount of this material has already been collected, and the point will soon be reached where those involved in the technical details of the work must know what form and shape the people of Detroit want to adopt as their ideal towards which all change and improvement should be directed.

What is needed is a basic guiding principle or major pattern which will determine the broad outline of the Master Plan. Such a pattern is fundamentally functional in character and consists largely of the Land Use Pattern and the Street and Highway Plan, which together give definite character to a city.

The City Plan Commission is desirous of having as much thought and discussion given to this subject as possible, and to this end is presenting wherever the opportunity may arise a series of slides showing the functional development of Detroit and some types of major city patterns which have been advocated by various architects, engineers and city planners in the past.

First, let us consider the series of slides on the growth of Detroit from 1701 to 1942. While the Master Plan will not be determined by the past, it is of interest and value to learn what Detroit is today and how it got that way.

Detroit, founded in 1701 by Cadillac, was for a century a frontier fort and trading post. Cadillac built Fort Ponchartrain, which was succeeded in 1778 by Fort Lernoult, later renamed Fort Shelby in 1813 and dismantled in 1828. In 1799 Detroit had about 200 houses and a population of 500 people. There was little industry and the people obtained their living largely by hunting, fishing and trading, with a small amount of agriculture.

In 1805 a fire destroyed almost the entire village, and Judge Woodward, who had recently arrived from Washington where he had been greatly impressed with the L'Enfant Plan for that city, suggested and the people acceded to a scheme for rebuilding Detroit on an adaption of the L'Enfant Plan, which was followed for many years but later abandoned, with some vestiges remaining in the central business area.

Detroit in 1820 had grown in some degree with ship building the chief industry located along the River Rouge. Other industries included tanning, distilling, hat making, candle and soap manufacturing.

By 1870, with a population of 80,000, Detroit was a thriving city, with smelting the chief industry and factories located along the riverfront.

By 1890 the growth of the railroads had impressed a new pattern upon the city by attracting industries to their rights-of-way.

By 1920 the automobile industry had completely dominated the city, and factories were scattered along the railroads and in the suburban sections. Both Highland Park and Hamtramck had developed to about their present proportions.

In the periods from 1920 to 1942 industry continued to expand, the major changes being the opening of the Rouge Plant and the spread of factories beyond the city limits. The current era of decentralization had become well established and the increased construction of war plants had accentuated the prevailing tendencies. The city had not had zoning until 1940 and the older sections had become blighted through the indiscriminate scattering of business and industry throughout the older parts of the city.

Thus the city today with which we must deal shows a disorderly growth and a somewhat uncertain future. Our problem is to determine the basic pattern to which its change and improvement should be geared in order to encourage desirable tendencies and to reorient those forces which have shown disruptive effects. That this can be done is self-evident, provided only that the goal is idealistic, while at the same time being realistic enough to integrate the essential powers of the community with the plans of its citizens.

Cities have been planned form earliest antiquity. It was only in comparatively recent years, however, that there was sufficient recognition of the essential character of the problems for rational and functional patterns to be laid out. Earlier plans had been largely geometric in form, without adequate attention to the essential relationships between the different types of land uses, nor was there much thought

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Egerton Swarthout

Egerton Swarthout, 72, Fellow of The American Institute of Architects, internationally-famous architect, died Feb. 18 in a New York hospital.

Mr. Swarthout, who designed more than 100 buildings throughout the United States, was the son of Satterlee and Charlotte Elizabeth (Egerton) Swarshout. He was born March 3. 1870. His widow, Esabelle, a native of Cambridge, England, and a son, Robert Egerton, survive. Both are now in England.

The deceased had practiced in New York City since 1900. He was graduated from Yale Uinversity in 1891 after receiving his early schooling here.

He was one of the last of a group of architects who led American architecture away from the Victorian influence near the close of the last century and was a leading advocate of the competitive principle of design.

The code of competition of the American Institute of Architects occupied his attention for many years. He rewrote it so that young men with ability might have a chance.

His three favorite works, the Mary Baker Eddy Memorial in Boston, the Elks Memorial in Chicago, and the state capitol in Jefferson City, Mo., all were designed on contracts obtained in secret competition.

Some of the other structures which he designed are the U. S. Post Office and Court House at Denver, the George Washington Memorial Building at Washington, the U. S. National St. Mihiel Monument at Montsec, France; the Memorial Chapel at Brookwood, England, for the American Battle Monuments Commission; the Yale Museum of Fine Arts, and the Bailey Memorial Fountain at Brooklyn.

He was a member of many distinguished societies and commissions identified with his art and was known as an author on subjects of architecture through several books, monographs and magazine articles.

JOINT MEETING

MICHIGAN CHAPTER AMERICAN SOCIETY OF HEATING & VENTILATING ENGINEERS

and

DETROIT SECTION THE AMERICAN SOCIETY OF REFRIGERATING ENGINEERS

Horace H. Rackham Educational Memorial

MONDAY, MARCH 8, 1943

Dinner at 6:30 P.M.

The principal speakers of the evening will be Mr. P. M. Jensen of the Dow Chemical Company and M. George C. Gress of the Monsanto Chemical Co. Mr. Jensen will address the meeting on the subject, "Saran Plastics;" Mr. Gress will talk on the subject, "Synthetics—Plastics, Frontiers."

J. L. Sert To Lecture Here

On the evening of Thursday, March 18, the Metropolitan Art Association is bringing here the distinguished Spanish Architect, Mr. Jose Louis Sert, to lecture at the Detroit Institute of Arts. The subject of the lecture, which will begin at 8:30 p.m., is "Urbanism vs. Suburbanism." Admission is by Metropolitan Art Association membership card or the payment of fifty-five cents.

Mr. Sert is author of "Can Our Cities Survive?" an exciting new book, behind which lies the collection labors of the International Congress of Modern Architects, whose researches and conclusions the book embodies.

Mr. Sert's lecture should prove of particular and timely interest to architects, who are more and more becoming interested in subjects of city planning and the broader aspects of the profession.

Letter from Detroit Chapter Member

I have been debating the matter of continuing my membership for the past year, been analyzing the Octagon which I have been receiving since 1928, and do not feel that I can afford longer to remain a member.

I hope I am not being too critical of the American Institute which I have enjoyed these many years. I have attended several conventions and been as active in the Detroit Chapter as the distance from Ann Arbor would allow. I believe strongly in the ideals of the organization as put forth in the constitution and by-laws, but I do not agree with its membership policy. I do wish that the Institute would take a stand, either to be all inclusive and represent the profession *in fact*, or be a truly honorary professionalized group—an architectural legion d'honneur. I have always hoped that the Institute would become the former, and believe that eventually such an all inclusive organization will emerge. It is the democratic way. I want to belong to the larger group, the 22,000 architects; therefore, at such time as the A.I.A. becomes that body, or announces that as its goal, I shall lend my support only to the State Society.

* * *

REPLY FROM DIRECTOR OBERWARTH

As a matter of usual procedure I have been furnished copy of your letter of February 4th to the Treasurer of the Institute.

To one who has sacrificed time, money, practice and finally health and family welfare in an effort to do the thing which you, in my own District, say we are not doing is frankly unsporting and unbecoming a Professsor in the University of Michigan where we have so many friends.

Do you have some peculiar idea that all we have to do is to *say* we want legions of new members to get them? It takes hard work, individual effort, planning—both psychological and practical.

But did you know that we have increased our membership from 319 to 600 in our District in the last two years? (It was published in your Weekly Bulletin Feb. 9). Did you know that we have 225 members in Michigan now and getting more constantly? Have you any idea of the large number of Michigan Architects who were invited to join the Institute who have not yet applied? Did you know that we have more members of the Institute in our District (Indiana, Kentucky, Ohio, and Michigan) than there are paying members of all four State Societies? Did you know that we now have a third of all the architects in the District as corporate members and that approximately 80% of all registered architects have been *asked* to join individually? Have you contributed a share to this effort which would justify criticism of the Institute?

You say you want to become a member of the large democratic body or at least announce that as our goal. So do I, but my idea of doing something about it is not resigning! To get these members takes all that I have said it takes. Ask your Society Secretary! As for announcing it as our goal—that's the first thing in the Institute by-laws; it has been repeated upon several occasions recently by the Board; the substance of it has been published in the Octagon and I have been preaching it all over your District for two years. On top of that I have been preparing a similar plea to all other Chapters in the country, to be mailed shortly.

There *is* going to be a great democratic organization of architects and will become a reality as soon as you and I and all the others work hard enough to make it so. Continued membership is the least possible proof of sincerity.

HAPPY BIRTHDAY: Roy W. Akitt, Clair Stuchell, Louis Kahn, March 5; Walter Anica, Eugene D. Straight, March 6; Arthur L. Weeks, Russell Allen, March 7; Alvin E. Harley, Carl Macomber, March 10; E. E. Ellwood, Louis Kamper, Morris Webster, March 11; L. R. Bennett, Mason Rumney, March 13; P. R. Pereira, March 14; Fred W. Knecht, Mary Chase Stratton, March 15.

Buy United States War Bonds and Stamps

MASTER PLAN—(Continued from Page 1)

given to protecting the vulnerable areas from the deteriorating effects of industrial and business uses.

Perhaps the first modern approach to this solution occurred in Ebenezer Howard's "City and Satellites," first publicized in England in 1898. This concept was new in its idea of an orderly city of fixed size permanently protected by an open greenbelt. Growth was to be through the development of new satellites outside the mother city.

The "Radial City" proposed by Paul Wolf further extended the Howard scheme and supplied industrial sections insulated by greenbelts which contained the main traffic arteries. Here the idea of "buffers" between the various units of the plan was more fully developed.

The "City of Neighborhood Units" drawn by Thomas Adams is a modern and fairly practicable attempt to design a large city with individual neighborhood units and is quite applicable to a large existing community.

"The Decentralized City" is a plan for the breakdown of a present metropolis into a series of smaller nucleated communities, each more or less independent. A somewhat similar process of progressive and planned reorganization of a community is designated by the famous town planner, Eliel Saarinen, as "Organic Decentralization."

The "Regional City" proposed by Clarence Stein in 1942 is another form of decentralization, with greenbelts serving in both a decentralizing and integrating function.

The "City in Landscape" of L. K. Hilberseimer presumes a constant wind direction with resultant orienting of the residential sections to avoid smoke from the industrial areas.

The Russian scheme of a "Linear City" reserves a riverfront for park purposes and gives substantial separation between residential areas of apartment units and the factory districts.

Frank Lloyd Wright's plan for "Broadacre City" is based upon spacious, abundant rural living. Besides the greenbelt schemes of other plans he indicates large park areas to contain educational, cultural and social functions.

All of these plans have been based upon a high degree of decentralization so as to provide more light, air and open space. Le Corbusier has adopted an opposite principle. In his "Contemporary City" he provides for the concentration of all urban functions so as to minimize distances and give the greatest convenience of access. All buildings are skyscrapers and are placed in park-like areas with a segregated industrial section. No provision is made for individual private homes, but all residential facilities are in the form of large multiple dwellings.

Thus we have presented in simple form some typical examples of the numerous basic ideas enumerated at various times for the formal organization of a city. Some one of these plans, or perhaps parts of various plans, may prove suitable and desirable for consideration in the development of Detroit's Master Plan. It is hoped that all who are concerned with the future of Detroit and in giving that future the proper direction and guidance, will give this question their earnest consideration and assist the Commission in the adoption of basic principles for the Master Plan which will truly reflect the needs and desires of the people of our city.

Architectural Exhibit At Art Institute

Photographs and plans of representative Detroit buildings comprising a cross-section of Detroit architecture from 1823 to 1943 will be on display at the Detroit Institute of Arts from March 2 to 31. The exhibition chronicles the history of a series of attempts to adapt European styles to American buildings, followed by a simplification and elimination of these stylistic traits. Finally, in the exhibition of modern factories, offices, service buildings and dwellings, the exhibition shows how the identity of a building and its function and structure becomes complete. The factory exhibits are particularly interesting, as it is in this field that Detroit has made its unique contribution to modern architecture.

The exhibition was arranged by Hawkins Ferry who has also written a foreword to the show analyzing the building trends of the last 120 years.

Post War Planning

By E. D. PIERRE, *Chairman, Post War Planning Committee, Indiana Chapter, A.I.A.*

The post war world we hear so much about is the same world planners have been dreaming about and fighting for for decades. They have studied the ways of the city and found it unaccountable in its efforts to defend the slum and phenomena of culture in the same breath.

The program of the Federal Government calls for Full Employment, Security, and Building America. In the other direction the opposition to a planned program is growing. The forces of prejudice and fear may swing far to the right and carry with it many of our accumulated gains.

FULL EMPLOYMENT

The attainment of a status of full employment is largely a technological problem that can only be solved with full planning at all levels of government, national, regional, state, county, city and neighborhood.

Community and state planning must form a large part of this employment. This strictly is a building program that should be referred to the public and private planners for solution. If it is to be accomplished in time Congress must recognize the need for planning as the only intelligent answer. There should not be a planning "bottle neck" at the top, or anywhere along the line. The planners of the building industry should have their heads together now.

Post War Plans have largely settled on details, codes, materials, control of obsolete building; sub-division control, prefabrication, etc.; all of intense interest to the industry—but are merely Christmas tree trimmings when what we really need is a Christmas tree—a framework—a plant to work to.

MANPOWER

America has a manpower problem today that will reverse itself with the coming of peace. It will be something to stop talking about and to do something about. When our boys come marching home our answer for jobs better be right. Selling apples on street corners, raking leaves, or filling holes are not the right answers. Building a nation of homes and communities is the best answer America can have. This restoration, this modernization, this revitalization, this rehabilitation can well be the backbone of our answer to manpower—if it is it should be planned now.

A NATIONAL PLAN IS NEEDED

When you build a garage, a cottage, a cathedral, a community—you consult your architect. He analyzes the problem and prepares a program—a plan of procedure. Building a thousand communities is a thousand reasons for doing just that.

THE PRIVATE ARCHITECT AND ENGINEER CAN HELP

The architect has made observations—in fact has analyzed the world's communities in his search for common problems. He has found the common denominator to a lot of common ills. He knows "planning" is the only way out. To quote his report: "Planning from the human point of view—in terms of the most elementary needs of men. Public opinion will exercise the pressure necessary to set in motion the machinery of administration which can bring about the change requisite for organic existence." No man should be prejudiced against planning for political reasons—by the same token he should not be for it for political reasons—it is a technological problem for technical minds.

Post War Planning should be defined to the man in the street as: To think ahead; to arrange beforehand; to form in outline; to analyze a problem and to arrange a solution:

THE ARCHITECTS PROPOSE:

1. That post war planning be undertaken now at all levels of National, State and local government.
2. That a "National Work Plan" for Building America be created for a framework for all post war planning at all levels.
3. That the Architects of America initiate and evolve this plan cooperatively with governmental agencies.
4. That this plan be the basis for forming a "United Building Industry" on sound building principles.
5. That a public and private works reserve be a part of the "National Plan."

6.. That the "United Work Plan" be offered as a basis for cooperation between *government, industry and the people.*

"Make no little plans; they have no magic to stir men's blood and probably themselves will not be realized.

"Make big plans; aim high in hope and work, remembering that a noble, logical diagram once recorded will never die, but long after we are gone will be a living thing, asserting itself with ever growing insistency. Remember that our sons and grandsons are going to do things that would stagger us.

"Let your watchword be order and your beacon beauty." D. H. Burnham.

Governor Kelly has named James H. Foote, of Jackson, to succeed L. G. Lenhardt, of Detroit, as a member of the State Board of Registration for Architects, Professional Engineers and Surveyors. Foote is supervising engineer for the Commonwealth & Southern Corp. He was graduated from Michigan State College in 1914.

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WEEKLY BULLETIN

MICHIGAN SOCIETY OF ARCHITECTS

Entered as second-class matter December 9, 1930, at the Post Office at Detroit, Michigan, under the Act of March 3, 1879. Published Weekly
Subscription Price: 50c per year (Non-members $4.00) 10c per copy.

Volume 17 | DETROIT, MICHIGAN, MARCH 16, 1943 | No. 11

Thoughts On Architectural Practice

By ARNOLD A. WEITZMAN
Member, Michigan Society of Architects

At the last meeting of the Detroit Chapter of the A.I.A. and M.S.A. Mr. Watts Shelly, Executive Secretary of the Michigan State Board of Examiners for Architects, Engineers and Surveyors told the architects emphatically that it is their concern to see to it that weaknesses in the law governing professional practices be eliminated. On the surface nothing new was said; yet the strong emphasis and pathos with which this timely warning was sounded, should awaken professional architects, each one, to think seriously of ways and means to improve and how best to protect his professional practice.

(a) The last depression hit the architectural and engineering professions the hardest. The many architects of small but excellent professional offices were completely disorganized or compelled by those hard circumstances to close their establishments and look for employment in order to sustain themselves. When the preparedness program started and then followed by the war work program these architectural firms were not revived. The government officials, justly thinking of nothing else but efficiency, as a rule, placed orders only with firms having fairly good size organizations. The immediate beneficiaries of this program were, therefore, just the few large *professional* firms, about whom nothing but praise can be said. The smaller firm architects remained only spectators of this national activity in which the technical profession was called upon to play such an important role.

On the other hand because of the fact that the mere possession of an organization was the criterion for placing of war contracts, many firms operating under various names suggesting engineering or architecture, but in reality doing no such work but detailing various kinds of shop works, were able to establish themselves as so called engineers and architects and became "giants" in the arena of professional competition. As mentioned above, from the standpoint of the government officials, who had no way to discern the corn from the chaff, this was a natural procedure. On the other hand our professional societies, unlike the medical and dental professions, were totally unprepared to give the nations' war leaders their guidance in "who is who" in the profession. The result is very bad. Instead of efficiency these mushroom-like overgrown, mammoth engineering and architectural tinkerers have created an enormous waste in materials and, through their inefficiency, a waste in precious time.

If the engineering and architectural societies had immediately arisen to the occasion they could have advised the government how to utilize the smaller professional offices as well functioning units to work efficiently and with economy to our resources.

Professional Architecture and Engineering Practice could have been reestablished with its great benefit to the nation now at war and even more so in peace. This error still remains uncorrected. The combined strength of architects and engineers must now find ways and means to re-establish themselves in independent professional practice, instead of being reduced to mere wage earners employed by selfish financial interest under some professional disguise.

Prior to the last depression architecture in America had reached a high point of refinement. A marvelous intellectual

See WEITZMAN — Page 4

MICHIGAN SOCIETY OF ARCHITECTS
TWENTY-NINTH ANNUAL MEETING

First Official Notice

The Twenty-ninth Annual Meeting of the Michigan Society of Architects will be held in Detroit on Friday, April 16, 1943, at the Rackham Memorial Building.

The one-day meeting this year will be devoted strictly to business affairs, and election of officers and directors.

The Executive Secretary is urging all committees and divisions to send their reports in advance for publication so that the very limited time can be allotted to the discussion of present problems confronting the architect, and his future, in unification, and post-war planning.

To the architects desiring lodging near headquarters, we would suggest that they make their reservations at Webster Hall Hotel, Putnam and Cass Aves., which is only one block from the Rackham Memorial Building. Rates start at $2.50. The Wardell Sheraton, also one block away, offers rooms starting at $3.00. To the architects who desire to locate downtown we suggest Hotel Statler. Rates start at $3.00. The Statler is about a 20-minute ride from headquarters.

The Board of Directors of the M.S.A. will meet at the Rackham Building, Friday, March 26, at 4:00 P.M.

What Price Mansions

From the Chicago Daily Tribune's column, "A Line O' Type or Two," conducted by Charles Collins (Feb. 9, 1943). (Thanks to Frank H. Wright.)

Old Mr. Kimball of the pianos built himself a mansion, and a first class French chateau it was, on the choicest street in Our Town, not as large as old Mr. Field's and old Mr. Pullman's but a noble piece of architecture which stirred their envy. Some folks say that Mr. Kimball put almost a million dollars into it, with its furnishings. That was in 1892, and it is standing today on the southeast corner of Prairie avenue and Eighteenth street. It still looks like an aristocrat, but it is an orphan of the storm and a stepchild of the blight.

The house was bought in 1924 by the architects of Chicago as a professional group. Mr. Glessner, dwelling in an even more famous house across the street, had offered his mansion to the architects if they would protect him, during the remainder of his life, against undesirable neighbors. So they clubbed together, almost 100 of them, putting in $1,000 each, and acquired the Kimball house. When Mr. Glessner died twelve years later, the architects decided that with a depression and one white elephant on their hands they didn't want another, so they tossed the gift mansion back to the executors.

The Architects Club of Chicago was formed, and it settled down to operate the Kimball chateau as professional headquarters. Chapter meetings, dinners for civic idealists, ordinary club life with lodgings for visiting master builders, a reference library, and an "atelier" for the training of apprentice hands—such was the general line of activities. It was a happy and high-minded scheme, which sounds as if it should have been exempted from taxes; but it didn't work. The club members said that the house was too far away (ten minutes from the loop by street car, bus, or train); and the assessors thought it was a rich field for harvesting.

The club abandoned the house in 1937. Since then the premises have been rented to a private school for backward children. The Architects Realty Trust, which holds title to the property, is now preparing to end the gallant adventure, if it can find a bidder. Apparently the only discernible value is the lot, at manufacturing district rates.

Out of this great old house, designed after the Chateau de Josselin in Brittany, came the paintings which now hang in the Kimball room of the Art Institute.

Lorch Heads Historical Society

Emil Lorch, Fellow of The American Institute of Architects, has been elected president of the Washtenaw Historical Society. Mr. Lorch, professor emeritus of Architecture at the University of Michigan has just served two terms as president of the Detroit Chapter, A.I.A.

Headquarters of the Society are in Ann Arbor, where a series of lectures is being held this season.

On Jan. 19 "Early days in Washtenaw, especially the beginnings of towns and villages" was discussed by Prof. R. Clyde Ford, of Ypsilanti, member of the Michigan Historical Commission, while George W. Stark, of the Detroit News, president of the Detroit Historical Society, spoke on "Historical Societies, their Collections and Buildings."

In February Prof. Lorch spoke on "The Historical American Buildings Survey and some Early Buildings in Washtenaw County." Other lectures scheduled include:

March—"Early Transportation in Washtenaw County by Road," by Prof. Roger L. Morrison, professor of Highway Engineering and Highway Transport, University of Michigan.

April—"The Evolution of Political Party Organization in Michigan," by Prof. James K. Pollock, professor of Political Science, University of Michigan.

May—"Development of the Churches of Washtenaw County," by Rev. Harvey C. Colburn, Ypsilanti.

June—Annual meeting' "Development of Education in Washtenaw County, especially rural schools," by Julius Haab, County School Commissioner.

Director Langius Issues Report

Annual report of the Division of Buildings and Construction, State of Michigan, Administrative Board, is just off the Press. Adrain N. Langius, president of the Grand Rapids Chapter of the American Institute of Architects is Director.

The physical plant of the agencies which conduct the vast enterprises of the State constitutes an enormous investment. To maintain the elements requires a wide range of technical training and ability.

For example, during the past two decades the State has expended for capital improvements over 66 million dollars. Mr. Langius, during his term of office, has succeeded in directing this work into the channels of established private architects' and engineers' offices, with the consequent advantages to the State as well as to the professions.

"It is advantageous to have central control over matters pertaining to the design of rehabilitated or new buildings," the report states, in pointing out that this involves the study of problems of the particular institutions. "By such studies there may be established policies on which the programs for the design of individual buildings may be set up for the use of private architects in preparing plans."

Bulletin: I must add my name to the long list of favored recipients of your interesting weekly magazine. The men in the department, from Professor Chubb on down the list, always show marked interest in the subject matter.

In your issue of February 16, on page 3, in your article on "Modern Building Regulations," you refer to "Bert J. Westover, a national authority on the subject of building codes . . ." Do you have any further data on Mr. Westover? We wish to get in touch with him concerning the subject matter in your article.—Howard Dwight Smith, University Architect.

Mr. Westover, former Building Commissioner of Indianapolis, is now an executive with the Fibre Board Institute, Chicago.—Editor.

* * *

Mr. H. Furbinger, F.A.I.A., has become chairman of the Memphis, Tenn., City Planning Commission.

Douglas D. Stone, architect, has been elected chairman of the San Francisco City Planning Commission.

* * *

V-Mail from Emil Becsky, "now installed on an island in the South Pacific, where the tropical vegetation is something like you've read about," states that cocoanuts are plentiful and activities "much more interesting than doing housing jobs back home."

WEITZMAN (Continued from Page 1)

growth is noticeable in this country's architecture up to that time. From now on it may decline more and more, because of the large engineering and architectural factories which do most of the work today and they certainly do not inspire young graduates to intellectual development. They will convert architecture into a mere big business, quasi monopoly.

(b) The A.I.A. code of architectural practice forbids architects to act as general contractors for the owner. In recent times conceptions and values have changed utterly in society and government, conforming to other developments that took place on every field of human endeavor, yet the architectural profession refuses to change its conception as to what a complete architectural service should or could comprise. We witness the "Architect-Builder" coming more and more to the fore, displacing the man whom we now call the purely professional architect. This is an inexorable fact and no anathematization on the part of the "orthodox" profession will change this condition. We must deal with it as an already firmly entrenched circumstance and redetermine the role of the profession in the entire science and art of building. Perhaps the architect (or engineer), if he so chooses, is the one best suited to handle completely the very structure conceived by him, including the final phase of its physical evolution! Why, in the face of such changed circumstances, continue to make it mandatory for an architect in good professional standing to exclude *professional* construction from an all comprising technical service? Should we not apply in this case the old dictum that the "Sabbath is made for men"; not the reverse? Of course the profession should insist that in such a case the arrangement between the architect and his client should be such to comply with the ethical standards established by it. In the final analysis all ethical standards are based on personal integrity, not on police power; and the same personal integrity will be brought to play in the case of the broadened professional service properly regulated.

There is hardly logic in the existing A.I.A. standard, that while an architect may undertake to design and specify a building at a fixed fee or even more often on a percentage basis; it is deemed unethical for him who has thought out and planned the building to construct it, (also) at a fixed price or a fee based on a percentage of the approximated building cost. The architect, in the historic role of master builder and designer would not constitute a departure from professionalism, but rather a return to that role and an approach to a higher perfection and all embracing activity in his field. The very name architect means Master-Builder. In entire continental Europe the architect or engineer does, as a rule, design and build structures.

I believe, in the case of the builder-designer, we cannot eject these invaders from the profession, but we can and should adopt professional construction and so invade the invader.

These thoughts are respectfully offered in answer to Mr. Shelly's exhortation for engineers and architects to awake and think of how to protect their professional practice. Maybe, or rather it can be said surely, these deleterious tendencies may yet be staved off and our profession remain, as it was throughout the ages; educator and refiner of peoples senses, guardian and developer of nation's economies.

Final Reminder

The last day for payment of dues in the Michigan Society of Architects for the year 1942-43 was March 1. This date has been extended, pending preparation of the Annual Roster number of the Weekly Bulletin in connection with the Society's Annual Meeting.

There are many who have consistently been listed in bold type, indicating active membership, who have not yet paid their dues. This is no doubt because of negligence or oversight and we believe these good men will want to maintain their record of continuous membership.

Among those who have not paid are past presidents of the Society, candidates for offices for the coming year, and many loyal members. Send in your check for $5 within the next week and your name will appear among the active members.

Bulletin:

It is my privilege to send you encolsed copies of resolutions adopted by the recent War Congress of American Industry, as a part of its War Program. Represented here is the combined thinking of industrial management on some of today's important problems.

Because so many persons with whom you are in contact are personally active in industry itself, it seems logical to send you this accurate reference of industry's opinion on major issues.

In these days when all groups in the nation must display a new and finer kind of teamwork than ever, I feel that all of us should seek to know better the real ideas of others dealing with the same problems, and sincerely hope you will find these documents of value.—Harvey Saul, Director, Industrial Relations Department, National Association of Manufacturers.

Industries War Production Labor Problems

A resolution adopted by the War Congress of American Industry, December, 1942.

The following resolution was adopted as an expression of management's opinion on a matter of interest to all Americans at the recent War Congress of American Industry sponsored by the National Association of Manufacturers and attended by over 4,000 of the nation's business and industrial leaders.

The United States is involved in a grim and terrible war. The winning of it will be brutally hard, but it must be won. No effort that will hasten victory must be spared; no obstacle that stands in the path of complete and final victory can be tolerated. That is the temper of the nation.

Production alone can't win the war, but the war can't be won without production. Management fully realizes this. Labor and management have accomplished much. They can and will do more if positive action is taken to eliminate the impediments now hampering production.

GOVERNMENT ACTIVITIES: Strife is bred of biased, confusing, and extra-legal decisions by the War Labor Board and other government agencies handling labor problems. These agencies should scrupulously conform to the Constitution and only enacted laws and should be impartial in all their activities as befits the umpire.

RIGHT TO WORK: Everyone throughout the land—except current offenders—condemns strikes. There is no labor issue on which the public feels so strongly. Strikes have been reduced but the fact remains that bottleneck strikes still cripple the war effort. The time has come when labor must stop all strikes hindering war production.

Jurisdictional disputes between rival unions impair war production and should be stopped.

There should be no more picketing which prevents people from working in war plants.

There should be an end to boycotts which prevent the use of any needed material in the war effort.

There must be protection by government of the fundamental American right to work and the right to employ.

OUTPUT RESTRICTIONS: There should be no slowdowns or other restrictions which limit the amount of work an employee is permitted to turn out. Such time-wasting devices are sabotage in wartime when every ounce of work counts.

COMPULSORY UNION MEMBERSHIP: This labor restriction upon unlimited production, usually referred to as the "closed shop," is coercive and un-American. Its extension is inexcusable in wartime.

Its companion evil, the so-called "maintenance of membership" clause that is achieving dominance of late through War Labor Board decisions, should not be imposed by government.

Coercion and physical violence in forcing men to join or remain members of unions must vanish from the national scene. They have no place in relations between employers and workers. Compulsion, violence, and fear are enemies of the liberty for which this nation is fighting.

Workers have been guaranteed the right to join organizations of their own choosing without coercion. The right not to join such organizations or to withdraw from them is

equally important and must likewise be guaranteed and enforced.

LABOR RACKETEERING: Labor racketeers—that group of unscrupulous and dictatorial labor leaders who use honest workers for undeserved personal gain, even at the expense of a nation hard pressed by war—are responsible for practices which have no place in our American life. Both they and their practices must go.

The first step is to stop the work permit fees and excessive union initiation fees upon which labor racketeering fattens.

The failure of many unions to conduct honestly by secret ballot both strike votes and elections of officers also contributes to labor racketeering and should be corrected.

SUMMARY: In summation, we declare that if the above evils are not voluntarily corrected by those responsible for them they should be removed by the people through their Congress.

The Modern House — 1992 Version

From the Harvard Alumni Bulletin.
Thanks to Mr. H. Daland Chandler, Director, New England District, The American Institute of Architects.

It will be remembered by the oldest citizens that in 1950, twelve years before the defeat and hanging of Hitler, he made a separate peace with the United States which resulted in his control of the eastern part of this country for ten unpleasant years. The Fuehrer decreed that all buildings designed by architects who had lived more than one generation in America should be destroyed, and a fine of ten billion reichmarks imposed to pay for rebuilding everything in the Central European manner, now so familiar to us all. The story of the ultimate revolt by the Mississippi Valley Guerrillas, which finally achieved our freedom but left us financially unable to undertake any more building for nearly a generation, is an old story.

The following account, written in May, 1992, tells of the first struggles of designers to break away from the bonds of Central European tradition which had bound them for so long, and the effect on the public of the earliest examples of what has become known as the Anglo-Saxon Revolt.

Filled with curiosity to see the most daring examples of modern architecture, we were conducted one May morning on a sightseeing tour of some of the latest houses. The weather was perfect . . .

The houses open for inspection were numerous . . . but the last one visited, designed by Professor Inigo Wren for himself, combined so many of their most modern features that a description of that house alone may well serve as a resume of all the startlingly functional attributes of the group.

The first shock came before we had reached the house All architects are familiar with the old problem, never satisfactorily solved, of protecting from the weather that long promenade from the driveway to the house. The Great Masters of the 1930's had gone so far as to provide a flat roof supported by—guess what?—yes, by Lally columns; but experience has shown that this is a protection only when it is snowing, let us say, gently and absolutely vertically; and we had come to think of the problem as insoluble. But how did Professor Wren settle this knotty problem? Why, by bringing his driveway to the doorstep, no less. Simple, is it not? Yet for fifty years nobody had thought of this. Such is the modern mind, trained to approach every problem with the conviction that any difficulty can be conquered by what Professor Wren calls "functional thinking."

As we alighted, the first thing that struck the eye was that instead of the flat deck we had become accustomed to, this house had a roof, sloping steeply front and back, and covered with thin stones, laid so that one overlapped the other in orderly courses from the bottom to the top. We, who had been taught to believe that no architect can touch a pitch roof without being defiled were naturally shocked at first, but Professor Wren assured us that in a climate such as ours, with extremes of temperature, and lots of snow, it would prove a practical feature; and when we were shown over the house by Mrs. Wren, we found that it also provided a tent-shaped space over the second floor which was useful for storing skis, perambulators, trunks, and even odd pieces of disused furniture. Professor Wren assured us that this space, which he called his Attic (from an ancient Greek word), should help considerably in insulating the house from heat and cold, and that if it could be proved to be functional, it must needs be beautiful. Perhaps so, but for some of us it seemed a strange distortion of form. Professor Wren thinks this roof-form may do away entirely with those annoying leaks to which we have become accustomed, as he has discovered by laboratory experiments that water runs down hill.

The first thing that struck us as we were taken into the Living Centre was that the entire inside of the house was divided into "rooms," with fixed walls, and with floors of naked wood instead of that fawn-colored carpet we had come to think of as a *sine qua non*. On this were placed at intervals rugs of woven wool in pleasing designs, so that the inevitable spots made by muddy boots, children, and very young dogs were hardly noticeable and easily cleaned away. The books in this strange room were kept on shelves, not at the floor level under the window-sills, but actually mounting up the walls of the room. This may institute a new method of reading, as one can now see the title of the book before taking it off the shelf. Efficiency again!

There were two outside walls to this room, and Professor Wren had introduced a breath-taking note by his novel arrangement of windows. Instead of the stereotyped sheets of somewhat dirty plate-glass to which we are accustomed, with two little sections arranged to open for the weekly airing, Professor Wren had designed five windows, three on the south and two on the west, each only about a yard wide, and all of them (if you please) designed to open, top and bottom, with an ingenious arrangement of sash-sliding up and down. This, as can be seen, leaves wall-spaces between the windows, but they turned out not to be so disagreeable or dark a feature as might have been feared, and even served as a background for pieces of furniture, not built-in but movable—a revolutionary feature indeed! Professor Wren, whose incisive brain leaves no practical problems unsolved, claims that some day someone may wish to try swapping two pieces from one position to another . . . The fireplace in this room was not placed in a corner but was actually in the middle of one of the long walls, and well over the usual 18 x 24 inches in size; softs and chairs were grouped around it so that as many as six people could enjoy it at one time. The chimney itself, instead of being built of jagged field-stone, was concealed by plaster walls, and a wood shelf, wide enough to take small objects, was built over the fireplace.

The other rooms on this floor were much like those in our own houses . . . A maid's sitting-room had been built, Professor Wren said, with the money saved by omitting the usual five sets of curtains, blinds, and shades here rendered unnecessary by the new type of window; this room obviated the necessity of the maids either taking their meals in their bedrooms or eating standing up in the kitchen, as they have become accustomed to doing.

The second floor was approached by stairs, quite ordinary except that they were fitted with risers. But something new had been added, the shocking number of crippling and even fatal accidents on staircases during the last half-century had led Professor Wren to invent what he calls a "stair rail," which fits comfortably into the hand and helps support one going either up or down, and with balusters only a few inches apart so that even small children were safe from falling through. Hats off, we say, to Professor Wren for this!

With daring ingenuity he utilized the corners of the house to provide what he calls "cross-draft" in the four bedrooms by having windows in two walls. The more conservative among us feared this might in summer nights tempt the occupants to open two windows in one room, thus bringing about severe colds, pneumonia, or even death by exposure. The genial Professor, who seems to have an answer for everything, maintains that the Americans during the 19th century often exposed themselves thus with no ill effects . . . The closets had doors instead of curtains, and the beds were fitted with footboards, on the theory (reasonable perhaps) that a sleeper or prospective sleeper might conceivably change his mind about the necessary number of blankets and want some-

where except the floor to lay the superfluous ones until they should be wanted.

Returning to Boston we found a spirit of eager controversy among the visitors: the gathering about evenly divided between approval and shocked resentment at the innovations we had seen. Some thought that Professor Wren and the other iconoclasts, with what they amusingly termed their "machines for living," were the pioneers of a great movement. But others said, "What do these Americans mean, trying to teach *us* how to build houses?" It is too early, perhaps, to make predictions, but at least these striking features of modern design bid fair to make people think. And when homebuilders think, that is the beginning of the end.

—Gordon Allen, '98, F.A.I.A.

The Architectural Outlook

By A. V. McIVER, *President, Montana Chapter, A.I.A.*

Being a letter to Mr. Harlan Thomas, Director, Western Mountain District, The American Institute of Architects.

I have a chip on my shoulder and I might as well get it off now. I have been reading in the A.I.A. Bulletins from Washington, D.C., the "Washington Situation" in the Octagon, and articles in the Architectural magazines with no satisfaction and with some concern. It seems that, from these articles, architecture as a profession is in a sad plight and must soon fade out of the picture. To all of this I do not subscribe. At last comes a ray of hope in the "Message from the President" in the January Octagon, except that he did not make it strong enough. I refer to his sixth paragraph. If we keep moaning and groaning it won't take the public long to think that we really are sick and are in dire need of a period of convalescence. I do not look forward to that period.

I hear so often of the old bugaboo about the enginers being the chosen people and that nobody wants the architects. If that be true, and I doubt it, whose fault is it? It would mean that somewhere we have fallen down. Having taken a combined course in civil engineering and architecture and having practiced in both fields, perhaps I view the situation in a different light. The government has treated the architect with some degree of fairness in keeping the word "architect" before the public and in giving the major projects of the war program to architects. The firms doing professional work are known as Architect-Engineers even the work is strictly engineering. The contracts themselves are known as architect-engineer contracts and all the documents are signed as such. The important and complicated projects have all been under the direction of architects. I have recently looked over the plans of the Pentagon in Washington and fully realize the handicaps under which it was designed. Still, I duck when I have questions thrown at me relative to its merits. The chance of a grand solution to such an important building was muffed, and sad to say the tenant, being the War Department, is the boss at the moment. Architecture certainly didn't gain anything in its building. Are we sure we have lived up to our opportunities?

As you know, I have until recently been connected with the Corps of Engineers doing special work with architect-engineers. I came to know many architects from all over the country. The great majority of them were splendid and fully realized the problem. Some were still living in the "good old days," with flares of temperament, demanding comforable quarters and offices, and with utter disregard for procedure, speed, substitution of materials, standardization, etc., and some had a distinct loathing for their presence on the projects. Unfortunately, these few cried longer and louder than the rest and created a bad impression on those in charge. Others stayed at home and practiced wishful thinking. Any architect who has the right to use the word after his name can find gainful occupation in the war program. Maybe it won't be in the sanctum of his own office and perhaps he won't be the boss, but at least he can earn a comfortable living. Who wants more under these conditions?

Those who cry that architecture is a decadent profession are 100% wrong. It isn't possible for one generation to have such an ill effect on the oldest of the arts. As an art and a science it is the symbol of life, as we understand life, and the forerunner of culture. Out of the embers of this holocaust will come a new culture tried by fire and lasting. The wounds have been too deep for civilization to regain its balance and poise without a speciailst. Such a specialist must needs be the architect. His training entitles him to the task. The profession should take stock of itself, broaden its field of knowledge, feel the surge of the new freedom of life itself, and then take its rightful place and lead—not "just go along."

I realize that the average architect does not have the opportunity to perform the grand opus. Some of us haven't the background, the education, the vision nor the will, but we can all adhere to the eternal fitness of things. The profession as a whole can slowly blend from a palette of politics, economics, religion, science, and art an understandable picture of life. I believe this is possible.

Now that the chip is gone and I have delivered the diatribe I must apologize for its length and disconnected thoughts.

Allow me to report to you that the Montana Chapter is scattered to the four winds, doing their bit in the war program. There are only four left in the State. Most are on a salary basis and getting by in good order, and they all report of the splendid opportunity it has been to learn new methods and new ideas. We, as a Chapter, look forward to a profitable post-war era.

I am indeed sorry that none from this Chapter was able to go to the last convention. We have missed out on national committee appointments perhaps for this reason. That is right, as those who are available should have the work to do.

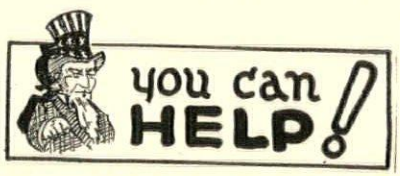
J. L. Sert To Speak Here

Jose Louis Sert will be the speaker at a meeting sponsored by the Metropolitan Art Association, at the Detroit Institute of Arts, Thursday evening, March 18, at 8:30 p.m. By membership card, or 55c. Mr. Sert is a world authority on planning. His recent book published by the Harvard University Press with the compelling title "Can Our Cities Survive" is one of the best sellers in the planning field and is full of interesting information about many cities including Detroit. A study of this book will add greatly to the interest of the lecture.

Mr. Sert. will speak on "Urbanism vs Suburbanism." There will be a discussion of the question of decentralization which is giving owners of downtown business property grave concern at this time. Mr. Sert has worked actively with the International Congress for Modern Architecture, in which Le Corbusier, Gropius, Neutra and other leading architects have been active. His comments on Detroit should be interesting for his book indicates deep interest in our city as the Industrial Capitol of the World.

Support The Red Cross

William Edward Kapp, president, Detroit Chapter of the American Institute of Architects is Chairman of the Architects' Division of the current Red Cross Campaign. The great work being done by the Red Cross needs no introduction to anyone, so architects are urged to support this cause and their own by making contributions through Mr. Kapp, 730 Buhl Building, Detroit.



"The One Hundred and Third Paragraph" of the Central Texas Chapter, A.I.A., to hand—a most creditable and interesting Chapter Bulletin.

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WEEKLY BULLETIN

MICHIGAN SOCIETY OF ARCHITECTS

Entered as second-class matter December 9, 1930, at the Post Office at Detroit, Michigan, under the Act of March 3, 1879. Published Weekly
Subscription Price: 50c per year (Non-members $4.00) 10c per copy.

Volume 17 DETROIT, MICHIGAN, MARCH 23, 1943 No. 12

Says Prefabrication Will Have Effect on Post-War Building

By L. MORGAN YOST
A.I.A., Member Committee on Public Information

The prefabricated house has bucked public opinion for ten years. In the early years of the last decade it was hailed as the new industry which would lead us out of the depression. It failed in this role, but war's urgencies found the industry able to take on the responsibility of providing homes for thousands of workers. Its signal success cannot be overlooked. We in the building industry cannot wear blinders and remain smugly safe in the thought that the people will always want houses different from their neighbors', and that therefore prefabrication will have no effect on us.

The prefabrication of homes has been in the same category as moon rockets and death rays. But the builder of moon rockets hasn't gotten anywhere. For years small groups of men have been working on prefabricated houses, designing, experimenting, building — always facing an unsympathetic public. Men of wealth have put whole fortunes into the idea; others have remained in poverty in the traditional American inventor fashion. In some cases war housing has come as a boon to those who have spent the long years; in others men entirely new to the field have been successful. In at least one instance a man of long years' experience and plenty of money is still unsuccessful in getting into production.

Hint of Healthy Growth

This pattern of development seems to parallel those of the automobile and airplane industries, as far is it goes. As yet the prefabricated house has not had the whipsocket removed from the dashboard. It is not generally realized that the "kute kolonial kottage" is no more the pattern for modern housing than the oxcart is for the automobile. Nevertheless there are hints that future developments will be healthy, though even these hints may be artificial sparks of life sustained by war needs, only to die with the coming of peace.

But if prefabrication as we now know it does not carry through, something else will. It is inconceivable that things will be the same as before the war. We are not fighting this war merely to maintain what we had. The war's considerable impact would jolt the status quo even though its cost did not demand a much greater return. This war must bring food, clothing and shelter to all men, all over the world, and they must be fit for human use.

In our own country are millions of people living in squalor and disease, using the cast-off buildings of last century. Is it because the housing of these people has never been considered as potential business that humans are forced to live in degenerate desuetude?

The automobile, the very factor that made the big city, is now working for its decentralization. Industries are moving to the country. It will not be necessary to raze and rebuild our slums, for even though rebuilt they would still remain slums—we will merely abandon them to the non-resident exploiting owners who will then tear them down to save taxes. For the people will have moved to the work, and industry has been building outside the cities for ten years.

Must Find Means

With a fresh start in new communities, health and well-being will make producers out of indigents. Housing subsidized by industry or government would soon become individually owned. *But it cannot be as expensive as it is now.* Means must be found to produce this housing. The market is there and if the United States of America do not contain abilities and facilities enough to supply a demanding market they will not have won the war!

This vast industry, whatever form it takes, will make new houses available to those whose ken never encompassed such thoughts, whose hopelessness was abject, as well as those who now buy cheap old cottages or can rent uninspiring low grade houses. The market would be vast without touching the so-called custom built market for new homes. The influence of such an industry will make our present low cost homes the new middle cost homes, will tend to lower the upper limits of the new house market just as the $5,000 automobile has disappeared.

The presence of a new sub-strata product, high in comfort and convenience, will then make the custom product look to its laurels. The slip-shod rehash of mediocre stock plans will no longer get by. We must produce better houses in all price classes. People would always prefer a Crosley to Queen Victoria's carriage with a dead horse.

It seems, then, that the new low cost product, be it by prefabrication or site fabrication, will have tremendous influence on the custom built, higher priced house. Perhaps the new method, in whole or in part, will infiltrate the upper markets.

The future's curtain will rise slowly. We must rely on previews to form our opinions.

MICHIGAN SOCIETY OF ARCHITECTS TWENTY-NINTH ANNUAL MEETING

Second Notice

TIME: Friday, April 16, 1943.
PLACE: Rackham Building, Detroit, Michigan.
FEES: No registration fee.
Noon Luncheon — $1.25.
Annual Dinner — $2.00.

All architects, architectural draftsmen, and members of the Producers Council are invited to attend.

TENTATIVE PROGRAM:

8:30 A. M. — Board of Directors meeting, Main Dining Room.
9:00 A. M. — Registration and informal reception.
10:00 A. M. — Business Session, Junior Room.
(Be sure to hear the report of Mr. Watts Shelley, Secretary of the Michigan Registration Board)
12:00 Noon — Luncheon.
1:15 P. M. — Business Session, Junior Room.
(Be sure to hear the report of the Unification Committee)
6:00 P. M. — Annual Dinner.
(President's report, Speaker, Installation of new officers)

Walker & Co. Sponsors Contest

A distinguished jury of seven members will select 57 prize winning designs submitted in the Fifth Annual Poster Art Contest, sponsored by Walker & Co., Outdoor Advertising, Detroit, under the direction of Miss Mabel Arbuckle, Art Director, Detroit Board of Education. The contest is open to seventh through twelfth grade students in Detroit Secondary Schools.

Members of the Jury are: Miss Alberta Stutsman, President Woman's Advertising Club of Detroit, Director of Advertising Bureau, Massachusetts Mutual Life Insurance Company, Detroit Agency Office; Mr. Clyde Burroughs, Secretary Detroit Institute of Art; Mr. Jay Boorsma, Director Art School of the Detroit Society of Arts and Crafts; Mr. Henry T. Ewald, President Campbell Ewald Company, Advertising Agency, Mr. Fred Meinzinger, Meinzinger Art School; Mr. Arthur W. Martin, Advertising Art Director, J. L. Hudson Company; Mr. Herman Jahnke, Art Director Walker & Co., all of Detroit.

The contest began February 22, and ends May 10th.

Fifty-seven cash prizes amounting to $645.00 will be won by successful contestants. The theme of the designs, inspired by any of the several war activities, will include War Bonds and Stamps, Salvage, Conservation, Rationing, Periodical Inspection of Automobiles and Auto Equipment, Enlistments, etc.

Following the close of the contest the 100 best designs, selected by the jury, will be exhibited in the J. L. Hudson Company's store to the public.

These contests have had the whole hearted support and cooperation of the Detroit Board of Education, and draw unusual interest, attention, and enthusiastic participation from the students.

Grand Rapids Architects Elect

Chris Steketee was elected president of the West Michigan chapter of the Michigan Society of Architects at a recent meeting. Other officers elected were: Vice-president, Charles M. Norton; secretary-treasurer, Frank J. Mester. Emil G. Zillmer was named to the board of directors. A joint meeting of the western Michigan chapter of the Michigan Society of Architects and the Grand Rapids chapter of the American Institute of Architects will be held later this month to discuss unification of the two societies.

The Handbook of Architectural Practice

Revised 1943 Edition—Published by The American Institute of Architects

This circular announces the revised 1943 edition of the Handbook of Architectural Practice.

This new edition was prepared under the direction of William Stanley Parker, F. A. I. A., of Boston; Past Secretary of The Institute; Chairman of the Committee on Contract Documents; and Consultant on Contract Procedure. He was assisted by special committees of the New York and Boston Chapters of The Institute and by members of the Committee on Contract Documents.

The scope of the Handbook is described by its table of contents—printed herein.

From The Preface

"The Architect, though primarily an artist, must still be the master, either in himself or through others, of all the applied sciences necessary to sound and economic building, sciences that have generated and that attempt to satisfy many of the exacting and complex demands of modern life. But it is not with construction nor engineering nor with the choice of materials that this Handbook deals.

"The Architect, by expressing his ideas in forms and words of exact contractual significance, by controlling machinery for their embodiment, by giving just decisions between conflicting interests, by bearing himself as worthy of his high calling, gives to his art the status of a profession. It is with that aspect of the Architect's work, professional practice and its servants, business administration, that this Handbook is concerned.

"The Architect owes his client a competent management of business affairs, whether large or small, for a small loss to the owner of a small building may be just as grievous as a large loss to the owner of a large building. Good management is vital, for, granting the work to have been skillfully designed and wisely specified, its swift and proper execution depends in no small part on the Architect's ability as an administrator. The effectiveness with which he conducts the routine of extras and omissions, of applications for payment, of issuance of certificates, facilitates the complex processes of building just as a lax administration clogs them. Expert management of innumerable details conduces not merely to getting the utmost for the Owner's money, but leads to the avoidance of those misunderstandings between Owner, Architect and Contractor that so often embitter relations, which, under skilful guidance, might be those of confidence and mutual respect.

"An office system is a good servant but a bad master. If it exacts minute and rigid detail, it defeats its own purpose. Yet, as the Architect's work year by year grows more complex, it can be dealt with only by an efficient organization, constantly evolving in harmony with new methods of business management."

The Board of Directors of The Institute reviewed and approved the Handbook prior to its publication—and found it to be a comprehensive exposition of the best in modern architectural practice, apart from design.

The Handbook is commended by The Board of the seasoned architect, to the draftsman, the office manager, and the architectural student—and to him who prepares for the examination of state registration boards.

Order Now

Now is the time for the Architect to bring his office methods up-to-date—to so organize its procedure, forms and methods, and the business side of his practice that he will be prepared to render more efficient and rapid service in the work which is sure to come in the post-war building era.

The Handbook has 204 pages of valuable text, bound in size 8½ x 11 durable, blue linen cloth cover, with title in gold letters. It is a convenient volume for use in the library, office or drafting room.

The price is $5.00 per copy except that architectural students may purchase copies for $4.00, provided orders from

(Concluded on Next Page)

students are countersigned by the Deans of their Departments of Architecture.

Remittances should accompany orders or the book will be sent collect. No charge is made for postage or wrapping. Every order is filled on the day received.

All orders should be addressed to—
The American Institute of Architects
1741 New York Avenue, N. W.
Washington, D. C.

Architects' Public Information in War Time

By Robert V. Derrah, Chairman, Committee on Public Information, Southern California Chapter, A. I. A.

Since Pearl Harbor our Chapter has been very active in the war effort, thanks to the energetic leadership of Mr. Sam Lunden. Early in 1942 we formed a Committee on Air Raid Protection of Buildings, and a number of us took courses and made considerable study of this subject. Then we wrote to the City and to the County of Los Angeles and to some 20 or more neighboring communities and offered the service of our members along this line, and made some civic contacts thereby.

Later we took up the study of Camouflage, and attended classes given by the Army Engineers and O. C. D. on this subject, and when we learned that a statewide camouflage survey was to be made, some of us wrote to our local civic bodies offering our services, with the result that several of our members were appointed Camouflage Officers in our local community thereby making valuable contacts as well as assisting in the war defense program.

Since early in 1942 we have had a Members' Resources Committee, which undertook to collect the data on our members as to office space, technical personnel, and volume of past work both for private clients and for the Government. There was a good response to this questionnaire, and the results were totalled and the information sent to the Army and Navy authorities both locally and in Washington. The reporting members agreed to lend personnel and if necessary office space, between ourselves, so that the men with temporarily smaller offices could get together the necessary facilities to handle a large job if they got one. The idea was to convince the Government that a man with a time-being small personnel should not be barred from a contract award thereby. We have not seen any startling results from this effort, although it doubtless had indirect benefits to the profession by educating the authorities in the methods in which the Architect conducts his practice, particularly his organization personnel flexibility, and in his practice of using consulting engineers and co-ordinating and directing their work.

There is no question but that the engineers have had the edge and a very big edge, because the architect has not made his reputation as a technical man, but as an artist and designer of beautiful structures, and we all know now how much this has cost us.

Our members, however, have been most resourceful, and I would say that very few of them if any have been forced into work that is foreign to their abilities. We have just sent out a questionnaire to find out what our members are doing. Seventy-four members reported out of 175 and the results from these seventy-four are as follows:

Twenty-six are still running their offices. They are doing defense plant additions, smaller alterations of non-defense plants, and finishing up some housing, etc.

Nine are in the armed service with commissions all the way from Brigadier General (H. C. Newton) to buck private.

Two are working in the engineering department of the Army as civilian employees on camouflage, etc.

Four are working as civilian employees of the Bureau of Yards and Docks, as Architects and Assistant Architects.

Six are working as Government employees in O. C. D., F. H. A., W. P. B., N. H. A., and for the Housing Authority. Most of these are in key positions.

Eight are employed by the aircraft plants as technical draftsmen, estimators, checkers, supervisors and expediters. Some of these men have sold themselves as work production men and are doing fine. More will no doubt tackle the production angle, as one is better qualified for progressing construction work, and many laymen are doing these jobs now which could be better done by Architects. In fact, if the Architect will forget all about his pencil ability and apply for a production job as a construction engineer he will get a better job than if he applies as an architect or as a draftsman.

Fifteen members are employed as building construction superintendents, ship fitting superintendents, etc., by defense contractors, many of them in the shipyards. Again, the ability to read blueprints and to program construction leads to the best jobs.

Four of our members are teaching, and a couple are working at Cal Tech on secret experimental work.

Mr. Sam Lunden has worked hard and well to get men adapted to war work, find them jobs in war industry, help them contact Government authorities, get them draftsmen, etc. The fact is that the need for technical men is very great, and all of the major industries are training anybody they can get. Consequently when any architect with experience approaches the problem from the technical administrative standpoint and keeps it quiet that he is an architect, he will be able to find a place where he can be very useful.

In addition we have had a committee studying post-war planning, and some of our members are working with the Chamber of Commerce and other groups along these lines. Some money is now being made available for local regional planning and we all hope to contribute our talents as and when necessary.

We intend to let the public know us better in every possible way. I think that we architects should begin some post-war planning of our own right now, aimed toward taking stock of our talents which we already possess along the lines of administration, problem analysis, cost knowledge, work planning, purchasing of materials, drawing of contracts, settling disputes, picking personnel, directing and enthusing employees, arbitration and negotiation, and all of the other abilities we have which are very much in demand in every line of work and which can be developed by experience and not gotten out of training courses. When we see and acknowledge, first that we have these qualifications, and second that they are very much in demand in the business world, then we can sell ourselves on this basis. The present results will be that we can perform a larger service in the war industry now, and that we will be better architects in the post war program. And the final consequence will be that the public at large will see us in a different light and public respect will be increased thereby. Thus, in my opinion, our job of public relations begins at home. And it must eventually be made to start in our architectural schools. This vast need for what we have got along these lines is now being largely and inadequately filled by engineers and by non-technical men who muddle through. Your Committee, I would say, has now a golden opportunity to bring about a great awakening in the profession. That is the primary job. Then the publicity angle will become a mere detail.

Bulletin:

I have read with great interest the "Letter from Detroit Chapter Member" and the reply thereto from Director Oberwarth published in the current issue of your paper.

As an active member of both the A. I. A. and the Pennsylvania Association of Architects for many years, including experience as past President of the latter, I believe that the Chapter member's statement portrays a situation which exists. Although I agree with Director Oberwarth that continued membership is the best proof of sincerity and that effort similar to his is bringing unification closer, I do not believe that the reply contains a speedy solution of which so many of us are desirous.

Briefly, it is my opinion that certain fundamental changes in the set-up of the A. I. A. will do more to hasten the attainment of our common objective than the great amount of effort on the part of Director Oberwarth and others in the profession.

These changes involve re-organization of the A. I. A. to

parallel that of the medical and legal professions. It would include a logical subdivision into State and City (or District) Chapters, with *adequate* and *single* collection of dues at the source. Money collected would be apportioned to the controlling State and National organizations and used for the employment of adequately salaried executives who would devote their full time to the interest of the profession, including favorable national and state legislation, intimate contact with governmental agencies requiring architectural services and adequate publicity to keep the public constantly advised as to our value and activities.—Edwin H. Silverman, A. I. A., Philadelphia.

HAPPY BIRTHDAY: Joseph P. Wolff, March 24; Albert C. Fehlow, March 25; J. Lawson Miller, March 27; Frank Carson, Leo Hosman, J. H. Gustav Steffens, March 28; Walter V. Marshall, March 29; Robt. B. Frantz, March 30; Miss Marion Blood, March 31.

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WEEKLY BULLETIN

MICHIGAN SOCIETY OF ARCHITECTS

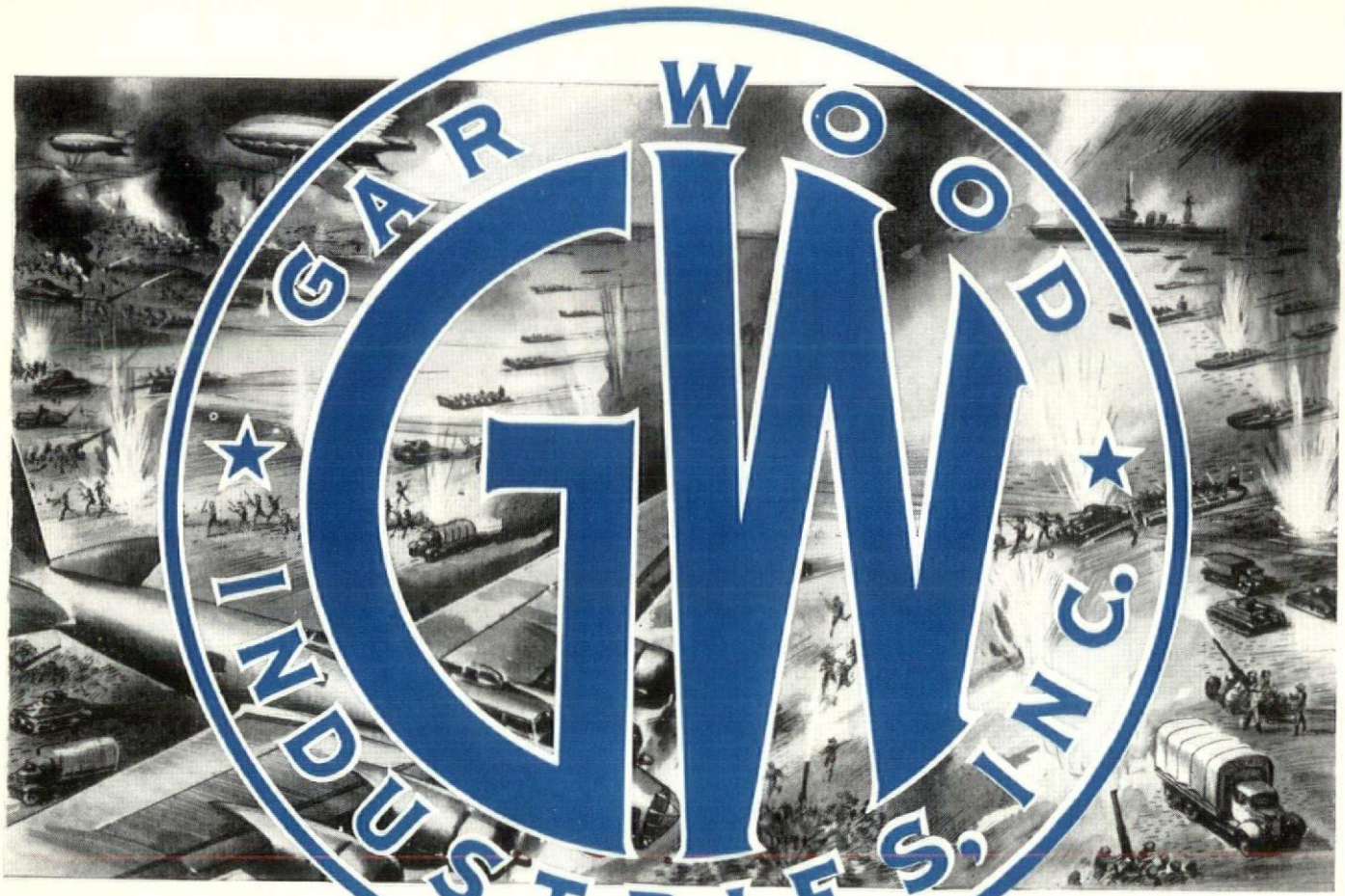
as second-class matter December 9, 1930, at the Post Office at Detroit, Michigan, under the Act of March 3, 1879. Published Weekly
Subscription Price: 50c per year (Non-members $4.00) 10c per copy.

e 17 DETROIT, MICHIGAN, MARCH 30, 1943 No. 13

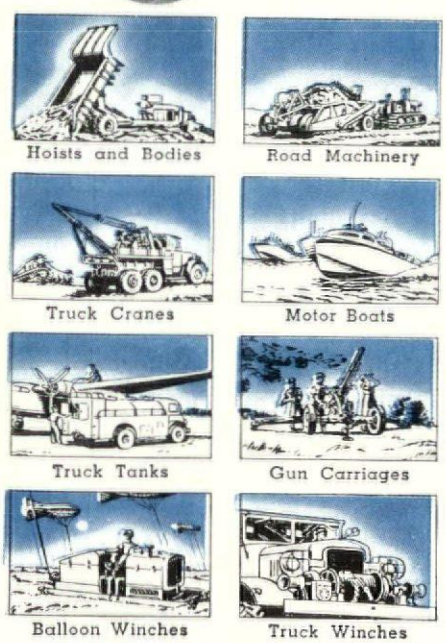
Albert Kahn Memorial Issue

Featuring Some Recent Work of

lbert Kahn Associated Architects and Engineers, Inc.



ON ALL FRONTS!



The mightiest aggregation of fighting men, completely equipped with armament produced by the United Nations—**and by industry in America**—will provide unstoppable power for our fighting men on all fronts.

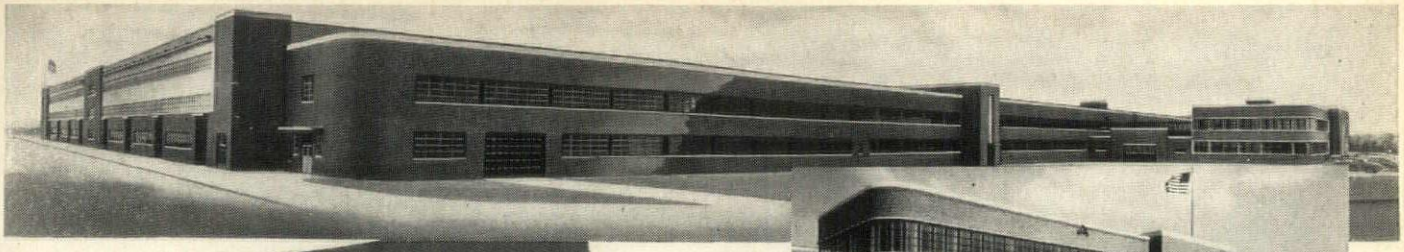
GW is in the war! Its products, "on all fronts," are geared to this gigantic thrust for freedom. 100% war production—that's been the GW status for a long time—in fact. Gar Wood Industries, Inc., was among the *first* group of manufacturers to convert all its production into war work.

GW products comprises essential equipment, such as: Gun Mounts, Barrage Balloon Winches, Wire Reels, Troop and Cargo Bodies, Mobile Machine Shop Bodies, Truck and Trailer Equipment including Dump Bodies, Hydraulic Hoists, Winches, Cranes, Derricks, Refueling Tanks and Water Tanks—Road Machinery, such as 20-cubic-yard Scrapers, Bulldozers, Road-builders, Tamping Rollers and Rippers—also automatic Heating Equipment, and fast, powerful Boats for the Army and Navy.

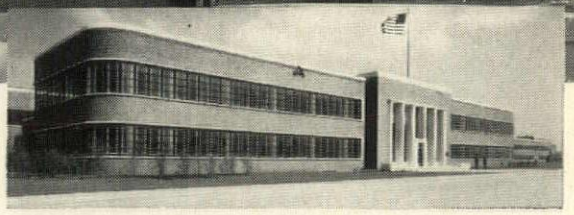
OUR ONLY JOB now IS TO
WIN THE WAR

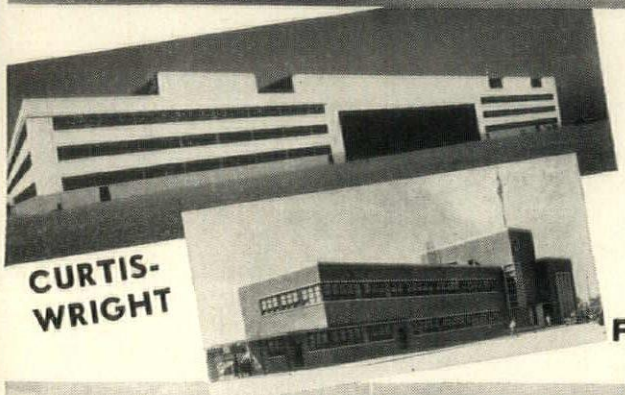
Protect Freedom
BUY WAR BONDS

GAR WOOD INDUSTRIES, INC., Detroit



FORD

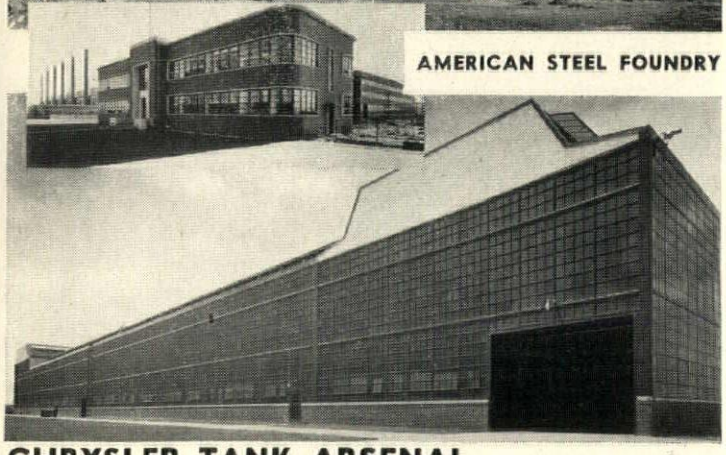




CURTIS-WRIGHT

FORD

AMERICAN STEEL FOUNDRY



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and...

The Municipal Courts Building, The Children's Free Hospital and the Detroit Times Building, Detroit • The Buick Motor Car Co., Aluminum Foundry, Flint • The Chevrolet Motor Car Co., Aluminum Foundry, Saginaw • The University of Michigan Dormitory Buildings, Ann Arbor • The Pontiac Motor Car Co., Gun Plant, Pontiac • The Fairchild Aircraft Plant at Burlington, N. C. • Ford Motor Co. Drive-Away Buildings, Detroit & Somerville, Mass. • United Aircraft, Pratt-Whitney Plants, Hartford, Conn. • The General Motors Corp. Diesel Engine Plant, Detroit • The Ethyl Gasoline Corp., Chrysler Corp. Forge Plant, Detroit • Curtis-Wright, Lockland, Ohio

KAHN *Specifies* SARCO

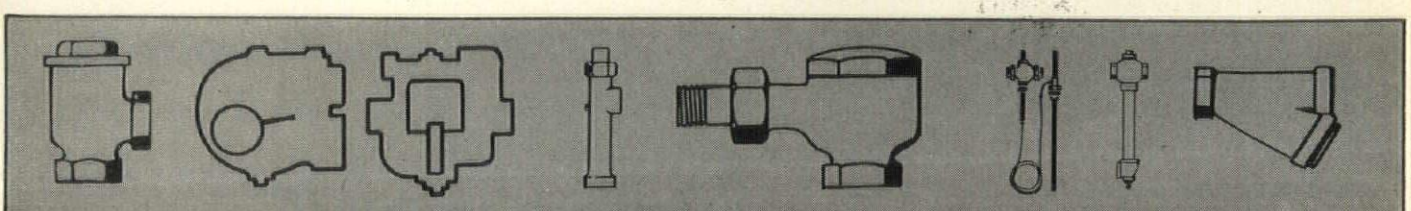
Functional perfection achieves natural harmony in the industrial buildings of Albert Kahn and the plans provide also for satisfactory operation in every detail.

In all of the plants illustrated or mentioned on this page, Sarco is used for one or more of the products shown below.

Reliable heat and air conditioning, controlled temperatures, steam saving devices, and adequate provision for economical hot water supply were written into the specifications by the simple word "Sarco."

These same products in the same applications are equally adapted to the smallest apartment house, commercial or industrial building. When it's steam traps, hot water or temperature control, you can safely specify "ALL SARCO" and rely upon the quarter century of experience, available through our nearest representative.

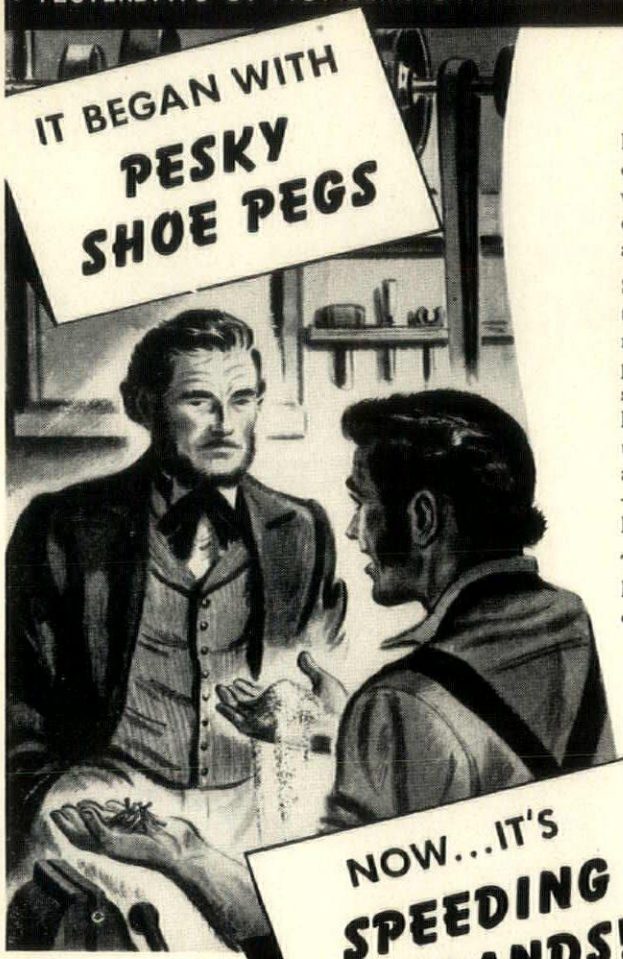
SARCO Saves Steam



SARCO COMPANY, INC., 475 FIFTH AVENUE, NEW YORK, N. Y.

YESTERDAYS OF PIONEERING... *THAT SPEED VICTORY TODAY*

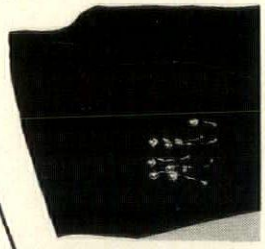
IT BEGAN WITH PESKY SHOE PEGS



Back in the old days, soles of shoes were fastened with wooden pegs. But the method of making the pegs was crude and costly.

So a mechanical genius of that time invented a machine to make them cheaply. Then a problem arose—the sawdust spurting from the machine hindered the workmen. Thereupon our inventor designed an exhaust fan to remove it—and thus founded the air handling industry!

This man was Benjamin Franklin Sturtevant, founder of this company.



NOW...IT'S SPEEDING GARANDS!

Today, over 80 years later, Sturtevant Pneumatic Conveying no longer serves shoe peg machines. Now it's in the front lines of vital war production! For example...whisking away the sawdust produced in forming wooden stocks for famous Garand rifles—helping to speed this equipment to the men who need it so desperately.

Putting Air To Work today—for Victory—is a job without end. It runs the gamut from exhausting fumes in shell-loading plants to aiding in the production of vital aluminum.

B. F. STURTEVANT COMPANY
Hyde Park, Boston, Mass.
Branches in 40 Cities
B. F. Sturtevant Co. of Canada, Ltd.
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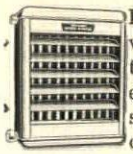
STURTEVANT PRODUCTS INCLUDE: ventilating, industrial air conditioning, mechanical draft, dust and fume removal, heating, pneumatic conveying, vacuum cleaning, drying, and other Air Handling Equipment.

Sturtevant
REG. U.S. PAT. OFF.
Puts Air to Work

Suspended Speed Heaters



Propeller fan types, for wall or ceiling installation. Fin type heating element. For steam pressures up to 200 lbs., capacities up to 300,000 B.t.u.

Multivane Speed Heaters

Centrifugal fan type for floor, wall, or ceiling installation. Fin type heating element. For steam pressures up to 200 lbs., caps. up to 2,100,000 B.t.u.

Downblast Speed Heaters

Especially suitable for high ceiling installation, above crane rails, etc. Fin type heating element. For steam pressures up to 200 lbs. Capacities up to 400,000 B.t.u.

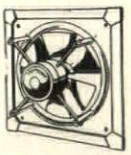
Centrifugal Fans

A wide variety of types and sizes for exhausting or blowing service, including high pressure fans. Belt, motor, or turbine driven.

Air Washer

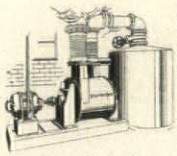
Built in several types to meet varying requirements in cleaning, cooling, dehumidifying and humidifying air.

Propeller Fans



Built in fan sizes from 12 up to 45 inches. Electric motors are available for both alternating and direct current, in wide variety of voltages.

Vacuum Cleaning Systems



Assure cleaner, more healthful plant. Protect costly equipment from dust. Sizes to meet every need. High suction assures rapid cleaning. Tools for specific cleaning operations.

Air Conditioning Equipment

Individual units or complete central systems including fans, air washers, heaters, etc., for maintenance of desired temperature and humidity.

Cooling & Air Conditioning Div. of B. F. Sturtevant Co., engineers and installs complete air conditioning systems for industrial processing purposes . . . makes available Sturtevant's 31 years of experience as a pioneer in industrial air conditioning.

THE LATE ALBERT KAHN

"He somehow had the rare genius of transplanting his love for the beautiful into material terms."—Dr. Leo M. Franklin.

THE WEATHER
Slightly warmer Wednesday.
(U. S. Weather Bureau Forecast)
Buy War Bonds and Stamps

The Det

THE H

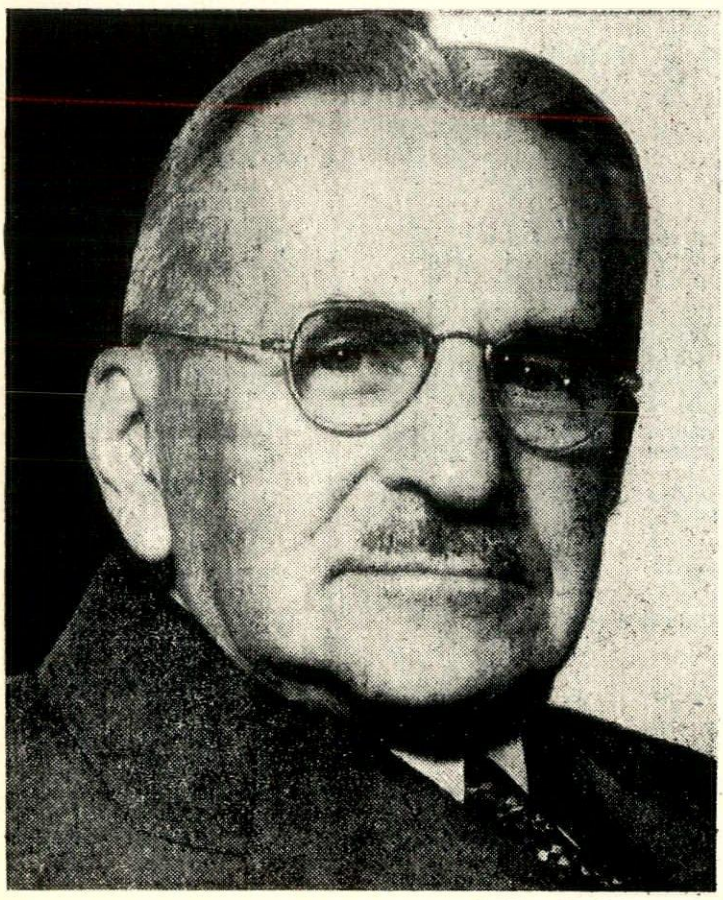
TUESDAY, DECEMBER 8, 1942, 70th Year, No. 108

Largest A. B. C.-Recognized

ALBERT KAHN,

World Famous Builder

A Useful Career Ends



—By News Staff Photographer

ALBERT KAHN

Bond Sale Record Set on Pearl Harbor Day

(See Pictures on Back Page)

Stepped up at phenomenal pace | Japanese infamy started a "run on

Detroiter Noted for War Work

Also Designed Skyscrapers

Albert Kahn died today.

With his passing, at his home shortly before noon, Detroit lost one of its foremost citizens; the world lost a man virtually unanimously recognized as the No. 1 industrial architect of the industrial mass production age.

Even as Mr. Kahn died, there were reminders of his industrial building genius appearing in the news of the day on the war fronts.

It was he who designed Willow Run.

It was he who only a short time ago designed naval bases at Midway, at Honolulu, in Alaska and elsewhere in the Pacific.

KNOWN IN RUSSIA

In Russia, from Kiev to Yakutsk, are more than 500 factories designed and built by Kahn engineers, manned by Kahn-trained technicians.

There are many other instances of war factories he designed, from the Detroit (Chrysler) Tank Arsenal to the huge Wright Aeronautical plant in Chincinnati.

Albert Kahn buildings, in fact, stand on five continents.

The war plants were built with all world's records for steel and concrete construction broken. They were the handiwork of Mr. Kahn and his associates, and they are outstanding examples of what American brains and hands can do in an emergency.

"As monuments to Mr. K are many buildings other tories and war plants, Mr. Kahn was eminent in of office building architec sign. Among the structur credit are the Nationa Building, the General Building, The Detroit Ne ing, the Detroit Athletic C the Fisher Building.

STARTED CAREER AT

Mr. Kahn began his car at the age of 22, or 10 yea coming to Detroit from R Germany, where he wa March 24, 1869.

In four decades which f it was estimated that Albe Associated Architects & En Inc., supervised the erec some $2,000,000,000 of in buildings alone. For 39 ye Kahn was engineer to the Motor Car Co. For 34 y was the Ford architect, an years Chrysler Corp. archi

In the first World War, M was official architect for t craft Construction Divisio Signal Corps.

In 1928, the Soviet gov appointed him the building for Russia's industrializati the job which he did ther has been surpassed, in the of his profession. In Russi his own land, Mr. Kahn b tories faster and built ther than they ever had been b fore.

EXPANDED FOR WAR

With the advent of Wo II, Mr. Kahn's office wa upon to expand greatly. H grew to more than 600 day's work often stretche to the 24-hour point. Mr himself, sometimes slept on ing board in his offices.

His own explanation of nence in his field was that lucky. It was an explanatio no other person who kn would accept. They refuse lieve it was luck which w the award of the French L Honor, or a special medal American Institute of Ar or an LL.D. degree from versity of Michigan, o another award.

The explanation of othe Albert Kahn, a man of tre drive and energy, revol industrial architecture and world recognized his

it News

Blue Streak
MARKETS PAGE 31, RACES 16

SPAPER
ed Circulation in America

40 Pages—THREE CENTS

RCHITECT, DIES

Eulogy Delivered at the Funeral of Albert Kahn

By Dr. B. Benedict Glazer, Rabbi, Temple Beth El, Detroit, Michigan

We have come together, dear ones, friends, and life-long associates of Albert Kahn, to bid farewell to his earthly presence and to accord his memory an affectionate tribute. We should be grateful that we have not assembled to contemplate the tragedy of an untimely passing, the story of an unfinished life. For in this hallowed hour of memorial, we, who remain behind, are privileged to ponder a life that was favored in many and varied ways; a life that was honored and celebrated; a life that was in every sense fruitful and complete. God was good to him and God blessed his household. This is, therefore, more than an occasion for lamentation. It is an opportunity for thanksgiving unto our Heavenly Father for nurturing and inspiring a man who enriched our community and our nation.

Moreover, I do not consider this to be the opportune time to rehearse the familiar pattern of Albert Kahn's rise to eminence from humble and disadvantaged circumstances; nor to recount his prolific and monumental achievements in his chosen profession. Rather should we, the living, in these days of strife and bloodshed, look upon the indwelling spirit of a man for whose values of character and personality that build and ennoble the institutions of civilization. The lessons of a good and useful life always challenge our moral resources. They stimulate us to live hopefully and courageously, especially in critical times.

Thus I am stirred to ask this question: what were the personal and social values that distinguished the life of Albert Kahn? It seems to me that the quintessential nature of his life was expressed in the profound sensitivity of the true artist. This endowment of imaginative insight enabled him to anticipate and to respond to the novel challenges of a new age in his chosen profession. In common with other gifted men of this community, he became a pioneer and explorer in the world of applied science.

Great architecture has been defined as frozen music. A creative architect, therefore, cannot be limited by the confines of his own profession. He must be allied in a measure with the poet and the musician. Albert Kahn was a poet in many of his architectural projections. Through others he wrote, in steel and stone, some of the finest music of a new world symphony. It is not surprising, then, that pre-eminent among his hobbies was the collection of fine paintings and the best of recorded music.

There was yet another extraordinary source of his productive spirit, and this was his deep reservoir of internal power. The first impact of his personality conveyed the impression of a modest and retiring man, but when he dealt with the complicated problems of his chosen profession, he generated an irresistible, intelligently directed, frequently successful drive for the solution. That is why his services were in such demand in every part of the world.

Finally, he was unquestionably the philosopher of a better day to come for all mankind. He may not have definitely formulated the implications of his philosophy, but they were implicit in the very nature of his contributions. The structures that he built on many continents were designed to solve the problems of human want and insecurity. His work transcended the artificial as well as the geographical barriers that have separated man from his brother. His creative activities in many lands were harbingers of the day when men living on this planet, having been brought closer together by scientific achievements, would of necessity practice the teachings of the fatherhood of God and the brotherhood of man. To deepen this thought, may I say that his contributions to human welfare were a living refutation of those modes of thought and behavior that mark the destroyers of civilization, who in our time restrict and brutalize the aspiring natures of men. Had Albert Kahn continued to live in his native Germany, he would have been exiled and his worth repudiated, like so many other men of distinction. Thank God he came to America, a land which he learned to love with a whole heart and with a high sense of privilege. He gave to his adopted land the fullest measure of his devotion and talent, in times of peace and war. He lived as a Jew and as an American on the highest level. The promise of American life was redeemed through him, and he in turn vindicated the confidence that America reposed in him.

My final word in this solemn hour brings me into the sacred confines of his family life. He and his dear, gentle, and understanding wife developed the art of living together in an atmosphere of shared values and mutual appreciation. Together they reared an exemplary family of three daughters and one son. These loved ones, in the years to come, will be continually sustained and inspired by the precious memories of their cherished departed.

May God bless and comfort his helpmate. May He grant a double portion of His consolation unto the children and grandchildren who remain behind. May He help us all, dear ones and friends, to apply the lessons of a useful and distinguished life in the realms of our personal labors. May the burden of sorrow, which has been placed upon this household, be accepted with the patience of faith and the strength of resignation.

The last words uttered by Albert Kahn before he closed his eyes forever were, "I want to rest." He has richly earned this heaven-sent rest. May God assure him throughout eternity that peace which surpasseth human understanding. Amen.

A TRIBUTE TO ALBERT KAHN

By DR. LEO M. FRANKLIN

After the very beautiful and adequate interpretation of the career and character of our beloved friend, to which you have just listened, it is not necessary or appropriate that I should add many words. But, I come to speak as the devoted friend of this man whom we all so greatly loved, for his and mine were friendship that I am sure I can say truthfully, we both esteemed and highly valued. The poet has told us that "Lives of great men all remind us that we can make our lives subline, and departing, leave behind us footprints in the sands of time." We stand too near the picture in this hour and we are too emotionally stirred by the sense of personal loss that has come to us to evaluate adequately the influence of this good and great man, but we are sure that his footprints will remain indelibly upon the sands of time.

Some men there are who accomplish what seems significant in their own day and generation, but when they pass on they are forgotten. But now and then there comes one upon the stage of life, one builds so well, so soundly, so securely, that those who come after him must perforce build upon the foundations that he laid. I need not speak to you of the great and enduring work that Albert Kahn has done in the field of his chosen profession. He has practically transformed the art of industrial architecture in which area he was a pioneer. He has, as it were, set a standard and established a trend in that particular field. He has laid foundations upon which other men shall inevitably build.

But as I look back upon the life of my beloved friend, I feel that this is the least of his accomplishments, magnificent though his professional career has been. Some men, it is said, are born to greatness, while others have greatness thrust upon them. In the case of Albert Kahn, neither one nor the other of these statements was true. He was born amid very humble surroundings and he had to make his career in the hard way, step by step. But he was unafraid, he was daring; he was heroic; he had set a goal unto himself, which unchangingly and unwaveringly and unflinchingly he pursued. His only inheritance was a clean character. His only possession was a great genius for the beautiful, a passion for service, and an unlimited capacity for work. Though an intense and earnest devotee of the beautiful in music, in art, in literature, he was no idle dreamer. He somehow had the rare genius of translating his ideals and his love for the beautiful into material terms, and those great edifices, the work of his hands and of his brain, that dot every continent, are really the marks of an idealist who was yet a realist. He took the ugliness out of things. Realizing the influence of men's environment upon their souls, he insisted that even the factory must be attractive as well as sanitary.

I recall, in this hour, one incident that I believe showed his character as well as anything could possibly do. It was a very simple incident. We were building the Temple, or about to build it, where just a few blocks from here now stands the Mayfair Theatre. Sitting around the table with Mr. Kahn were the members of the building committee. Because of a rather limited budget, it became necessary for us to build the side walls of the Temple of brick rather than stone, like the front. And one of the gentlemen of the committee said, "Wouldn't it be fine if we could cover the side walls of brick with a thin veneer of stone?" And for once in his life, I saw this man rise to his height in absolute indignation. He said, with great emotion, "If you wish to build the House of God as a sham, you may hire another architect, not me. The edifice which you are about to build is to be a House of God and in the House of God there must be no sham, no show. It must be real. It must be what it purports to be." He was a man who could stand no make-believe. He had no patience with hypocrisy. He was the real man! And, therefore, every structure which he built had to be real. It had to express the things for which it was supposed to stand.

That he was a daring pioneer has already been stated many times, and his daring was matched only by his modesty. I remember sitting in this very room when he was honored by the former Republic of France. When in the name of France, the medal which proclaimed him Chevalier of the French Legion of Honor was pinned upon his breast, he blushed like a child and said, "Really, I do not deserve such recognition." And so it was throughout. And it was because he was that kind of a man that he built not only edifices of stone and of steel, what was infinitely more significant, he built men's lives. Men there are who sit within the hearing of my voice whom he has lifted from a plane of mediocrity from which without him they might never have risen up to the very heights. He did not seek to attain his goal over the bruised bodies or the broken souls of his fellows, but as he rose, he lifted others with him.

What was the key to his great, successful and meaningful career? It was not love of wealth. To him the accumulation of material treasurer was not much more than an incident. But he loved his work. He lived for his work; and as some of you know, even though he was confined to his room many weeks before his passing, he actually worked, I am told, almost to the hour when his eyes were closed in the last sleep.

My colleague has said that this should not be an hour of mourning or of resentment. Indeed, it should not be because he has lived a full and rich life. He has had honors bestowed upon him such as come to few men during their years on earth. Representative men in every country of the earth look upon him as one to whom they are indebted. Great institutions of learning, professional societies and governments have laid their laurels at his feet. Some say that he was another casualty of the war, in that because of the duties that the war laid upon him, he overstrained himself. Well, he would not have had it otherwise. He gave to life, but he also took much out of life, and I can think of no man of my acquaintance to whom life was more generous in her gifts than to him.

He was a man of genial disposition. Friendship to him was a sacred thing. So he came to belong, not only to his family, not only to us in this community, not only to his friends and co-workers; he truly belonged to all the world. The son of a very humble Rabbi in Israel, he exemplified, in the finest possible way, the interpretation of religion as a way of life. He is not dead. Only they are dead who have never truly lived. His earthly immortality is assured. Thousands of the creations of his hands and of his brain give testimony to this fact. But even when the noblest, the strongest, and most stately of the edifices built by him shall have crumbled into dust, the name and influence of Albert Kahn shall not perish from the earth. His name shall be linked with the immortals. He shall live on in our hearts, and especially in the hearts of his beloved family; of that dear wife who was his inspiration and his constant help; of those beloved children, far and near, in whom he so greatly and so justly rejoiced. Theirs is a noble heritage. He shall live on. His memory is a blessing and an inspiration.

Amen.

GENIUS AND DESTINY

(The Detroit News, Dec. 9, 1942)

Friends Pay Tribute as Kahn Career Ends

Tributes to Albert Kahn were voiced by men in many walks of life today as the body of the famous architect rested at the William R. Hamilton Co. funeral chapel, to remain there until private funeral services at the home, 208 Mack Avenue, at 2 p. m. Thursday.

A typical tribute was voiced by Henry Ford.

"Albert Kahn was one of the best men I ever knew," Ford said. "The fruits of his genius are in every part of the world. For about 40 years he was associated with us in all our large construction undertakings. He was a man of fine taste, the soul of integrity, a public spirited citizen, and absolutely loyal to principle. He will be missed as a man and as the helper of great enterprises."

Mr. Kahn died Tuesday at the age of 73. There were some who found in his career the proof that destiny shapes men inexorably to predetermined ends. There were others who found the proof that every man builds his own world.

The first argued, what but destiny could have brought it about that from a poor German child-immigrant, reared in America, Russia would get a tremendous part of the industrial organization and engineering skill with which it today fights the Nazi?

Man of Courage

And yet, the second replied, were not the discipline and industry with which he applied himself to every task—the discipline and industry which permitted him and his organization to accomplish the seeming impossible—were they not self-imposed?

Now that he is gone it seems incredible that this man, scarcely five feet tall, whose indomitable courage and cheerfulness was equaled only by his modesty, housed a spirit that, literally, took the world for its field of action.

Yet that is true. He designed and built more than a thousand plants and other industrial buildings for the Ford Motor Co. alone. For the Soviet Government he built more than 500 plants and factories and organized technical schools to produce engineers and mechanics to run them, from Kiev, in European Russia, to Yakutsk in Eastern Siberia. These are the backbone of Russia's military resistance today.

His Great Forte

Here at home he also contributed mightly to America's war effort for he built the United States bomber plant at Willow Run; the huge Martin aircraft plant at Baltimore; the Detroit (Chrysler) Tank Arsenal and the Hudson Naval Ordnance plant here, and scores of smaller war production plants the country over.

His great forte was industrial plants, to the construction of which he brought many principles revolutionary in the day of their first application. Models of their kind, they are to be found all over the United States, in England, Scotland and Continental countries, Japan, China, Egypt, Mexico and South America. Also scattered over the earth are libraries, office buildings and other structures in which he expressed the artistic side of his nature.

In Detroit alone there are many of these monuments to him. They include the General Motors Building, the Fisher Building, the New Center Building, the Detroit News Building, the Detroit Free Press Building, the Detroit Athletic Club, Maccabees Building, Kresge Administration Building, and units of Harper, Grace and Woman's Hospitals.

Born in Westphalia

Mr. Kahn was born at Rhaunen, Westphalia, Germany, on March 21, 1869. When in his eleventh year he supervised the passage of his mother, himself and five other children to this country where they joined the father, who had come to Baltimore some time before.

Within a year the whole family moved to Detroit and Albert soon found employment in the office of George D. Mason, architect, where he learned draftsmanship. A few years later he was able to travel Europe for two years on a scholarship.

Returning to Detroit he eventually entered business for himself. One of his first jobs was to remodel the home of Henry P. Joy, then president of the Packard Motor Car Co. When, soon after, the Packard company wanted a new building, Kahn drew the plans. Into them went everything he had learned in his travels. After talking some of his own ideas over with Joy he incorporated them in his plans. They called for reinforced concrete construction and steel window sash. He got the job and the new Packard plant was the first of its kind in this country.

Called by Ford

When Ford decided to build a new plant in Highland Park he sent for Kahn and told him what he wanted—not a half-hundred buildings in the old industrial set-up, but the whole industry under one roof.

Kahn built a plant which shortly became known around the world as a new departure in industrial architecture.

From then on Kahn was architect for the Ford Motor Co., building the vast Rouge Plant, the Ford Engineering Laboratories, all its branch plants in this country and abroad.

His work in the automobile industry brought Mr. Kahn the title of the industry's architect. He designed more than 150 buildings for General Motors. In addition to being the Ford and Packard architect, he was architect for Chrysler Corporation for 17 years.

Kahn characterized modern architecture as "90 per cent business and 10 per cent art." He aimed always to give the client what the client wanted—"only better."

Worked in Shirtsleeves

When the big job was in the making he worked in his shirtsleeves, right along with his organization, through every step of the project. When pressure required working day and night—as it sometimes did—Kahn slept the few hours available to him on a drawing board in the office.

He was by nature very modest. He used to explain his success by saying he was lucky. Once when an interviewer asked him what he meant, he gave, as an example, the fact that he was partially color-blind, but he had been able to finish his apprenticeship and get going as an architect because his first employer never discovered it.

Those who knew him best know, that, coupled with his farsightedness and daring to try something new, one of the greatest factors in his success was his inordinate capacity for hard, sustained work and the inspiration he gave to all about him to do likewise.

Won Many Honors

He received many honors and awards, among them degrees of Doctor of Law from the University of Michigan, Doctor of Fine Arts, from Syracuse University, the title of Chevalier of the French Legion of Honor, the Gold Medal of the International Exposition of Arts and Science in Paris, in 1937, and a special award of the American Institute of Architects for his work in the American war effort.

In 1896 Mr. Kahn married Miss Ernestine Krolik, who survives him. He is also survived by a son, Maj. Edgar A. Kahn, who is with the U. of M. Medical unit in England, and three daughters, Mrs. Harry L. Winston, Mrs. Edward Rothman and Mrs. Martin Butzel.

UNDER MANTLE OF GLORY

Kahn a Studious, Tireless, Modest Man

By LOUIS TENDLER

(The Detroit News, Dec. 10, 1942.)

What sort of man was Albert Kahn?

The world knew him as one of its greatest industrial architects and it covered him with such an abundance of honors as come to few men in their lifetime. But there were few who knew the other Albert Kahn and the life he lived outside the realm of the drafting board and blueprint.

What was he like in the quiet hours he spent at home, this son of an immigrant Jewish rabbi who revolutionized the whole concept of industrial architecture? Did he read books of general interest? Did he enjoy a good story. Did he engage in dispute over non-architectural topics?

These and similar questions were asked of some of Mr. Kahn's closest friends in an effort to lift the mantle of glory the world had draped on his shoulders and to examine the man underneath.

The logical place to start such an inquiry would be the office of George D. Mason, Detroit's oldest (87) living architect, the man who started Mr. Kahn on his architectural career on Jan. 1, 1885, when he hired him as office boy in the old firm of Mason & Rice, Architects.

"Albert's father and mother came to Detroit in 1884," Mason related. "They sent him to evening classes in the art school then being conducted by Julius Melchers, father of Gari Melchers. Julius made his living by woodcarving and sculpture and ran his art school on the side.

"In those years, it was customary for young men to start their architectural careers by working nine months without salary in the office of an architect. Julius Melchers, noting Albert's ability, sent him to us. We took him on as office boy and nine months later, started him on tracing and drafting at $30 a month. Six months later we raised his salary to $35 a month.

Capacity for Study

"I have never known anyone with such an enormous capacity for concentration and application to study. Every spare moment of the day and evening (we worked long hours in those days) Albert would spend reading our collection of architectural books. In fact, he was often fond of saying that his only formal education in architecture was obtained in the library of Mason & Rice.

"Hours meant nothing to him when he was absorbed in his work. I remember one evening after he had spent the entire afternoon bent over his drafting board. At dinner time I put on my coat and asked him if he were coming along. He answered that he wanted to finish some problem that bothered him. When I returned to the office two hours later, he was bent over his board. He didn't eat that evening until well towards midnight—but he licked the problem."

Justice Henry M. Butzel, of the Michigan Supreme Court, was one of Mr. Kahn's most intimate friends—it was a friendship that started 50 years ago when Butzel came out of the University of Michigan law school.

"We had a literary group to which we belonged," Justice Butzel said. "Just a group of young men who liked to get together Saturday nights at a famous old restaurant and talk for hours about anything that came up. We always called for Albert at Mason & Rice's office and he was never ready for us. He was always in his shirt sleeves, bent over the drafting board.

"One of his most lovable qualities was his loyalty to his family and his friends. In fact, he was so loyal to his family that we used to joke that 'a Kahn can do no wrong.' His two greatest interests outside his office were music and art.

"A symphony, whether played on the radio or his phonograph, always drew the deepest concentration from him. He would listen with his eyes closed and the slightest disturbance would bring from him a wordless plea for silence."

What of the fact that Mr. Kahn never had a formal education? Was it ever a source of embarrassment to him? Fred Butzel, another lifelong friend, supplied the answer with an anecdote.

Unfailing Loyalty

"Three of us—Albert, Henry and I—were once called upon to make short speeches at a gathering. When we had all finished, Albert came up to me and said, with a twinkle in his eye: 'Well, suppose if I'd had a college education, I could make a good speech, too.' "

The loyalty that Mr. Kahn held for his family and friends extended, as well to his firm, Albert Kahn Associates and Engineers, Inc. The writer once had occasion to interview Mr. Kahn regarding a new project he was designing for the Ford Motor Co. When he had given his account of the project, he concluded with these words:

"Now, when you write the story, credit it to Albert Kahn Associates and Engineers, Inc., rather than to me, personally. After all, I am like the quarterback on a football team. Without the teamwork of my associates, I would be nothing."

CLUB BUILDING KAHN'S MONUMENT

(Detroit Athletic Club News)

"I want the D. A. C. building to be my monument."

Those were the words of that great architectural genius, Albert Kahn, when he started to draw the plans for our clubhouse in 1913.

At Kahn's death last month the civilized world was pretty well dotted with buildings of his design. Whether with the passing of time he preferred to have some other famous edifice regarded as his monument we do not know. But one thing we do know and that is that nobody else ever designed a clubhouse so satisfactory as this one.

Classic beauty, comfort, convenience, economical operation. He provided them all with great skill.

Mr. Kahn never came into the building without saying after his quick but critical survey, "Looks just as good as the day it opened."

No doubt, the main reason for the continued fine appearance of the building is that soon after the Club opened, the Board of Directors laid down a rule that no change be made without Mr. Kahn's approval. That rule has been faithfully adhered to by succeeding boards. There was one exception. When the tap room and ladies' cocktail lounge were needed after Repeal, Mr. Kahn was not available for many weeks and other guidance was secured. Luckily, those improvements were fully in keeping with the general plan as originated by Mr. Kahn.

Such lavish, but well-earned, accolades as were showered upon the Kahn career when he died a few days ago are uttered or written about very few men indeed. Albert Kahn eminently deserved all the fine things said about him. It may be a long, long time before his equal comes upon the American scene. Detroit was lucky to have him just when he was most useful.

All lofty endeavors undertaken by the city had the full force of the Kahn energy and enthusiasm behind them. His efforts on behalf of the Detroit Institute of Arts and Detroit Symphony Society and all cultural projects of like nature were given without stint. That was his way.

"A. K."

The lead editorial in the Grand Rapids Press, Dec. 9, 1942, by Roger Allen, A.I.A.

When on an evening last June the members of the American Institute of Architects gathered in the ballroom of a Detroit hotel to witness the presentation of the coveted special medal of the Institute to Albert Kahn, the scene had an unscheduled picturesqueness. It was the night of a practice blackout, and as the guest of honor rose to speak every light in the hall was extinguished with the sole exception of a single lamp on the table before him.

"It is an odd thing, and symbolic of our time perhaps," said one of the speakers later, "that tonight the man who did more than any other man in the world to bring light to the factories of the world should receive the homage of his colleagues by the flickering light of a single lamp. But blackouts pass; the art of Albert Kahn remains."

Albert Kahn died suddenly Tuesday. His fellow architects

will share their sense of loss not only with the leading industrialists of the world but with workmen in thousands of plants, of which Willow Run is only the last and largest of a long list, who work today in well lighted, convenient and superbly efficient environments because of the work of one of the most talented and brilliant designers the world has ever known.

The "daylight factory" is Albert Kahn's monument. He pioneered the use of reinforced concrete building; our own Press building was the first large building erected in the United States with a complete structural frame of reinforced concrete and Albert Kahn designed it. With his brother, the late Julius Kahn, he established the first reliable load tables on which the whole vast present-day science of monolithic concrete design rests; he was first to use vast areas of the new steel sash to throw floods of light into factory interiors; he struck to the heart of industrial design when he saw that the building was merely the skin to house the function performed within the building. His buildings were designed from the inside out; in the phrase that Louis Sullivan preached to an earlier America, "form follows function."

Stalingrad still stands today because of men fighting with guns and tanks and planes that rolled in an endless stream from plants that Albert Kahn showed the Soviets how to build. With a crew of 400 American architects and engineers he taught the Russian technicians to implant a new world efficiency of production into Muscovite peasantry.

The career of A. K., as his colleagues always called him, is another American answer to the nonsensical claptrap against democracy and the melting pot mouthed by Hitler and his creatures. The little immigrant boy, discharged from his first office job because his clothes were too redolent of the stable where he tended horses to get money to continue his education, went on to another job as office boy to George D. Mason, now in his eighties the dean of Detroit architects. Mason found him one day crying in the plan vault because, as the young Albert declared, "I'll never be an architect." He was wrong about that. He went on to win a scholarship that brought him two years of European study, then back in America he started a career which proved all over again that in this country any man with something real and vital to contribute to his generation will have the opportunity to make that contribution.

Michigan can be proud of this man who found the typical factory an ill-lighted, dangerous and inefficient barn and left it a sleek, well lighted, sanitary and air conditioned machine. This, in essence, was his unique contribution: the theory that a building is a machine to produce other machines. But he never became a machine himself, and in a thousand drafting rooms yesterday men laid down their pencils and knew that something vital and warmly human had gone out of American architecture.

BUILDER OF AN AGE

By MALCOLM W. BINGAY

(From The Detroit Free Press, Dec. 11, 1942)

How marvelous is the mind of man!

It seemed just a little while ago I sat down at dinner with Albert Kahn and tried to get him to tell of the vision that permitted him to dot the earth with his brain children—two billion dollars worth of magnificent buildings on six continents. But he would only laugh merrily and talk about music and baseball and politics and mutual friends. They said when he died that he was 72. But he did not look more than 50. All the wrinkles on his scholar's face were made by smiles. It was always impossible to get him to present himself seriously as the author of poetry in steel and stone. About the purposes of architecture he could talk fascinatingly but of himself, seldom.

It never seemed to occur to him that he was the "architectural specialist in the gargantuan" as Marc A. Rose called him. He designed Pacific fortifications for us, he created the great industrial plants east of the Urals which have kept the Nazi horde at bay, he designed the Willow Run Bombing plant, the Chrysler Tank arsenal, the great Wright airplane factory at Cincinnati in which all 16 major league ball clubs could play at once. He it was who took ground that was covered with trees or waving corn an in a few months transformed them into might factories.

He understood better than any other man in his profession the beauty of utility. That is why his factories are things of beauty. He was the pioneer in giving workers light and ventilation. He showed to industry that this was not only humanitarian but returned to them practical dividends.

"There is no reason," he once said at an Arts & Craft's Society meeting, "why utility and beauty cannot go together. In fact, pure beauty is only to be found in highest utility. Beauty is natural. Modern industry has proved that it costs no more to plan a building that provides for the welfare of the men. The old factory building that was once erected without thought of its purposes—to house living beings who were creating things—was ugly because it was built without purpose. Utility, efficiency and beauty are hand-maidens."

But he would not speak of how he had pioneered all this with the soul of a poet, a painter and a musician. The artist was forgotten in the magnitude of his efforts. The practical man of affairs could see in his modern factories only efficiency and power and purpose. But the dreamer, Albert Kahn, saw in these things exquisite beauty.

Otherwise, he could not have achieved the artistic triumphs he did. He built the three Detroit newspaper plants and revolutionized the architecture and even the mechanics of journalism, for his Detroit plans were copied as far away as Sidney, Australia. The Detroit Athletic Club building, pure Greek in its simple beauty, was no work of a mere builder of factories.

And very few people in the wide world of business where he labored so long and brilliantly, ever knew his real masterpiece, the pride of his heart and mind. That is the Clements Historical Library at the University of Michigan.

"I like it best of all," he said to Dr. Randolph Adams, when it was finished, "because Mr. Clements was kind enough to give me time to work on it. This will be my masterpiece."

Napoleon said, "There are two powers in the world, the sword and the mind. In the long run the sword is always beaten by the mind." It may well be said in the years to come, by some Russian historian, that it was the mind of Detroit's quiet citizen which crushed the Nazi threat to world liberty.

Ten years ago when the Hitler threat began to loom in the eyes of the realistic Russians, they came to Detroit and induced Albert Kahn to go to Russia with his staff of engineers to design for them the buildings they needed to get ready for what they felt was inevitable. His herculean tasks were done not alone around Moscow and Stalingrad, but in that still mysterious area, "east of the Urals."

Yet, fitting enough for America, it was a great old German of Detroit who gave this Jewish immigrant boy his chance. Julius Theodore Melchers was one of the liberals of Germany who had to flee in the revolt of '48 against the Hohenzollern wrath. He settled in Detroit as a sculptor and artist. One of his sons was the world famous painter, "Gari" Melchers, christened by his father Garibaldi Melchers in honor of the Italian fighter for freedom.

Julius Melchers saw possibilities in young Kahn and gave him drawing lessons on Sundays—free. Then he got him his first job with an architectural firm and the man who has done so much to beat Hitler was on his way to world renown. His father peddled fruit, his mother worked in a restaurant near the Old Michigan Central station on Third Street. He himself waited on tables at night. Then he won a scholarship to study architecture in Europe. The rest is history.

Well may the name of Kahn, our happy, kindly fellow-townman rank with the builders of the ages.

(From The Detroit News, Dec. 9, 1942)

Tributes to Albert Kahn were voiced by men in many walks of life today as the body of the famous architect rested at the William R. Hamilton Co. funeral chapel, to remain there until private funeral services at the home, 208 Mack avenue, at 2 p.m. Thursday.

A typical tribute was voiced by Henry Ford.

"Albert Kahn was one of the best men I ever knew," Ford said. "The fruits of his genius are in every part of the world. For about 40 years he was associated with us in all our large construction undertakings. He was a man of fine taste, the soul of integrity, a public spirited citizen, and absolutely loyal to principle. He will be missed as a man and as the helper of great enterprises."

Mr. Kahn died Tuesday at the age of 73. There were some who found in his career the proof that destiny shapes men inexorably to predetermined ends. There were others who found the proof that every man builds his own world.

The first argued, what but destiny could have brought it about that from a poor German child-immigrant, reared in America, Russia would get a tremendous part of the industrial organization and engineering skill with which it today fights the Nazi?

And yet, the second replied, were not the discipline and industry with which he applied himself to every task—the discipline and industry which permitted him and his organization to accomplish the seeming impossible—were they not self-imposed?

Now that he is gone it seems incredible that this man, scarcely five feet tall, whose indomitable courage and cheerfulness was equaled only by his modesty, housed a spirit that, literally, took the world for its field of action.

When Ford decided to build a new plant in Highland Park he sent for Kahn and told him what he wanted—not a half-hundred buildings in the old industrial setup, but the whole industry under one roof.

Kahn built a plant which shortly became known around the world at a new departure in industrial architecture.

From then on Kahn was architect for the Ford Motor Co., building the vast Rouge Plant, the Ford Engineering Laboratories, all its branch plants in this country and abroad.

His work in the automobile industry brought Mr. Kahn the title of the industry's architect. He designed more than 150 buildings for General Motors. In addition to being the Ford and Packard architect, he was architect for Chrysler Corp. for 17 years.

He was by nature very modest. He used to explain his success by saying he was lucky. Once when an interviewer asked him what he meant, he gave, as an example, the fact that he was partially color-blind, but he had been able to finish his apprenticeship and get going as an architect because his first employer never discovered it.

Those who knew him best know that, coupled with his farsightedness and daring to try something new, one of the greatest factors in his success was his inordinate capacity for hard, sustained work and the inspiration he gave to all about him to do likewise.

In 1896 Mr. Kahn married Miss Ernestine Krolik, who survives him. He is also survived by a son, Maj. Edgar A. Kahn, who is with the U. of M. Medical unit in England, and three daughters, Mrs. Harry L. Winston, Mrs. Edward Rothman and Mrs. Martin Butzel.

(From Detroit Times, Dec. 9, 1942)

Because he lived quietly right here among us, it is difficult for the average Detroiter properly to appraise the achievements of Albert Kahn, who died yesterday. Through years of association, we came to take the modest little genius for granted, just as we took automobiles for granted, and the vast buildings, most of them conceived by Albert Kahn, whence automobiles emanate.

Now that he is so suddenly gone from us, we must actually take pause to recall how very much of the steel and stone mortar that is metropolitan Detroit came from the brilliant and tireless brain of Albert Kahn.

The Fisher Building, the General Motors Building, the National Bank Building, the Maccabees Building, the Detroit Athletic Club were designed by him. So was the Detroit Times Building, in which this is being written, and the buildings of the Detroit News and the Detroit Free Press.

Mr. Kahn was the father of those giant modern structures that house the manufacture of automobiles. For years, he was architect for the Ford Motor Company, the Chrysler Corporation, and the Packard Motor Car Company. And he remained as busy at his profession up to his death as he was when he started his Detroit career, half a century ago.

Three of his recent famous creations are the Willow Run Bomber Plant, the Chrysler Tank Arsenal, and the Wright Aeronautical Plant in Cincinnati. They were all emergency buildings designed and constructed against time and the demands of war.

Only recently, too, he designed naval bases in Alaska, Midway, Honolulu and other key spots held by American arms in the Pacific.

It is no extravagance to say that his fame in the field of architecture and construction is world-wide and that he is entitled to a high place indeed in the history of his profession. He, more than any other man, is responsible for the present trend in industrial architecture and, when the whole story of American industrial development is written, he must be considered a significant contributor to it.

In his personal relations, Mr. Kahn was anything but the prima donna. He was practical and simple and friendly and reticent about his attainments, constantly deprecating his success by saying he was merely lucky. He loved music and beauty in everything, but he also loved the salty and plain things of contemporary life, such as rooting lustily at baseball games.

Yes, his name and his fame will live, not only in Detroit with its many towering monuments to his genius, but on all the five continents of the world where he has left his imprint in architecture.

Genius is a tricky word. It should be applied sparingly and perhaps only by posterity.

But Albert Kahn seems to have been as surely a genuis as though he had composed great symphonies or written great novels or painted great canvases. He was a useful genius in molding the structures in which men live their lives, and work.

OTHER EDITORIALS

That are somewhat typical of those published in nearly every paper in the nation.

RICHMOND (KY.) REGISTER

The death of Albert Kahn, architect extraordinary, brings to a close one of those famous American lives in which the poor boy of energy and ambition rose to wealth and eminence. At thirteen, Kahn was fired from a job as office boy in a Detroit architectural firm because his employers thought he had no aptitude for the profession. At his death, sixty years later, Kahn was one of the most famous architects in the world.

It was Kahn's firm which laid the plans for modern industrial and military installations in Alaska, at Pearl Harbor, Guam, Wake Island, Midway and in the United States. Kahn designed more than 500 of Russia's factories, built in the last quarter century. From Detroit to Stalingrad he was known and his work admired and respected.

Someone is always saying that the old frontiers and opportunities are gone. But as long as the system of private enterprise endures, under democratic controls and with democratic encouragement, boys who seem to lack aptitude at thirteen will still develop it later and rise to high position, having benefited, by their powers, many of their fellowmen. There will always be a new frontier for the imaginative and determined soul to conquer.

* * *

JACKSON (MICH.) CITIZEN-PATRIOT

Albert Kahn, who died at his Detroit home Tuesday, introduced industry to architecture. He was the pioneer and the greatest advocate of that combination of beauty and utility which is represented now by so many of the great automobile plants of Michigan and by some of the finest newspaper buildings in the world.

Before the appearance of Mr. Kahn as a dominating figure in the construction world American factories were just that. The very designation "factory" is associated in minds of persons more than 50 years old with the square, character-less, nondescript type of construction in which most of America's manufacturing was done until some 30 years or so ago. It was

Mr. Kahn who built the great General Motors and Fisher buildings in Detroit. Many another outstanding automobile plant bears a builder's plate with the name of Kahn as architect. Last, and perhaps greatest of his achievements, is the Ford bomber plant, at Willow Run, one of the largest industrial structures in all of the world, and a structure which because of the nature of its product, is in many respects revolutionary.

The building which houses the Jackson Citizen-Patriot was designed and its construction was personally supervised by Mr. Kahn as were the buildings of the Detroit News and many other newspapers. We at the Ctiizen-Patriot like to feel that our building typifies the works of Mr. Kahn. Here both the appeal of aesthetics and the demands of efficiency are synchronized in lasting stone that stands symbolically as a reminder of a genius.

* * *

DANVILLE (ILL.) COMMERCIAL NEWS

Albert Kahn, 73, whose death is reported from Detroit, was undoubtedly the world's foremost industrial architect. He gained a reputation for effective functional design of big factories and office buildings, as well as for supervising their prompt construction. One of his latest achievements was designing the huge Ford bomber plant at Willow Run. He also made the plans for numerous factories in Soviet Russia, various other European countries, and even in China. To handle this far-reaching business, Kahn built up a large organization which functioned smoothly.

* * *

ROCKFORD (ILL.) STAR

Albert Kahn, once an immigrant boy from the Rhineland, died the other day, leaving behind him as a monument industrial structures that ran into billions of dollars. Probably no other architect-engineer in all time has put so great a mark on the earth. In the roster were a thousand buildings for Ford, a half-thousand for Soviet Russia's industrial cities, 127 for General Motors, hundreds for other industries, for college campuses, hospital quadrangles, navy yards, army bases. In forty years, industrial buildings alone created by his organization ran to two billion dollars. We think of the vast new deal era of engineering as marking new peaks of human endeavor; but here was one man's genius challenging that record.

The rise of his organization coincided with the introduction of mass-production methods, and Kahn must be credited with sensing, along with the giants of that mass-output age, the potentials of the new industry. His one-roof conception, later his one-floor development, took in whatever giant production needed in conveyors, concentrations of skill, the mechanisms of getting vast loads about. The zenith was reached in the Willow Run plant.

Such design called for continually new architectural conceptions, for new materials. They were developed as they were needed, and the building world owes much to Kahn's organization for the exploratory and testing work that has made them commonplace. There may have been niceties lacking in his work, but the geniuses who evolved the arch and dome and flying buttress were probably not thinking of niceties. His job was to put a roof over giant industry, and the size of the giant commanded a spaciousness in architecture such as had not been known.

* * *

FLINT (MICH.) JOURNAL

When Albert Kahn, whose distinguished career ended Tuesday, was accorded an unprecedented honor by his associates of the American Institute of Architects this year, the Journal observed, "After the war is ended with victory for the United Nations and there is thoroughly reviewed the battle of American production which is turning the tide, looming as a vital factor will be the figure of a modest Detroiter. . . . Unsurpassed in industrial architecture, the world has been the field of his contribution. The man who in peacetime was the architect for practically the entire highly competitive automotive industry, was deluged as we approached the present emergency. Blueprints for all sorts of factories and various war bases poured out of his establishment—no bottleneck there. In various other fields of architecture are monuments enough to glorify the careers of the most ambitious in his profession, but Albert Kahn no doubt will retain greatest pride in what is justly recognized as his prime contribution toward the efficiency of the arsenal of democracy—and thus toward the downfall of the world's aggressors."

He persisted in giving unstintingly of his vitality although he had warning of grave danger. Thus, Albert Kahn may rightfully join the Capt. Kelleys, the Adm. Callaghans and others in the roll of heroic contributors to the ultimate triumph of freedom in its present crisis.

* * *

By Telegraph to Mrs. Albert Kahn,
208 Mack Avenue, Detroit, Michigan:

Mr. Kahn's professional family, the Great Lakes District of the American Institute of Architects, is shocked and bowed in sorrow with his blood family over an untimely passing. His great heart and genius have been not only an inspiration to all of us but also of unusual and infinite value to our beloved country in its most critical hour. Conscientious devotion to wartime duties hastened the end but has made his shroud one of patriotic glory deserving of the highest tributes that can be paid this brilliant soldier of democracy who died in action.

The Great Lakes District,
The American Institute of Architects,
C. Julian Oberwarth, Director.

* * *

To each chapter, Great Lakes District, A.I.A.
Dear fellow architects:

At the time of the recent passing of Albert Kahn of Detroit, I sent a wire to Mrs. Kahn expressing the regrets of the Great Lakes District.

Mrs. Kahn has acknowledged this message and has asked that I express to all of you her appreciation and thanks.

I wish to pass her message on to you and to say that only the serious illness of my three children (just now out of danger) and the quarantine of my household has saved you from the usual flood of letters which have a way of pouring out of Frankfort.

My most sincere wishes for a new year of happiness to all of you, and a fervent prayer that Admiral Halsey may be as right as he is brave.

C. Julian Oberwarth, Director,
Great Lakes District, A.I.A.

* * *

A resolution expressing sorrow for the death of Albert Kahn, "an esteemed member and steadfast friend," was adopted by the Arts Commission. Mr. Kahn was appointed to the commission by the late Mayor James Couzens in 1919 when the Art Institute became a department of the City of Detroit. For nearly a quarter of a century he gave liberally of his time and professiona lservices and to the art collection which bears his name.

* * *

(Telegram)

In the passing of Albert Kahn our profession has lost a pre-eminent member, the influence of whose work will long survive. The personal loss sustained by the Detroit Chapter is shared by all who have known the stimulus of of his time and professional services and to the art collection

Charles T. Ingham, Secretary,
American Institute of Architects.

* * *

ALBERT KAHN

Citation read by Charles T. Ingham, Secretary of The American Institute of Architects

On the occasion of the presentation to Mr. Kahn of the Institute's Special Medal, in recognition of his outstanding contribution to the Nation's war effort, at the Institute's 74th Annual Meeting, in Detroit, June 24, 1942.

Exponent of organized efficiency, of disciplined energy, of broad visioned planning, he has notably contributed to the expansion of the field of architectural practice.

Master of concrete and of steel, master of space and of time, he stands today at the forefront of our profession in meeting the colossal demands of a government in its hour of need.

ALBERT KAHN

By PAUL CRET
(From The Octagon)

Painters, sculptors, and musicians have the rare privilege of shutting their door, pursuing their work at leisure, and leaving to fate and time the possibility of an appreciative Maecenas. Architects must build their dreams in solid materials, for projects which have not achieved concrete form cannot hope to attain renown. Hence, the architect must have, besides vision and the technique of his art, other qualifications, which belong rather in the domain of the administrator than in that of the artist. These qualifications are something more than the talent for "getting jobs," which some cynics have suggested as the architect's principal requirement. Their value varies with the nature and importance of the commission. For instance, Albert Kahn said, in one of his addresses: "Industrial architecture means far more than designing and planning. It is to be classed as 'Big Business' . . . The writer has for years contended that it is about 90% business and 10% art or science."

These figures are open to question. For me, this underrating of himself as an artist is only another proof of Albert Kahn's innate modesty. All these fact-findings in the form of percentages are but a means to illustrate an idea; the reality is vastly more complex. Moreover, Kahn cannot be called an industrial-architect; he was an architect, without hyphen, and a great one. In a career covering a half century, practically every program—residences, clubs, university buildings, church, banks, office buildings, department stores—was the object of his practice and to many he gave notable solutions. When he opened his office in Detroit, he could not have forseen the phenomenal growth of the automobile industry which was to become for him such a magnificent field. This conjunction of the young practitioner and a budding industry will be called "luck" by those for whom any success won by others is "a fortuitous combination of circumstances." However, when a man has had vast interests entrusted to him year after year—by the Packard Company for 35 years, by Henry Ford for 30 years—and has built 127 buildings for General Motors, he must be the possessor of more tangible assets than "luck." In the past three years, the United States Government alone had two hundred million dollars worth of construction designed by his office; the way he managed this tremendous task is already architectural history and therefore unnecessary to extol here. I do not deny that luck is a factor in any life; as a boy Kahn might have been taken elsewhere than to Detroit; he might also have succeeded in some other profession or trade. He would probably have been successful in any, but it is our pride that he chose architecture.

For this he had a great, natural endowment. He possessed good taste and a clear judgment, as spring and balance wheel. Besides this, he understood other men, knew how to select competent and devoted assistants, maintained pleasant relations with clients and builders, was able to convince others, once he had seen the right road, and above all, kept to his last days an indefatigable activity devoted exclusively to his profession. Past seventy, he was still the same enthusiastic and unassuming young man who opened an office before the start of the 20th century.

The "log book" of his office in recent years gives a concise and vivid picture of his life: Here is the Chrysler Tank Arsenal, designed and made ready for occupancy in seven months. Seven months also sufficed for the 1,500,000 square foot plant of the Curtiss Wright Airplane Division in Buffalo, and for the Hudson Naval Ordnance plant. For the Glenn Martin plant in Baltimore, eleven weeks from the date of the message calling Kahn to Baltimore for the first conference, the building was turned over for occupancy! As he wrote: "Speed and more speed is the watchword of the Defense Program. Decisions to build or expand are made suddenly and complete plans are expected of the architect 'immediately if not sooner.' To meet these demands has been a superhuman task these many months. There is no time for philosophizing, waiting for inspiration, or even considering the matter of aesthetics."

Again this needs qualifying, unless we believe that such works as the Willow Run Plant can be pulled out of the ether like a rabbit out of the conjuror's hat. These last works of Kahn are by no means a mere construction "tour de force"—that is, the covering of a large area in the minimum time; they have also indisputable architectural merit. How was this achieved? Kahn himself said: "The tempo is breath-taking. To make it possible requires considerable standardization, the result of extensive experience and practice." One thing it takes is an office which for years has accumulated all data worth having about industrial plants; where the engineers are used to working side by side with architects; where the superintendents of construction are familiar with the methods of both, and so all along the line of an organization of 500 members.

If his engineers knew what truss was best fitted for the particular project under consideration, the architects likewise had made innumerable experiments with form in the preceding years, and to say that "one had no time to consider the matter of aesthetics" means only that there was on hand a pretty complete collection of suitable forms which had been previously tested for aesthetic merit on other jobs and were known to give this or that result without further study. The right materials were also catalogued and most details on file.

It was my good fortune to enjoy Albert Kahn's friendship for twenty years and our conversations revealed his constant preoccupation with design. Each new work in his office was an occasion for experimenting with new materials, or with new ways to use the old ones. In the current admiration for "big plants" and for mile-long facades, we must not forget that a selection from his minor work takes rank among the best of contemporary production, and marks the stages in his constant development.

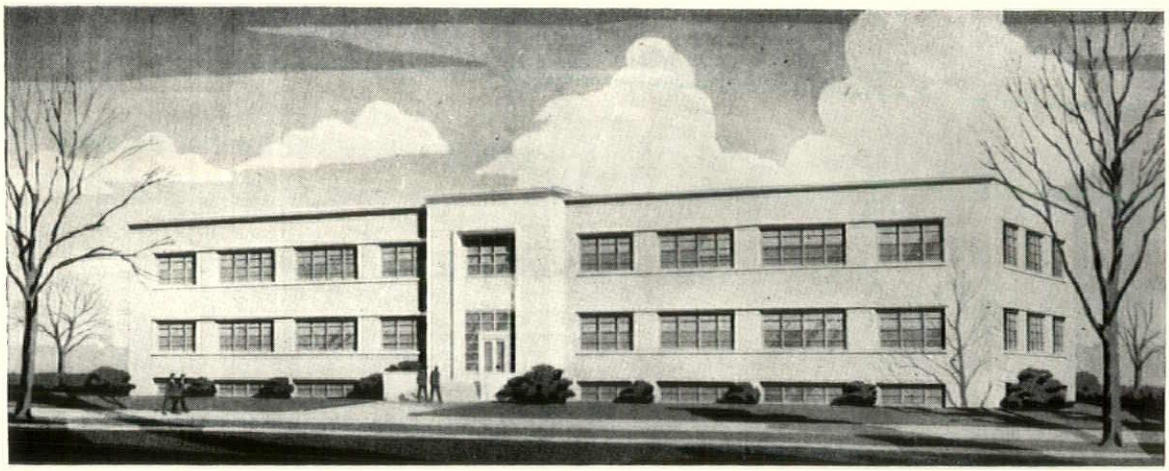
In a span of fifty years, as might be expected, there are changes in tendencies which reflect some of the influences to which he was subjected. The work of certain modern Germans, such as Ludwig Hoffman or Peter Behrens, have left their trace on some periods, while on others can be seen the orientation given to American architcture by McKim, Mead and White.

In his recent work, under the pressure of time, and with fitting recognition that war projects are not the place for experiments, he gave up architectural "embellishments" and retained only the play of contrasting masses, the patterns created by solids and voids, and his sensitive general lines. But among all the war construction, this is enough to mark the work of his office with the stamp of a master's hand.

Albert Kahn was not a theorist: the "architecture of tomorrow" had little interest for one so engrossed in creating the architecture of today. He had the humility of the good craftsman who puts forth his works as naturally and freely as an apple tree produces apples. He never courted honors or publicity, and when honors came, he accepted them with the most touching modesty, as those present can testify who attended the meeting in his honor during the last convention of The American Institute of Architects.

Generous in his appreciation of other men's work, and charitable in his readiness to help younger men, he was a force in the city which had become dearer to him than his birth place.

The profession, as a group, was slow in recognizing his worth; yet he was the best answer to our critics in showing that the talent of the organizer, the clear vision of the business man on current problems, are not incompatible with the creative mind of the artist and with his persistent quest for beauty.



CHRYSLER CORPORATION'S INSTITUTE OF ENGINEERING

Designed By

Albert Kahn Associated Architects and Engineers, Inc.

The late* ALBERT KAHN, *recipient of the American Institute of Architects' Special Medal for Distinguished War Service, was never closer to the firing line than the desk of blue prints in his office, but his contribution toward the defeat of the Axis powers has been greater than that of many a general.

CINDER BLOCK INC.

VERMONT 6-5500 9303 HUBBELL AVE. DETROIT, MICH.

BUILDING IN WARTIME

Recording made by Albert Kahn, November 12, 1942 for short wave broadcast to Australia by Office of War Information.

A little more than a year ago, many thousands of finished motor vehicles were daily rolling from production lines. Today, these plants are producing tanks and guns, aviation motors, marine motors, airplanes and parts and war material of many kinds. All credit to the men who, regardless of financial results, willingly discontinued their regular activities, scrapped tools and gigs, and undertook the manufacture of products new to them, developing short cuts and new processes which even experts believed impossible.

To one who has had the opportunity to design many of the new plants housing wartime industries, the results achieved are truly miraculous. Equally so has been the speed with which the new factories have been built. To give a few examples: A tank plant, originally 500 ft. wide by 1,300 ft., or three blocks long, begun in the early winter of 1940, in less than six months turned out its first tanks. You boys are using them and know their efficiency. It would be heartening to you to see the plant today, already considerably enlarged, with tanks leaving the delivery line in ever increasing numbers.

Aviation motors are in full quantity production in plants for which the building plans were only in the blueprint stage early in 1941. The contract for one was let in March 1941. Its main building, covering an area equal to that of 27 football fields, an office building of some 56,000 sq. ft. and 45 test cells, were ready for occupancy within six months—about the time required for an ordinary eight room residence. Thousands of tons of structural and reinforcing steel, miles of heating and plumbing pipes, electric conduits and hundreds of motor driven fans were needed in the construction.

Since Pearl Harbor, not less than 50,000,000 sq. ft. of new floor space have been made available for the aviation industry alone. Many more millions of floor space have been constructed for ordinance, warehouses, foundries, for chemical and other plants.

Guns are being shipped in quantities from a plant started a little over twelve months' ago. Naval equipment is leaving an Ordnance plant—the foundations of which were laid slightly over a year ago. Airplanes and parts are being shipped daily from the mammoth Willow Run plant which is more than three-fifths of a mile long and a quarter-mile wide. A year ago this was only a skeleton of structural steel. Its main building alone covers over 85 acres.

The architect's part in all this has been a thrilling one. But emergencies beget enthusiasm and the will to do the impossible.

New problems have had to be met in this crisis to save critical materials so vitally needed for armament. In the earlier plants, structural steel was available. Today, it is practically prohibited. Therefore, other materials have had to be resorted to. Some of the newer plants are being built in wood—but even this is now difficult to obtain. Reinforced concrete has been used these many years, but little for structures with wide column spacings, in which the necessary form work was too costly. American ingenuity, however, has solved this problem, too. A system of form work has been developed which permits moving same en masse without the need for tearing them down and rebuilding. In an eastern plant recently completed some 220,000 square feet of building were constructed per week. This is a real achievement in reinforced concrete which will influence building after the war. Within seven weeks' time the building of more than one and one-half million sq. ft. was constructed and partially occupied. Nothing like that had ever been accomplished before.

Two midwestern plants, enormous in size, are under construction for manufacturing airplane motors—one of them covering over five million square feet. A new scheme of reinforced concrete roof design has been developed with spans 30 x 37-ft. requiring only 2.5 lbs. of reinforcing steel per square foot as against the 4 or 5 lbs. formerly used. With the scheme of movable forms employed nearly 200,000 sq. ft. are constructed weekly ready for placing the roofing material. The saving in steel in just the one plant will build several hundred tanks. Incidentally, the building will be ready to occupy long before deliveries of steel to the fabricating shops could have been expected.

Thus you see that architects, engineers and builders here are doing their utmost to assist manufacturers in doing the impossible in keeping you in the field supplied with the necessary material. We are all out to help you boys. We know what you and our valiant allies are doing. We are proud of the opportunity to do our best and believe we are doing it. Between the lot of us and with constantly increasing effort here at home we shall help you lick those yellow snakes and teach them what it means to treacherously attack us as they did at Pearl Harbor. All power to you and Godspeed in your great task.

* * *

OFFICE OF WAR INFORMATION
464 Federal Building
Detroit

December 7, 1942.

Albert Kahn, Inc.
345 New Center Building
Detroit, Michigan
Attention: Miss Valentine

Gentlemen:

We have just received word on the distribution of the Albert Kahn recording made recently at his home for OWI Overseas Branch. I thought you might like this information to pass along to Mr. Kahn.

The recording was transmitted to Australia over short wave station WGEO and several other Overseas programs. We were advised also that Mr. Kahn's recording was so effective that it may be rebroadcast again shortly.

Again, our deep appreciation for your help.

Cordially,

(Signed) ROBERT LeBLONDE
Michigan Director

MR. KAHN WAS JUSTLY HONORED

Albert Kahn carried his honors lightly, but the organization he founded takes pride in the long list of awards bestowed upon him, some of which are as follows:

(a) Doctor of Laws—University of Michigan—June, 1933, with the following citation:
"ALBERT KAHN: A leader in contemporary architecture, whose creative imagination is attested by imposing structures that combine utility with dignity and beauty. Great industrial plants and towering office buildings in Detroit and elsewhere have risen responsive to his dream. By expressing function and purpose in harmony with massive strength and artistic design they bear witness to the progress made by American architects, and challenge comparison with historic monuments of the past."

(b) Doctor of Fine Arts — Syracuse University — June, 1942, with the following citation:
"As an industrial designer you stand at the very top in the architectural profession. You have well been termed the 'architect of the colossal.' As a daring pioneer, you have brought us much, and now, with your long experience to guide you, you are rendering desperately needed service in connection with the war. For these and other reasons, Syracuse University, through me as Chancellor, confers upon you the degree of Doctor of Fine Arts with all the rights and privileges which appertain to that degree."

(c) Medal Award—Philadelphia Chapter—American Institute of Architects—March, 1942, with the following citation:
"For Outstanding Achievement in Industrial Architecture."

(d) Special Award—American Institute of Architects—at Convention held in Detroit, June 24, 1942, with the following citation:
ALBERT KAHN
"Exponent of organized efficiency, of disciplined energy, of broad visioned planning, he has notably contributed to the expansion of the field of architectural practice.
"Master of concrete and of steel, master of space and of time, he stands today at the forefront of our profession in meeting the colossal demands of a government in its hour of need."

(e) Silver Medal of the Achitectural League of New York in April, 1929, for the design of the Fisher Building in Detroit, with the following citation:
"It is a splendid solution of a Commercial Building, modern in character and admirable in detail."

(f) Gold Medal—International Exposition of Arts and Sciences held in Paris in 1937—bestowed on Albert Kahn by the Minister of Commerce and Industry of the Republic of France.

(g) Chevalier—Legion D'Honneur—February, 1937.

(h) Fellow — American Institute of Architects — April, 1918.

(i) Life Member—American Institute of Architects—December, 1927.

(j) Honor Award—Detroit Chapter—American Institute of Architects—on the Edsel B. Ford Residence—1930.

(k) Honor Award—Detroit Chapter—American Institute of Architects—on the Administration Building for S. S. Kresge Company, Detroit—1930.

(l) Special Award—Chamber of Commerce—Brooklyn, New York—on the Brooklyn Branch of the New York Times—1931.

* * *

It was decided on January 20th, at a meeting, to give posthumous award to Albert Kahn—Frank P. Brown medal from The Franklin Institute of the State of Pennsylvania. Citation:

"In recognition of his outstanding achievements in the development of industrial architecture."

Medal to be presented on April 21, 1943 to Mrs. Albert Kahn.

Albert Kahn, as many were accustomed to seeing him.

In tribute to Albert Kahn for his great contributions to the Building Industry.

The United States Gypsum Company

Albert Kahn, The Architect—And The Organization

Albert Kahn has completed his task.

But the innumerable mills and factories which he designed and built throughout the world continue to produce the goods of peace and the sinews of war, the edifices which he designed for the arts and sciences remain as monuments of beauty as well as utility, and the organization which he perfected carries on.

With his passing, at his home in Detroit, December 8, 1942, the world lost the genius who for many years has been recognized as the No. 1 industrial architect of this industrial age. For four decades his fame had grown and spread and when the end came, he was in the midst of the greatest program that even he had ever undertaken—that of making America in reality the arsenal of democracy by building war plants bigger, better, and faster than such plants had ever been built before. The Detroit (Chrysler) Tank Arsenl, the Naval Ordnance Plant (Hudson), the Buick Aviation Engine plant, the Ford Bomber Plant, Wright Aeronautical Plants, Glen L. Martin Plants, Pratt and Whitney Plants, Curtiss-Wright Plants; these are but a few of the many huge war plants which his organization has built since the present emergency arose. And almost without exception, the completion of each such undertaking marked new world's records for speed in steel and concrete construction.

During the same period, he designed the Naval bases at Midway Island, at Honolulu, at Jacksonville, in Puerto Rico, in Alaska, and in numerous other locations.

During World War I he was the architect who designed practically all of the Army air fields, as well as numerous Naval bases, cantonments, and other buildings for the nation's armed forces.

Before that—and since—his was the architectural firm chosen by Packard, Ford, General Motors, Chrysler, Hudson, and others to design the mass-production plants that made the automobile industry one of the wonder of the world.

It was Packard, in fact, that gave him his first commission to design a factory. That was in 1903, and in those days, architects were accustomed to think of themselves as artists and to scorn industrial architecture, if any. But instead of rejecting such a commission as being beneath his dignity, Albert Kahn welcomed it as an opportunity. He was then only a struggling young architect, but he had the courage to break away from tradition and to begin designing factories that combined beauty with utility. Using reinforced concrete frame and steel sash—the latter a novel importation from England—he produced for Packard the first factory of its kind in America and thereby introduced a new form of industrial architecture to the world.

The automotive industry was just beginning to develop a new technique of mass production, and Kahn's reputation spread rapidly. Ford, General Motors, Chrysler, and many others engaged him to design bigger and better plants for them. This had an inevitable effect on other industries and Kahn was soon designing plants for food, textiles, clothing, business machines, cement, steel, chemicals, rubber, pharmaceuticals, and many other purposes. By 1929, the volume of work had grown to more than a million dollars per week.

It was in 1928, though, that the most extraordinary commission ever given an architect came to Kahn from across the ocean. In that year a group of engineers from the USSR came into the Kahn office with an order for a $40,000,000 tractor plant to be built at the now famous city of Stalingrad, and an outline of a program that contemplated an additional two billion dollars worth of buildings.

Probably no organization has ever had a more severe test of its flexibility, competence, and efficiency. Not only did the plants have to be designed in a hurry, but machinery had to be selected and ordered, process layouts had to be prepared, and the very tools required to build the plants had to be bought in America and shipped to Russia. Even the lowly wheelbarrow was unfamiliar there at the time, and even more important, there was no one available in Russia who was capable of organizing a construction project of such magnitude. It developed upon the architects, therefore, to assemble the key construction personnel in this country, organize the construction forces there, assemble such material as was available in Russia, order and receive other material from America, and get the job done.

This experiment with the American architectural and construction genius was so successful that Albert Kahn was requested to aid in the organization of all Russia on an industrial basis. All told, Kahn built 531 factories in Russia alone and trained some 4,000 Soviet engineers and others to operate them. Those very factories, and the ones which have since been constructed as a result of that training, were the ones which equipped the Russian army for its recent amazing performance.

Nor was Russia the only foreign field of Albert Kahn's operations. His buildings stand on five continents and it has been said that one can open an atlas at random and wherever the place may be, there one will find Kahn-designed plants.

Mr. Kahn's reputation as an industrial architect became so great that his achievements in other fields were dwarfed by comparison. Nevertheless, his architectural genius is seen in such other diverse structures as the General Motors Building, Fisher Building, New Center Building, Maccabees building, numerous buildings for the University of Michigan, National Bank Building, Detroit News Building, Detroit Free Press Building, Detroit Times Building, Kresge Administration Building, Detroit Athletic Club, units of Harper, Grace, Woman's, and Herman Kiefer hospitals, YMCA and YWCA buildings, and scores of others, some of which are illustrated elsewhere in this issue.

His foresight was often considered almost uncanny, but perhaps he was correct in attributing this to nothing more unusual than logical inference based on close observation. Among other observations, he had noted that successful firms built on the reputation of one individual often tend to disintegrate after their leader is lost, and he early took steps to insure that his own organization, which is probably the most complete in the architectural field, would be as enduring as the buildings which they designed.

As far back as twenty years ago he called in the key men of his organization, gave them an interest in the business and a chair at the conference table, and began to train them to carry on after he was gone. This policy was continued without interruption and it culminated about two years ago, when the incorporation of the firm was changed and is assumed the name of Albert Kahn Associated Arichitects and Engineers. At that time an announcement was distributed which read, in part:

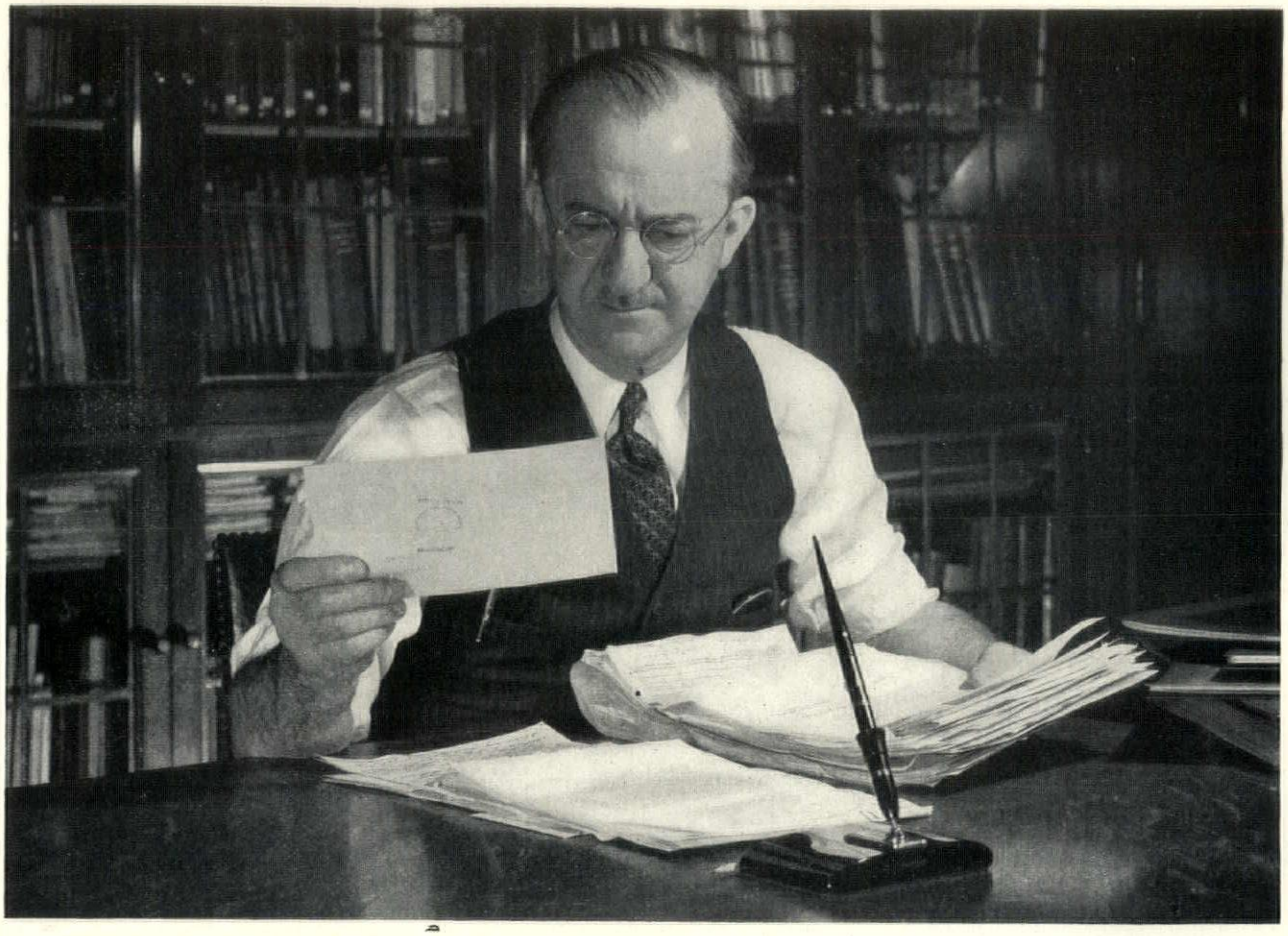
"The success of Albert Kahn, Inc. would not have been possible without the concerted efforts of the members of the organization, who, for upwards of 25 years, have labored consistently and devotedly.

"In recognition of their efforts and to assure the continuance of this efficient organization, a new corporation has been formed in which these men are stockholders."

Then in 1942, evidently anticipating the approaching end, he and Louis Kahn, his brother and long-time associate in the firm, signed a foreword of a book in which their associates were presented as the nucleus of the Albert Kahn organization. This foreword stated the facts plainly and simply—as shown on the facing page.

Albert Kahn, Chief Administrator, has been succeeded by Louis Kahn, Assistant Administrator, and the Associates elect several of their members to fill necessary offices. Otherwise, the organization remains unchanged; at present it numbers more than 600.

The twenty-five Associates are presented in the following pages.



LOUIS KAHN, PRESIDENT, ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC.

Associated with the organization since 1909. Registered architect, member The American Institute of Architects, member Michigan Society of Architects, member Engineering Society of Detroit.

ALBERT KAHN ORGANIZATION

A booklet issued shortly before Mr. Kahn's death, entitled "Albert Kahn Organization," gives interesting information about the personnel of this remarkable firm. The foreword states,

"It is with much pride that we present in this booklet the men who direct the work of the organization of Albert Kahn Associated Architects and Engineers, Inc.

"Several years ago, the twenty-five men whose pictures appear on these pages were asked to become partners in the firm. To them can be attributed much of the strength of the entire organization and its ability to execute important architectural and engineering assignments.

"The partnership will assure the permanency of the organization which will carry on even after the retirement of present administrators.

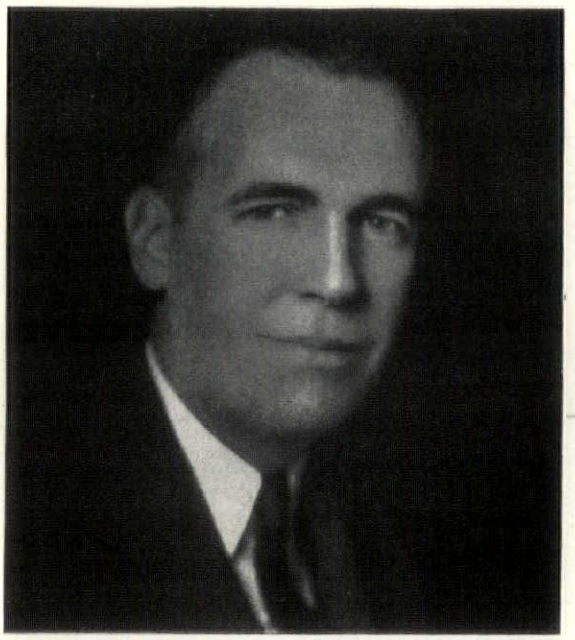
Albert Kahn, President
Louis Kahn, Secretary-Treasurer.

GEORGE H. MIEHLS, Vice-Pres.

Structural Engineer and Manager of Projects. Associated with the organization since 1919. Member, Engineering Society of Detroit.

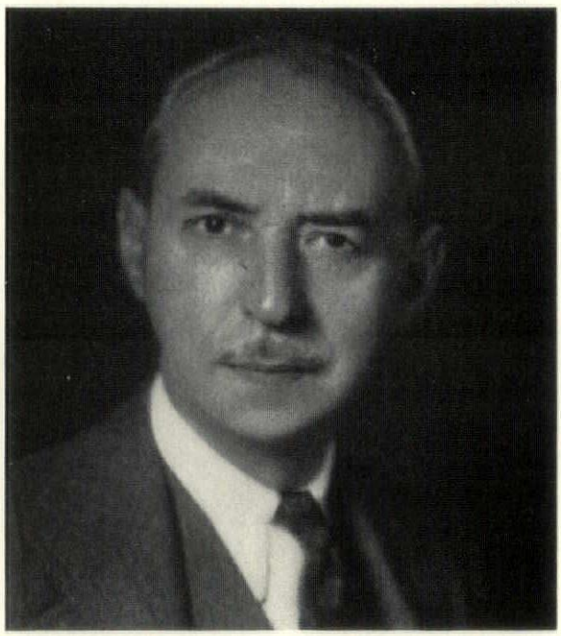
SHELDON MARSTON, Vice-Pres.

Mechanical and Civil Engineer and Manager of Projects. Associated with the organization since 1923. Member, Engineering Society of Detroit.



ROBERT E. LINTON, Vice-President

Structural Engineer and Manager of Projects. Associated with the organization since 1919. Member, Engineering Society of Detroit. Chief Engineer, Kahn organization in Russia, 1930 and 1931.



GEORGE K. SCRYMGEOUR, Sec'y.

Architect and Coordinator. Associated with the organization since 1914. Member, The American Institute of Architects and Michigan Society of Architects. Chief of Staff, Kahn organization in Russia, 1930, 1931 and 1932.

SAUL SAULSON, Treasurer

Associate Chief Engineer, Mechanical Departments. Associated with the organization since 1913. Member, American Society of Mechanical Engineers and the Engineering Society of Detroit.

HENRY F. ALTMIKS

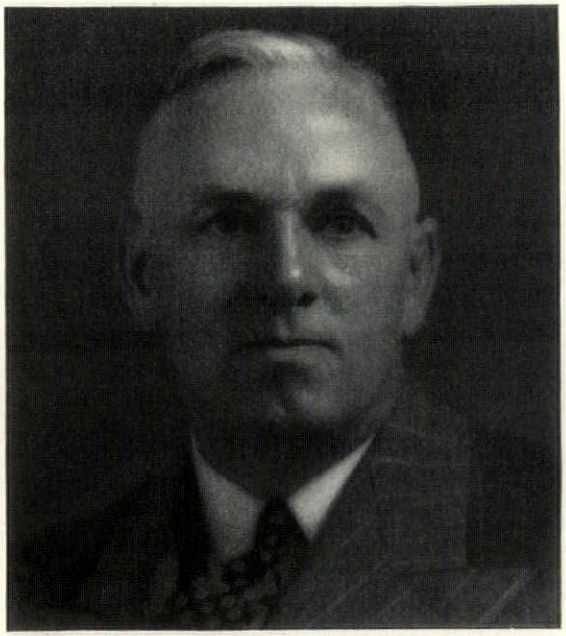
Architect and Coordinator. Associated with the organization since 1908.

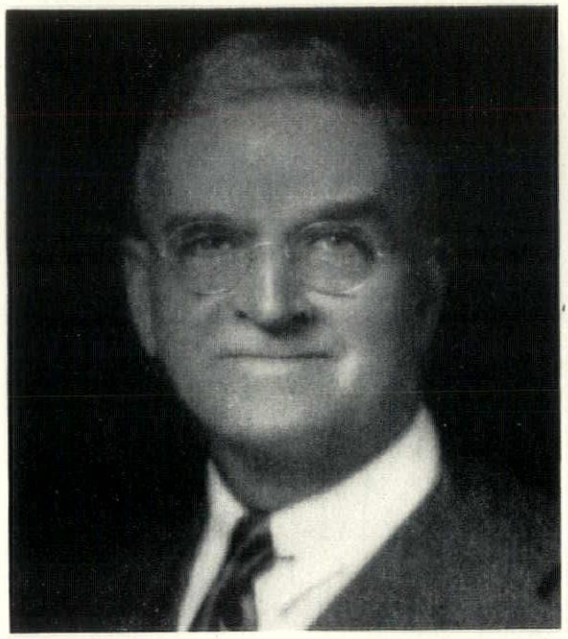
FREDERICK K. BOOMHOWER

Chief Engineer, Mechanical and Electrical Depa.tments. Associated with the organization since 1914. Member, Engineering Society of Detroit.

WILLIAM C. BUNCE

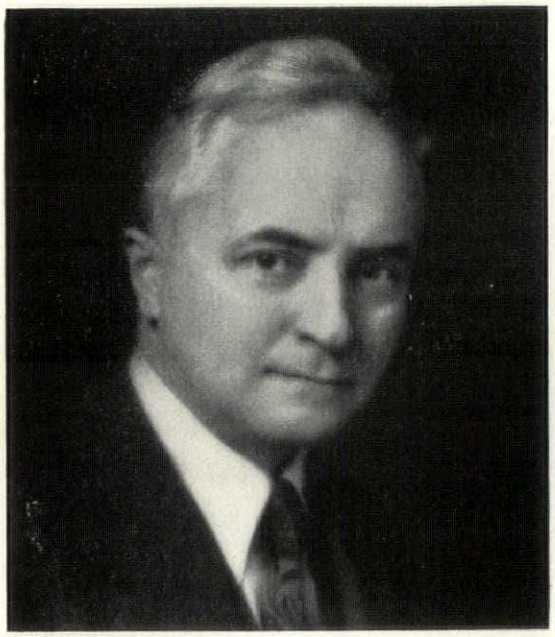
Architect and Chief of Drafting Room. Associated with the organization since 1906. Member, The American Institute of Architects and Michigan Society of Architects.





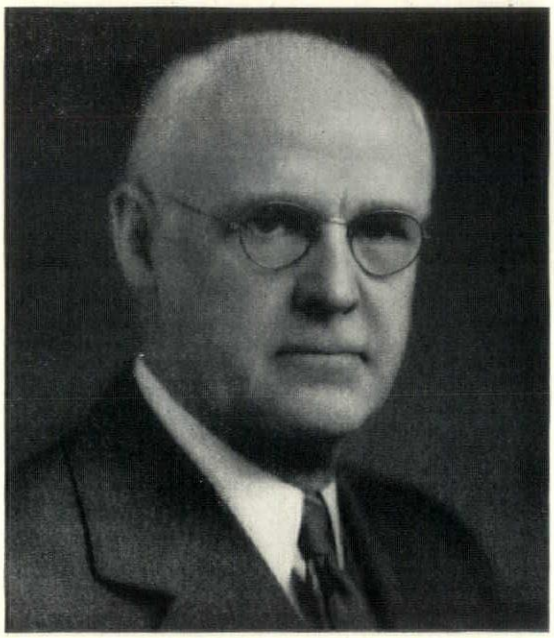
O. L. CANFIELD

Chief Estimator and Manager of Projects. Associated with the organization since 1915.



EDWIN H. EARDLEY

Structural Engineer and Coordinator. Associated with the organization since 1916. Member, Engineering Society of Detroit. Member Kahn organization in Russia, 1930 and 1931.

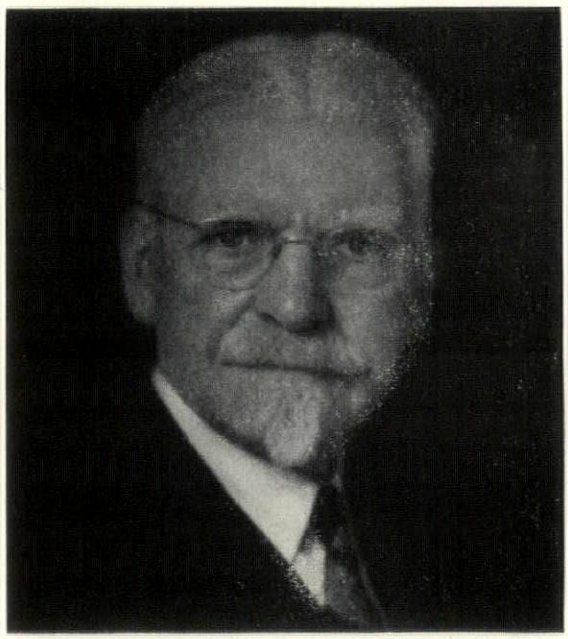


FREDERIC A. FAIRBROTHER

Architect and Associated Chief of Drafting Room. Associated with the organization since 1915. Member, The American Institute of Architects, Michigan Society of Architects and Engineering Society of Detroit.

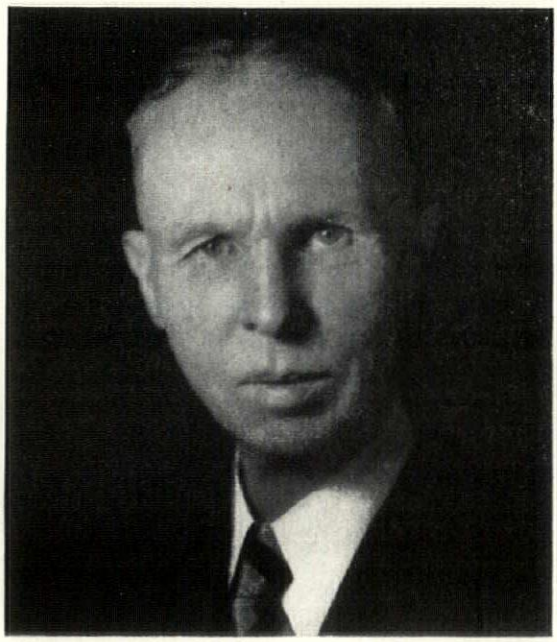
DAVID FETTES

Chief Superintendent of Construction, Architectural Division. Associated with the organization since 1906. Supervises work of 163 superintendents.



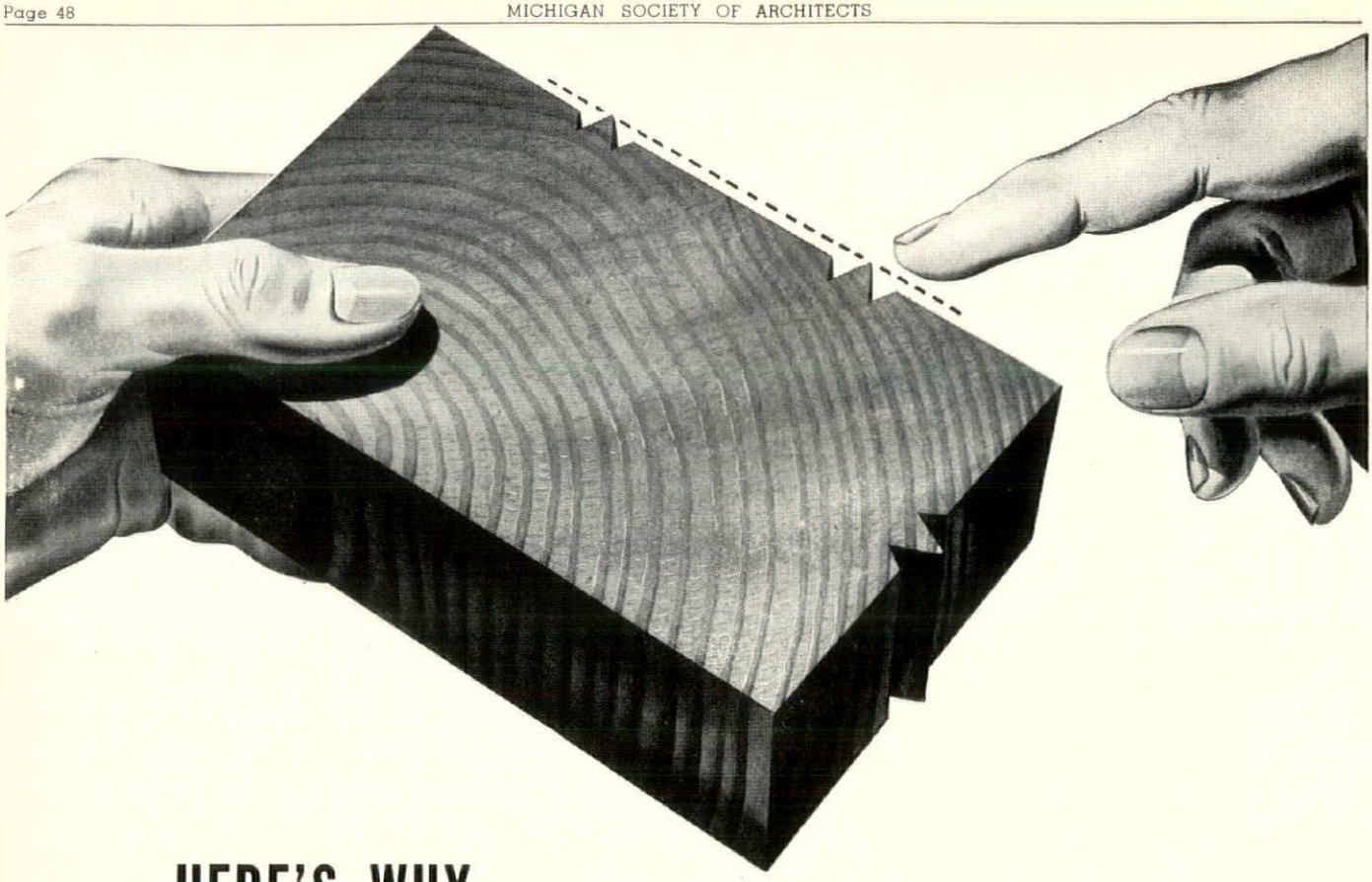
JOSEPH N. FRENCH

Architect and Coordinator. Associated with the organization since 1914. Member, The American Institute of Architects and Michigan Society of Architects. Member Kahn organization in Russia 1931 and 1932.



JOHN T. N. HOYT

Chief Civil Engineer. Associated with the organization since 1909. Life Member, American Society of Civil Engineers. Member, Engineering Society of Detroit and Society of American Military Engineers.



HERE'S WHY A KREOLITE WOOD BLOCK *Stands Out*

A plant superintendent we know in Pittsburgh uses the axiom, "one for all, and all for one" to describe a KREOLITE Wood Block Factory Floor.

He's exactly right. Patented Kountersunk Lugs protrude slightly on the sides of KREOLITE Wood Blocks to separate each individual unit in the floor and allow KREOLITE pitch filler or binder coats to *knit* the floor together.

For KREOLITE Pitch completely coats all four sides and bottom of each block, grips each block firmly in place. Both KREOLITE Pitch and KREOLITE *Jennite* coat the top, or wearing surface, make the finished floor oil and acid resistant, water and sun proof, free from tackiness. *No other type of wood block flooring offers these features.*

KREOLITE Wood Block Floors have been installed at the rate of 36,000 square feet a day. Maintenance is amazingly low—some report only ⅓¢ per square foot in 20 years!

KREOLITE Wood Block Floors are resilient, more comfortable to work on. They absorb noise and vibration, give high insulation against cold and moisture, and are easy to keep clean. Write today for locations of installations nearby that you can inspect, first-hand. No obligation!

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TOLEDO, OHIO • *23 Nation-Wide Offices*

"Heavy loads roll easily on our KREOLITE Floor without excessive wear. And our men don't complain of sore feet—not even when they stand on them all day." Quimby Pump Co., Inc., Newark, N. J.

Specify **KREOLITE...Accept No Substitute**

Comfortable to Work On • Dustless, Easy to Clean
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Firm Base for Machines
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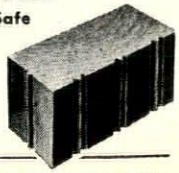

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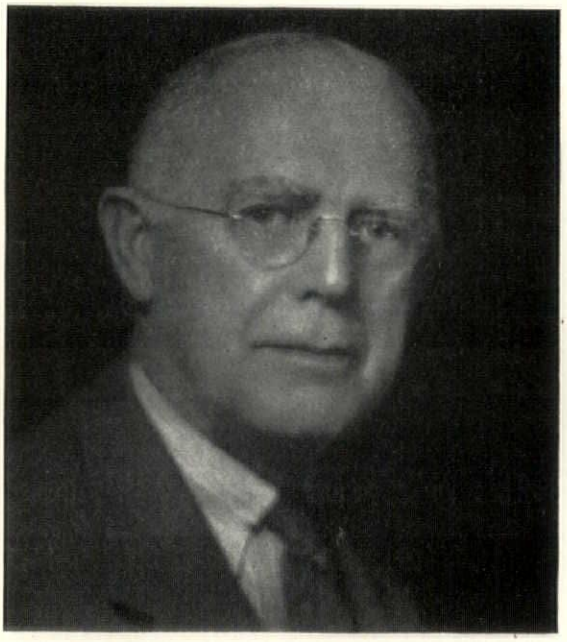
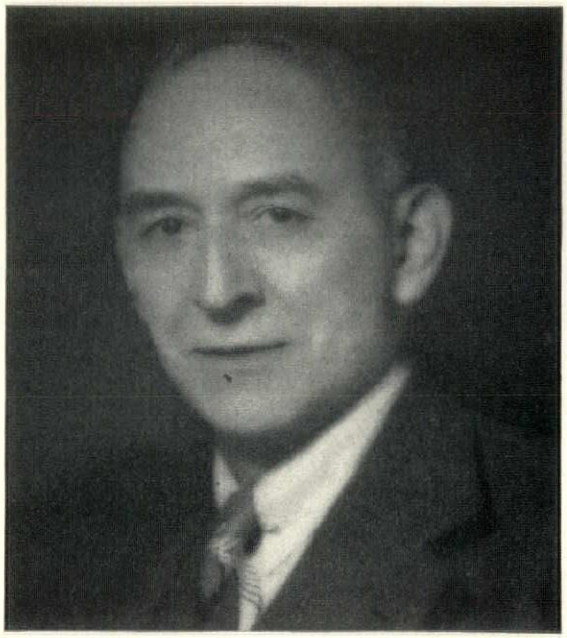
ROBERT W. HUBEL

Chief Designer. Associated with the organization since 1917. Member, The American Institute of Architects, Michigan Society of Architects and Beaux Arts Society.

LE ROY LEWIS, JR.

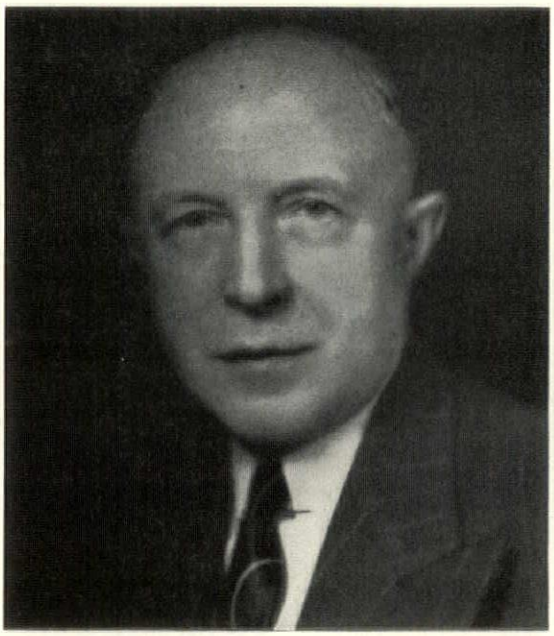
Chief of Specification Department. Associated with the organization during 1911, 1912 and 1913 and since 1923. Member, The American Institute of Architects and Michigan Society of Architects.





JOSEPH MATTE, JR.

Chief Structural Engineer. Associated with the organization since 1913. Member, American Welding Society and the Engineering Society of Detroit.



OFFER PREUTHEN

Structural Engineer and Coordinator. Associated with the organization since 1922.

PAUL PREUTHEN

Mechanical Engineer in Charge of Power Plants. Associated with the organization since 1923.

NORMAN A. ROBINSON

Architect and Coordinator. Associated with the organization since 1919. Member, The American Institute of Architects and Michigan Society of Architects. Member Kahn organization in Russia, 1930 and 1931.

CHESTER T. ROE

Mechanical Engineer specializing in Sanitation, Drainage and Fire Protection. Associated with the organization since 1919.

JOHN SCHURMAN

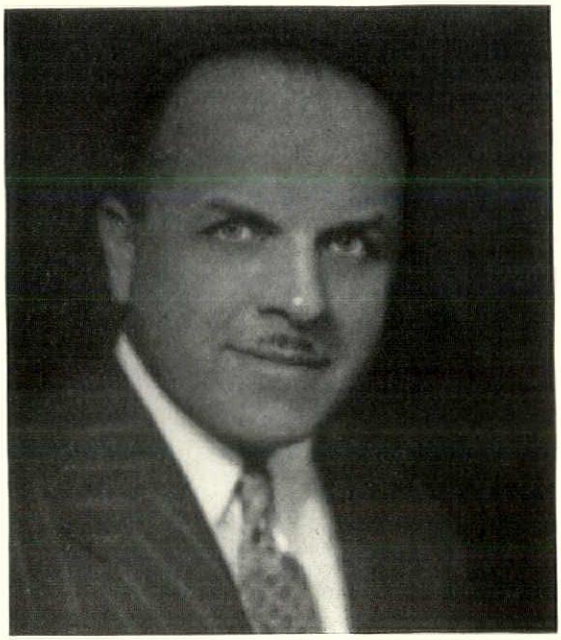
Architect and Coordinator. Associated with the organization since 1906. Member, American Institute of Architects and Michigan Society of Architects. Member Kahn organization in Russia, 1931 and 1932.

HUBERT E. SLOMAN

Mechanical Engineer specializing in Plumbing, Refrigeration and Kitchen Equipment. Associated with the organization since 1926. Member, Engineering Society of Detroit.

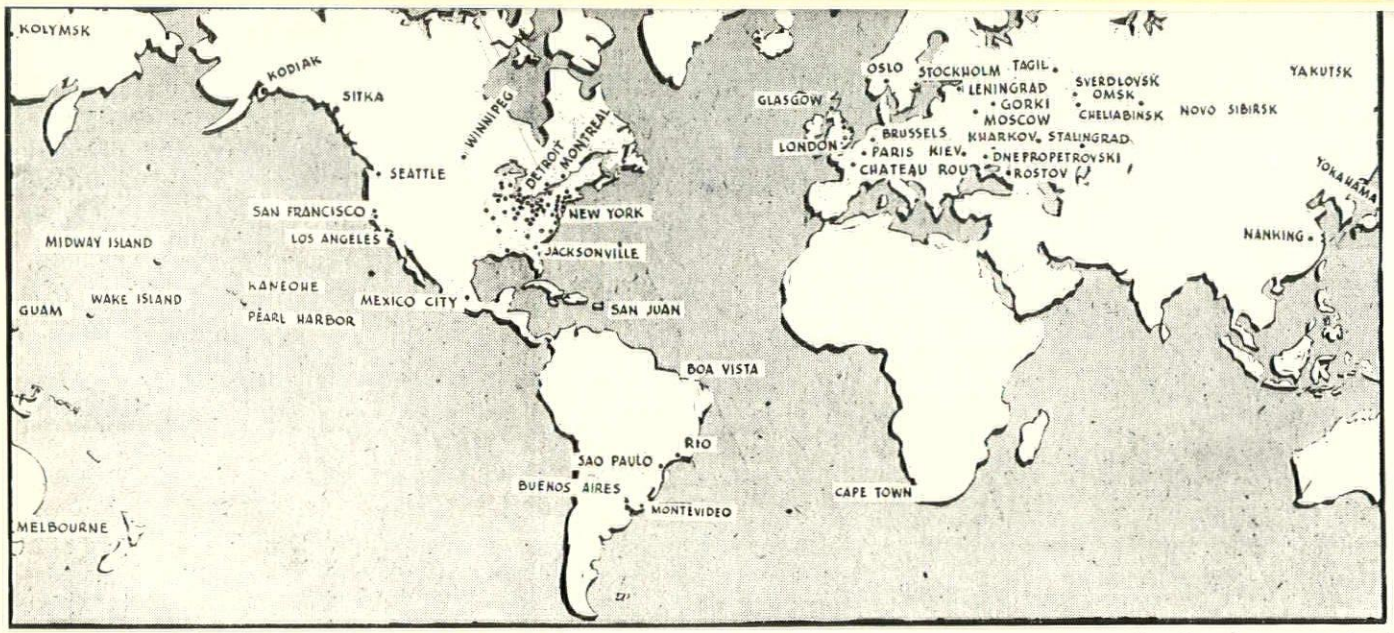
G. S. WHITTAKER

Mechanical Engineer specializing in Heating. Associated with the organization since 1922. Member, Engineering Society of Detroit.



HERBERT E. ZIEL

Mechanical Engineer specializing in Ventilating and Air Conditioning, Associated with the organization since 1920. Member, American Society of Heating and Ventilating Engineers and the Engineering Society of Detroit. President, Air Conditioning Engineers in 1933.



Wherever the name of a city or place is indicated on this world map will be found a structure that has been conceived in Detroit or actually designed here by the Kahn organization. Included are naval bases, factories, commercial buildings, hospitals, arsenals and others.

BRYANT &

Genera

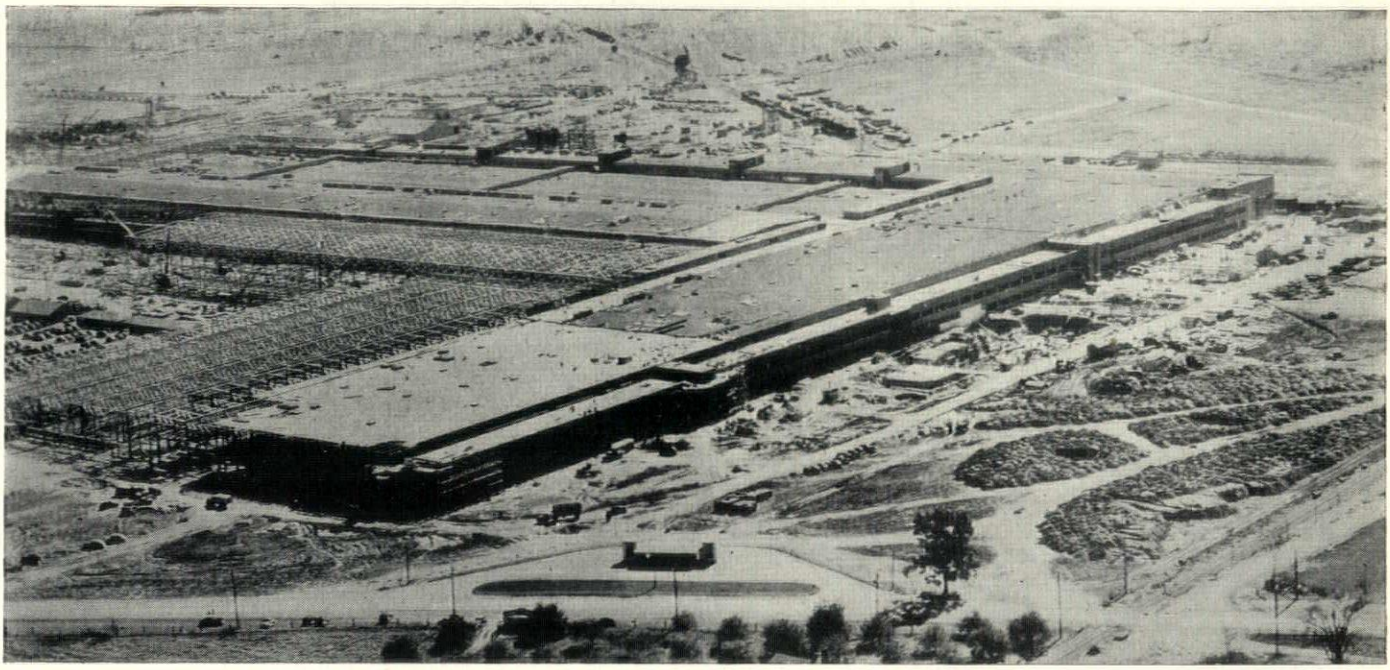
GENERAL CONTRACTORS—

Willow Run Bomber Plant
FORD MOTOR CO.

Naval Ordnance Plant
HUDSON MOTOR CAR CO.

ALBERT KAHN, ASSOCIATED ARCHITECTS & ENGINEERS, INC.

DETRO



The Ford Motor Company's Willow Run Bomber Plant

BRYANT & DETWILER CO., GENERAL CONTRACTORS

ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC.

Final Assembly Section

FORD MOTOR COMPANY'S WILLOW RUN BOMBER PLANT ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INCORPORATED

MARCH 30, 1943

Biggest Bomber Plant

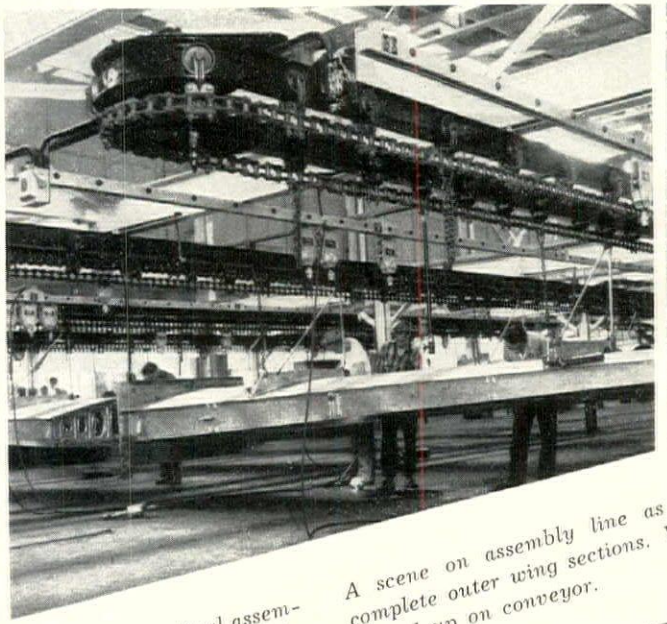
About a year ago Ford Motor Company officials called in Albert Kahn and his associate architects and engineers and told them in effect: "We have been asked to manufacture parts for a bomber and it seems likely that we'll also build complete bombing planes."

Bryant & Detwiler Company, General Contractors, Detroit, were given the job. This job at first seemed quite ordinary but the many revisions necessitated by war conditions made it extraordinary.

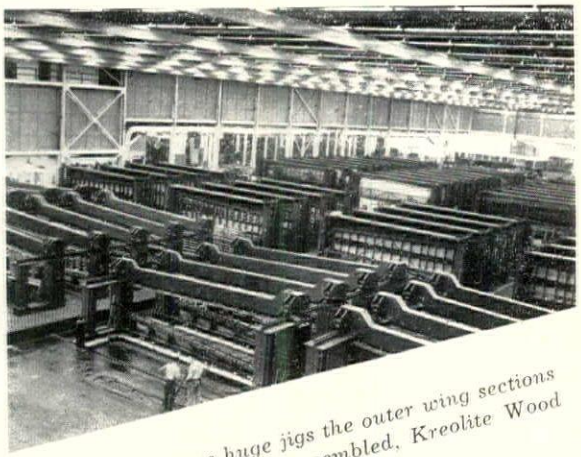
The plant was completed to embrace a total floor area of such magnitude that at the present time it is the largest known. Completed ships are now being built in this building and under their own power roll onto a mile square test field where they are test flown.

The Jennison - Wright Corporation — Detroit, 1028 Penobscot, CA. 2451—have installed Kreolite Kounter-Sunk Lug Wood Blocks with Kreolite Pitch and Kreolite Jennite Filler throughout the ground floor.

Looking down a line of huge presses that stamp out bomber parts. This is an important method borrowed from auto production.

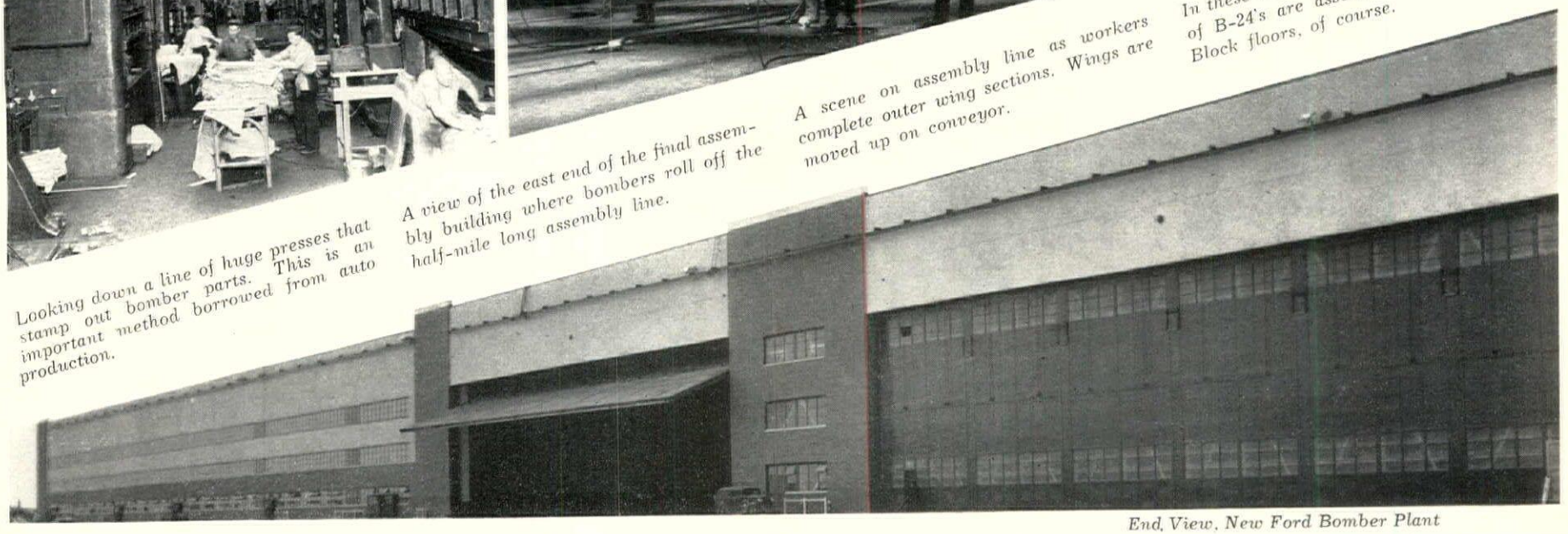


A view of the east end of the final assembly building where bombers roll off the half-mile long assembly line.

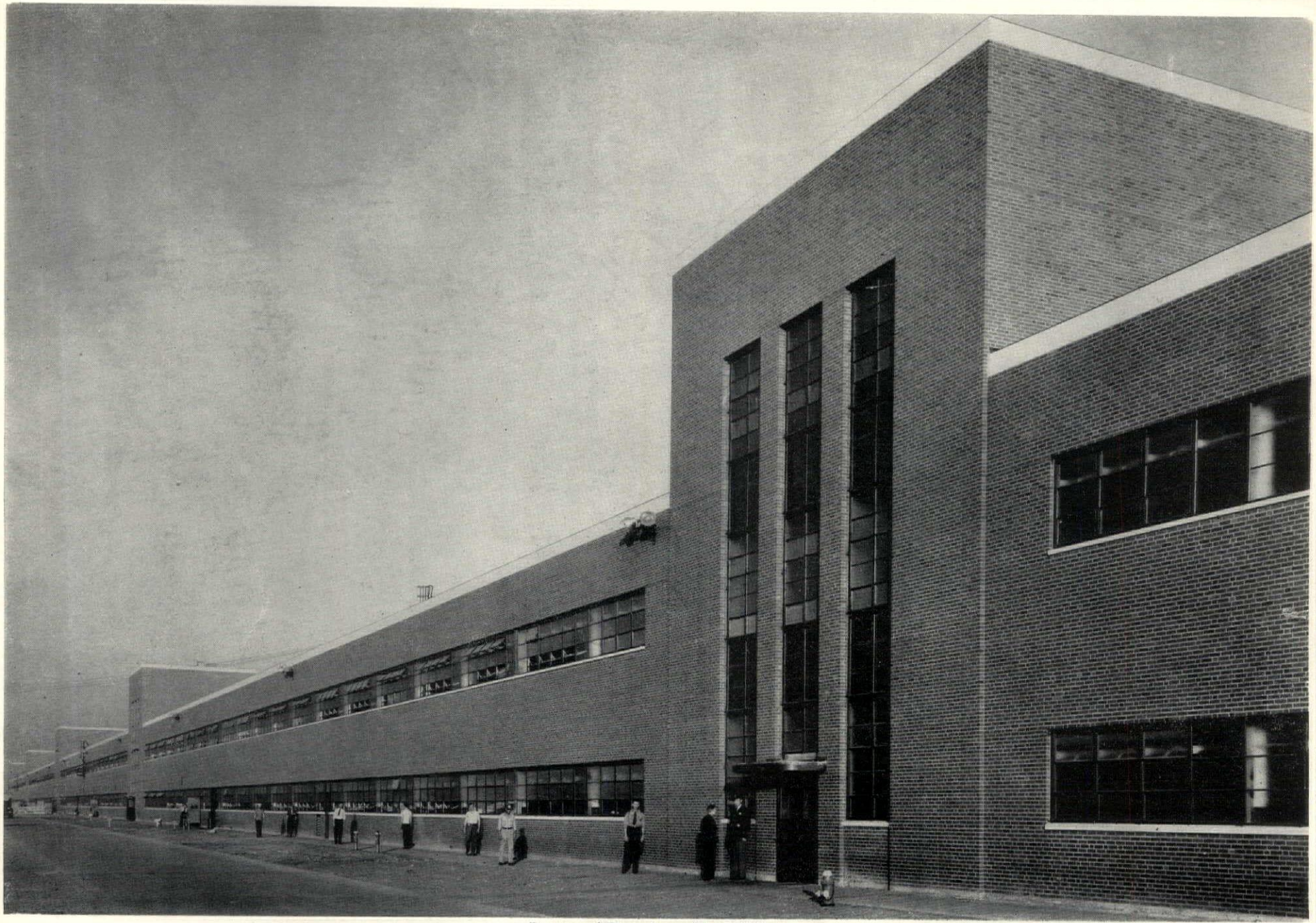


A scene on assembly line as workers complete outer wing sections. Wings are moved up on conveyor.

In these huge jigs the outer wing sections of B-24's are assembled. Kreolite Wood Block floors, of course.

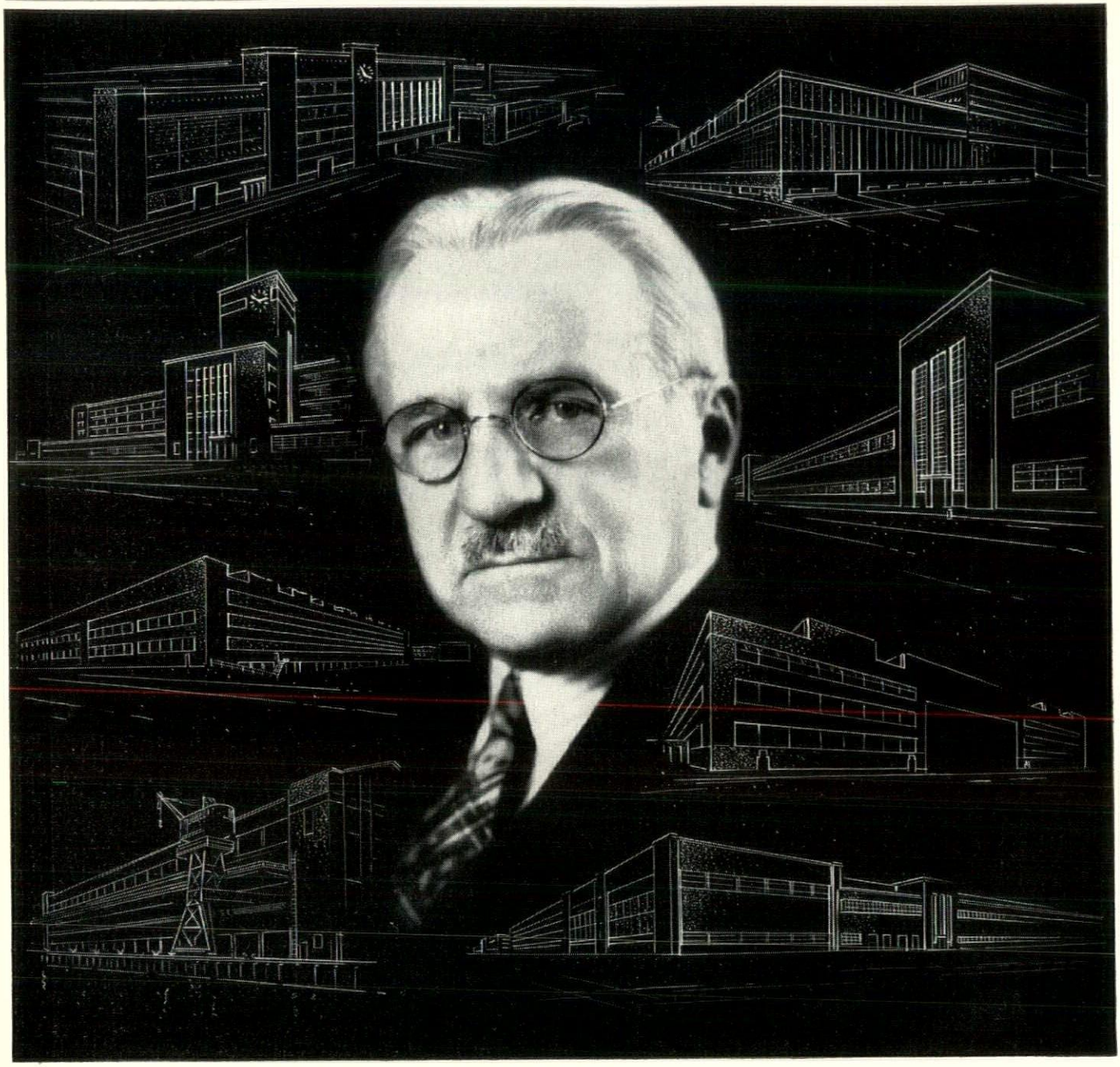


End View, New Ford Bomber Plant



Portion of Final Assembly Building

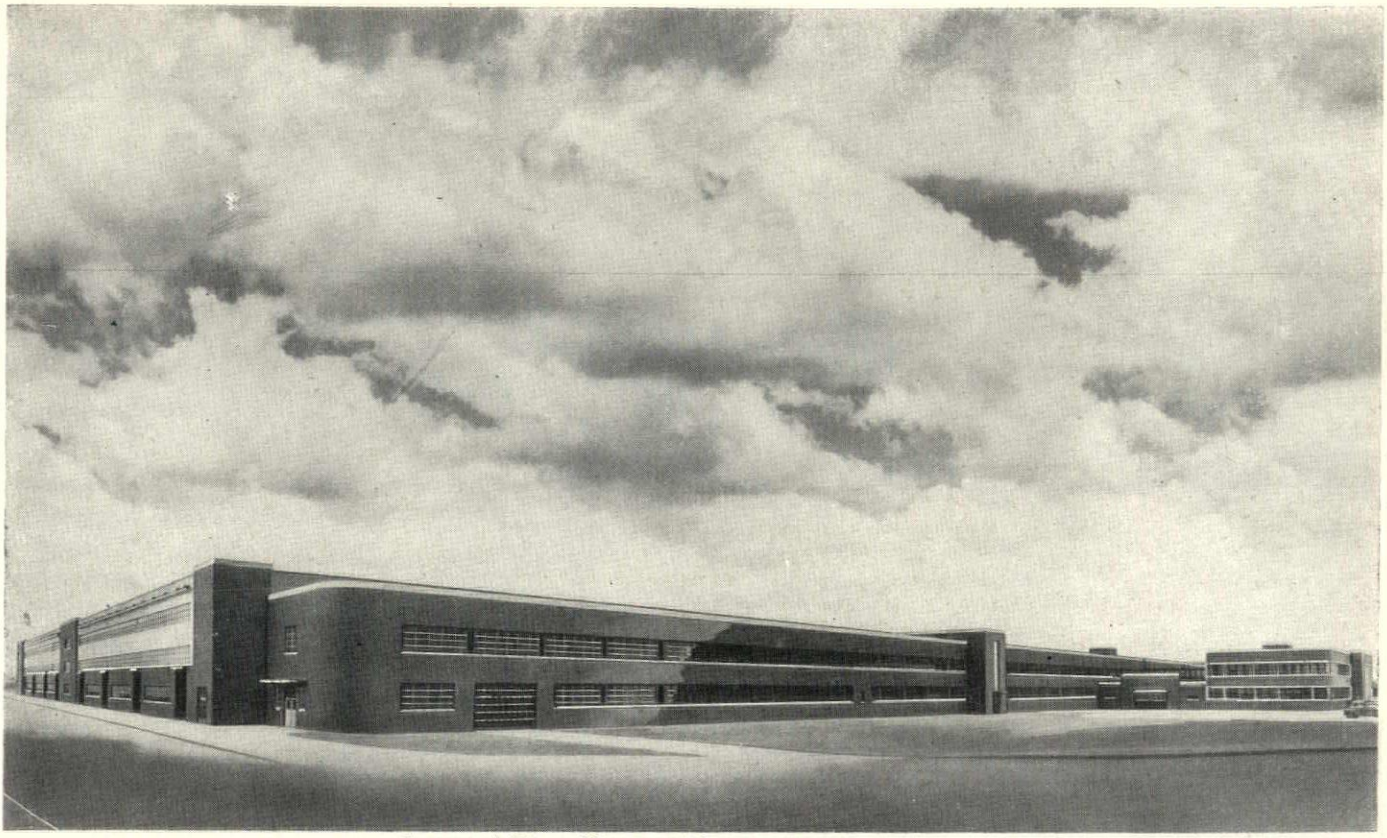
FORD MOTOR COMPANY'S WILLOW RUN BOMBER PLANT ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INCORPORATED



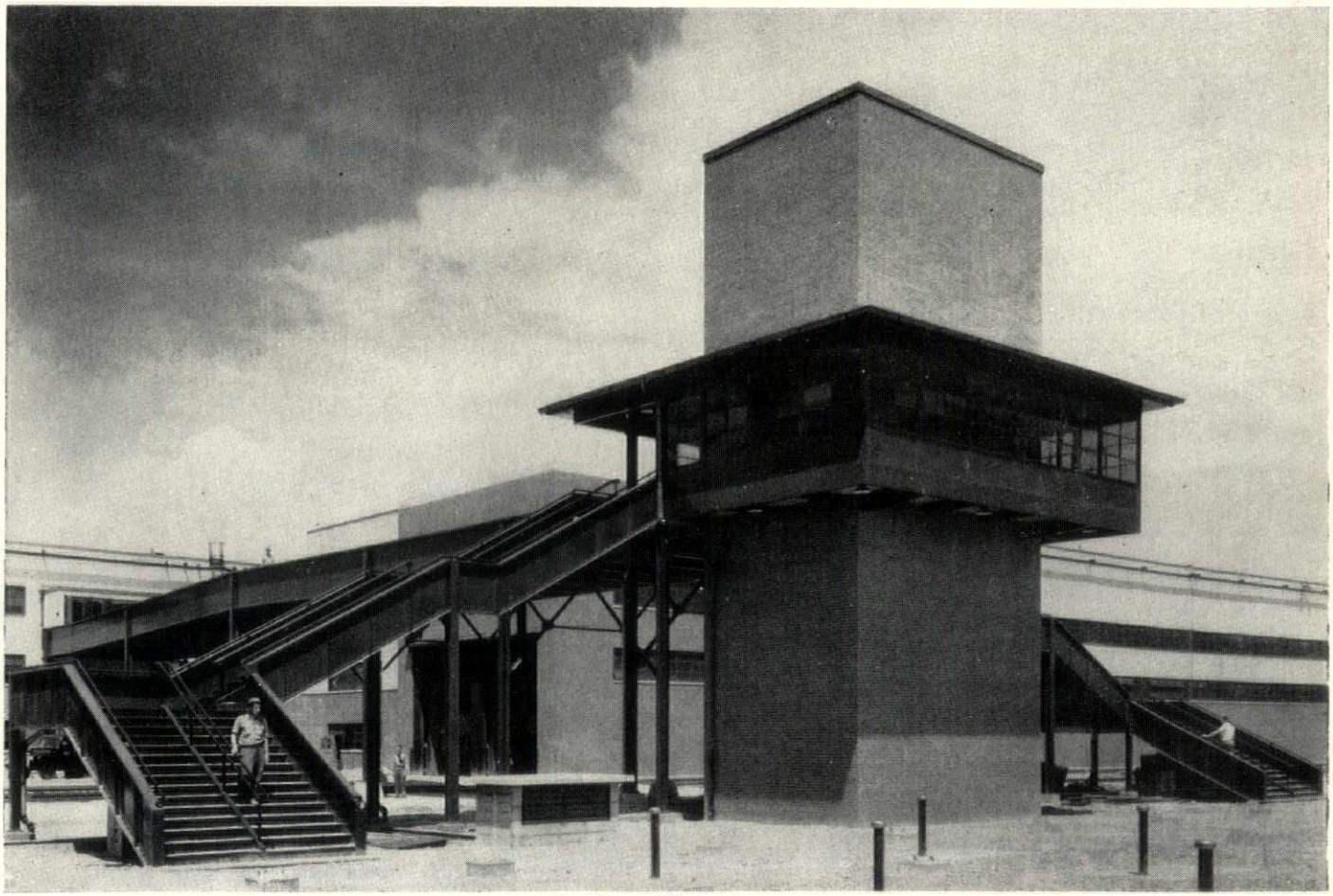
Monuments in Brick and Steel

ALBERT KAHN has gone from the scene, but his colossal monuments of steel, brick and concrete girdle the earth and literally give livelihood to millions of people. We here at Ford honor the humanity of the great architect whose career was devoted to giving men and women everywhere the means for earning a better living under benevolent and gracious conditions.

F O R D M O T O R C O M P A N Y



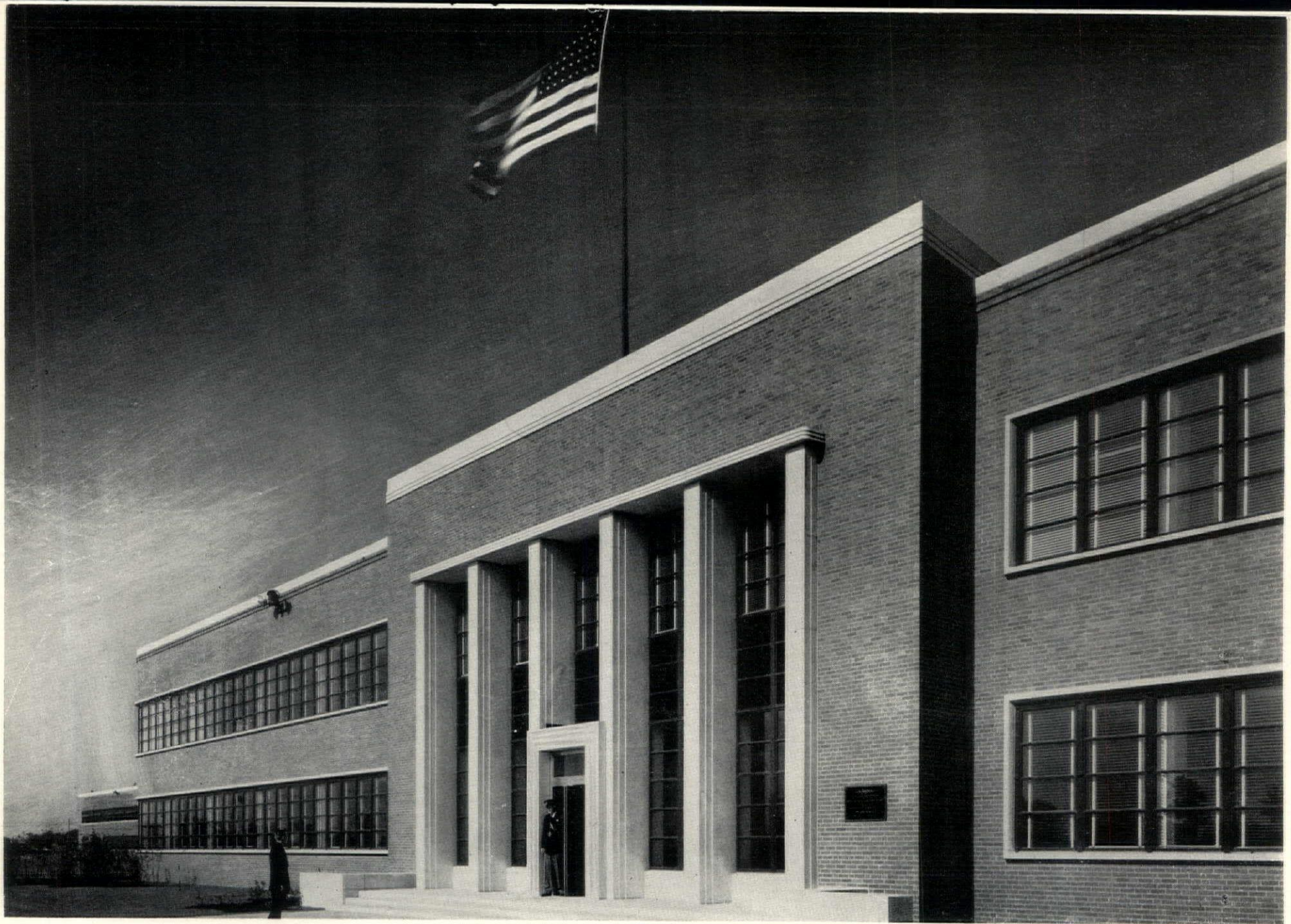
Corner of Plant, Showing Administration Connection



Employees' Entrance

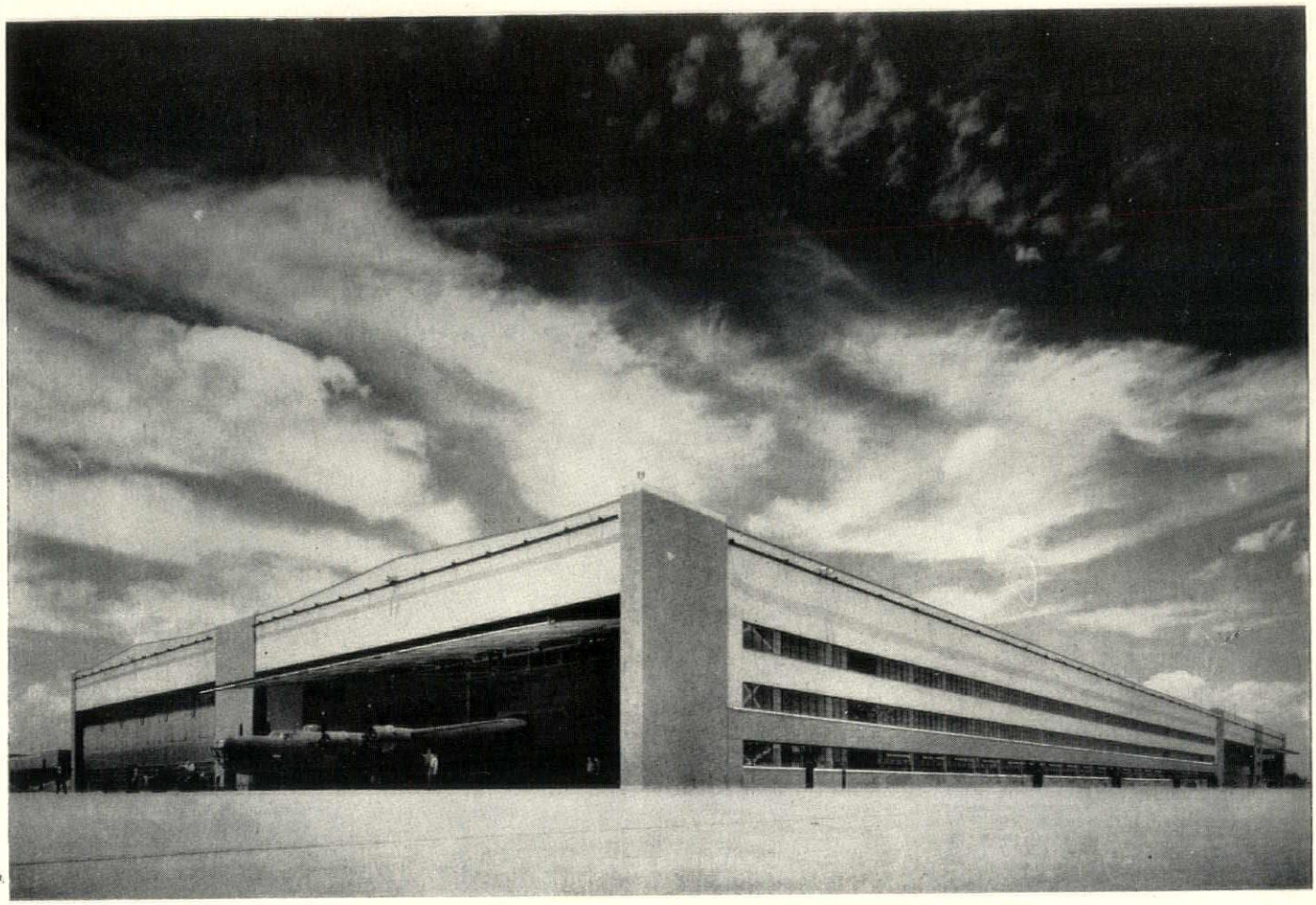
FORD MOTOR COMPANY'S WILLOW RUN BOMBER PLANT ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INCORPORATED

MARCH 30, 1943



Office Building

FORD MOTOR COMPANY'S WILLOW RUN BOMBER PLANT ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INCORPORATED



Final Assembly

North elevation of Plant, showing Personnel Building, or control point for all Entrants — Photograph was taken from new overpass highway bridge.

FORD MOTOR COMPANY'S WILLOW RUN BOMBER PLANT ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INCORPORATED

Ford Bomber Plant

Architect, ALBERT KAHN Associated Architects and Engineers, Inc.
General Contractor, Bryant & Detwiler Company

It was little more than a year ago that Albert Kahn and his Associated Architects and Engineers were called in by Charles E. Sorenson, of the Ford Motor Company, and told, in effect:

"We have been asked to manufacture parts for a bomber and it seems likely that we'll also build complete planes. The job will be like this."

Pointing to a layout of photographs of the Consolidated B-24-E bomber in various stages of construction he continued: "I believe that with the open skeleton method, we could install plumbing and wiring, thus reducing the amount of inside work to a minimum, and that we can install an assembly line system with the center wings on a conveyor. With mating bucks at three or four stations, we should be able to attach the center, tail and nose sections and then put her on her own wheels."

Mr. Sorensen then sketched roughly what he thought would be the best system of handling the various materials and asked that studies be made for a plant to manufacture both airplane assemblies and complete bombing planes under a single roof.

Today that plant is one of the wonders of the world. It is somewhat different from what Mr. Sorenson originally conceived or what anyone else expected, but the difference is chiefly one of size. Foundations were already going in when an increase in the parts order was received, necessitating an increase in the sub-assembly area and a corresponding increase in utilities. Two months later orders were received to ship so many additional parts and so many completed ships that a large addition to the plant for final assembly was required. Then came Pearl Harbor and an order from the Government to double the planned rate of production. It is no feat to enlarge a plant by erecting additions at ends or sides, but when one is asked to expand a partly completed building in the center, that is quite a problem. But someone has said that the Ford organization does the difficult things immediately and takes a little longer to do the impossible. At any rate, the Ford Bomber Plant at Willow Run was completed well ahead of schedule, in spite of the numerous changes and expansions ordered.

The plant as completed embraces a total floor area of well over 4,000,000 square feet and is at present the largest known. Exact dimensions cannot be published, but some idea of its immensity may be gained from the statement that the main manufacturing and assembly building alone covers approximately 70 acres. In addition, there is a hangar building that covers about 15 acres, a two-story office building, two-story personnel building, two-story training school building, and numerous other structures, including oil and gas storage building, dope and paint storage building, garage, commissary, dope shed, pump houses, guard houses, scale house, power house, and other structures.

In preparing the original plans, two construction schemes were considered; one for a frame and roof of wooden timbers, the other a steel frame design with a metal deck roof. Competitive estimates were taken on the two schemes, and it was found that the steel frame with metal deck compared favorably with wood. The one question was the delivery of the steel. Investigation proved that a local steel concern had enough material of limited sizes to make immediate delivery of the manufacturing area. The architects, therefore, willingly agreed to design the steel members from the stock list submitted.

Not knowing exactly what might develop in future Government contracts for either parts or completed bombers, ample provision was made for additions on the north side. As intimated above, however, some additions had to be made in the center, thus necessitating complete new plans. Then when capacity was ordered increased 100 per cent, requiring increases in assembly lines and areas, the flight test field had already been completed and an extension had to be turned southward. The substance of the many changes is indicated by the fact that the original layout called for a main building with a ground floor area of 912,000 square feet and that the completed plant has a ground floor area of 2,570,000 sq. ft.

It follows, of course, that every time the capacity was altered, all other plans had to be altered correspondingly.

As the north side of the property was held for future expansion, parking lots with a present capacity of 20,000 cars were located on the south side, across the railroad siding and inter-plant truck roads. This necessitated either an underpass or an overpass for employees to enter and leave the plant, and the owner chose the latter. This was favored by the Government supervisors, too, as the overpasses would give employees direct entrance to the second floors, which house the toilet, locker and lunch rooms, and would enable them to reach their respective places of employment by the most direct routes, thus eliminating inter-department traffic. There are now six such overpasses on the level of the locker room floor on the south side and continuing to a second locker room floor in a 40-foot bay near the center of the building. Each employee enters via the bridge nearest his place of employment. Watch towers and elevators for lifting lunch wagons to deck level are located at the outer end of bridges.

These mezzanine floors total some 800,000 sq. ft. of reinforced concrete slab supported on I-beams.

Built of steel, face brick with sand-line back-up brick, gunite and steel sash, the plant is a semi-blackout one, as there is no daylight in the production areas. The sash in the various exterior elevations are so placed as to provide light and ventilation for the respective factory offices and utilities which are located next to the outside walls on the first, mezzanine, and second floors. Production areas are of single-story construction, due to the immense height required for traveling cranes handling huge parts such as bomber wing sections.

The west and north elevations dominate, and to obtain relief for the vast lengths, the architects utilized towers spaced at intervals to house stairways, utilities, and fan rooms. A two-story unit at the west end houses a material testing laboratory, pay offices, hospital, maintenance and safety offices; kitchen, cafeteria and dining rooms, pay make-up and vaults, Government offices, and the ship engineering design department.

The final assembly lines occupy two 150-foot clear-span bays the entire length of the building. The sub-assembly area includes four 60-foot clear bays and there are numerous other 60-foot bays in the various manufacturing and assembly areas. Aisles are 12 feet wide and are serviced by standard automobiles and motor trucks, as well as by cranes and conveyors.

The roof is of 16-gauge sheet steel dipped in enamel and covered with Vermiculite and four plies of asphaltic felt membrane and hot pitch and slag.

Floors are concrete slab, reinforced with two layers of wire mesh and covered with 2½-inch creosote wood blocks.

Completed ships leave this building under their own power, and roll right out onto a mile-square test field where they are test-flown. For landing and take-off, this field has six runways, each 160 feet wide and ranging in length from 4,800 to 6,400 feet. Two parallel runways on 750-foot centers cross the field diagonally in the direction of prevailing winds. Near the center is a paved area comprising ten acres of concrete slab.

Facing the field on the west side is a hangar building having a total floor area of approximately 270,000 sq. ft. (1,256 by 163, single story except for center motif of five stories). The center motif of this building is five stories high and houses the first aid department, flight hospital, operations

office, pilots' school, link trainers, decompressor chambers, dormitory for pilots, weather mapping and field control offices. The hangars have a clearance of 44 feet between floor and bottom chords of overhead trusses.

A concrete apron, 1,450 feet long and 450 feet wide extends along and beyond the entire front of the building. The eight hangar doors are each 150 feet wide and 40 feet high. They are electrically operated. Two large overhead cranes service the ships in the hangars.

Extending along the front of this building are three continuous steel trusses, supported by double columns between hangar doors. Two of these trusses are 450 feet long (divided into three 150-ft. spans) and the third is 350 feet long (divided into two spans of 150 feet each and one center span of 50 feet). The roof, of cement tile and composition, is supported by 130-foot span transverse trusses, spaced about 21 feet apart, from the front trusses to the rear wall. Walls are of brick, gunite and steel sash.

The garage located on the first floor of the center section houses fire trucks and ambulances which are always ready for use in case of accident.

The Administration Building, of reinforced concrete, face brick and stone trim, is two stories and basement and is located west of the main factory building with which it is connected by means of a bridge above the garage. The design is in keeping with that of the factory building, supplemented by stone sills and copings and a center motif obtained by the use of stone piers. The basement houses all utilities, lockers for office employees of both sexes, all telephone equipment, transformers, pump room, vault, and air-conditioning equipment for this building and for the factory offices behind it. The first and second floors have plaster walls, metal and glass partitions, linoleum floors, and acoustical ceilings except in the lobby, where the lighting is recessed, floors are terrazzo, and woodwork is straight-grained oak. All equipment is standard and there is no ornamentation for its own sake.

The Training School is housed in another two-story building, located north of the manufacturing area and connected with it by means of a bridge, thus giving the students easy access from the practical to the theoretical, both literally and figuratively. The exterior is similar to that of the Administration Building. The part-basement houses the transformers, pump and fan rooms; the two floors are devoted to class rooms and laboratories and to a large lecture room. Interior walls are of glazed hollow tile, ceilings are of acoustical tile, and floors are of asphalt tile except in laboratories, where quarry tile is used. A notable feature is the provision of generous areas of observation windows in partitions between corridors and class rooms. This is believed to afford better supervision, it eliminates the feeling of confinement that otherwise might impress students after coming from the vast plant areas, it admits natural light into corridors, and it produces an effect of spaciousness in both corridors and class rooms. The building is thoroughly ventilated but not air-conditioned. In short, it is a practical, modern school building, with emphasis on its functions as such. Courses include welding, riveting, blueprint reading, inspection, engine installation, radio, electricity, metallurgy, heat treating, chemistry, instrument testing, and other subjects. Courses last from a few weeks to several years and are open to all employees.

The Personnel Building, two stories and basement, is situated at the north end of the plant and serves as the control point for entering from the recently-completed state highway system. Automobiles and buses enter the plant at the west end of this building and are checked by guards on platforms at the gates. Pedestrian employees entering the plant pass under a canopy, at the same end, while those leaving, either on foot or in vehicles, pass by the east end of this building. Visitors are checked and detained in a waiting room and if admitted are taken by automobile into the plant.

The structure is of concrete construction, pan type throughout, with exterior facing of face brick and limestone trim. Sash is of metal architectural projected type. Interior walls are of glazed tile; floors are of asphalt tile or cement; ceilings are of acoustical tile, and interior trim is wood and hollow metal. Roof insulation is poured Vermiculite, with composition roofing and black metal flashing. Basement walls are waterproofed by the ironite method.

Applicants for employment enter at the east end and are interviewed in a series of interview rooms for each sex. If accepted, they are directed to the Medical Department in the basement; if rejected, they are released through a vestibule at the north end. Those directed to the examining rooms enter a waiting room at the west end of the basement and flow to the east. There are separate departments for examining men and women, of course, but the layout is flexible and if desired, both examining rooms may be used for either sex. Equipment is complete and modern in every respect and includes X-ray, as well as the more common blood, eye, and physical check-up.

On completing their medical examination, applicants ascend to the second floor write-up room where they are photographed, fingerprinted, given their badges, etc., then are escorted by guards to their work stations in the plant.

The plant protection chief's office, squad room and arsenal are also located on the first floor of this building.

The second floor is devoted to lunch room, locker room, showers and toilet facilities for the plant protection men.

Due to the fact that traffic conditions here are not conducive to clean air for mechanical ventilation intake at grade, the designer placed the fan room in a tower on this building, thereby obtaining the necessary clean air and also accenting the exterior design of the structure.

The miscellaneous buildings such as oil and gas storage, dope and paint storage, truck garage, commissary, power house, and others are all functional and without trimmings. In the commissary, however, the food storage and preparation areas are all of spotless glazed tile, the kitchen equipment is modern and arrangements are designed for the most efficient procedure in serving up to 80,000 workers daily on the box lunch principle. Lunches are loaded in lunch wagons, elevated to the second-floor level in elevators at the guard towers on the north side of the plant, and taken into the main building at lunch periods.

Heating, ventilating and air-conditioning systems for the main building and others are of various types, selected to give the most satisfactory and economical results in each case. Steam for heating is supplied by four oil-fired boilers in the boiler house.

The steam line is designed to carry 200,000 pounds of steam at 50 pounds pressure. Steam is piped through a tunnel, about 5,000 feet long, across the main building and with a branch running the entire length of the building, and to the several other buildings served. All condensate flows into pump and receiver units in the various buildings and is pumped back into a received in the power house about 75 feet above the first floor level. There are 16 pump rooms in the main building, two in the hangar, and one in each of the other principal buildings.

A hot blast system is employed in the factory and a combined hot blast and radiators are used in the engineering section. Due to the vast area and to the layout of the main building, approximately 65 fan rooms are required there, each handling 35,000 to 100,000 C.F.M. depending upon the area served. All units have two speed motors. The hot air is distributed throughout the building through duct work located in the truss space. Temperature is governed by thermostats. Using the low speed in winter, the system supplies approximately two complete air changes per hour for the total height of the building. In summer the high speed is used and the system is supplemented by 286 roof exhaust ventilator fans, each of 10,000 C.F.M. capacity, to provide about four air changes per hour for the entire building, or ten changes at a height of 12 feet.

The mezzanines along the outside walls are heated by radiators and ventilated from the central systems. There are overhead heaters at all outside doors and along ends of the building where there are large door exposures.

In offices, operating rooms, laboratories, hospital wards, and elsewhere, the radiators are wall-hung convectors with sloping grilles in the top; in toilet rooms, locker rooms, stair halls, etc., they are wall-hung cast iron.

Some idea of the magnitude of this system may be had from the statement that in the main building alone there are approximately 570 fans and about 100 unit heaters.

The heating and ventilating system has been designed so

that in the future equipment can be added for the cooling of any part or of the entire area of the building. Should the entire plant eventually be air cooled, approximately 14,000 tons of refrigeration would be required.

Some air cooling has already been installed. Two 400-ton refrigerating compressors supply chilled water to the Administration Building, Engineering Laboratories and Drafting Rooms.

Cooling is also provided in the dope room where it is required in order to maintain a humidity that will give the proper tautness to the fabric on wings and also to prevent the paint from "blushing."

Cooling towers supply condenser water for these air conditioning systems, thus preventing the loss of water from the supply system.

Precision gauge and instrument rooms must also be air-conditioned to insure exact measurements.

There are long lines of tunnels under the floor that are constantly giving off heat, and a similar condition exists in the underground transformer rooms. To keep such areas at a temperature within the working range, as well as to prevent heating the working areas above them, exhaust fan units have been installed at intervals to discharge the heated air up through the roof.

Power is brought to the plant by duplicate and widely separated 120 kilovolt utility lines. It is then distributed underground at 13,800 volts to a series of underfloor plant substations. All bus sections are interconnected by means of an emergency tie bus so that power may be supplied by either utility service to any bus section in case an outage should occur. In addition, two 2,500 kw. turbo-generators on two of the bus sections can be synchronized with the utility lines and paralleled with either. All substation transformers for both power and lighting are interconnected on the secondary sides. All plant substations are located underground and feed a veritable network of lines to the hundreds of column cubicles throughout the manufacturing areas. There are no overhead conduit or bus systems in this plant and the underground system is so designed that in case of damage, only the relatively small area served by the damaged part would be cut off and that very likely could be connected up elsewhere in short order.

Lighting is of the fluorescent type throughout. Approximately 156,000 lamps were required, or almost as many as the industry produced in 1938. Current is supplied by underground feeders. In the general assembly area, lighting units are mounted end-to-end in continuous rows on approximately 10-foot centers and at a height of 36 feet. The maintained intensity on the working plane is 30 foot candles or more. Under mezzanines and low bay areas, units are spaced as required.

In some sections of the plant the units are on alternate circuits; in others, every third fixture is connected to the switching circuit. As a result, flipping one switch will turn on every other unit, or every third unit, in a row, as the case may be. The lighting intensity, therefore, can be one-half, one-third, or full strength.

Reference has already been made to the toilet rooms on the mezzanines. Wash rooms and shower rooms are of conventional design. The sewage disposal plant, of the activated sludge type, is located about 1800 feet from the main building and is designed for a population of 100,000.

All corrosive and dangerous process waste is handled separately through two independent sewers, one being for acid, the other for cyanide waste from the heat treat and plating departments. Both go to a neutralizing plant where their contents are rendered harmless and the gas is discharged into the air 40 feet above grade.

Water for potable use is brought from Ypsilanti through a 12-inch main; that for all other purposes is brought in through a 24-inch main from two wells some two miles from the plant. This main feeds two 400,000-gallon tanks, one being for plant use, the other for reserve and fire. Hot water from the power house is circulated throughout the plant, while the 25-ton installations provide chilled drinking water for 50,000 people at a time. Water supplied to the welding department is also chilled to keep the welding equipment at proper temperature.

There is an extensive fire protection system, including water mains with outside hydrants looping around all buildings, an underground fire pump house with both motor-driven and engine-driven pumps, a regular fire department with fire engines and other regulation equipment, interior sprinkler systems throughout, and deluge systems in the more hazardous places.

The drainage system, too, is very extensive and includes one 54-inch, two 60-inch, and one 84-inch storm sewers emptying into a lake formed by damming Willow Run creek on the bank of which the plant is located. An oil separating system prevents emptying impurities into the lake. There are 130 miles of drain pipe under the flying field alone. The parking area, all roadways, and numerous other areas are also equipped with sub-soil drains.

Heating, Ventilating and Air Conditioning

The heating, ventilating and air conditioning systems are of various types, selected to give the most satisfactory and economical results. The main building is provided with 80 units supplying approximately 6,000,000 cubic feet of air per minute to the factory area. This volume of air is equivalent to 200 tons by weight supplied every minute and not only maintains uniform air temperature but removes approximately 75 pounds of dust every hour.

There are approximately 700 fan units used in handling the required air quantities requiring 4,000 H.P. to drive the fans. Each unit consists of outdoor and recirculating intakes which are the source of the air supply handled by the motor driven fans. The air is drawn through air filters and heating coils and then discharged into the duct distributing systems.

The air supplied into the building is controlled by outlets which create an air motion tending to give maximum air movement and uniformity in temperature. For example: the outlets in one-half of a wide bay supply air downward in a southerly direction, and in the other half the outlets also discharge downward but in a northerly direction. This method of supply tends to give the maximum air movement following an eliptical path.

The air supplied to the building is either (1) exhausted through motor driven roof ventilators, (2) removed by process exhaust, or (3) recirculated into the supply fan intakes.

The temperature control is obtained by means of by-pass dampers which allow a certain amount of air to be handled without passing through the heating coils; also, the steam volume to the coils is controlled by thermostatically operated valves. The combinaiton of by-pass dampers and coil valves makes possible the maintenance of temperature control and protection from freezing of the condensates in the heating coils.

The heating and ventilating equipment has been designed for the future air cooling of any part or the entire area. Should the entire plant eventually be air cooled, approximately 14,000 tons of refrigeration would be required.

Some air cooling has been installed. Two 400-ton refrigerating compressors supply chilled water to the Administration Building and the Engineering Laboratories, Drafting Room units, etc.

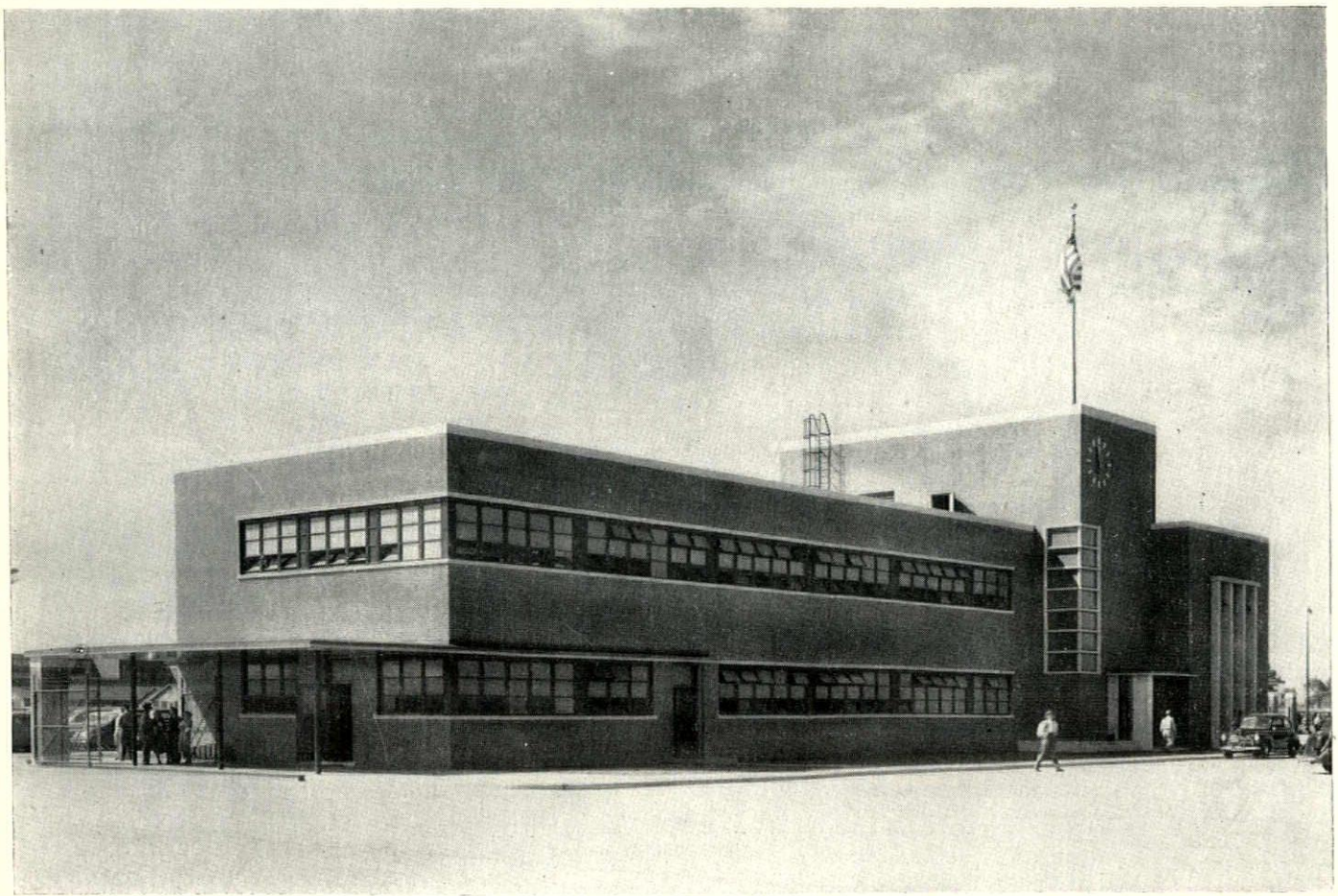
Also cooling is required in the Dope Room for the purpose of maintaining a humidity which will give the proper tautness to the fabric on wings and also prevent the paint from "blushing," a defect causing waves or wrinkles in the fabric, which cannot be tolerated in the finished product.

Cooling towers provide condenser water for the above air conditioning systems thus preventing the loss of a considerable volume of water from the supply system.

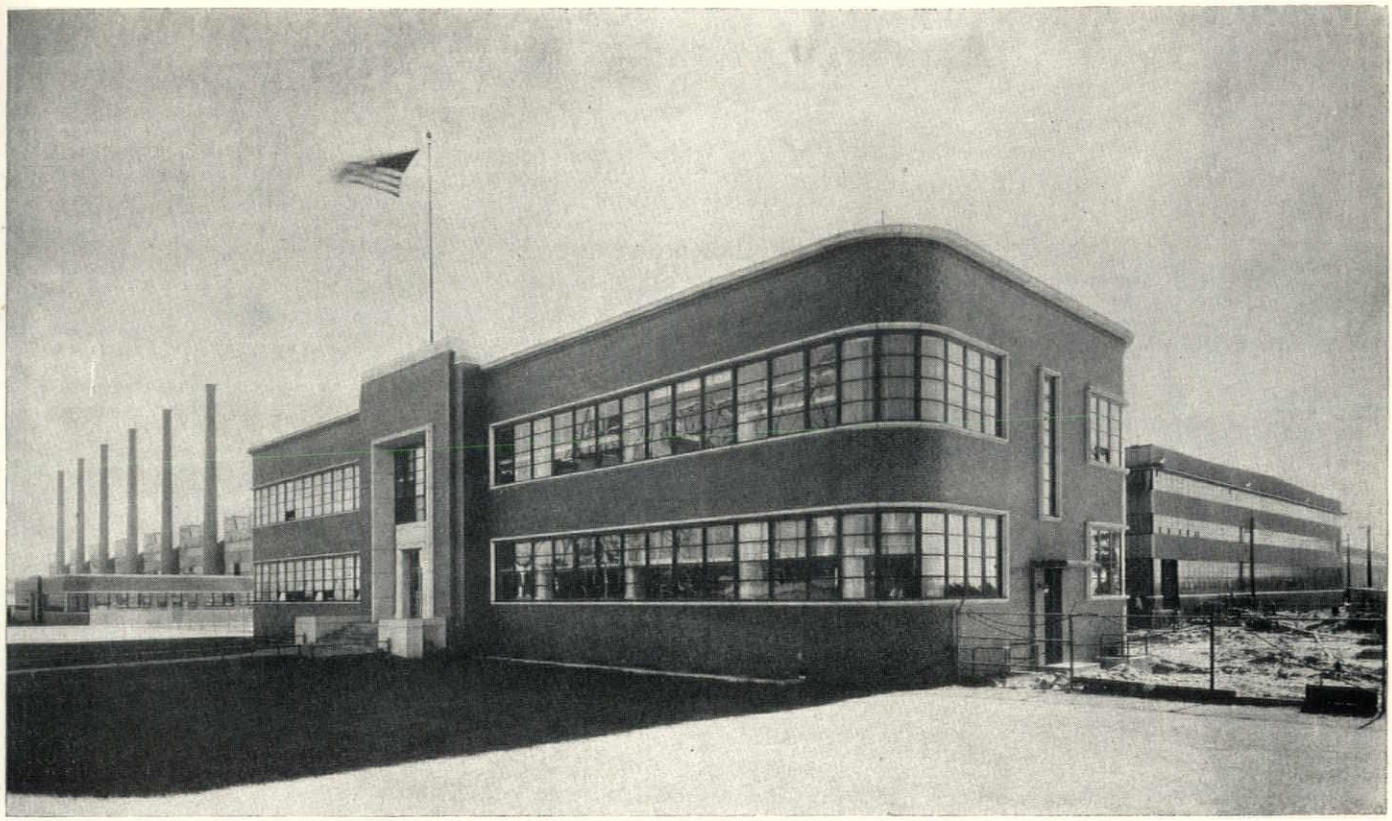
Precision gauge and instrument rooms must also be air conditioned to reduce inaccuracies imposed on gauges by normal changes due to various atmospheric conditions.

Unusual ventilating problems must be met in a building of this type apart from direct health conditions.

Long lines of tunnels under the floor which carry the steam distributing systems are constantly giving off heat and require the removal of air from the tunnel to keep this area at a temperature within the working zone range. A similar condition exists in the underground transformer rooms. Exhaust fan units at various intervals discharge the heated air up through the roof.



Personnel Building



Office Building

Pertinent Facts Regarding Ford Bomber Plant

Cost, including land, buildings and machinery, $58,500,000.

Plant consists of—Manufacturing and Assembly Building, Office Building, and Garage, Power House, Oil Houses, Fuel Storage, Cooling Tower, Water Tanks, Sub-stations, Hangar Building, Trade School, etc.

Airport area—1,000 acres.

Plant area—439 acres, or a total of about 1,500 acres.

Manufacturing and Assembly Building—62 acres under one roof.

Total roof area all buildings—70 acres.

Total floor area of all buildings—90 acres, or 4,094,480 sq. ft.

Hangar—261,400 sq. ft. floor area.

Office and Garage—26,000 sq. ft.

Paint Shop—157,000 sq. ft.

Main building is 3,120 ft. long by 700 ft. wide with a wing 580 ft. in width projecting 500 ft. to the north at the west end of structure. Main assembly section 2,800 ft. long by 700 ft. wide includes two 150-ft. clear-span bays 2,800 ft. in length for major assembly and final assembly of big air frames for Consolidated B-24-D bombers. Minor assemblies and sub-assemblies in area 2,800 ft. long and 240 ft. wide, comprising four 60-ft. clear bays.

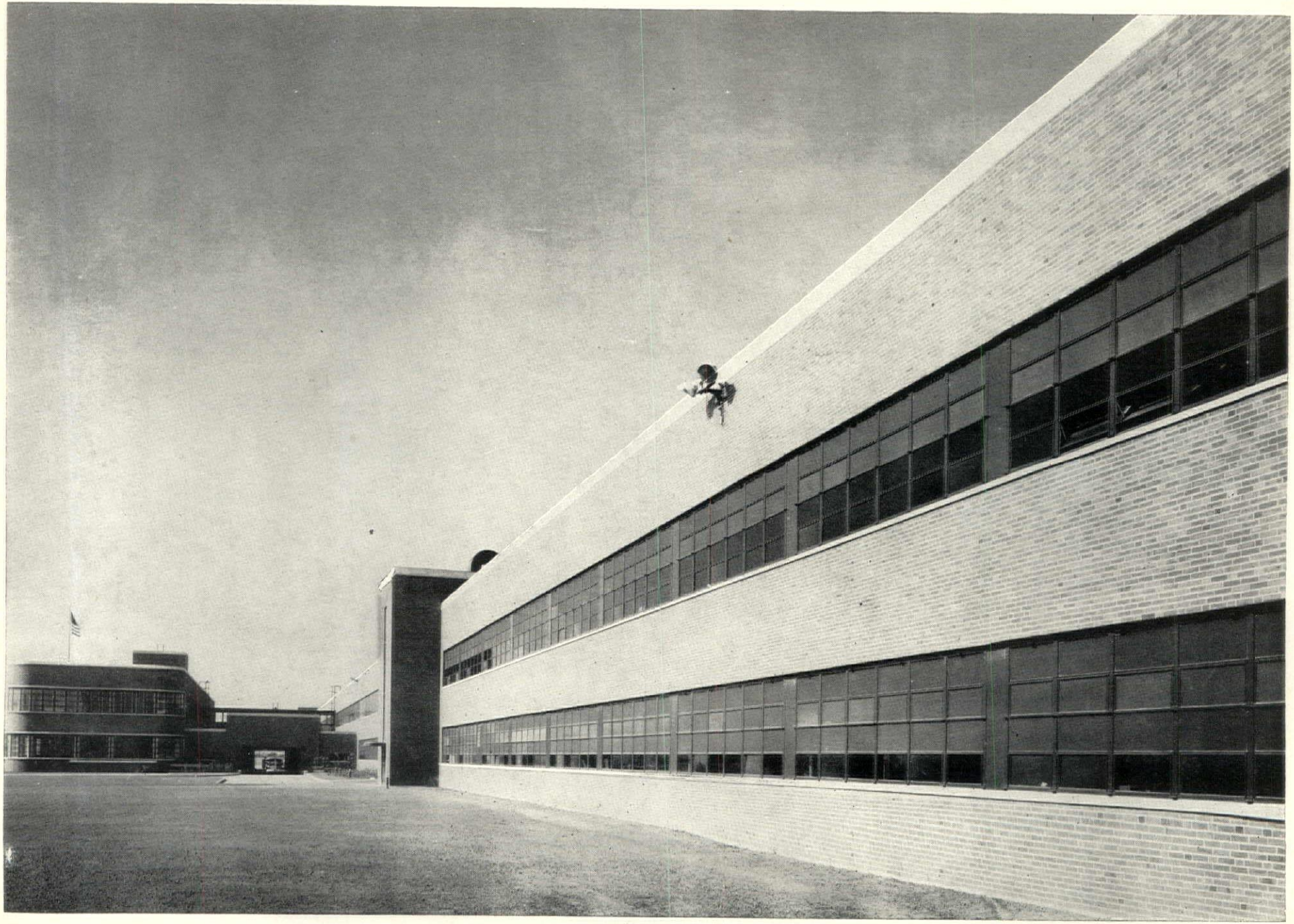
All remainder of building, including the wing but excluding a 40-ft. strip reserved for engineering and other facilities along the 1,280 ft. west wall, is utilized for manufacturing. In that portion of manufacturing area measuring 1,200 ft. in length are four 60-ft. crane bays and one 40-ft. bay equipped with a mezzanine locker floor. Shorter section of the manufacturing area, 500 ft. long in the north-south direction, has three 60-ft. crane bays and two 40-ft. crane bays, one of the latter bays carrying a mezzanine locker floor above a low-level craneway which provides 15½-ft. vertical clearance under the bridge crane. Remaining bays of the entire building, comprising in each instance two 20-ft. aisles between columns spaced on 20-ft. centers in both directions, are utilized for mezzanine floors and locker floors above the first floor.

Expected to employ 60,000 men on two-shift basis.

Parking space for 20,000 cars.

Ground broken in April 1941. Production started some weeks ago. No definite date of completion as project is being added to all the time.

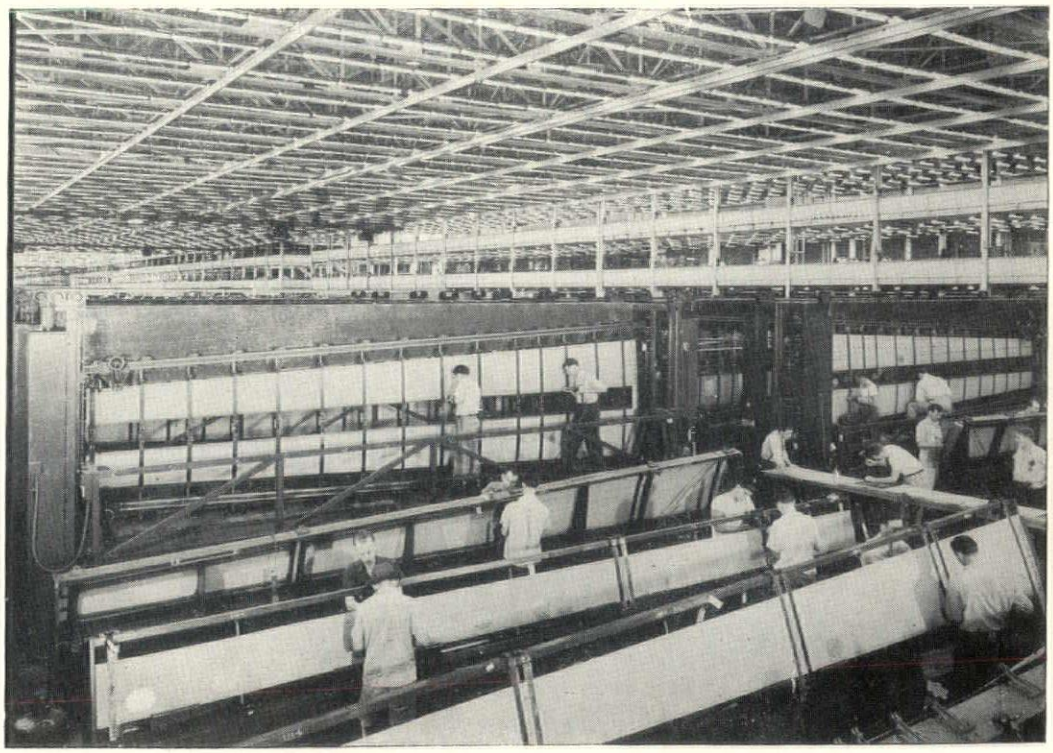
Partial list of materials going into Ford Bomber Plant—2,500 concrete footings for columns; 10,000 lin. ft. grand beams or foundation walls, between footings; 5,250 lin. ft. of reinforced concrete box tunnels to carry steam lines from Power House to various parts of building; 32,110 tons of structural steel (27,000 tons alone in main building); 95,000 cu. yds. concrete in general contract alone; 5,000,000 sq. ft. mesh for reinforcing; 200,000 cu. yds. earthmoving; 1,200,000 face brick; 1,400,000 sand-lime brick; 245,000 pieces glazed tile and cinder block; 100,000 sq. ft. gunite; 5,175 tons pitch and slag on roof; 26,000 squares of build-up roofings on main building and 14,000 squares for auxiliary buildings; 100 miles of pipe for water and steam; 88 central heating units in main building; 5,000 plumbing fixtures; 600 carloads creosote blocks for paving; 28 miles crane tracks; 11 miles runways; world's biggest fluorecsent lamp installation: 130 carloads steel conduit, 30 carloads fibre duct, 156,000 Hygrade fluorescent lamps or 260 miles.



Administration Building, Garage and Engineering Building

FORD MOTOR COMPANY'S WILLOW RUN BOMBER PLANT ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INCORPORATED

Chief Executive Office



Main Assembly in Manufacturing Building

FORD MOTOR COMPANY'S WILLOW RUN BOMBER PLANT ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INCORPORATED

Main Stairway Office Building

FORD MOTOR COMPANY'S WILLOW RUN BOMBER PLANT ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INCORPORATED

SEVEN-MONTH SCHEDULE COMPLETES 62-ACRE BUILDING FOR FORD BOMBER PLANT

Housing a 62-acre area for production of giant bomber air frames under a single roof was the nub of the problem that confronted the Ford Motor Company and Albert Kahn Associated Architects and Engineers, Inc., in planning the Willow Run bomber plant at Ypsilanti, Mich., now nearing completion under a federal financing arrangement which funds and top policy supervision through the agency of the Defense Plant Corp. Following the drafting of general plans by the Albert Kahn engineer-architects in cooperation with the Ford Motor Company, which will operate the plant, a group made up of both competitive-bid and fixed-fee contractors took over the task of matching strides in the field against the exacting progress schedule drawn up by Kahn executives at the instance of an importunate War Department. The Bryant & Detwiler Company, Detroit, heads the list of plant contractors, not because the firm obtained the first or the largest contract but because its agreement with the Ford Motor Co. names it as the coordinator of all interrelated trades on the big building job. This concern is executing a fixed-fee contract with an estimated overall value of $5,000,000, including general masonry and architectural work performed by its own sources.

WILLOW RUN BOMBER PLANT
YPSILANTI, MICH.

Breakdown of Estimated Costs

Land and land improvements	$ 4,703,674
Buildings and building installations	37,021,402
Machinery and equipment	14,102,805
Total	$55,827,881
Grand Total estimated cost	$58,500,000

Other important contractors working on the bomber manufacturing and assembly plant, here differentiated for reasons of convenience from the plant's huge ancillary airport, are listed throughout this article. Construction of the flying field will be described in a subsequent article.

Imposing though its dimensions may be, the 62-acre manufacturing and assembly building actually is only the hub and production center of a vast industrial establishment being created on a 439-acre plot bordering the airport on the west. Facing this side of the airfield, just south of the eastend of the assembly building, is a 261,400 sq. ft. hangar structure. More centrally located on the south side of the main building are the plant's power house, oil houses, fuel storage, cooling tower, two water tanks and two sub-stations. On the west side of the main structure are a reinforced-concrete two-story garage with a combined roof area of 26,000 sq. ft. There is also the plant's paint shop, with a floor area of 157,000 sq. ft.

At a distance of about 1,500 ft. south of the main building, on the bank above Willow Run, Couse & Sanders, contractors, Detroit, have completed a $260,000 sewage disposal plant of activated sludge type. This plant and all sewage and water facilities for the entire project were designed by Hubbell, Roth & Clark, Inc., consulting engineers, Detroit.

Steam for heating the entire plant is to be supplied by four oil-fired boiler units in the power house. To provide electric power for machine operation in the plant, the Detroit Edison Co. is installing two electric sub-stations which will step down 120-kv. power to 24,000 volts. Eleven secondary transformer stations installed below floor level in the manufacturing and assembly building will make further reductions in voltage. Power consumption by the plant at peak production is estimated at 50,000,000 kwh. per year.

Total factory and office floor space of the bomber plants is 4,094,480 sq. ft., or 90 acres, and the roof area of all buildings is nearly 70 acres. The airport area has been set at 1000 acres, making the total for the entire establishment almost 1500 acres. An accompanying tabulation gives the breakdown of estimated costs for land, buildings and equipment, totaling nearly $58,500,000.

Manufacturing Plant — Some idea of the size of the huge plant is indicated by the Ford Motor Co.'s intention to employ in it 80,000 men on a two-shift basis. Parking fields for 20,000 cars are included in the layout, and the Michigan Highway Department with the aid of defense road funds already has started construction of divided multiple-lane arteries which will be separated at intersections by three-level bridges in the vicinity of the bomber plant.

As shown by an accompanying plan, the main building is 3,120 ft. long by 700 ft. wide with a wing 580 ft. in width projecting 500 ft. to the north at the west end of the structure. A main assembly section 2,800 ft. long by 700 ft. wide includes two 150-ft. clear-span bays 2,800 ft. in length for major assembly of big air frames for Consolidated B-24-D bombers. Minor assemblies of parts for the bomber air frames are to be made in a sub-assembly area 2,800 ft. long and 240 ft. wide, comprising four 60-ft. clear bays.

All of the remainder of the building, including the wing but excluding a 40-ft. strip reserved for engineering and other facilities along the 1,280-ft. west wall of the structure, is utilized for manufacturing. In that portion of the manufacturing area measuring 1,200 ft. in length are four 60-ft. crane bays and one 40-ft. bay equipped with a mezzanine locker floor. The shorter section of the manufacturing area, 500 ft. long in the north-south direction, has three 60-ft. crane bays and two 40-ft. crane bays, one of the latter bays carrying a mezzanine locker floor above a low-level craneway which provides 15½ ft. vertical clearance under the bridge crane.

Remaining bays of the entire building, comprising in each instance two 20-ft. aisles between columns spaced on 20-ft. centers in both directions, are utilized for mezzanine floors and locker floors above the first floor. To provide safe, easily controlled employee access to the building, six overhead bridges cross a concrete driveway and railroad tracks on the south side, where the parking fields are located, and tie into the building frame approximately on the level of the upper locker room floor in the south bay. The bridges extend inward parallel with the roof trusses to a second locker room floor in a 40-ft. bay separating the sub-assembly area on the south from the major assembly area in the heart of the building. At the outer end of the bridges are watch towers for plant guards and elevators to raise lunch wagons to deck level. Lunches will be delivered in these rolling wagons across the bridges and into the building at mealtime. Toilet rooms are provided on upper floors in the 40-ft. bays for each 38,000 sq. ft. of floor area. .Provision of these facilities, plus close control of pedestrian movement over the bridges, is relied upon to avert danger of any willful damage to machinery at times when full supervision is not present on the manufacturing and assembly floors.

In the assembly building, transportation of parts and assemblies will be by overhead electric-powered monorails. The American Monorail Co. is installing mile upon mile of overhead carrier tracks under an $800,000 competitive-bid contract.

Expansion of Plans — Original plans for the bomber plant proposed an L-shaped building measuring 880 ft. in the short leg and 1,720 ft. in the long leg. Later additions to the plans increased the overall length of the short leg to 1,280 ft. and the overall length of the long leg to 3,120 ft.

Urgent demand for rapid construction caused difficulties which are fairly typical of practically all defense projects. Preliminary sketches were made by the architects and approved by the owner. Structural steel drawings were prepared with great rapidity and the architectural drawings were developed coincidentally by a large staff of architects and engineers. Steel bids were taken and contracts let while excavation plans were being completed. Contracts for the architectural trades were awarded while steel work was being fabricated. The foundations were ready by the time the steel was delivered for erection. Despite these difficulties, inescapable on high-pressure jobs, the architects, engineers and constructors managed operations so skillfully that the entire working force and all equipment units delivered close to capacity production throughout the course of the job.

Two Types of Contracts — For the original 880 x 1,720-ft. L-shaped building, designated as Section 1 in the revised progress schedule for the enlarged plant, the Ford Motor Co. in the spring took competitive bids for all trade divisions except plumbing, heating, ventilating, electrical work and fire protection. Work on excavations, footings and walls below grade in Section 1 was started in the second half of April on orders from the Ford Motor Co. to the low bidder, although a formal contract was not signed until July 20th, 25 days after the Defense Plant Corp. took over the project. July 20th was the earliest date for the award of any formal contract; several contracts were awarded on that date, and all the remaining contracts were awarded by August 15th. With the exception of the work started in Section 1, late in April, actual construction operations by the various trade divisions on the project got under way at various dates from August 5th to September 21st.

Contracts for a number of elements of the job were awarded as a result of the competitive bids, many of them on a lump-sum basis. Cost-plus-fixed-fee contracts, awarded after taking prices to determine budgets and estimates, were drawn up for four principal divisions of the project: (1) general masonry and architectural trades and coordination of all trades on the job, (2) electrical work, (3) plumbing and heating, and (4) ventilating. Provisions relating to the fee in the first contract are typical of other fixed-fee contracts on the job. The base fee named in the Bryant & Detwiler general contract was predicated on the contractor's low bid in the original proposal, exclusive of additional costs for overtime, winter protection and defrosting of frozen ground for concrete placement. Sums based on estimates for these additional items were set up in the budget, and the fee schedule was graduated in accordance with increases in overall cost occasioned by extra work items.

Foundations and Tunnels — First contractor to start work on the Bomber Manufacturing and Assembly Building was the J. A. Utley Co., Detroit, which was given an order in April to begin construction of foundations and tunnels in Section 1. On the basis of prices quoted in its original proposal, this firm on July 20th, was awarded a contract of a total value of $600,000 to include all foundation and tunnel work for the entire building. For the complete plant, the work involved nearly 2,500 concrete footings for columns some 10,000 lin. ft. of grade beams, or foundation walls, between footings and more than 5,250 lin. ft. of reinforced concrete box tunnels to carry steam lines from the power house to various parts of the building. The tunnels, 6½ ft. high by 8 ft. wide, inside dimensions, have 10-in. walls and 9-in. roof and floor, the floor slab being laid on a concrete and mat. Walls and roof are protected by membrane waterporofing covered with a 1-in. coat of cement plaster.

Predraining Ground — Under the thin topsoil at the site is a layer 4 to 5-ft. thick of coarse sand resting in general on a layer of hard clay which varies in thickness from 0 to 4 or 5 ft. Below this clay is a 4-ft. average thickness of fine sand or silt ending at a depth of 15 to 18 ft. below grade on a hard clay stratum. Normal groundwater level is high, rising to within 2 or 3 ft. of the surface.

Soil and groundwater conditions invited the use of well points for predraining the ground, and the various contractors operated several dozen Moretrench well point systems in and adjacent to the Manufacturing and Assembly Building to lower the groundwater level and permit excavation and construction of deep foundations, tunnels and footings in the dry. Effectiveness of the ground drainage was indicated when press pits in the manufacturing building were excavated to a depth of 12 ft. in the manufacturing area without encountering water. No special well point systems were installed around the press pits, as the groundwater level already had been lowered by other systems in operation in the surrounding territory.

In addition to a large number of Moretrench well point systems used by the J. A. Utley Co. and by Bryant & Detwiler, the Gargaro Co., Detroit, holder of a $157,000 contract for plant sewers, employed similar equipment to predrain the sewer trenches. The Gargaro firm also executed a $55,000 contract for water mains. Drinking water is being brought into the plant 4 miles from Ypsilanti through a 12-in. pipe, and a supplemental supply of treated drinking water has been developed by sinking 26-in. wells at Rawsonville, about 2 miles from the plant, on the Huron River. Industrial water for plant use will be taken from an impounded lake at Rawsonville.

At the site of the sewage disposal plant, constructed in an excavated hole in the high ground forming the north bank of Willow Run, Couse & Sanders used a different drainage method. The excavation penetrated to a considerable depth into the impervious clay stratum. At the top of this impervious layer, the banks of the excavation were stepped back to form a bench, and a shallow ditch was cut in the clay to intercept groundwater seeping out of the sand and silt. The trenches discharged toward Willow Run through breaches cut in the high creek bank.

Structural Steel — On the basis of a competitive unit bid price per pound for fabrication and erection, Whitehead & Kales, Detroit, are completing a contract valued at about $3,000,000 for 27,000 tons of structural steel in the main building, 4,400 tons in the Hangar Building, and 710 tons in the Power House. Structural members and trusses shop-fabricated in large units were delivered to the job on truck-trailers for unloading and erection by cranes. In the northwest portion of the assembly area (Section 3 of the progress plan), an Industrial 60-ton steam locomotive crane unloaded and stocked fabricated steel units in a temporary storage yard. Six Industrial gasoline crawler cranes, five of 15-ton capacity and one of 25-ton capacity, and two Universal heavy truck cranes with long booms erected the steel. At the end of September, when working one shift, Whitehead & Kales employed about 200 men in erection and riveting gangs.

General Contractor — On its $5,000,000 fixed-fee contract, which included construction by general masonry and architectural trades and coordination and expediting of all trades on the job, the Bryant & Detwiler Co., up to September 22nd, operated two shifts five days a week but planned to work six days, as also did practically all other contractors on the job, as soon as an agreement could be reached on a labor overtime rate of time-and-one-half, the maximum rate which the government was willing to pay. For a while, Detroit's building trades locals resisted acceptance of this overtime rate; they wanted to retain the double-time concession obtained after many years' effort, their desire being prompted in part by fear that a reduction on this job would lead to a general reduction in the Detroit area.

On September 17th, the total payroll for the entire project, including the airport, was 2,909 employees. Of this number, nearly 2,200 were engaged on construction of the manufacturing plant. The Bryant & Detwiler Co. had 690 on its own payroll and more than 130 on the payrolls of sub-contractors working directly for the firm. Other contractors on the job employed the remainder of the working force.

In its position as job coordinator, the Bryant & Detwiler Co. installed a central telephone switchboard manned by two operators to take care of 70 lines. The switchboard equipment includes a microphone connecting with a loudspeaker system which summons men on the job to the nearest of five telephone booths scattered about the project.

Concrete Plants — Concrete requirements under the Bryant & Detwiler contract total 95,000 cu. yd., of which 65,000 cu. yd. is in 8-in. floor slab for the 62-acre ground area of the Manufacturing and Assembly Building. This slab calls for reinforcement with two layers of 6-in. welded wire mesh; more than 5,000,000 sq. ft. of mesh is required. In addition to first floor slab laid on ground, the building includes also 800,000 sq. ft. of mezzanine and locker floors consisting of concrete slab reinforced with bar steel and supported on I-beam joists.

Executing a subcontract to supply all concrete for the Bryant & Detwiler work, the Julius Porath & Son Co., Detroit, early in the job erected beside a railroad spur a temporary batching plant to feed a fleet of about ten Jaeger 4-yd. truck mixers. This plant served during the time required to install a permanent Erie plant comprising 350-ton bins and batching equipment capable of measuring out a 4-yd. batch every 50 seconds. The agreement between the contractor and the concrete supply firm calls for delivery of 1,000 cu. yd. in an 8-hr. shift, or 2,000 cu. yd. in 16 hr.

For winter operation, the batch plant is inclosed and equipped with steam heating lines supplied from boilers. A larger truck mixer fleet operates from this plant, which furnishes heated batches, including mixing water, to the mixer units.

Cement is hauled to the plant by the Hess Cartage Co. in special bulk cement truck trailers of 100-bbl. capacity equipped with two screws for unloading. To keep down the weight per axle for highway transport, the trailers haul only 60 to 75 bbl. per trip. The cement comes from the Ford plant at River Rouge.

Concrete needed by the J. A. Utley Co. for its foundation and tunnel work was supplied from a job batching plant in 2½-yd. truck mixers, mostly Ransomes, by the Ann Arbor Construction Co., which supplemented its own hauling units with truck mixers of J. A. McKay & Sons.

Grading Site — To clear woods on the site, strip topsoil, grade the entire area and excavate for the Office Building and Garage, including the deep pit for the transformer station under the latter, the Bryant & Detwiler Co. entered into a sub-contract with Charles J. Rogers, Detroit. To carry out his assignment, which involved about 200,000 cu. yds. of earth-moving, the subcontractor operated eight draglines and four tractor-bulldozers. Deep excavation was predrained by Moretrench well points installed by the general contractor.

Walls and Partitions — Typical exterior closure walls of the assembly area are daylighted by continuous horizontal bands, 4 ft. 8 in. deep, of steel sash, one band for the first floor and another band for each of the upper floors in the outer bays. The north wall, 31 ft. 2⅝ in. high, has a 12-in. brick spandrel from the grade beams to the stone sill under the first course of sash, an 8-in. brick curtain from the head of this band of windows to the sill of the mezzanine sash, and an 8-in. brick spandrel from the top of the latter windows to the stone coping a short distance above the roof line. On the south side the exterior wall is 39 ft. 3 in. high, inclosing three stories in the south bay. Here the bottom spandrel is 12-in. brick, the second spandrel is 8-in. brick, and the two upper spandrels are Gunite 2-in. thick.

The latter construction is fairly typical of the outisde walls of the manufacturing wing and, also, of the receiving and shipping areas. Along the entire west end of the building, inclosing the engineering section, the walls and spandrels are wholly of brick.

In exterior walls for the entire job, the general contractor is laying 1,200,000 face brick and more than 1,400,000 sand-lime backup brick. Interior rooms and partitions require a total of 245,000 pieces of glazed tile and cinder block in various sizes. Gunite for exterior spandrels and for monitor ends is applied under subcontract by Hanna, Zabriskie & Daron, Detroit. Total area of the Gunite is more than 400,000 sq. ft.

Roof — To cover the 59.4 acres (26,000 squares) of roof on the main building, the design calls for U. S. Gypsum steel rib deck of 16-gage sheet dipped in enamel, the deck to be covered with insulation and composition roofing. The Capital Erection & Welding Co., Lansing, Mich., erects the steel roof deck and welds each of the interlocking ribbed metal planks to the steel roof purlins and to the underlying planks in the next lower row, where the ends overlap.

On the metal deck, the Arrow Roofing & Steel Metal Co., Detroit, holder of a $650,000 competitive-bid contract, lays 1½-in. J-M Rock Cork vermiculite insulating sheets and covers them with bonded Barrett build-up roofing comprising four plies of asphaltic felt membrane mopped on and topped with a layer of hot pitch and slag, the latter applied at a rate of 400 lb. per square, requiring a total of 5,175 tons for the 26,000 squares on the big building.

Pitch for the roofing contractor's crews is delivered hot to the job by the Barrett Co. in Tarvia tank trailers. The tank service is predicated on the use of 20 tons per day at the job. Pitch hoisted by hand, using ropes running over pulleys mounted on tripods above roof openings. For raising slag, the contractor employs a gasoline-powered hoist mounted on a truck. This unit hoists a steel bucket holding 4 cu. ft., sufficient to fill a wheelbarrow on the deck.

Electrical Contract—Extensive electrical work covered by a $6,500,000 fixed-fee contract of the John Miller Electric Co., Detroit, is indicated by requirements of more than 130 carloads of steel conduit, ½-in. to 6-in. size, and 30 carloads of fiber duct (293,000 ft.) supplied by the Ford Motor Co., mostly in 2½-in. to 4-in. diameters, including G-E Fiberduct and Brown Co. Bermico fiber conduit. Operations of this contractor, as well as those of the heating and plumbing and ventilating contractors, were fairly well represented in a pictorial story which appeared in Construction Methods, November 1941, P. 42.

All lighting in the entire plant is by fluorescent lamps.

Plumbing and Heating — A $3,000,000 fixed-fee contract of the Donald Miller Co., Detroit, covers vast plumbing and heating installations, including 100 miles of pipe for water and steam and 88 central heating units in the Manufacturing and Assembly Building. Each of these units, capable of heating six good-sized houses, is equipped with steam coils, air filters and blower fans for forcing air through the duct system. Steam radiators are used for heating offices, toilets and lunch rooms. Equipment installed under the contract includes 5,000 plumbing fixtures.

Air Ducts — To fabricate and erect the duct system for ventilating and heating the plant, the Carlson Bros. of Michigan, Inc., Detroit, is executing a fixed-fee contract valued at $1,360,000. Galvanized sheet metal of 16 to 26 gage is used in the ducts.

Canopy Doors — Each of the two 150-ft. wide aisles of the assembly building is equipped at the outer end with a vestibule 120 ft. deep through which assembled bomber air frames can be moved without exposing the rest of the building to drafts. The vestibules are fitted with canopy doors 143 ft. 9 in. wide which raise upward to provide a vertical clearance of more than 33 ft. Under a $260,000 competitive-bid contract, the Byrne Doors, Inc., Detroit, is manufacturing and installing the canopy doors.

Steel Sash — Mullions of the steel sash supplied by the Detroit Steel Products Co., Detroit, under a competitive-bid contract valued at $85,000, are fitted with clips in which wood strips can be inserted to fasten wooden blackout shutters in case of need. Present contracts do not include the shutters. The Steel Window Service, Detroit, is erecting the sash on a $25,000 contract awarded after competitive bidding.

Other Contracts — Creosoted wood block flooring, 2½-in. thick, 16-lb. treatment, is being placed on concrete slab throughout the entire building by the Jennison-Wright Co., Detroit, under a competitive-bid contract valued at $550,000. The Armond Cassil Co., Detroit, by the middle of September had laid three miles of railroad track to serve the plant, the installation being made on the basis of an $85,000 contract received after competitive bidding. Concrete supply firms are using two miles of temporary track for delivery of materials.

Under other competitive-bid contracts, Taylor & Gaskin, Detroit, are providing $232,000 worth of miscellaneous ironwork, the Wickes Boiler Co., Detroit, is installing in the Power House for $249,000, three complete oil-fired boiler units with individual capacities of 60,000 lb. of steam per hour at 175-lb. pressure, and the Cyclone Fence Co. is erecting about $65,000 worth of 7-ft. wovenwire fence.

Underpinning — As already mentioned, construction was started and pushed vigorously before complete plans and details became available. Footings and steel framing for Section 1 of the building had been well started before final machinery layouts for the manufacturing area in this section were completed. As finally laid out, the shop plans called for press pits in the area where construction already had shown considerable progress, making it necessary to underpin adjacent column footings to increased depth.

Progress — Clearing of the site was begun April 21, 1941, by the J. A. Utley Co. on order of the Ford Motor Co. A general fixed-fee contract was awarded to the Bryant & Detwiler Co. on July 20th. Completion of the plant is scheduled for February 1, 1942, with production of bomber air frames to be statred May 1st and peak output to be attained January 1, 1943.

Planning and construction of the plant were carried forward independently by the Ford Motor Co. until June 25th, when it entered into a lease agreement with the Defense Plant Corporation, which then assumed ownership and responsibility for costs of construction. Since June 25th, the Ford

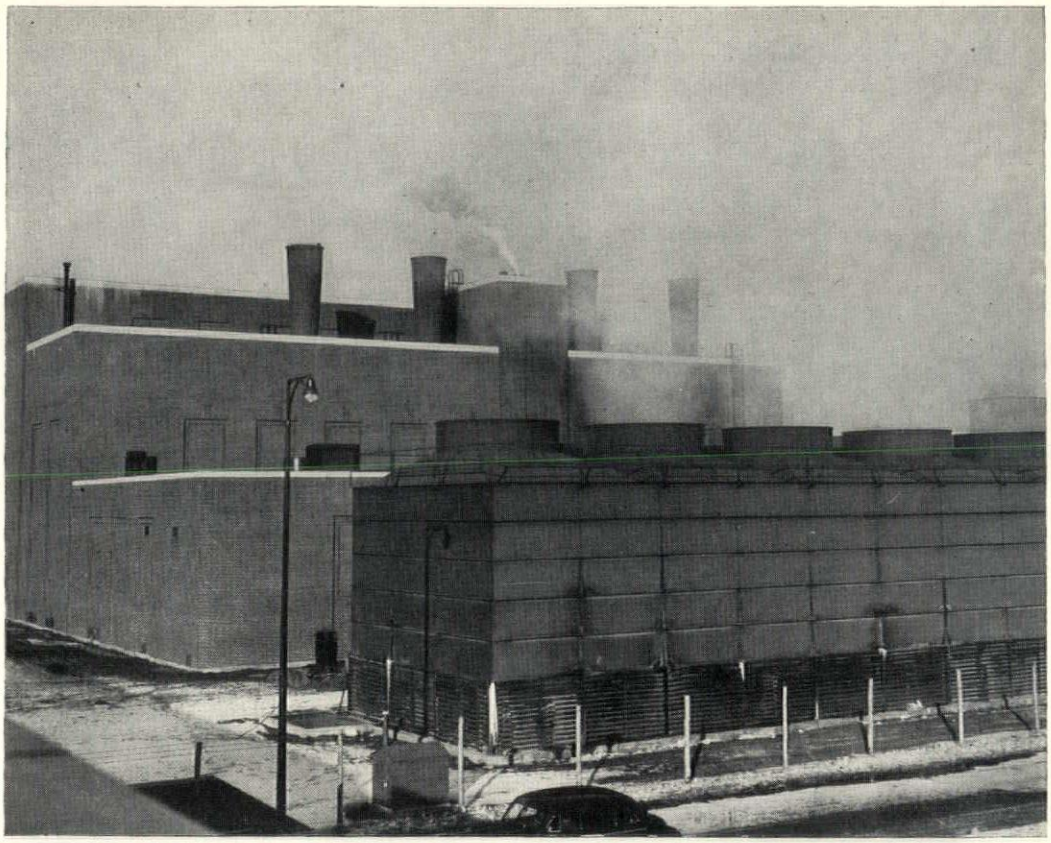
Motor Co. has been acting for and in behalf of the Defense Plant Corporation in managing the job.

Administration — As general administrator in charge of construction, the Defense Plant Corporation is represented at the site by Robert H. Dailey, supervising engineer. For the Ford Motor Co., engineering and field operations come under the direction of H. B. Hanson, who is in charge of power and construction work of the motor manufacturing concern. In the organization of Albert Kahn Associated Architects and Engineers, Inc., the executive principally responsible for decisions on construction of the bomber plant is George Scrymgeour, with Raymond C. Bernardi, superintendent, in charge of the site. The Bryant & Detwiler Co. has Charles M. Reik, a member of the firm, acting as its representative on the bomber plant, with John G. Campbell, general superintendent, directing the firm's job operations and the coordination of all trades.

View in Manufacturing Building

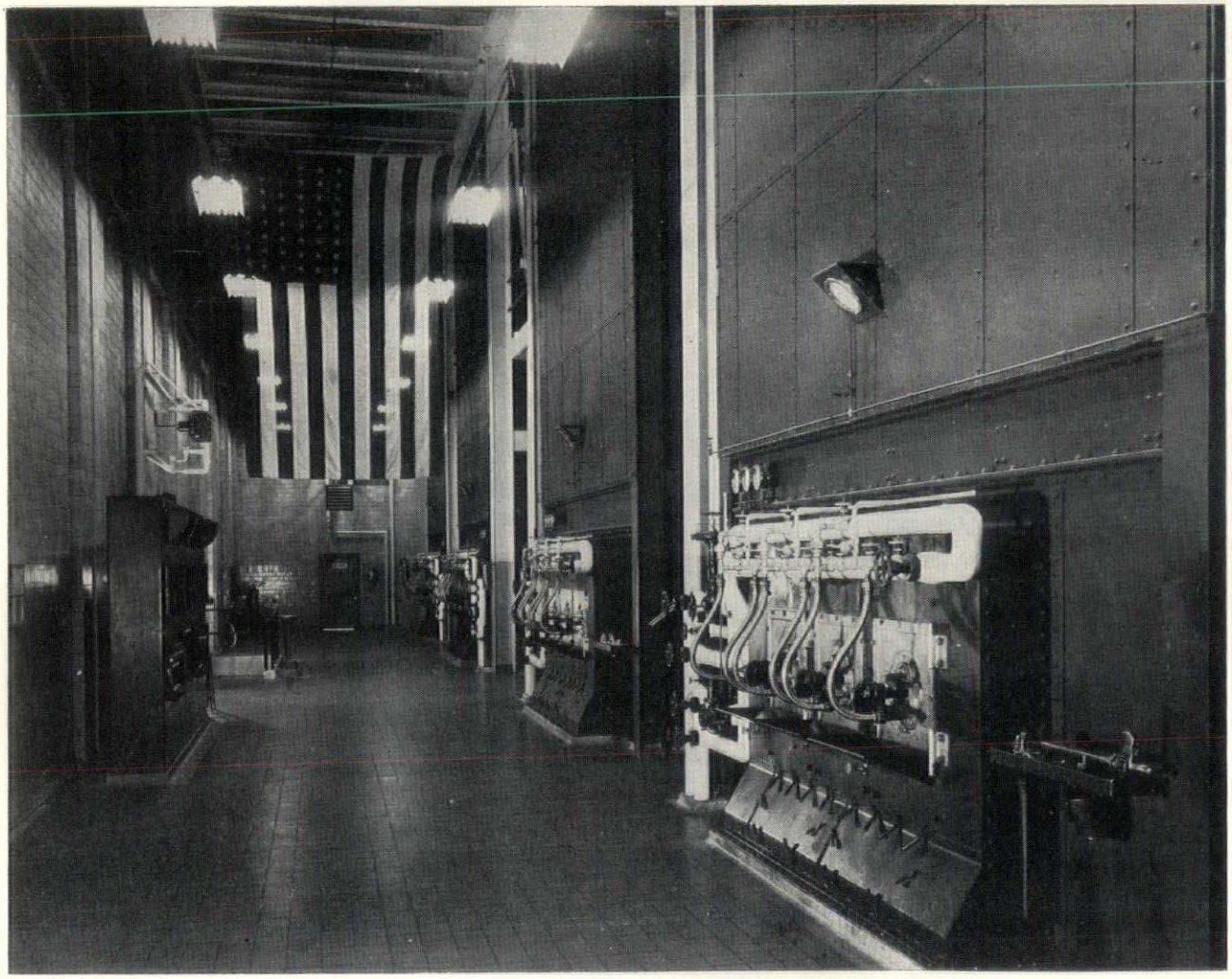
Ship Engineering

FORD MOTOR COMPANY'S WILLOW RUN BOMBER PLANT ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INCORPORATED



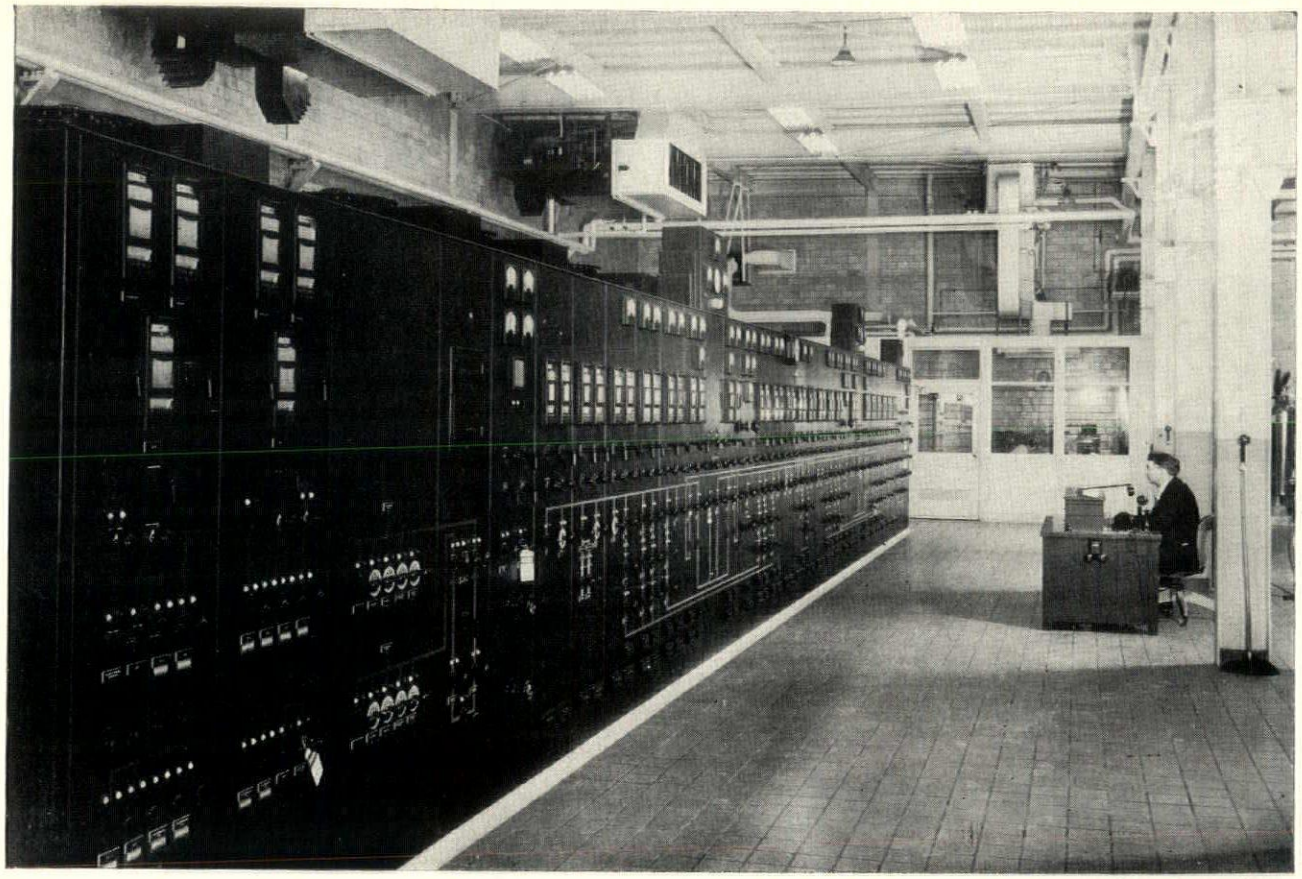
Boiler House

Below:
Front Of Boilers — Operating Floor, With Control Panel To The Left



FORD MOTOR COMPANY'S WILLOW RUN BOMBER PLANT ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INCORPORATED

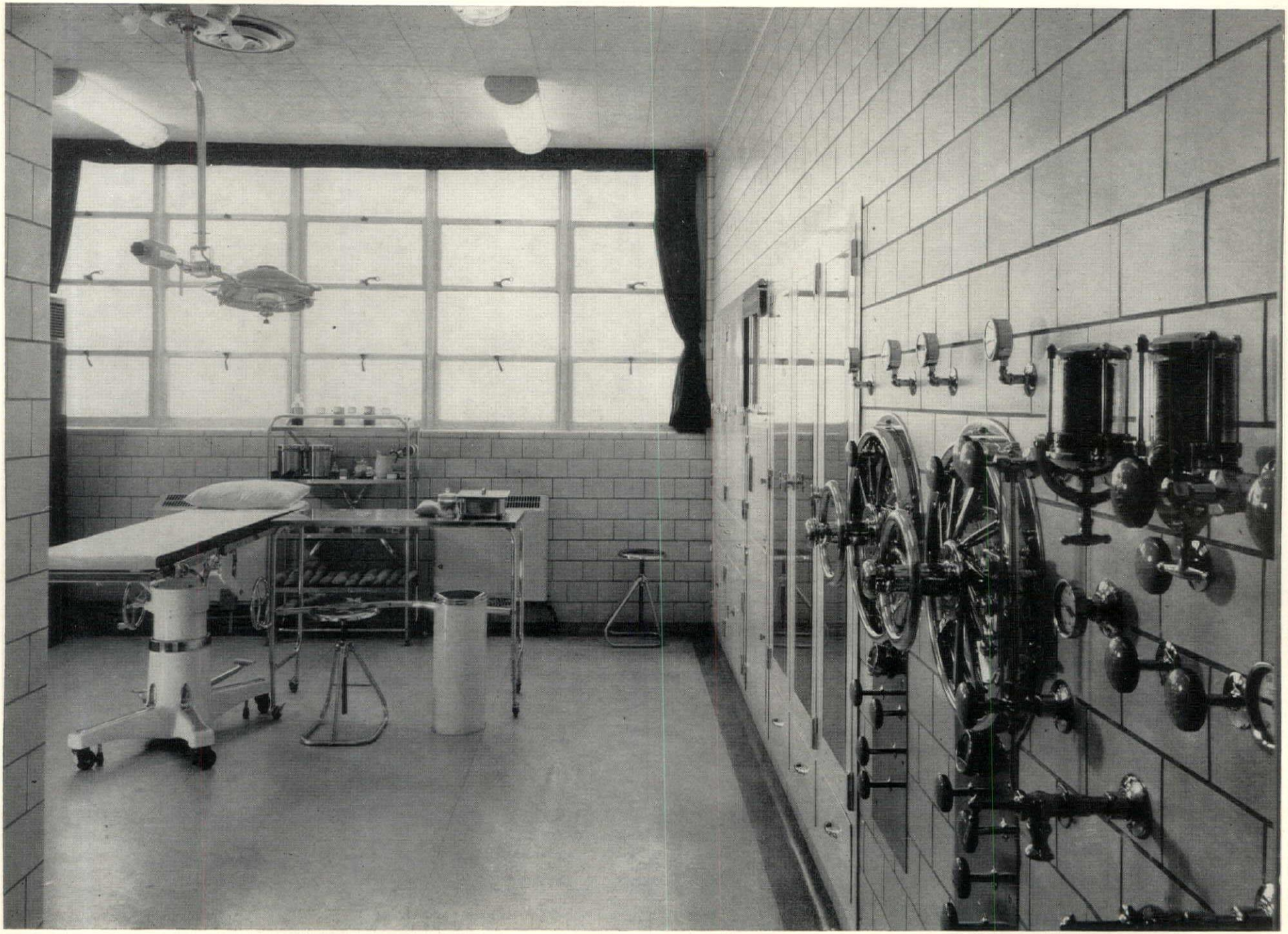
MARCH 30, 1943



Two Views of Boiler House

Above:
Switch Board Operating Floor

Below:
Boiler Feed Pumps — Operating Floor



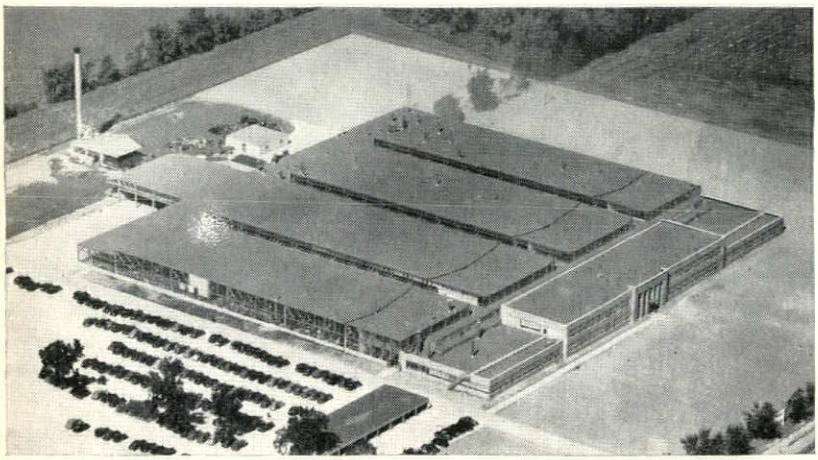
Operating Room In Hospital Of Factory

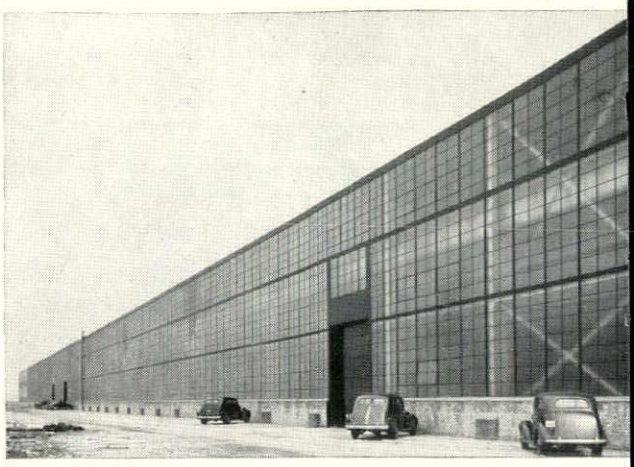
FORD MOTOR COMPANY'S WILLOW RUN BOMBER PLANT ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INCORPORATED

Women's Ward In Factory Hospital

FORD MOTOR COMPANY'S WILLOW RUN BOMBER PLANT ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INCORPORATED

Monuments t






CURTISS WRIGHT CORPORATION
AIRPLANE DIVISION
COLUMBUS PLANT

he industrial genius of

Albert Kahn

The world mourns the passing of a great man. But in this world remain his undying achievements . . . magnificent, lofty, majestic.

In almost every civilized country on the globe, Albert Kahn structures stand in testimony to the genius of this master artist.

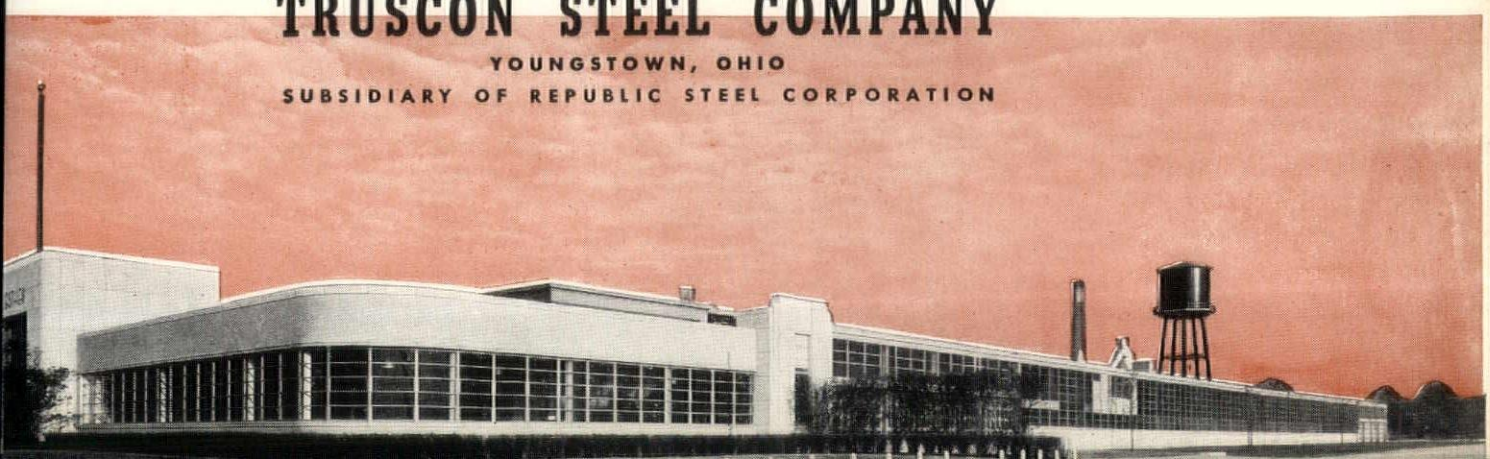
And wherever the architectural planners of today and tomorrow gather, the spirit of Albert Kahn shines as an inspiration to the fulfilment of his ideals.

The Truscon Steel Company is proud to have served Albert Kahn in the design and erection of so many famous structures, a few of which are illustrated here.

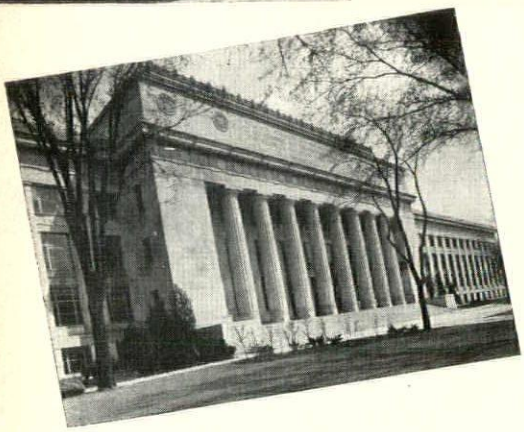
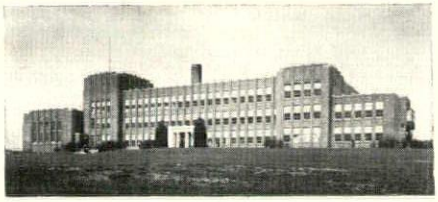
TRUSCON STEEL COMPANY

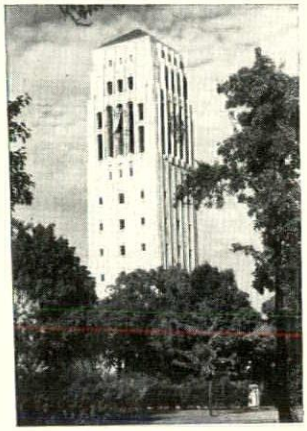
YOUNGSTOWN, OHIO

SUBSIDIARY OF REPUBLIC STEEL CORPORATION



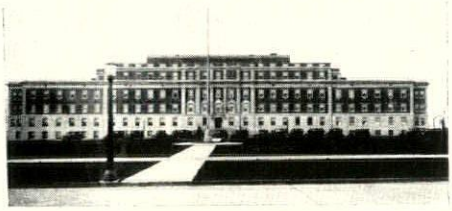








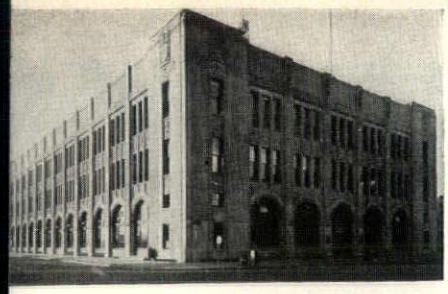



Reading from top to bottom

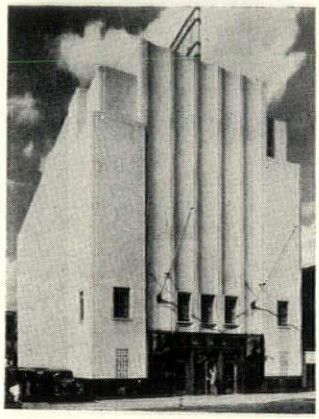
Medical Building, University of Michigan, Ann Arbor
Literary Building, University of Michigan, Ann Arbor
Clements Library, University of Michigan, Ann Arbor
Ford Nurses' Home, Ford Hospital, Detroit
Harper Hospital, Detroit

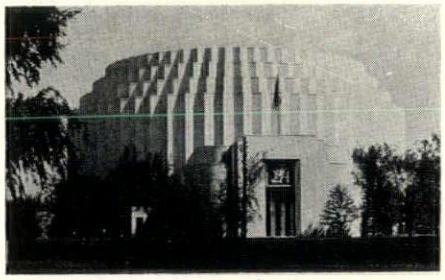
Ann J. Kellogg School, Battle Creek
Southeastern Junior High School, Battle Creek
Carillon Tower, Ann Arbor, Michigan
University of Michigan Hospital, Ann Arbor
Youngstown Hospital, Youngstown, Ohio
Michigan State Hospital, Ypsilanti

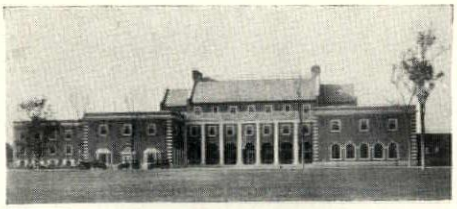
Women's Hospital, Detroit
W. K. Kellogg Auditorium, Battle Creek
Hill Auditorium, Ann Arbor
Herman Kiefer Hospital, Detroit
Children's Aid Society Building, Detroit

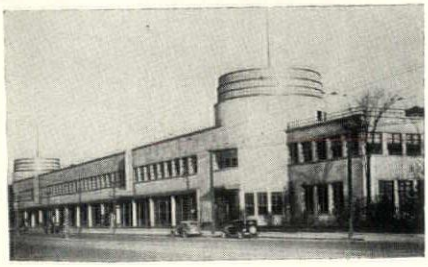
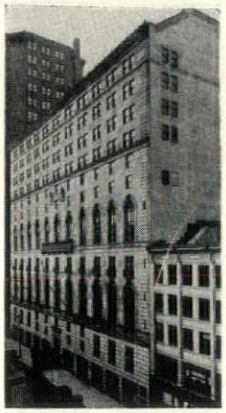
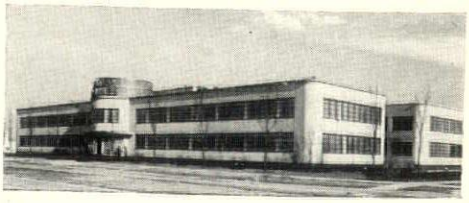






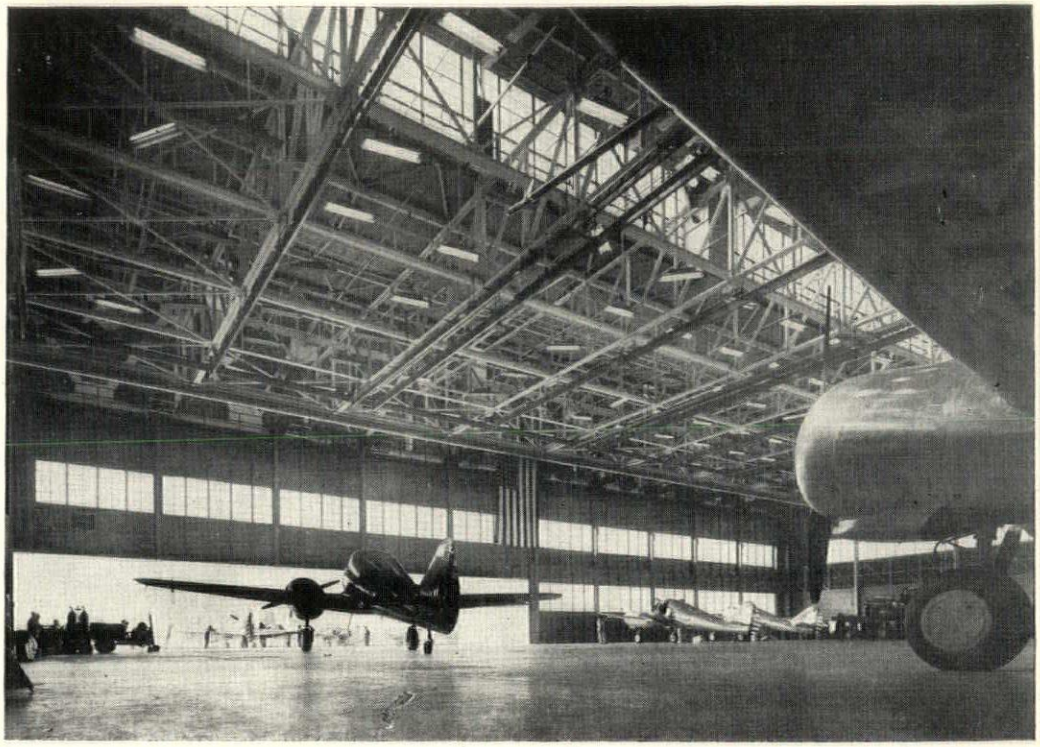




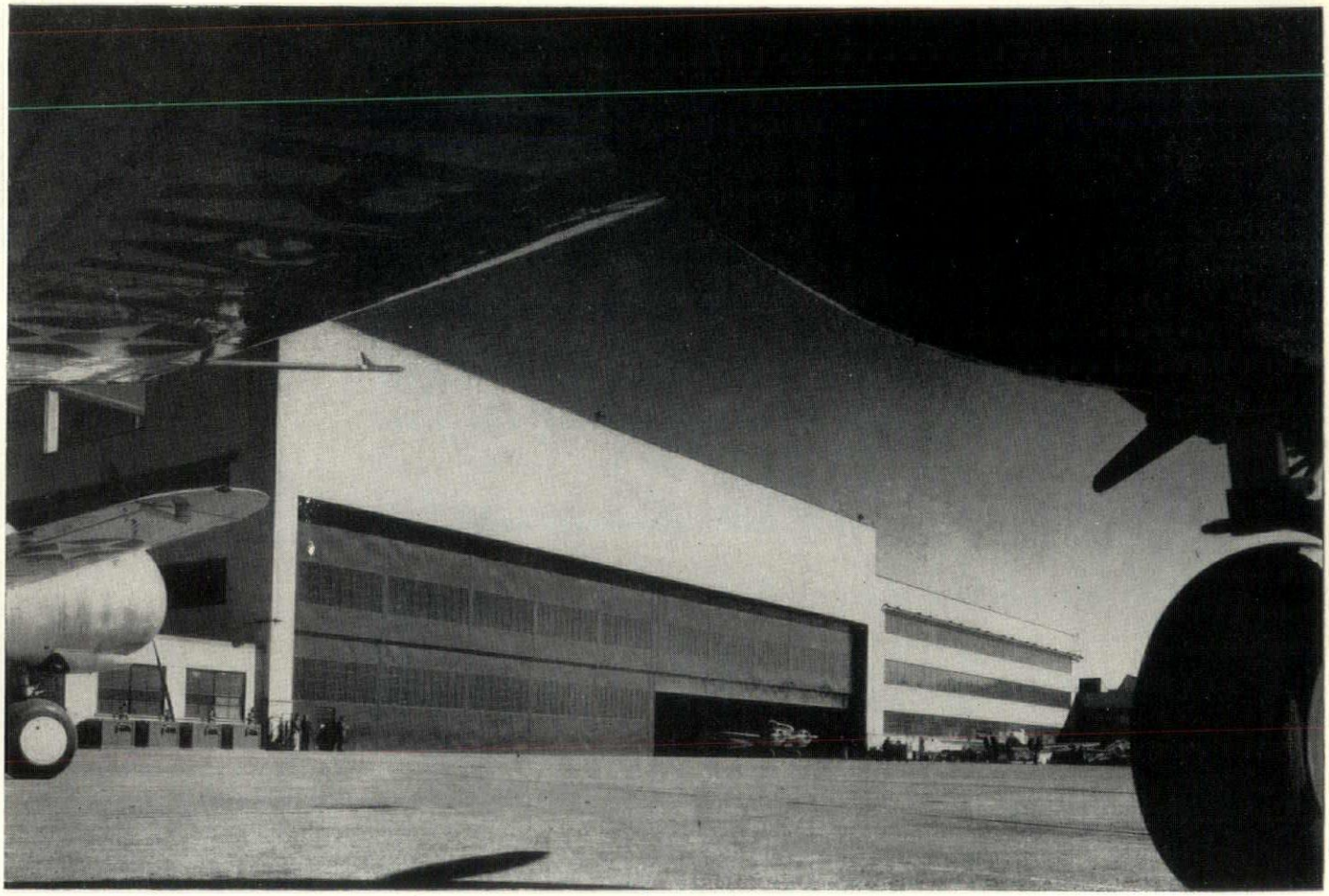
Reading from top to bottom

Detroit News
Detroit Free Press
Detroit Times
General Motors Building, Detroit
Chrysler Sales & Service Building, Detroit
Fisher Building, Detroit
WWJ Broadcasting Station, Detroit
Ford Rotunda Building, Dearborn
Dearborn Inn, Dearborn
Standard Club, Chicago
Kresge Building, Detroit
Maccabee Building, Detroit
National Bank Building, Detroit
Detroit Athletic Club, Detroit
United Air Lines Office Building, Chicago

ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INCORPORATED

Final Assembly Looking From North To South





South Elevation Of Final Assembly

CURTISS-WRIGHT CORP., AIRPLANE DIV., ST. LOUIS PLANT, ROBERTSON, MO. ALBERT KAHN ASSOCIATED ARCHITECTS & ENGINEERS, INC.
H. B. DEAL & COMPANY, INC., GENERAL CONTRACTORS

CURTISS-WRIGHT CORPORATION
ST. LOUIS, MISSOURI

One of the aircraft industry's most important new plants is that of the Airplane Division of Curtiss-Wright Corporation near St. Louis. It is eight times the size of the original plant, on the site of which it now stands. The new $28,000,000 airplane factory has a total of 1,200,000 square feet of floor area. And plans have been completed for substantial additions.

Interesting is the fact that the new manufacturing building was built around the old one. As sections of the new structure were completed, manufacturing operations, which had been continuing without interruption, were transferred from the old building. Ultimately, when all departments had been set up in the factory, the old structure was quickly dismantled.

Work on the new plant was started with a ground-breaking ceremony November 19, 1940. Forty per cent of the roof had been completed and the walls were going up only a few months later, at the end of April in 1941.

The new factory produces in large numbers Army and Navy training planes and also the CW20, which is said to be the world's largest twin-engined transport plane.

Curtiss-Wright engineers and members of the organization of Albert Kahn Associated Architects and Engineers, Inc. of Detroit designed the layout so as to bring about maximum efficiency in the mass production of military aircraft. The general layout makes possible progressive manufacture and assembly. Office, engineering, tooling and planning sections are so located in relation to production as to permit maximum coordination of operations. To make possible straight-line, unobstructed production throughout the manufacturing area, employee facilities—cafeterias, lunchrooms, locker rooms and toilets—are located underground.

Employees, entering or leaving the plant, travel through this underground system, to and from the huge parking area provided for them at the east end of the structure. A ramp takes them from grade to basement level. This arrangement, especially at shift-changing time, keeps pedestrian traffic on the production floor at absolute minimums. Thus, there is less interference with the orderly flow of production than would otherwise be the case.

The system of underground corridors and rooms, it is said, is capable of sheltering the plant's many thousands of employees in the event of an enemy bombing raid.

At regular intervals there are basement toilet rooms—16 in all—with stairways connecting them with the production floor. To reach these stairways, employees have only to walk short distances from their machines. This arrangement, too, makes for greater production efficiency.

The main factory building, which is 1,100 feet long by 600 feet wide, extends east and west. On its south side is a 400-foot-long "wing," two stories in height, which appears to be a single building. As a matter of fact, the "wing" houses the Engineering Building and the Office Building. The east wall of the "wing" connects with the factory building at a point 300 feet from the main structure's east end. Thus, being 400 feet in length, the "wing" terminates at a point 400 feet from the west end of the factory proper, the overall length of that structure being 1,100 feet.

The Office Building section of the "wing," which overlooks Lambert Field on the south, is a two-story structure, 400 feet long by 50 feet wide, with full basement. It has a total floor area of 60,000 square feet. The Office Building is an attractive structure of reinforced concrete. Exterior walls are of buff-colored face brick, backed with hollow tile, finished inside in plaster. First and second-story strips of continuous steel sash admit abundant daylight and add to the graceful symmetry of the building.

The structure boasts an impressive main entranceway. On either side of the doorway are three two-story-high stone pilasters. Between the pilasters, at first and second-story levels, are panels of glass block. Centered in each panel is a section of sash which can be opened for outside ventilation, if desired. The stone-faced section in which the entranceway is located projects 5 feet 4 inches beyond the front of the building and is 72 feet high.

The Office Building's wall measurements are as follows:

From basement floor to sills of basement windows, 8 feet; basement windows, 3 feet 6 inches high; from tops of basement windows to first floor sill, 5 feet 3½ inches; first floor sash, 6 feet 9½ inches high; from top of first floor sash to second-floor sill, 7 feet 8½ inches; second floor sash, 6 feet 9½ inches; from second floor sash to coping, 8 feet.

Office Building floor heights are as follows:

Basement to first floor, 14 feet; first to second floor, 14 feet 6 inches; second floor to roof, 17 feet.

First and second floors have suspended ceilings, with a clearance of 10 feet 6 inches. Thus, space is provided overhead and out of sight for the accommodation of air conditioning ducts.

The reinforced concrete columns of the building are spaced 15 feet on centers in a row 21 feet 6 inches from the front of the building. Paralleling them is a 7-foot-wide corridor that runs the length of the structure. Movable metal and glass partitions enclose the offices.

The roof of the building is reinforced concrete, supported by joists of the same material. Interior walls are plaster. Ceilings are of the acoustic type. And floors are asphalt tile.

The tastefully decorated lobby has a terrazzo floor, walls of flexwood with marble bases, a ceiling of acoustic tile. Illumination is provided by flush-mounted fluorescent lights. Off the lobby are men's and women's restrooms and telephone booths. An elevator serves lobby and all floors.

Curtiss Wright makes excellent use of every square foot of the Office Building.

For instance, the basement contains photographic, chemical and metallographic laboratories, mail room, teletype and telephone rooms, storage room, fan rooms. Corridors connect the Office Building basement with the basements of the adjoining Engineering Building and the factory proper, which lies immediately beyond.

The first floor of the Office Building houses, besides the lobby, the general sales offices, the offices of Army and Navy resident personnel, the pilots' room, conference rooms and the first floor toilets of the adjacent Engineering Building.

On the second floor are found the executive offices, accounting department, offices of the factory manager, the personnel director, the assistant treasurer and Government auditors. Also on the second floor are men's and women's toilets and also the toilets that serve the second floor of the Engineering Building. The Office Building connects on all floors with the Engineering Building, immediately adjoining it to the north.

The Engineering Building is 400 feet long by 120 feet wide; thus, with its half-basement, which lies under its east end, it has a total floor area of approximately 120,000 square feet. Steel columns, spaced 60 feet on centers north and south and 25 feet east and west, support steel girders spanning the 60-foot measurements. These girders, in turn, support reinforced concrete joists over which the reinforced concrete second floor, with ground finish, is laid. The first floor has a suspended acoustic ceiling with a clearance of 10 feet 6 inches.

Over the second floor are laid four saw-tooth monitors, two to a bay, which run east and west, or the length of the building. The sash in the monitors faces north, away from the Office Building. Exhaust fans are set in the monitors to provide better ventilation.

Like those of the Office Building, the exterior walls of the Engineering Building are of buff-colored brick. The interior walls are of glazed hollow tile. The roof is of cement tile, with 1-inch insulation and a composition covering.

Engineering Building floor heights are as follows:

Basement to first floor, 14 feet 8 inches; first floor to second floor, 14 feet 6 inches (suspended acoustic ceiling makes first floor overhead clearance actually 10 feet 6 inches); second floor to 36-inch girders supporting monitors, 11 feet 6 inches.

Engineering Building wall measurements are:

Floor to sill, 2 feet 9½ inches; sash in east and west ends of building, 6 feet 9½ inches; sash to second-story sill, 7 feet 8½ inches; sill to coping, 6 feet 10¾ inches.

The half-basement of the Engineering Building is devoted, for the most part, to the executives' garage. The garage is reached by a ramp at the east end of the structure.

The first floor contains the tool design and planning department, drafting rooms, blueprint room, factory offices engineering vault.

On the second floor are the engineering drafting rooms, the experimental design department and the enginering offices.

The factory proper is a vast area 660,000 square feet in extent. From east to west, it measures 1,100 feet; from north to south, 600 feet. There is a basement under more than half the building. With a floor area of 405,000 square feet, it measures 675 feet by 600 feet, the latter measurement the width of the building. The basement lies under the factory's eastern half. Manufacturing floor and basement area make available a total area of 1,005,000 square feet.

The factory proper has a low bay area and a high bay area. In the former, manufacturing operations are carried on; in the latter are located the sub-assembly and final assembly department.

Measuring 400 foot in width, the high bay area runs north and south the entire 600-foot width of the factory and occupies the building's farthermost west end. The high bay area is divided into two departments, each 200 feet wide. First, from east to west, there is the Sub-Assembly Department, with its 100 by 100-foot spans. Paralleling it and occupying the extreme west end of the factory, is the Final Assembly Department. It is entirely free of columns, with 200-foot spans east and west, or across it, and 100-foot spans north and south. Overhead clearance in the high bay area is 40 feet from floor to bottom chords of the trusses.

Indicating something of the size of the troop-cargo transports that take shape in the Final Assembly Department are the huge hangar doors through which they are towed onto the flying field when completed. One door occupies the south end of the Final Assembly Bay, facing the airport, and is 200 feet long by 40 feet high. The other door, which has the same dimensions, is centered in the west end of the plant. Both are canopy-type doors, built in four sections, each 100 feet wide by 40 feet high. A concrete-surfaced areaway which extends along the west end of the building, connects with the concrete runway that leads from the south door to the flying field.

At the south end of the Sub-Assembly Department and extending into the adjoining low bay manufacturing area is the Experimental Department. Twenty-foot-high metal partitions enclose it. An 80-foot wide accordion door opens into the south end of the Final Assembly Department.

Both the Sub-Assembly Bay and the Final Assembly Bay are served by overhead, monorail crane systems, capable of handling the largest sections of aircraft built by the company.

The wall construction of the high area can be described as follows:

Brick with tile backing from ground elevation to cement sill, 8 feet; continuous steel sash, 6 feet 10⅜ inches; gunite, 8 feet 8¾ inches; another strip of continuous steel sash, 6 feet 10⅜ inches; a second section of gunite, 8 feet 5¾ inches; still another strip of continuous steel sash, 6 feet 10⅜ inches; and, finally, gunite, in varying heights, to the metal copings.

Five monitors, each 67 feet wide and 400 feet long, cross the high bay area from east to west. Valleys between these monitors are 34 feet wide.

In the low bay, or manufacturing area, which occupies slightly less than two thirds of the main building, clearance from floor to bottom chords of the trusses is 20 feet.

Wall measurements in the low bay area are as follows:

Brick with tile backing from grade to sill, 8 feet; continuous steel sash, 6 feet 10⅜ inches high; gunite, 5 feet 11⅜ inches; a second strip of continuous steel sash, 5 feet 2 inches high; gunite to metal flashing, 10 feet 6 inches.

Manufacturing area bays measure 50 feet east and west, 100 feet north and south. Monitors 84 feet wide and 600 feet long, cross the manufacturing area from north to south, at right angles to the monitors of the high bay area. Between the monitors are valleys, each measuring 17 feet 4 inches wide. Catwalks along the sash in the monitors make servicing of the glass areas safe and easy. The catwalks are connected by means of bridges. On the roof of the building are also bridges, which cross from monitor to monitor.

Floors of the factory proper are of concrete. The roof is of cement tile, with 1½-inch insulation and a covering of composition.

In the manufacturing, or low bay area, are located such departments as the hammer room, the foundry and heat treat room, the paint dip and finish rooms.

In the 405,000-square foot basement are a cafeteria and kitchen, measuring 140 by 165 feet, or 23,100 square feet; a lunchroom 60 by 140 feet, or 8,400 square feet; a private dining room, five large locker rooms, fan rooms and transformer rooms. Trucks can enter the basement by means of a ramp located in the south side of the building. The ramp also serves the executives' garage under the east half of the Engineering Building.

Twenty-five feet wide, the main basement corridor runs east and west. It is through this corridor that employees enter and leave the plant. A ramp leads from the corridor up to grade at the east end of the building, where the employees' parking lot is situated.

In almost the center of the building, a north and south basement passageway crosses at right angles to the main corridor. This passageway, 12 feet in width, gives recess to the Engineering Building basement and to the basement of the Office Building beyond.

Overhead clearance is 13 feet in the basement section of the main factory building. The factory floor is supported by heavy reinforced concrete columns, spaced 25 feet north and south and the same distance east and west.

Three other buildings go to make up the plant as it stands today. These are the Boiler House and the one-story and basement Personnel Building, located off the northeast corner of the factory, and the one-story Oil House, standing near the northwest corner.

A railroad siding parallels the entire north side of the plant. At two points, railroad spurs enter enclosed receiving docks attached to the building.

The Office and Engineering Buildings of the St. Louis factory have complete, all-year air conditioning, while the factory portions are cooled by pumping in outside air.

The total refrigeration load on the Office and Engineering Buildings is about 850 tons. The load periods on various parts of the system vary greatly, as the dining rooms may require cooling when the rest of the building does not, or offices will often be in use after regular working hours.

Thus, the installation is divided into nine separate direct expansin systems, using reciprocating compressure and evaporative condensers.

The same systems are used for heating by means of steam coils.

Each system is made up of air filters, direct expansion cooling coils, steam heating coils, fans, compressors and condensers located in central fan rooms in the basement. Conditioned air is distributed throughout the Office and Engineering Buildings by means of concealed ducts equipped with directional type registers. The ducts generally are located above the suspended ceilings of the air conditioned sections.

Each system is provided with outside air and recirculating dampers modulating to maintain certain temperatures entering the coils. Refrigeration equipment, as well as steam for heating, is operated under control of thermostats located in the return of air ducts.

The factory building, in which heights to the tops of the monitors vary from 30 feet in the fabricating areas to 60 feet in the assembly departments, is cooled by circulating outside air throughout the interior in sufficient quantity to prevent the temperature at the breathing line from rising more than 5 or 10 degrees above the existing outside temperature.

Mechanical type ventilators, distributed over the entire roof area, bring in the fresh, outside air. And the air is taken from above the 6-foot level. Tests have shown that air at this height is not greatly affected by the radiant heat from the roof surface.

Discharge ducts are extended downward from the ventilators to the bottom chords of the roof trusses to avoid in-

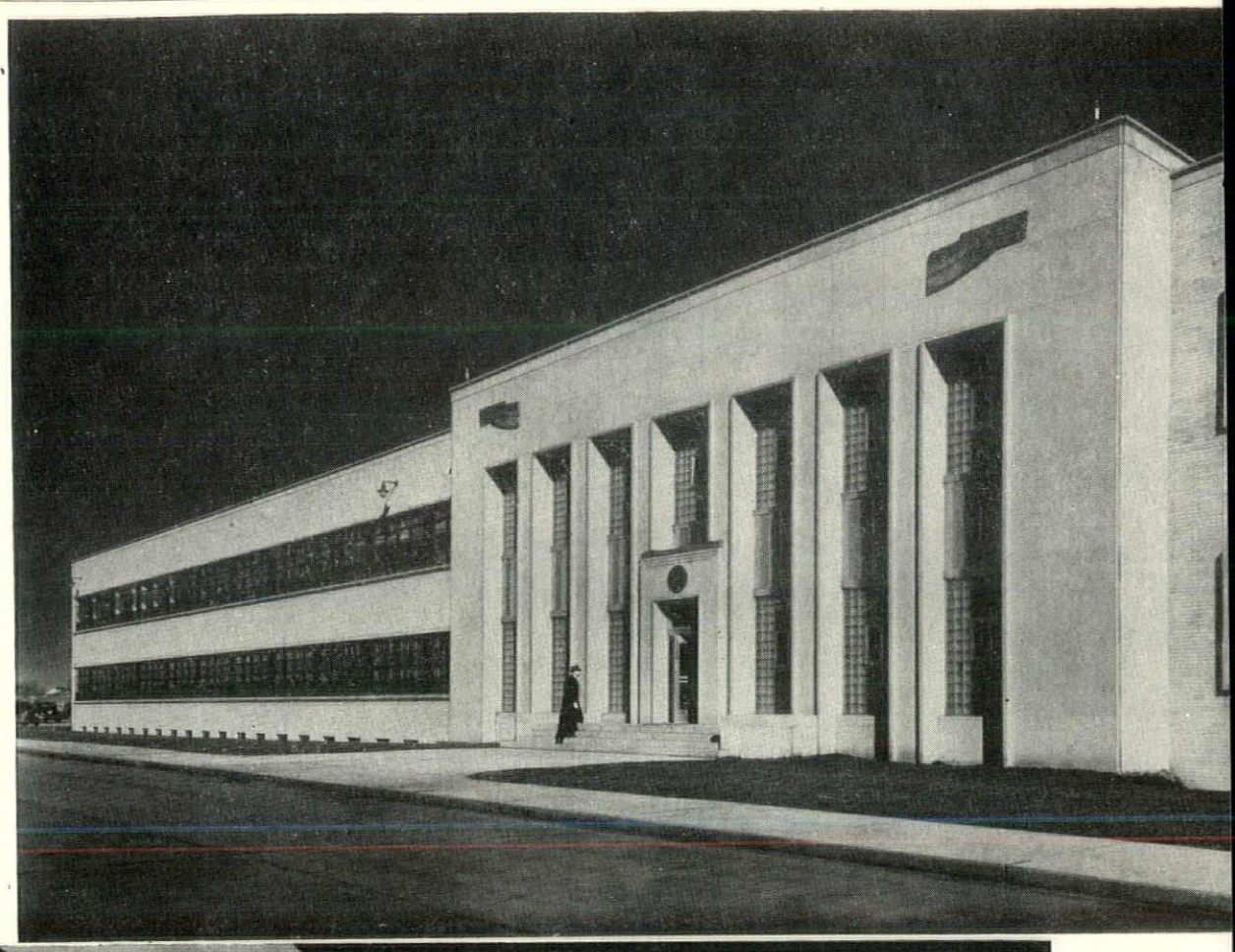
terference with the natural tendency of the hot air to stratify near the roof where it does not affect the temperature at the breathing line. Nozzles at the bottoms of these ducts direct the air at an angle toward the floor at about 2,000 FPM velocity so that convocation cooling is obtained. The strata of hot air near the roof are pulled off from the under side of the roof by means of mechanical exhaust ventilators located at the high points of the monitors.

For every 5,000 square feet of floor space in the plant, one supply and one exhaust unit are provided. All the ventilators are equipped with 36-inch propellor fans, each with a capacity of 10,000 CFM.

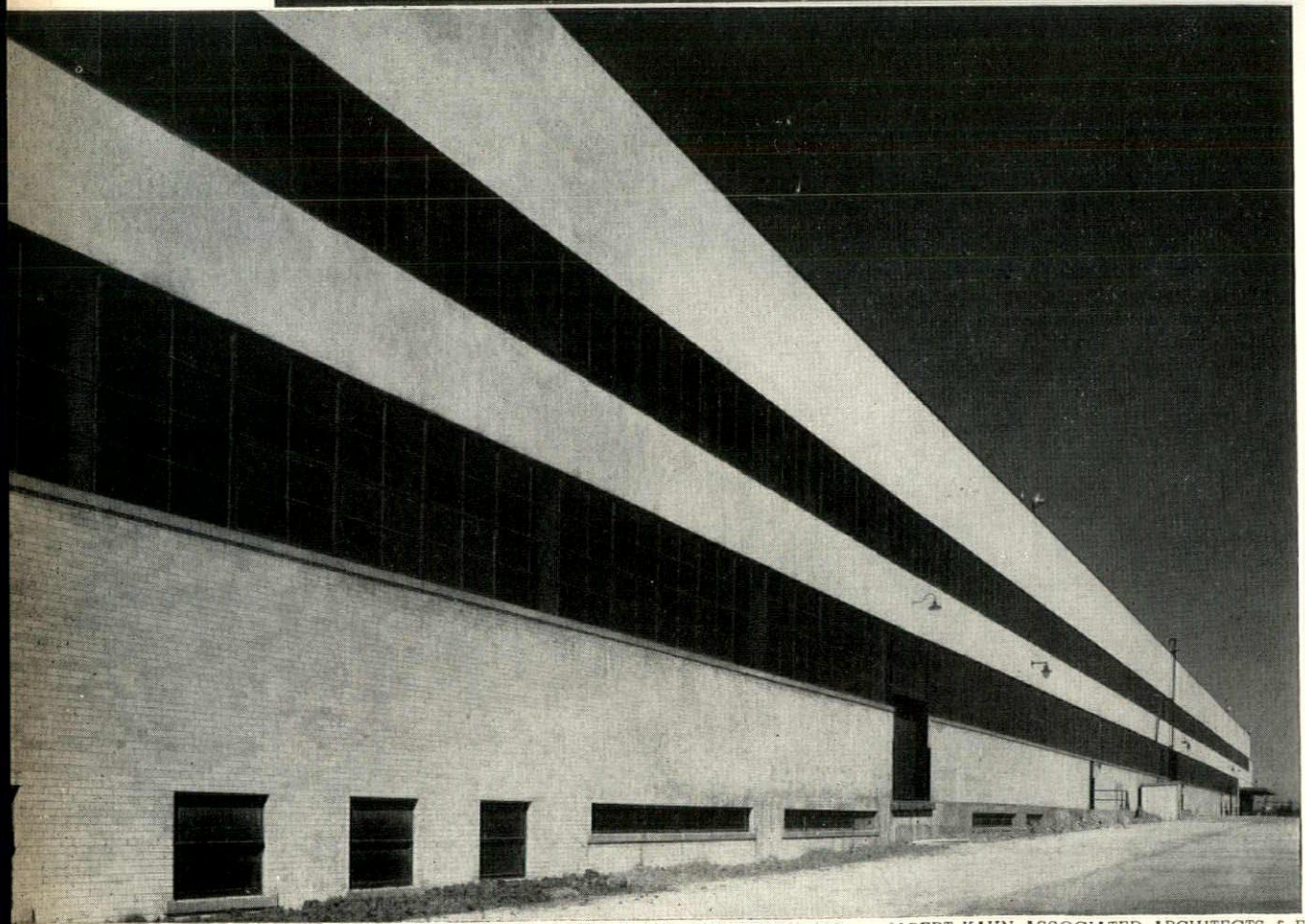
The entire plant's lighting is of the fluorescent type. In the Office building, the fixtures are mounted flush with the ceilings. In the high bay area of the factory proper, type RF fluorescents are mounted on Thompson hangars so they can be lowered individually for servicing. In the low bay section type F fluorescent tubes are mounted in continuous row fixtures, thus providing even lighting with a minimum of shadows cast.

Lobby of Office Building

CURTISS-WRIGHT CORP., AIRPLANE DIV., ST. LOUIS PLANT, ROBERTSON, MO. ALBERT KAHN ASSOCIATED ARCHITECTS & ENGINEERS, INC.



Office Building



Elevation

CURTISS-WRIGHT CORP., AIRPLANE DIV., ST. LOUIS PLANT, ROBERTSON, MO. ALBERT KAHN ASSOCIATED ARCHITECTS & ENGINEERS, INC.

ALBERT KAHN Master Builder

1869 1942

His genius, expressed in stone and steel and wood and glass, left its mark upon the world—an eternal monument to his memory.

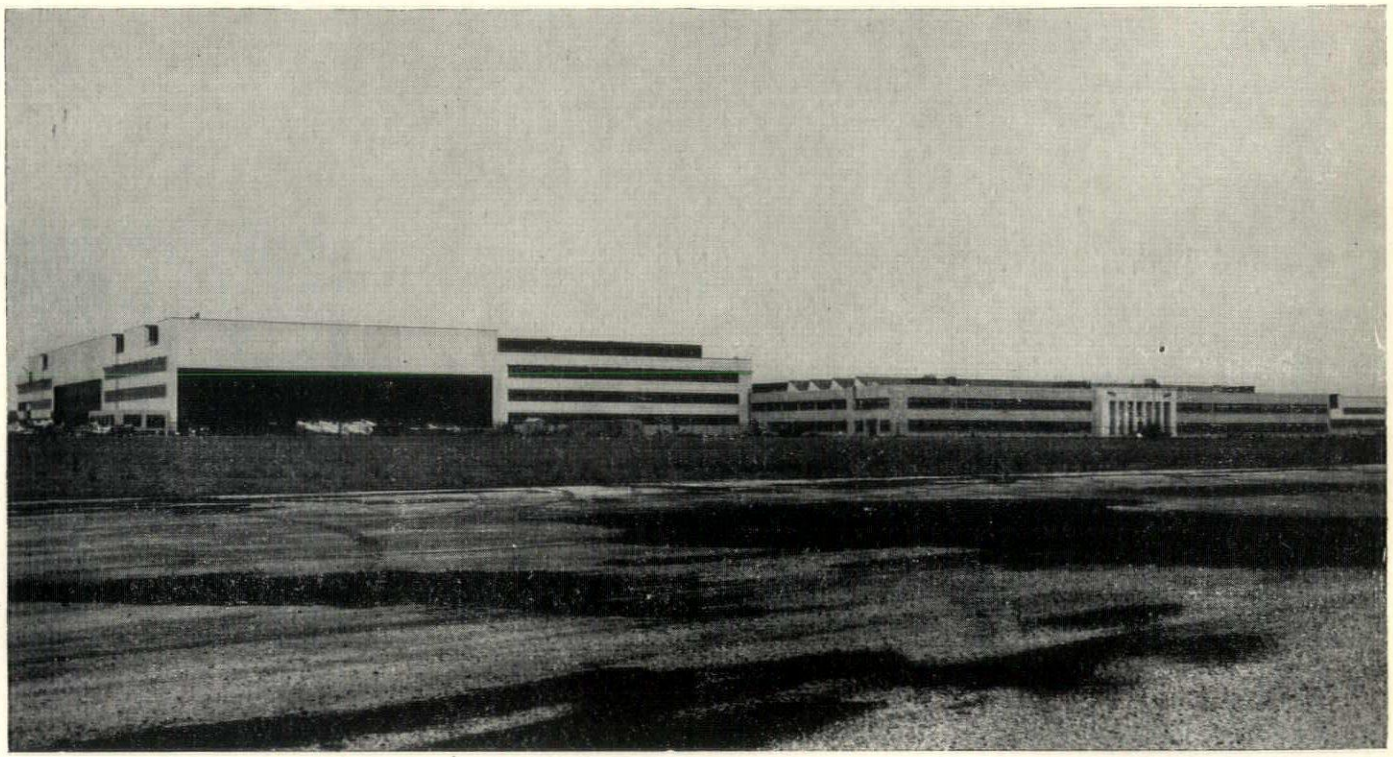
To have been associated with Albert Kahn in many of his more outstanding endeavors was a valued privilege.

To continue association with the architectural organization he created is a worthy aim.

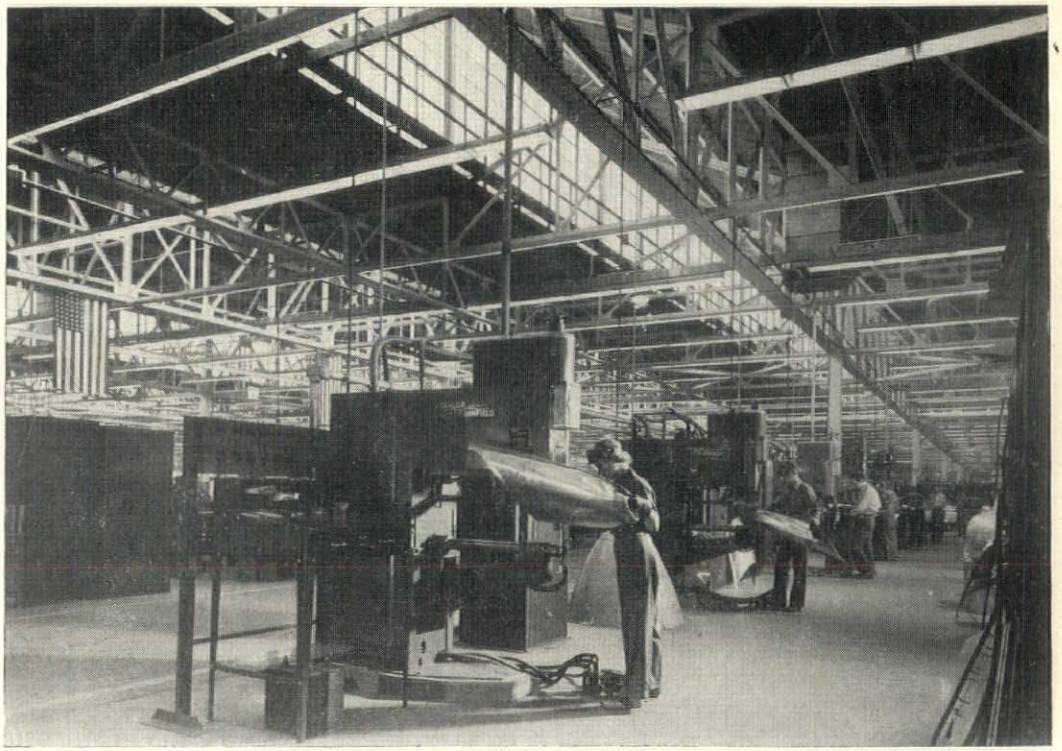
O. W. BURKE COMPANY

General Contractors

DETROIT, MICHIGAN



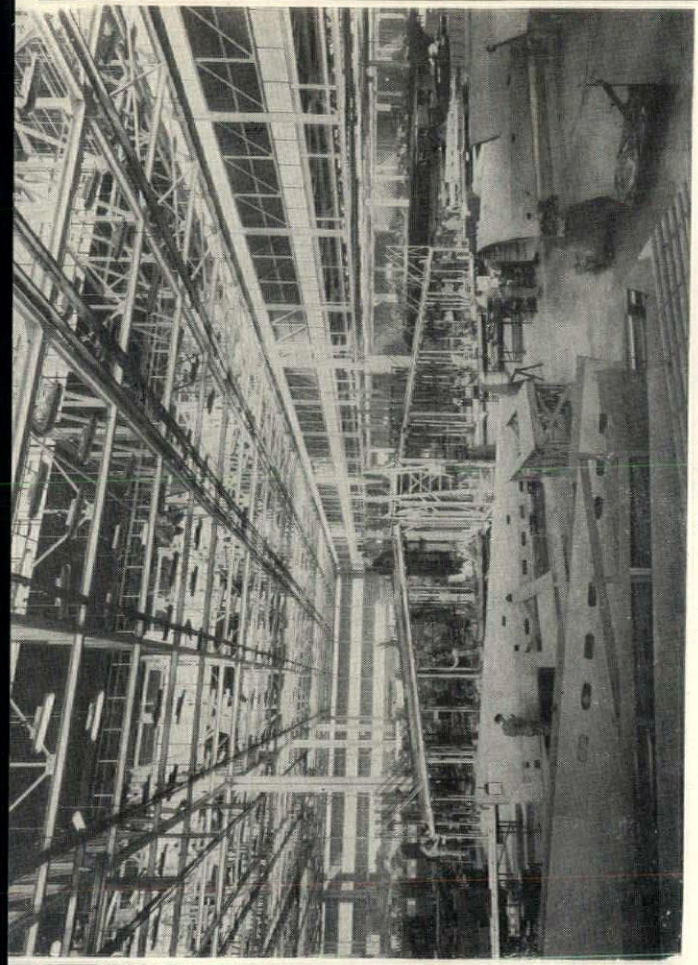
Factory and Office



Electric welding of fuselages.

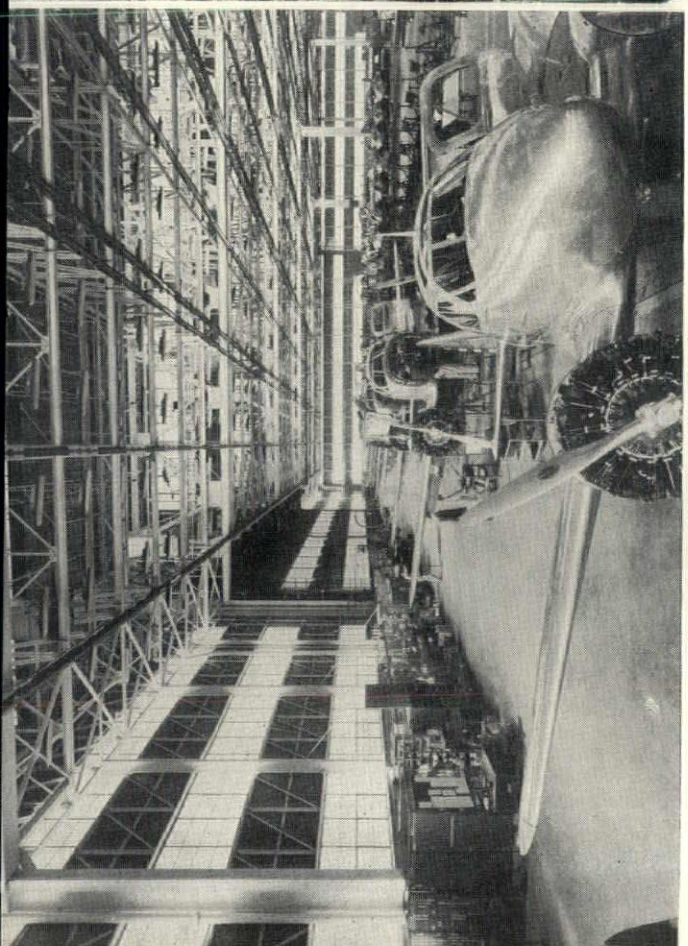
This picture shows the method of introducing fresh air into the building in the summer time. Note the square duct which runs to the bottom of the trusses with an outlet on each side. At the top of the duct is an intake fan of 10,000 CFM capacity, for summer use only. The outlet velocity is 1,500 FPM and there are enough of these units to give 10 air changes per hour for a height of 12 feet.

CURTISS-WRIGHT CORP., AIRPLANE DIV., ST. LOUIS PLANT, ROBERTSON, MO ALBERT KAHN ASSOCIATED ARCHITECTS & ENGINEERS, INC.

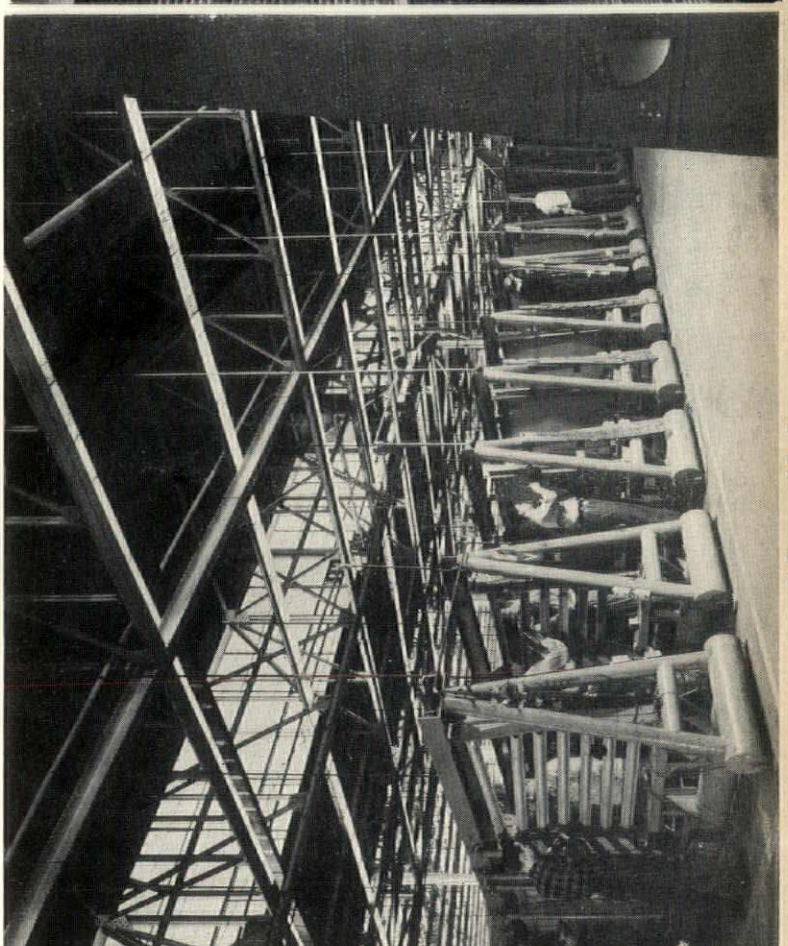


Sub-assembly, Looking North

General Manager's Office

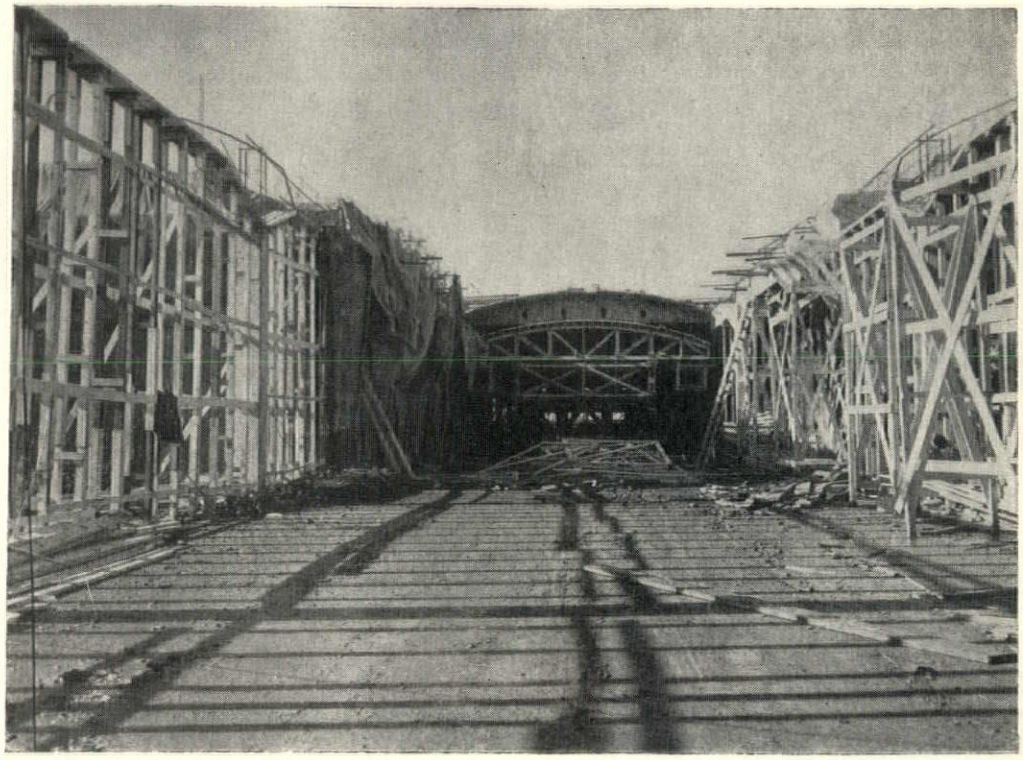


Final Assembly, Looking North

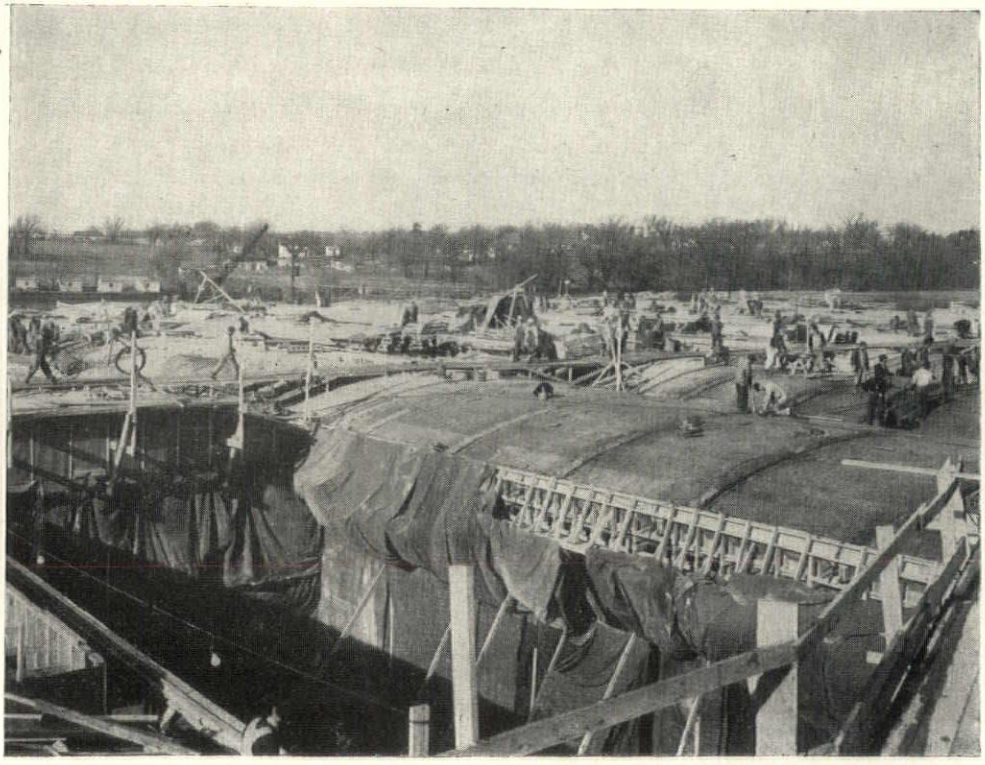


Sub-assembly Bay

CURTISS-WRIGHT CORP., AIRPLANE DIV., ST. LOUIS PLANT, ROBERTSON, MO. ALBERT KAHN ASSOCIATED ARCHITECTS & ENGINEERS, INC.



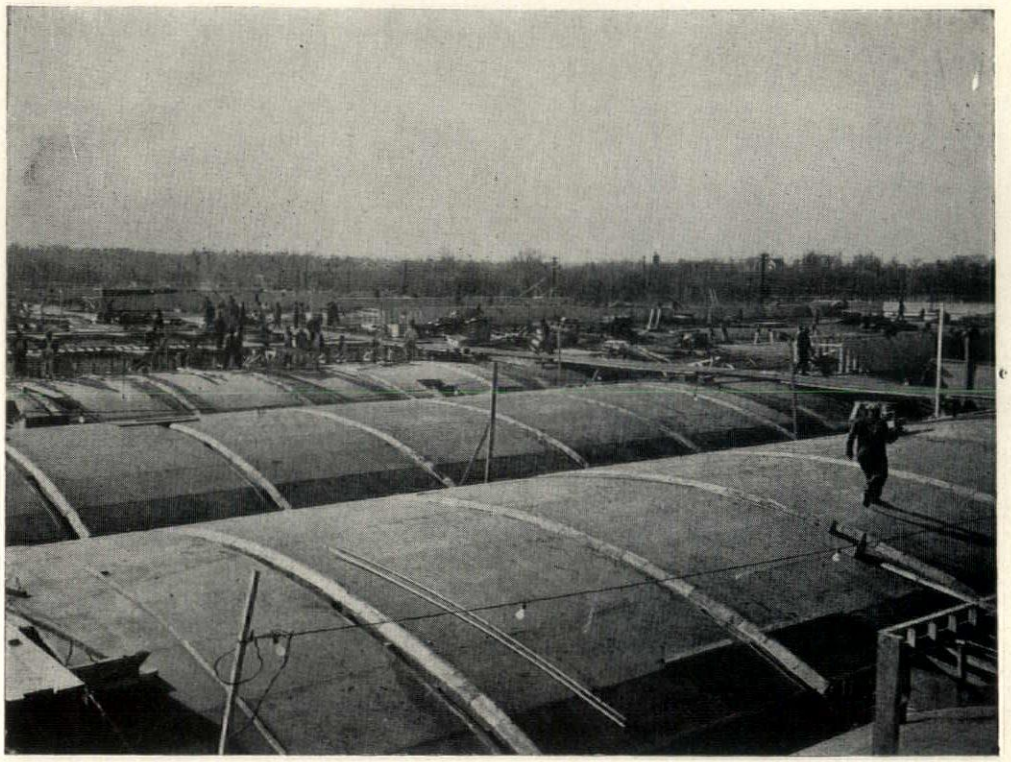
At the Pratt & Whitney Missouri plant, where Albert Kahn, Inc., has introduced mass construction principles, wooden form for the pouring of reinforced concrete roof sections are mounted on wheels and jacks. The 1,000-foot width of the plant advances 80 feet every seven days. Shown here is one of the 80-foot mobile forms after being lowered from the hardened concrete roof. Supporting columns and girders, shown at left, also are of concrete.



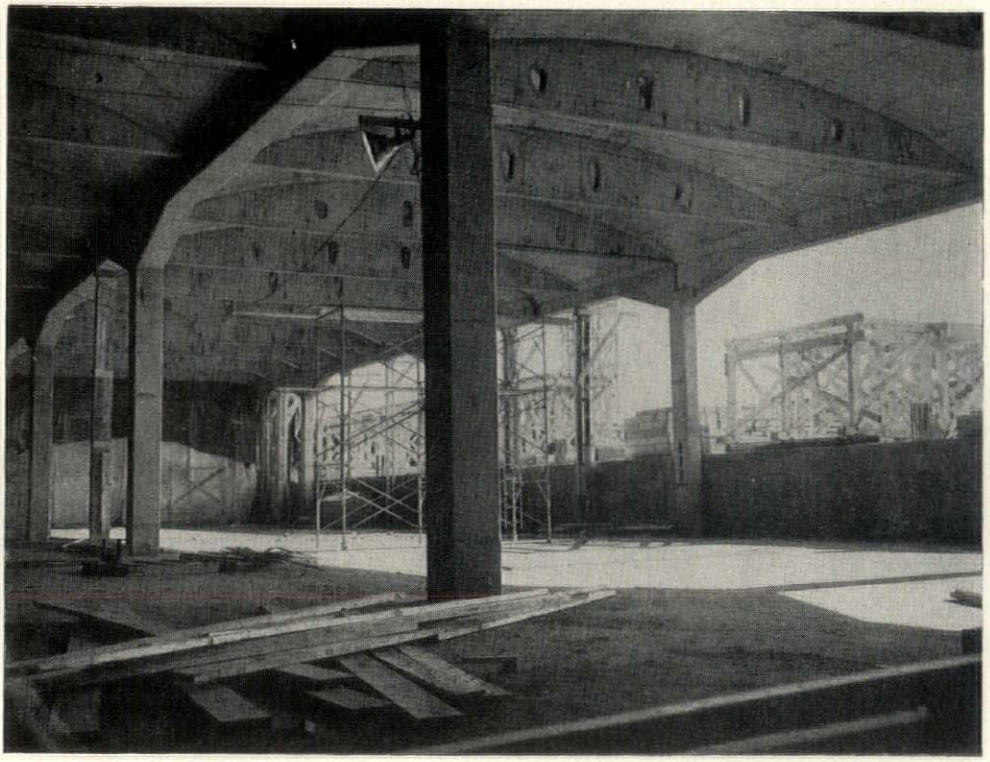
An "Orphan Bay," adjacent forms moved and ready for new setting.

KANSAS CITY PRATT & WHITNEY AIRCRAFT PLANT

ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC.

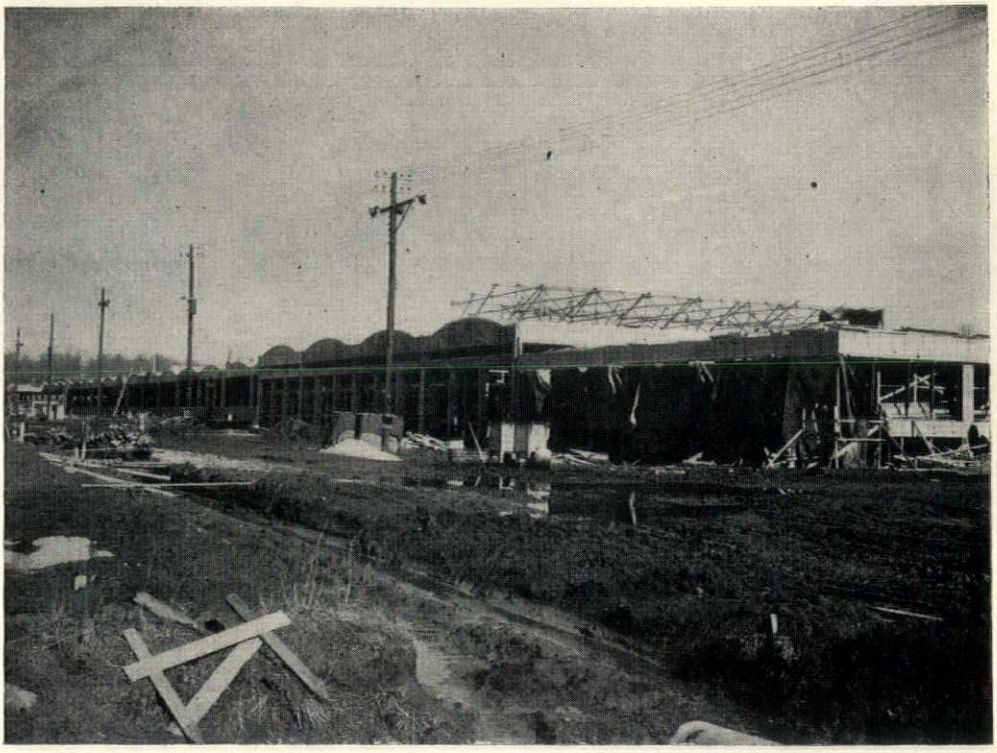


Forms being prepared to pour



This is how the plant interior looks after the mobile forms have been rolled away. Structural steel is held to a minimum.

PRATT & WHITNEY, KANSAS CITY PLANT ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC.
LONG-TURNER CONSTRUCTION COMPANY, GENERAL CONTRACTORS



A Pratt & Whitney Aircraft Plant springs up in the Missouri Valley.

WAR SPEED FACTORY CONSTRUCTION

The steel and lumber shortages have put architects and construction engineers in the same position as the children of Israel, when they were required to make bricks without straw. Nevertheless the Wright Aeronautical Corporation now has under construction in New Jersey, a plant which contains no structural steel, very little valuable lumber, and requiring a minimum of skilled labor. Moreover, although it is going up faster than any other building of comparable size, it is not a temporary jerry-built structure, earmarked for decay and disuse later on. In terms of peace as well as of war it is durable, and functional, and cheap.

The basic material for this building is not new — it is concrete. The method of putting it up — from the roof down instead of from the ground up is only comparatively new. The novel and important fact is that a number of elements — materials, shortages, methods, and brains — are suddenly being combined into what may add up to a new technique for building industrial plants for many years to come. The designers and builders — Albert Kahn Associated Architects and Engineers, Inc., of Detroit, and the Mahony-Troast Construction Co., of Passaic — are not newcomers in the field. Albert Kahn has been designing factories for the big automobile manufacturers for almost thirty years, through boom, depression and the events which led to the construction of Ford's great new bomber plant. His engineers were in charge of the heavy industrial building program of the Soviets' first Five-Year Plan, when there was only one blueprint machine in Moscow. Working with a scarcity of vital materials is consequently nothing new to them.

With such valuable experience of feast and famine, when Albert Kahn and his associates were commissioned by Wright Aeronautical, they philosophically planned a factory that would only require easily obtainable materials. That meant cement. But theretofore cement had been regarded as only suitable for multi-storyed plants — since the cumbersome super-structure into which the concrete is poured involves too great a consumption of time, labor, and lumber for a one-story building. One-story factories are therefore usually built of steel or lumber. Steel construction has led, because of the great span possible between steel uprights, and the convenience of the overhead trusses for overhead piping installations, and strength for supporting overhead conveyors.

What these two companies did was to make concrete, for the first time, an economic and practical material in the construction of one-story factory buildings. The Wright plant takes less than four pounds per square foot of relatively low-cost reinforcing steel, instead of the minimum eleven pounds of valuable structural steel needed in a steel building. In comparison with a concrete building of conventional design, there is a 50 per cent saving both in critical steel and labor, a 120 per cent saving in lumber, and a 25 per cent saving in construction time. Since windows take time and material to install and must be blacked out they have been left out. Air is forced in and out through roof vents. Metal flashing has been eliminated; composite built-up flashings are part of the structural design.

Details of the building process are a military secret, but the idea is simple, if revolutionary. The roof goes up before the walls, and the basis of the blueprints is a series of identical operations, which can be repeated indefinitely, and at ever increasing speed once the first unit is built. This means that the factory is completed in units, with machinery being installed at one end while workmen are still finishing the other. Because the walls do not, as in orthodox concrete buildings, contribute to its support, but are simply there to keep the weather out, they can be constructed of brick, or whatever material is easiest to obtain. As a temporary measure during an acute shortage, they could even be of tarpaulin.

First step is to pour columns, spaced 20 by 38 feet apart, and wide enough for a conveyor type of factory plan. Overhead pipes, sprinkler systems and electrical equipment, encased in iron pipes, are carried through concrete beams that span the columns. These steel-reinforced beams help support, and are part of, the roof, which is also steel-reinforced, to give it the strength to carry overhead conveyor apparatus.

Albert Kahn and his associates have also designed the Chrysler Corporation's new middle western factory. The same construction methods are being used, except for the roof, which, instead of flat will be of arch-rib construction. The strength gained through arching will allow for yet another reduction in the amount of reinforcing steel consumed. The new Chrysler plant, 000 thousand square feet, will be the largest plant area ever assembled under one roof. And the amount of structural steel saved, as compared to a steel structure of the same size, would be enough to build fourteen destroyers .

BUILDING PROFESSION SALUTES PLANT 7 SPEED

New Jersey Contractors Hear George Miehls' Praise— Triple "E" For Troast

(From WAR SPEED RECORD, published by Mahoney-Troast employees at Plant Seven)

In an address before the Building Contractors' Association of New Jersey in Newark recently, George H. Miehls, of Albert Kahn Associated Architects and Engineers, Inc., Detroit, paid warm tribute to Paul L. Troast, president of the Mahoney-Troast Company and his construction organization for the speed with which the new Wright Aeronautical Plant No. 7 was erected at Woodbridge, N. J.

"The construction organization at Plant 7," declared Mr. Miehls, "is the nearest approach to the perfection of a circus troupe that we have ever seen. There is no lost motion.

In another part of his address, Mr. Miehls said:

"To you, Paul Troast, we publicly and proudly present the triple E—effort, excellence and efficiency."

An Impossible Task Performed

". . . It is doubtful if history will make mention of the part played by industry and labor in the battle of production and transformation in making victory possible. Much less can it be expected that history will record the part played by the building industry in providing facilities for that production. Historians see no romance in production or the building of facilities for that production, but the romance is there just the same. We who are intimately associated with the building industry can feel that romance and live that romance. The building industry was given an impossible task to perform and performed it. It continues to perform the impossible under the more and more adverse conditions."

That part of his talk bearing on Plant 7 is quoted in full for the interest of the men and women working on the project. It follows:

"This brings us to a particular point in illustration. This afternoon we visited Plant 7, which is under construction for operation by Wright Aeronautical Corporation. There is a beehive of industry. That 1,500,000 square feet of production had its inception just 60 days ago. Restriction of critical materials dictated that the project eliminate structural steel and that a non-critical material be used.

"Now there were several ways of designing this project in reinforced concrete—beam and slab, flat slab, all of these were considered.

"Years ago there was used a system of cantilever slab design which has long since been displaced by so-called modern systems. But the building contractor on this project revived that old design and applied it to modern methods of construction. It was not the architect-engineer who developed it; it was the building contractor; and the architect-engineer adopted it because it promised to provide the owner with manufacturing facilities in the shortest possible time. This is the type of cooperation between architect-engineer and building contractor which is required; for not only did the design provide all the necessary requirements for the operating company, but met them expeditiously and economically.

"Construction with reinforced concrete has usually been considered slow and unwieldy and for certain types of manufacturing operations, concrete construction may not provide the spans required. For this particular plant the

scheme of construction was perfect. Consider the fact that 220,000 square feet of roof construction were completed each week. This would be equivalent to the erection of 1,600 tons of structural steel each week, after which the roof deck would need to be erected. The entire project of 1,500,000 square feet will have been completed and the owner will have occupied a large portion of this area before the structural steel, even if available, could be delivered from the mill.

"The construction organization at Plant 7 is the nearest approach to the perfection of a circus troupe that we have ever seen. There is no lost motion. When forms are struck and jacks are lowered, the movable forms on tracks roll forward to the next section, and every man is at his place. No sooner has the form deck moved beyond the face of construction than workmen swarm over the deck, placing inserts, conduits, etc. It is a moving assembly line adopted to the construction industry.

"All this smoothness of operation, and the state of completion of the project could not possibly have been accomplished without organization. In the background there are numerous problems to overcome, materials had to be purchased, scheduled, expedited, and all work coordinated in order that for lack of a nail the battle would not be lost. To instill into a construction operation such a spirit of competition, and the high morale that exists, is a tribute to the energy and organizational ability of the building contractor. To further instill into a fluctuating and largely transient organization the spirit of patriotism that is recognized by the Treasury Department in the presentation of the Minute Man flag for the purchase of War Bonds is a further tribute to the zeal of the building contractor. To Mahoney-Troast Company we offer the salute of the building profession.

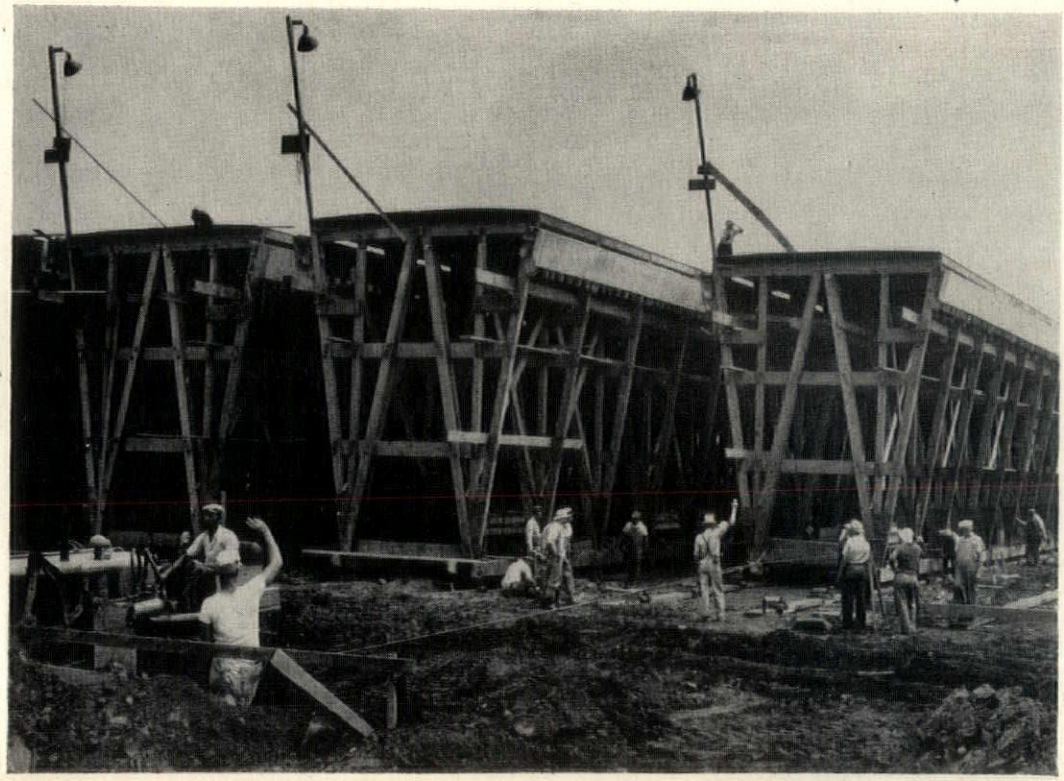
"To you, Paul Troast, we publicly and proudly present the triple E—effort, excellence and efficiency."

In closing his address, Mr. Miehls lauded the representatives of the Defense Plant Corporation, Army, Navy and War Production Board.

"We have found their representatives cooperative, and fair," he said.

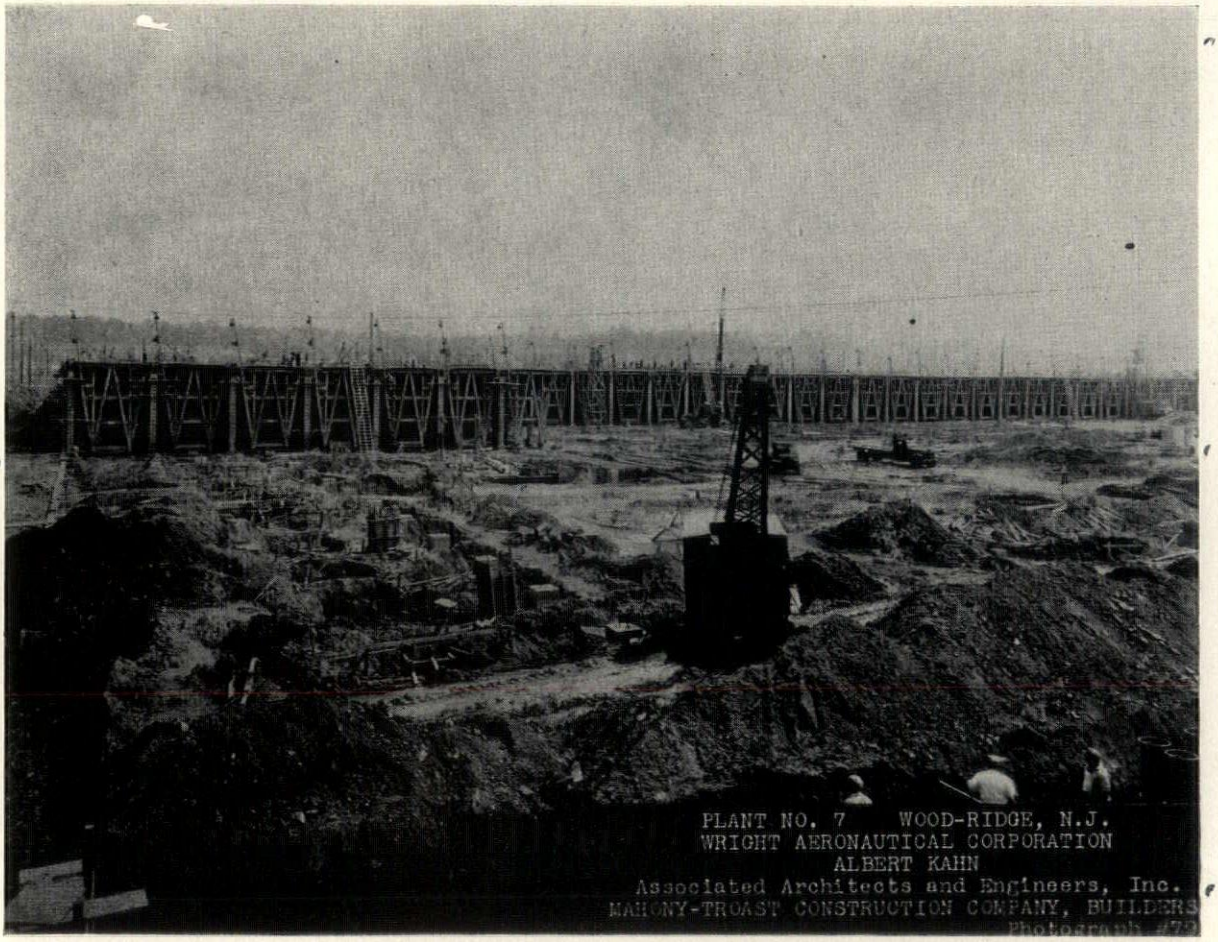
"The battle of production is not yet won, but it will be. The battle of transportation is not yet won, but it will be.

"These battles will be won by us here at home, by concerted cooperative effort, by sacrifices, by going all out to be worthy of the boys who are keeping the enemy beyond reach of our homes. The battle of production cannot be finally won without a concerted, cooperative effort on the part of the building profession to provide the facilities of production for industry. That the building profession is equal to that task there is not the slightest doubt. And even though history does not record these efforts, the records of history would be vastly changed without them; and that is glory enough."



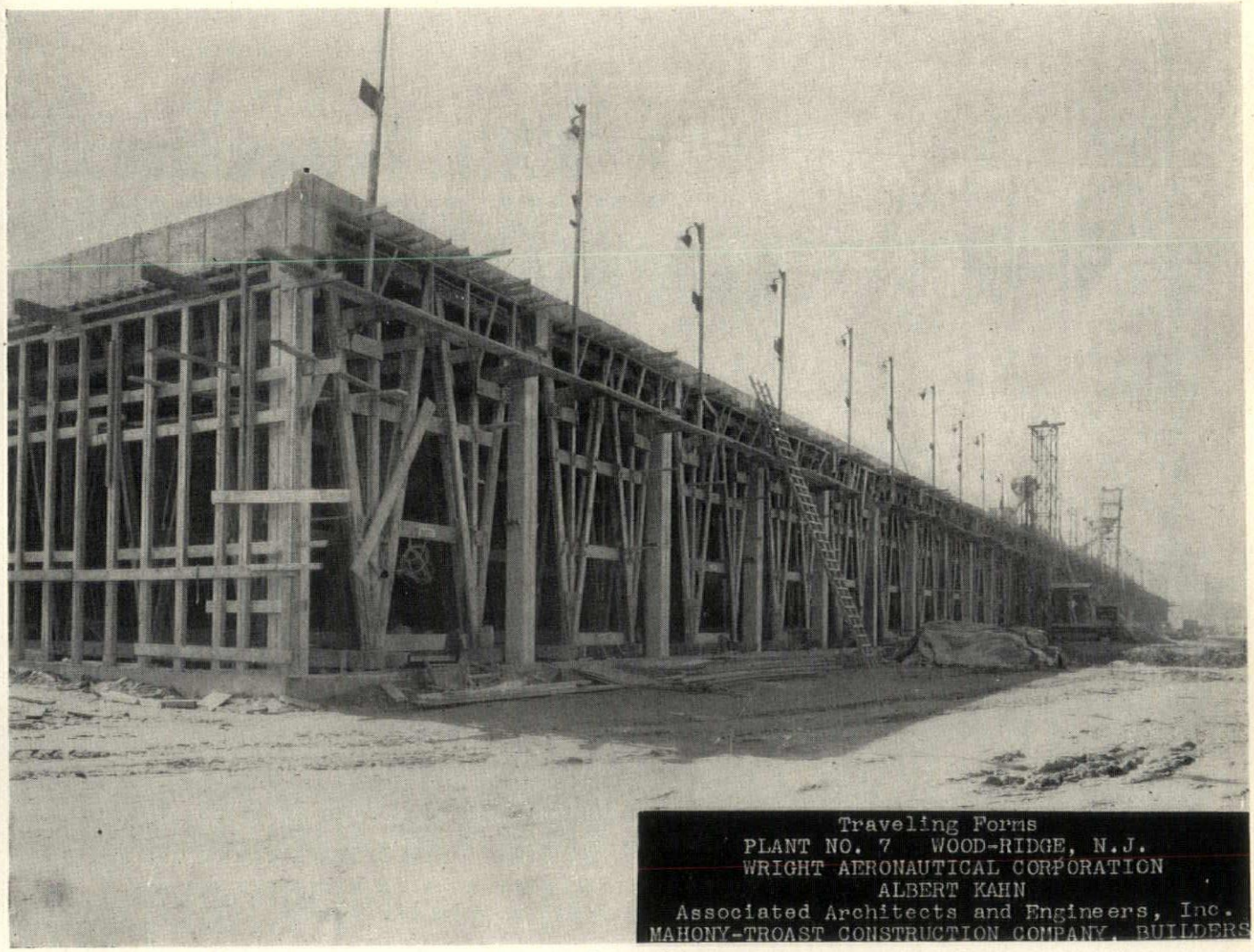
War speed methods are being suddenly combined into what may be a new technique for many years to come.

"It is doubtful if history will make mention of the part played by industry and labor in the battle of production and transportation in making victory possible."



MAHONY-TROAST CONSTRUCTION COMPANY, GENERAL CONTRACTORS

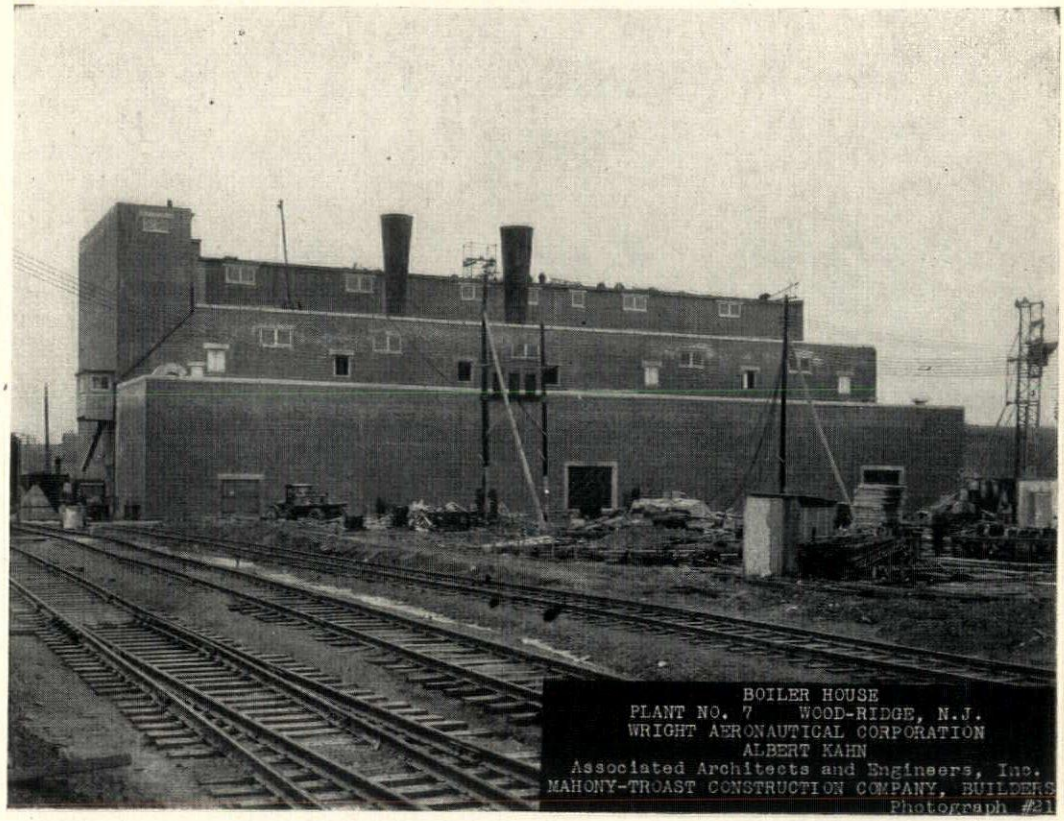
"The Construction Organization at Plant No. 7 is the nearest approach to the perfection of a circus troupe that I have ever seen."



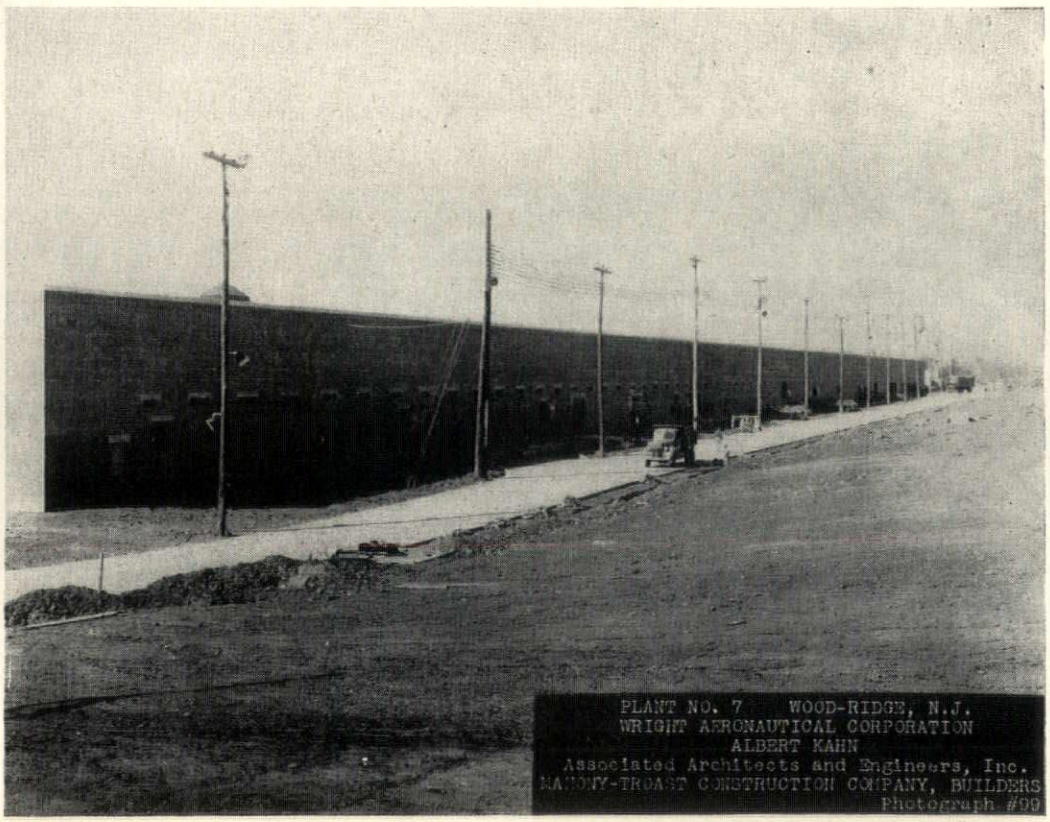
Traveling Forms
PLANT NO. 7 WOOD-RIDGE, N.J.
WRIGHT AERONAUTICAL CORPORATION
ALBERT KAHN
Associated Architects and Engineers, Inc.
MAHONY-TROAST CONSTRUCTION COMPANY, BUILDERS

PLANT NO. 7 WOOD-RIDGE, N.J.
WRIGHT AERONAUTICAL CORPORATION
ALBERT KAHN
Associated Architects and Engineers, Inc.
MAHONY-TROAST CONSTRUCTION COMPANY, BUILDERS
Photograph #118

"They philosophically planned a factory that would only require easily obtainable materials."

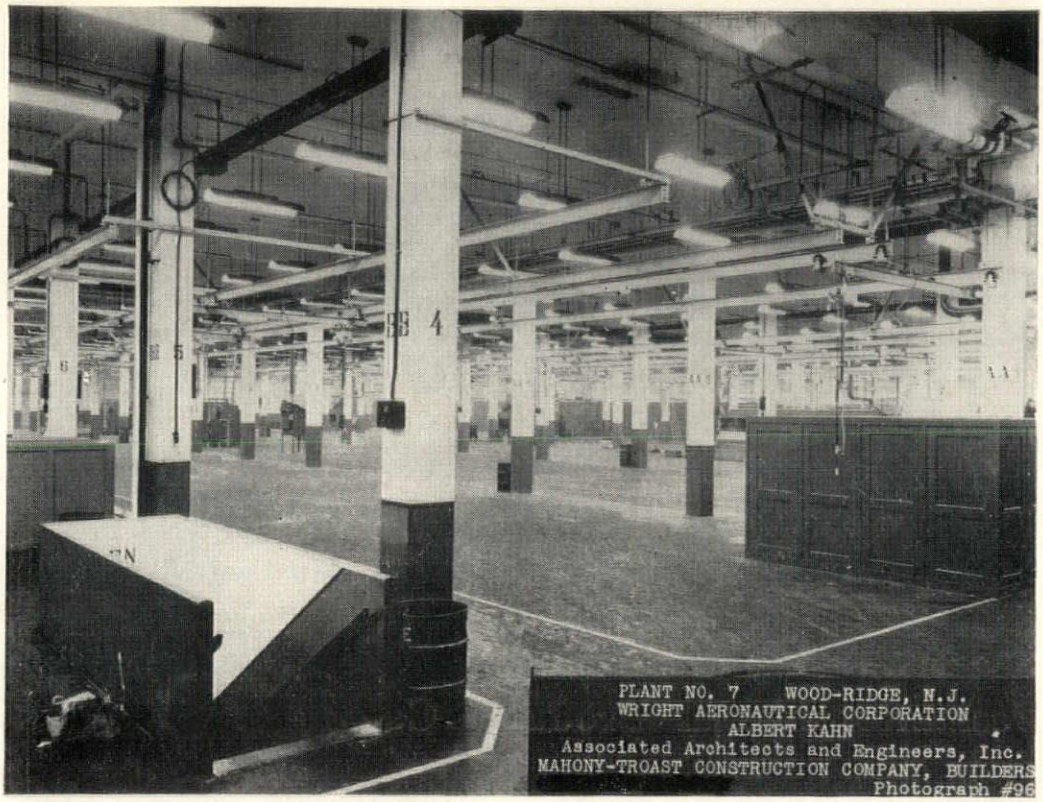


BOILER HOUSE
PLANT NO. 7 WOOD-RIDGE, N.J.
WRIGHT AERONAUTICAL CORPORATION
ALBERT KAHN
Associated Architects and Engineers, Inc.
MAHONY-TROAST CONSTRUCTION COMPANY, BUILDERS
Photograph #21



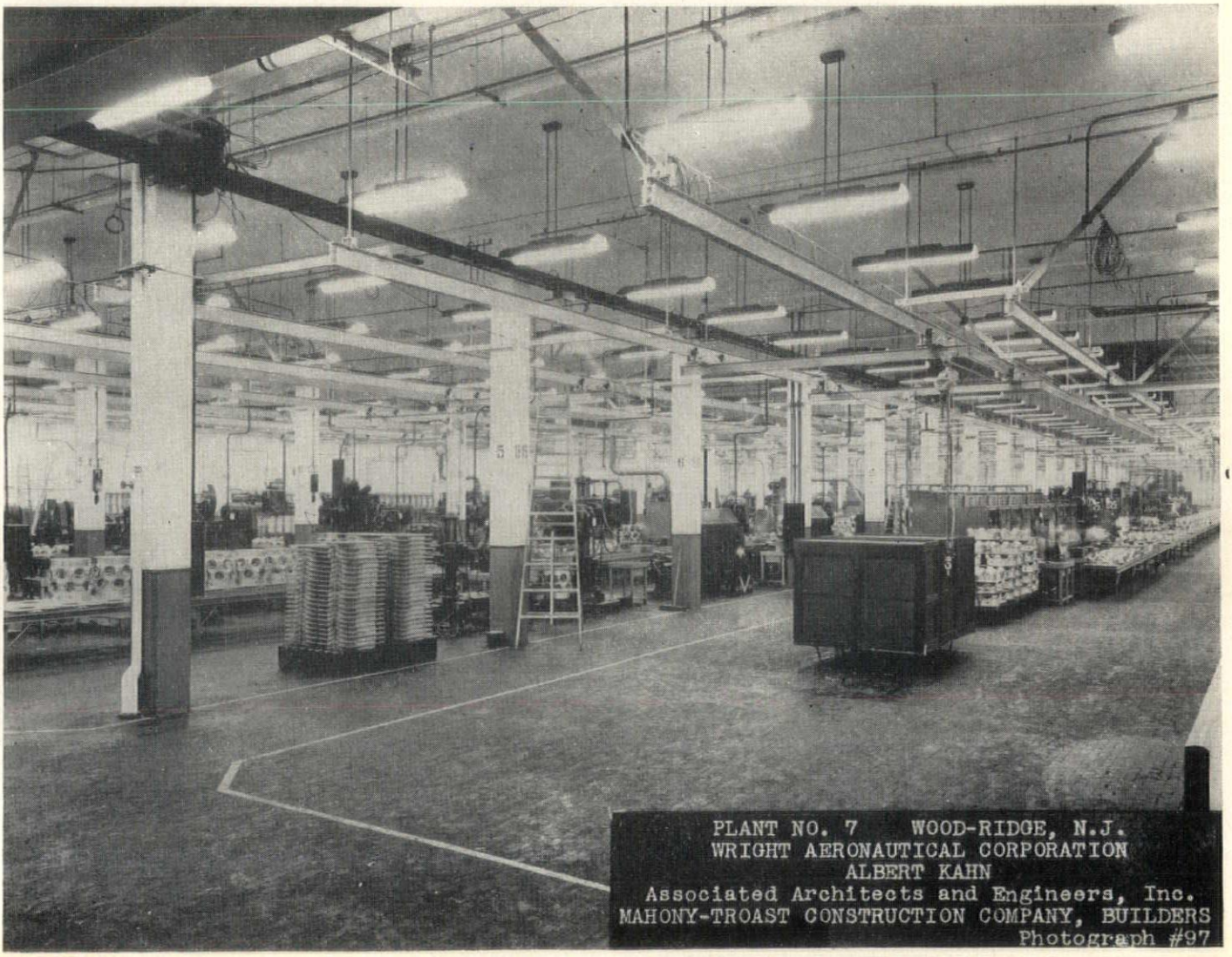
PLANT NO. 7 WOOD-RIDGE, N.J.
WRIGHT AERONAUTICAL CORPORATION
ALBERT KAHN
Associated Architects and Engineers, Inc.
MAHONY-TROAST CONSTRUCTION COMPANY, BUILDERS
Photograph #99

In comparison with a concrete building of conventional design there is a 50 per cent saving.



PLANT NO. 7 WOOD-RIDGE, N.J.
WRIGHT AERONAUTICAL CORPORATION
ALBERT KAHN
Associated Architects and Engineers, Inc.
MAHONY-TROAST CONSTRUCTION COMPANY, BUILDERS
Photograph #96

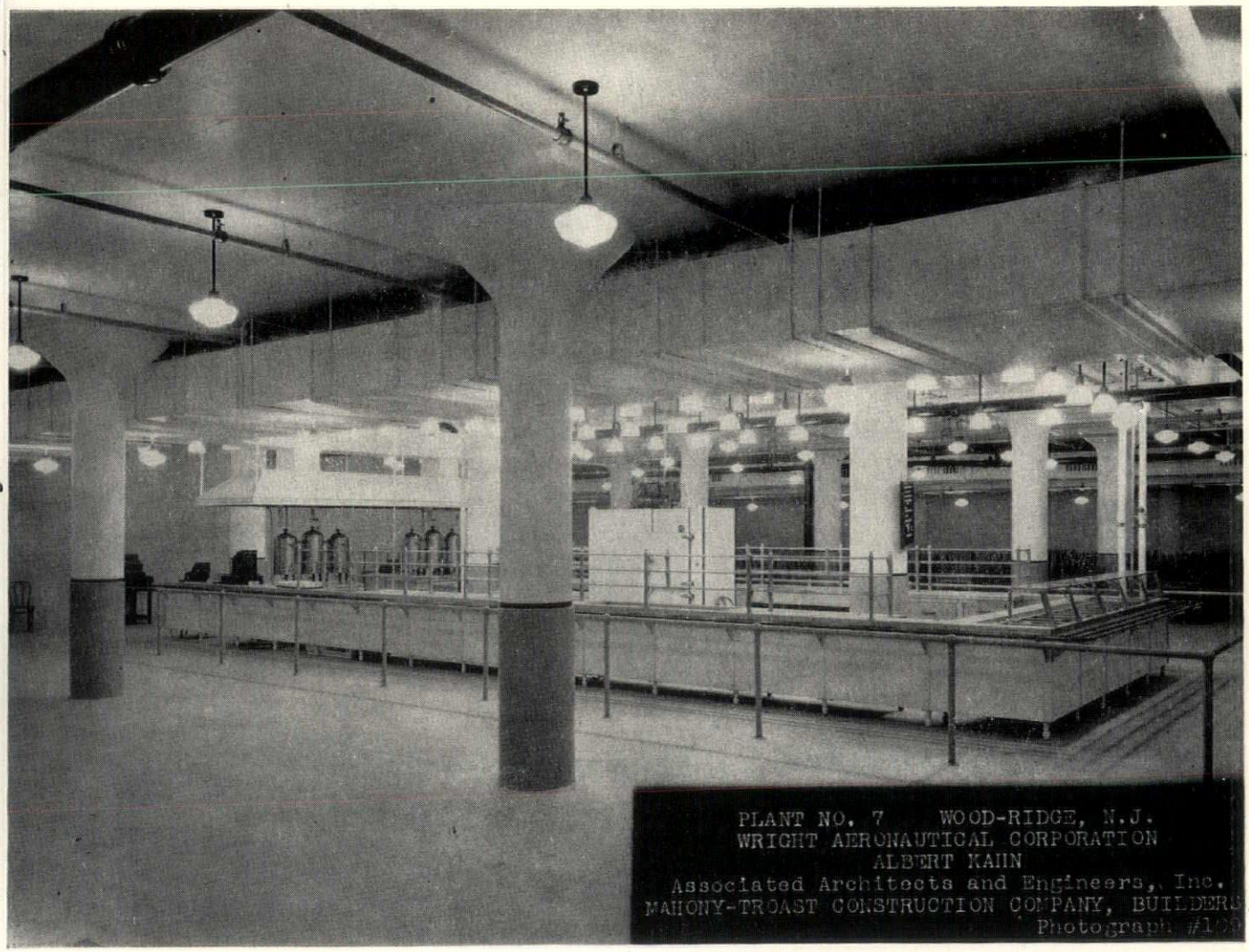
Columns are spaced 20 x 28 feet apart, and wide enough for a conveyor type of factory plan.

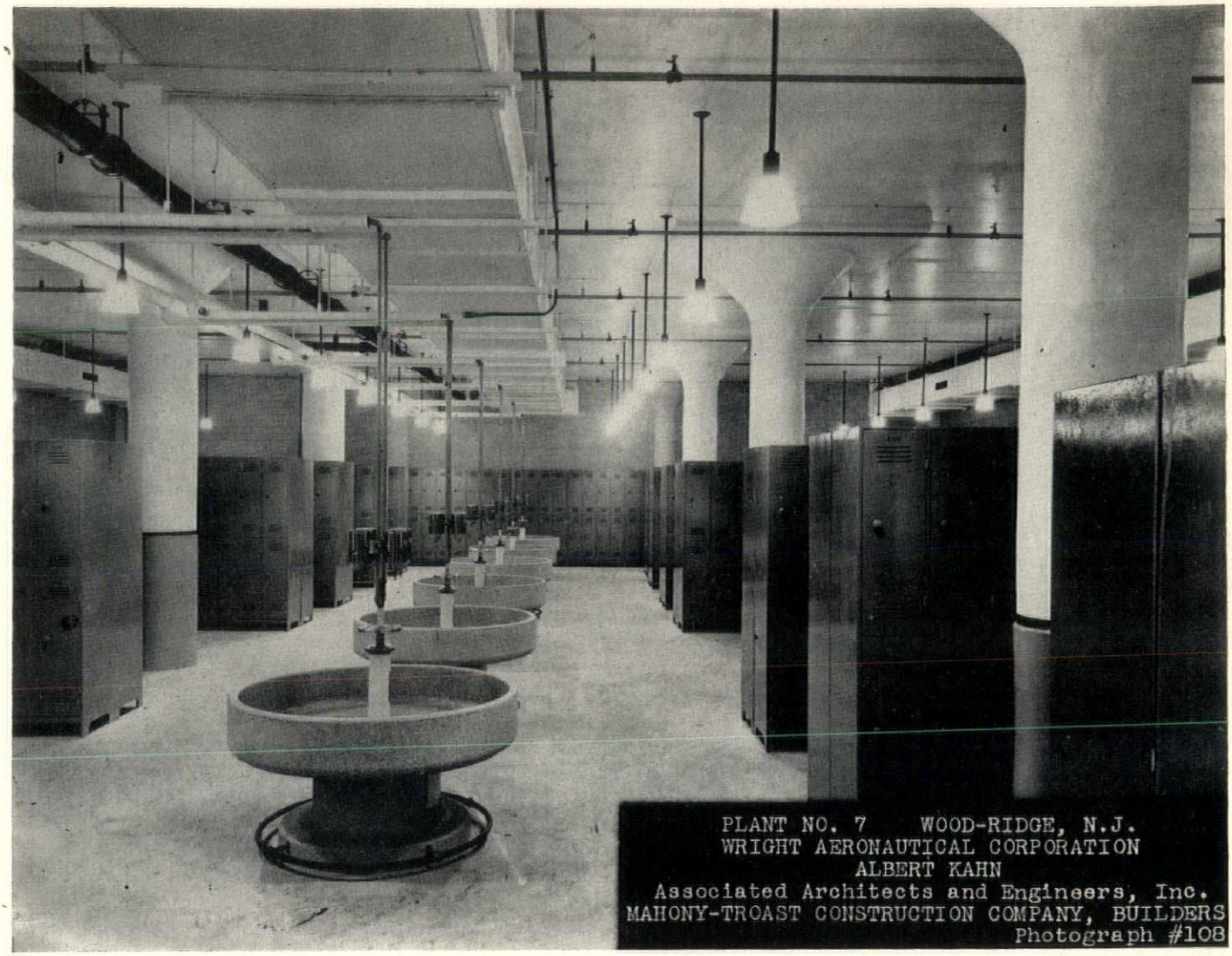


PLANT NO. 7 WOOD-RIDGE, N.J.
WRIGHT AERONAUTICAL CORPORATION
ALBERT KAHN
Associated Architects and Engineers, Inc.
MAHONY-TROAST CONSTRUCTION COMPANY, BUILDERS
Photograph #97

The entire project of 1,500,000 square feet was completed and a large portion occupied before structural steel, even had it been available, could have been delivered.

"And even if history does not record these efforts, the records of history would be vastly changed without them, and that is glory enough."





The Architect-Engineer adopted the system because it promised to provide the owner with manufacturing facilities in the shortest possible time.

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Berry Brothers, maker of quality finishes since 1858, proudly joins hands with those who build for freedom and security . . . in home, church, school, hospital, skyscraper and bomber factory.

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Berry Brothers celebrated architectural finishes are made in the same plant where finishes are made for America's famous fighter and bomber planes.

•

This advertisement is a tribute to Albert Kahn, who was the world's greatest industrial architect.

•

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BERRY BROTHERS

Quality Finishes Since 1858

INDUSTRIAL VARNISHES
ENAMELS
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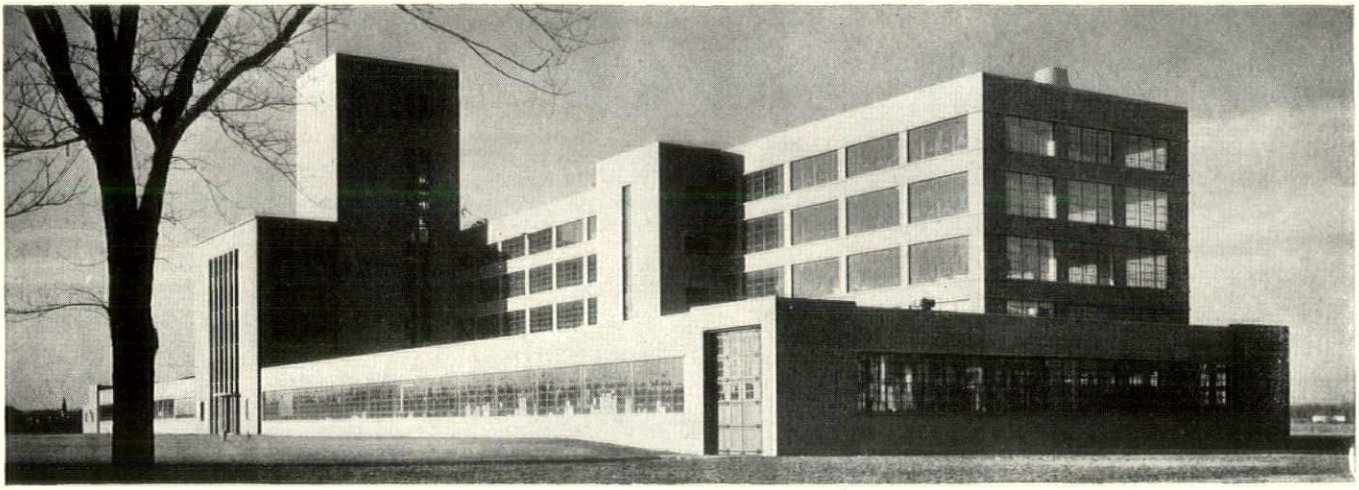

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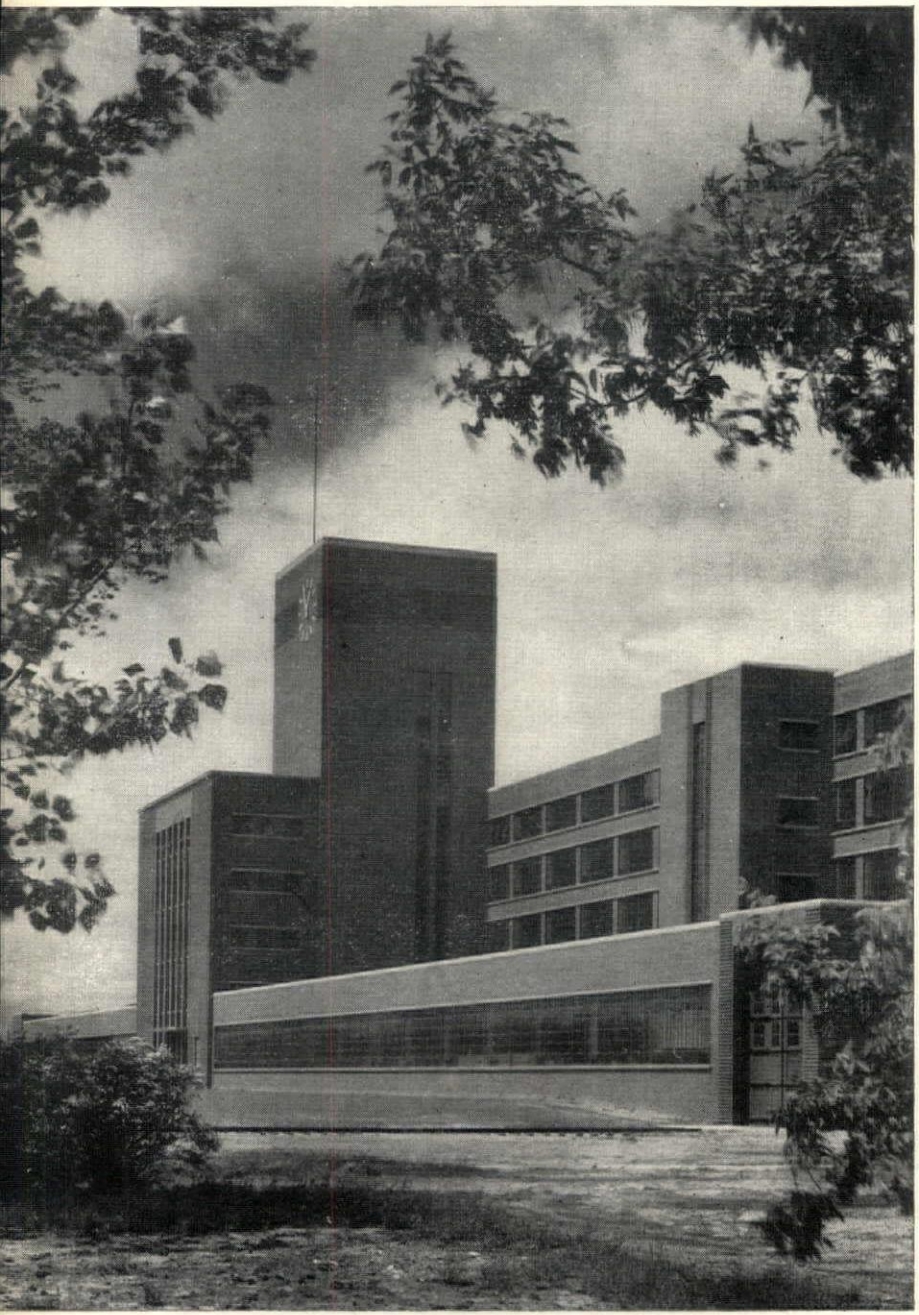
To the genius of ALBERT KAHN --and the organization of his creation--the plants of modern industry will long endure as lasting monuments

BURROUGHS ADDING MACHINE COMPANY, Detroit, Michigan

BURROUGHS ADDING MACH. CO.'S FACTORY & OFFICE BLDG., PLYMOUTH, MICH. ALBERT KAHN ASSOCIATED ARCHITECTS & ENGINEERS, INC.
MARCH 30, 1943 ESSLINGER-MISCH CO., GENERAL CONTRACTORS



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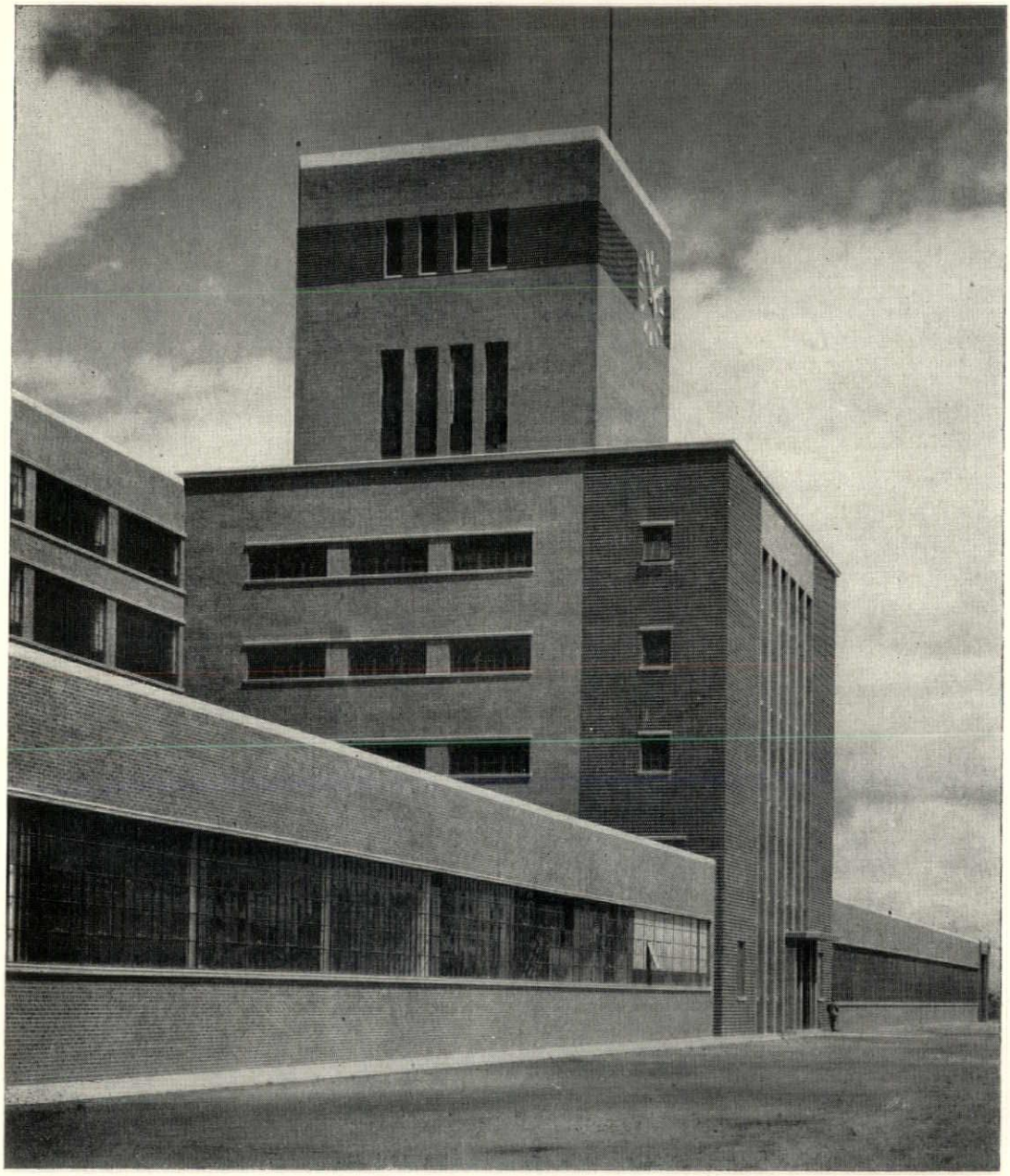

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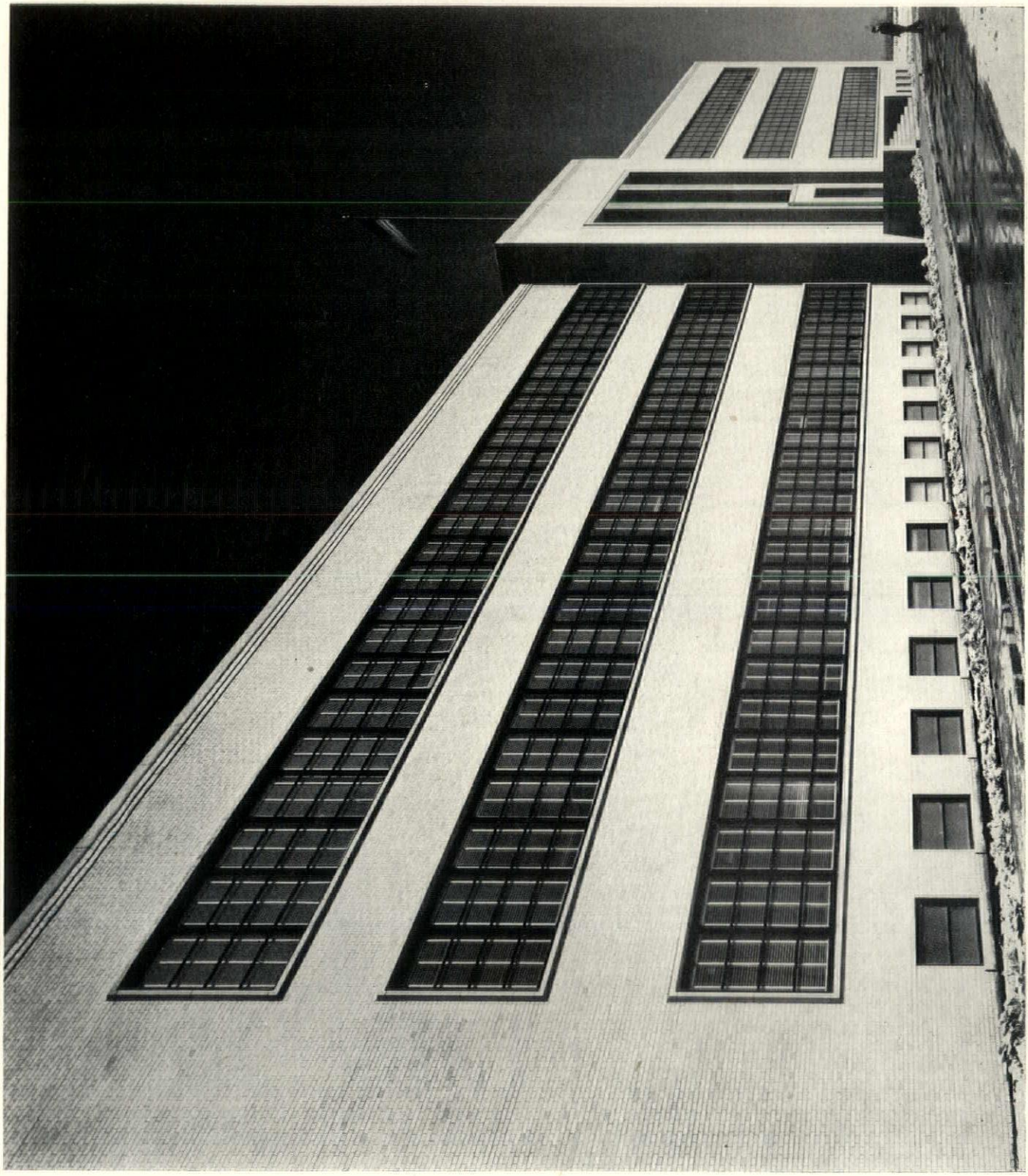

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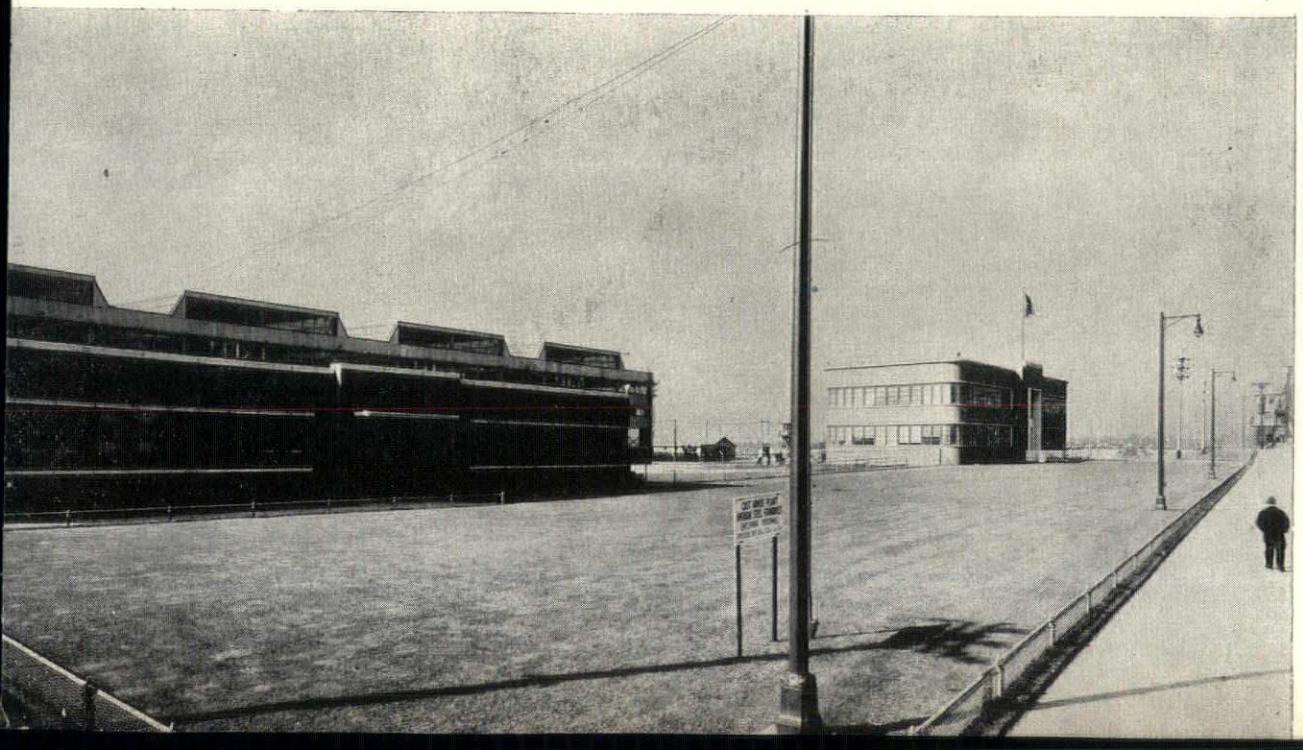
THORGENSEN & ERICKSEN, GENERAL CONTRACTORS—CHICAGO, ILL.

AMERICAN STEEL FOUNDRIES, CHICAGO, ILL., CAST ARMOR PLANT — ALBERT KAHN ASSOCIATED ARCHITECTS & ENGINEERS, INCORPORATED



Personnel Build

AMERICAN STEEL FOUNDRIES

Cast Armor Plant Has Unusual Features

In contrast with the usual unsightly type of foundry construction, the Cast Armor Plant recently completed for operation by American Steel Foundries Company, with Defense Plant Corporation financing, at East Chicago, Indiana, compares favorably with industrial plants in many other fields, according to architects and engineers of Albert Kahn Associated Architects and Engineers, Inc., who designed it and worked out the many problems in cooperation with representatives of the operating company and of the Government.

Of steel, concrete and brick construction, the plant is of most modern type in every respect and the accommodations and facilities for employees are all that could be desired

What might be called the main building is of steel frame construction with common brick walls to the sills, 8 feet above grade, surmounted by three rows of continuous sash separated by strips of asbestos siding 7'2" wide. The roof is cement tile, covered with tar and gravel. The floor of the charging floor is conventional ¼-inch steel plate with brick top, but the main floor is 8-inch concrete and this is unusual, as floors in such buildings commonly are dirt.

Included in the main building referred to are the open hearth building and three foundry buildings totaling 1600 by 363 feet, three cleaning and finishing buildings, each 960 by 177 feet, six heat treat buildings, each 240 by 110 feet, and a maintenance building, 700 by 76 feet.

There are 18 monitors across the entire width of the main foundry buildings and 11 others on the roofs of the cleaning and finishing buildings. All sash in sidewalls and monitors are equipped for blackout.

Steel framework includes many very heavy sections which are made necessary by the many cranes of 15 to 50-tons capacity required to handle the heavy castings produced in this plant. In addition to these cab-operated cranes, there are innumerable ones that are operated by remote control, including many of the Gantry type.

The open hearth furnaces are fed by fuel oil from tanks. Chimneys are brick.

A very unusual feature is the location of toilet, lunch and locker rooms around the sides of the main building, where employees enter and leave. There are ten such units, each of two-story construction, with glazed hollow tile walls, cement floors, and metal partitions. The main locker rooms and showers are on the second floor of each unit and ample provision is made for all employees who wish to take a shower bath and change clothes before leaving the plants.

There are also many inside toilets, of course, and facilities recently have been added for women, of whom a considerable number is now employed in the plant, which was also unusual until the advent of women in wartime.

Food is brought to the ten lunch rooms from a commissary building, 98 by 62 feet, which is of reinforced concrete and brick construction. This building houses the kitchen, storage room, wagon room, toilets and lockers.

The personnel building, 125 by 80 feet, is of steel frame and brick walls, one story high. It houses the employment department, plant police, first aid, and a hospital unit.

The office building, 150 by 60 feet, is built of reinforced concrete and brick, as are all subsidiary buildings except the boiler house. The office building is two stories and basement. In the basement is a garage which accommodates ten or twelve cars, a kitchen, dining room, toilets for both sexes, and room for mechanical equipment. The first and second floors are devoted to offices.

Other subsidiary buildings include an oxyacetylene house where gas of this type is made for use in the plant, an oxygen tank house, fuel oil tanks, fuel oil pump house, pump and screen house, oil house, and boiler house.

The boiler house is of concrete frame to the boiler room floor, with steel frame, brick and sash above that. Coal bunkers are of concrete, as are those for ore and scrap. Stacks are of the induced-draft type, 18 feet high. Platforms are of concrete and ladders are of wood.

Boiler house equipment consists of several 60,000 lbs. per hour boilers operating at a saturated pressure of 175 psi, forced and induced draft fans with both motor and turbine drive, several boiler feed pumps, deaerating feed water heater, and automatic combustion control (and many 4,300 cfm steam-driven air compressors). Space is provided for two additional air compressors.

Coal is delivered in railroad cars to a track hopper, from which it is conveyed to a coal bunker above the boilers. A weigh larry receives the coal from the bottom of the bunker at several points along the full length of the boiler house and discharges the coal to the stoker hoppers in front of the boilers.

Ashes are removed by means of an automatic pneumatic ash conveyor system which delivers the ashes to an outside ash storage tank which is provided with facilities for either truck or railroad car unloading.

The air compressors are designed for either condensing or non-condensing operation, depending on the amount of exhaust steam required in the process work. The condensers are of the barometric type, with water being supplied by pumps which take their suction from the nearby canal. All condenser cooling water is screened through a traveling water screen before it reaches the water circulating pumps. The cooling water and condensate from the condenser tail pipes is returned to the canal at a point down stream.

The main heating line is supplied with exhaust steam tunnel into the main building. Entering the cleaning and finishing sections this line rises to the ceiling and distribution from this point extends throughout the plant. At times when there is insufficient exhaust steam, an auxiliary high-pressure line which cross-connects to the ends of the heating main is used to provide ample pressure. Processing steam used in the plant is also provided from the high-pressure line.

Due to lack of overhead space it was necessary to run the return mains through the double columns along the outside walls, and this necessitated cutting a slot through the supporting web between the columns, and it was necessary to use corrugated expansion joints in the return mains, as no other type was practical under the circumstances. All condensate goes to condensate pumping receivers located in the locker room units, whence it is pumped through the tunnel, back to the boilers.

Along the outside walls of the building, high-velocity, blower-type unit heaters are suspended from the bottom of the crane rails; in the center of the cleaning and finishing wings, vertical projection unit heaters are used and are mounted about 10 feet above the floor requiring specially designed equipment. This type is also used in the open hearth building where the heaters are mounted over the charging room floor.

Excessive heat is exhausted through roof exhaust units, each having a capacity of 20,000 cfm and spaced to serve about 1000 sq. ft. of floor area, except over the pouring floor, where their capacity is 40,000 cfm.

Vertical unit heaters are used in the maintenance building.

Locker and toilet room units all are provided with hot-blast heating and exhaust equipment.

The laboratory is heated by radiators and is provided with an exhaust for chemical fumes.

The office and personnel buildings both are heated by convector-type radiators. In the basement of the office building is a machine room with equipment for year-around ventilation of the entire building and a separate unit for the cafeteria. In the first aid department in the personnel building a 2000 cfm unit exhausts all undesirable fumes and odors and the air is replaced by a 2200 cfm supply unit. There are also fans in the toilet rooms.

Light and power for the plant are provided by one master transformer station and ten substations, the latter being located at different points in the foundry and adjacent buildings. The incoming primary voltage is 34,500 volts and the secondary is 4,160 volts. Power voltage for machines and utility motors is 440 volts; that for lighting is 120/208 volts.

The master transformer station comprises an outdoor structure carrying two overhead 34,500-volt primary lines to the two 7,500-kva transformers. The 34,500-volt primary lines have an inter-lock for use in case of an interruption on either line. This master transformer station feeds two units of 4,160-volt, metal-clad, switchgear located in the boiler house. The 125-volt DC control for the 4,160-volt switchgear is provided by a 60-cell battery and generator set located in the cable vault below the switchgear.

From the 4,160-volt switchgear, cables fan out to the ten substations through a radial feeder distribution system.

Substations consist of switchboards containing manually operated air circuit breakers for control of 480-volt, 3-phase, 3-wire, 60-cycle power circuits and 120/208-volt, 3-phase, 4-wire, solid neutral light circuits and 250-volt direct current circuits. The direct current, which is for operating cranes, is converted from alternating current by rectifiers.

The general lighting in the offices in the administration building consists of individual, 4-tube, fluorescent lighting fixtures mounted against the ceiling; other lighting in this building is incandescent.

In the personnel bulding, 3-tube fluorescent fixtures mounted against the ceiling provide ample illumination.

In the main plant, hi-intensity mercury and incandescent lighting fixtures are mounted on messenger cable just below the bottom chord of the trusses.

In the acetylene generator house and oil storage house, explosion-proof incandescent lighting was provided.

The commissary building, pump house, scale houses, and guard towers all are provided with incandescent lighting.

The entire plant is surrounded by a protective lighting system covering the fence and yards by means of fence lights and floodlights mounted on the buildings.

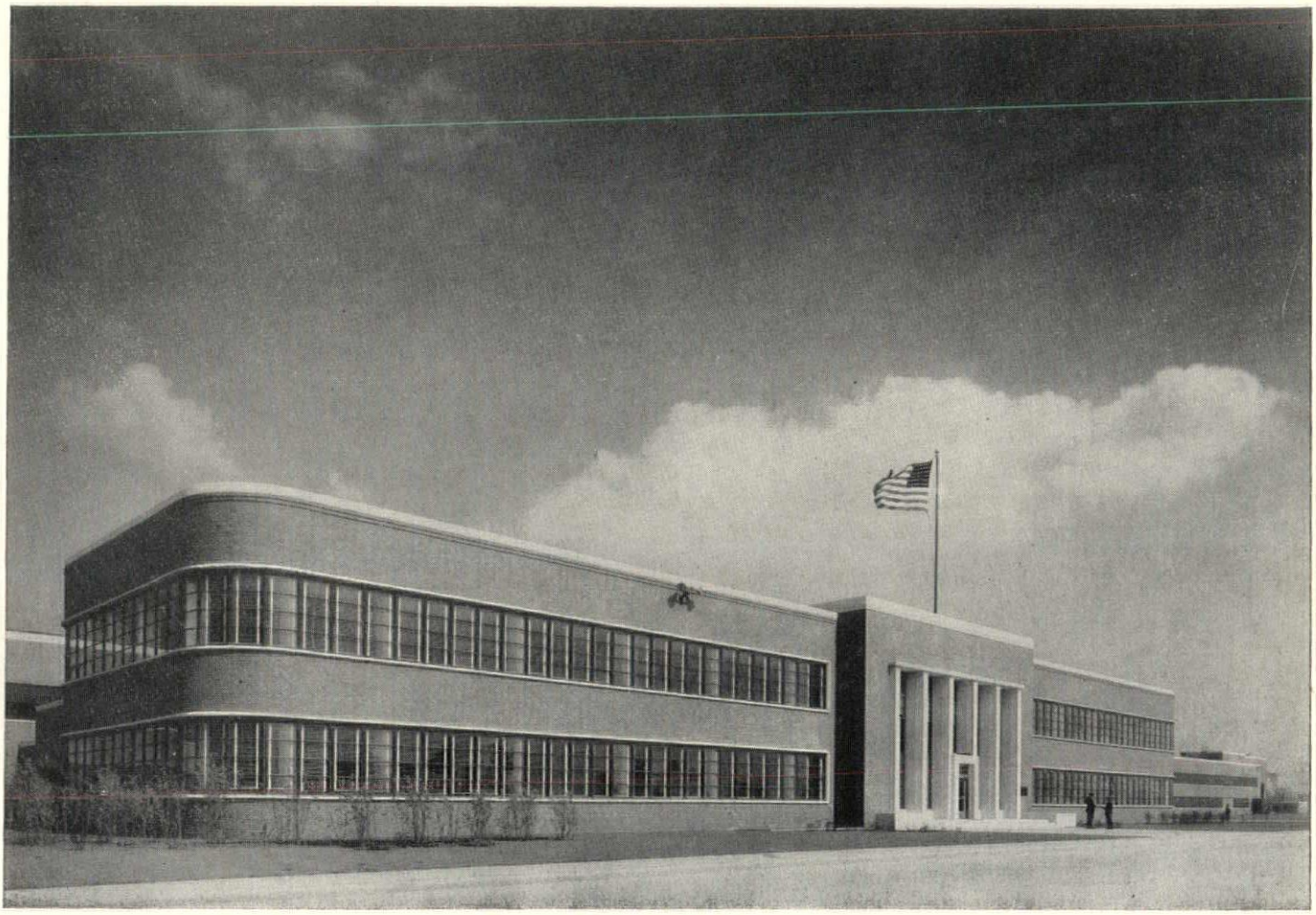
Other electrical installations include auto-call, fire alarm, watchman's circuit, sprinkler and clock system throughout.

Water for drinking and for showers is taken from the city system; that for cooling and for fire protection comes from the canal on the bank of which the plant is located. All storm water empties into the canal. Sanitary sewers are run through a treatment plant and connect with the city sewers.

Because the pressure in the city mains varies, water taken from them is boosted to 65 lbs. pressure.

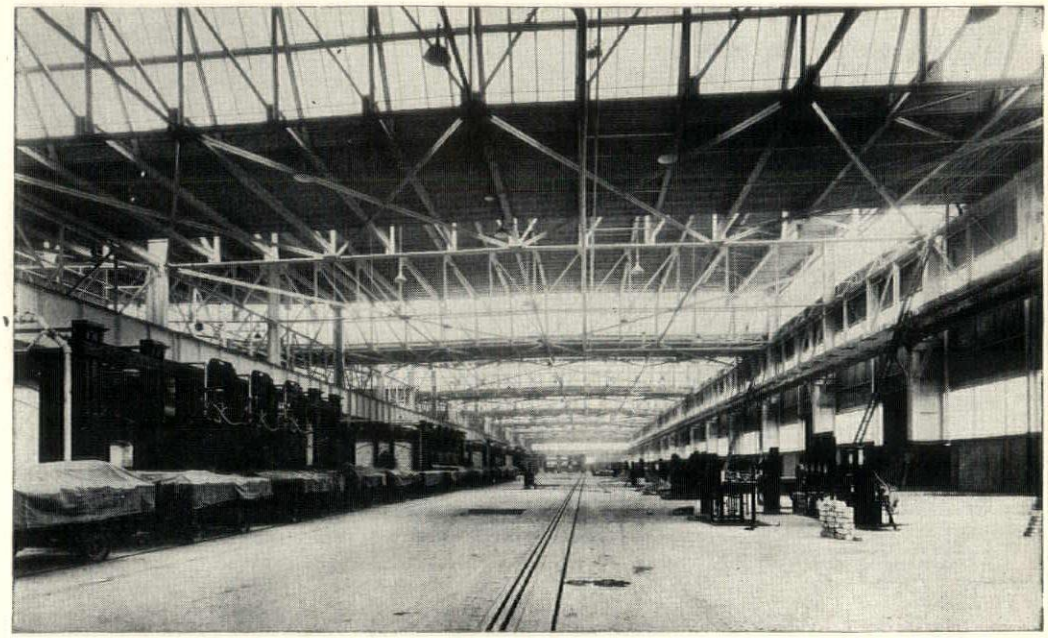
Immense quantities of water are used for cooling and quenching, and provision has been made to insure an adequate supply for every purpose. To cool the furnace doors in the open hearth department, for example, mill water is used, but the system is equipped with a pressure control governor and is connected with the city water system, so that if the pressure of the mill water system declines to a certain point, the city water automatically is turned on and discharges through an open connection into the door system.

Most furnaces other than those in the open hearth department are gas-fired, and the gas is so metered that each department can figure its costs separately from all others.



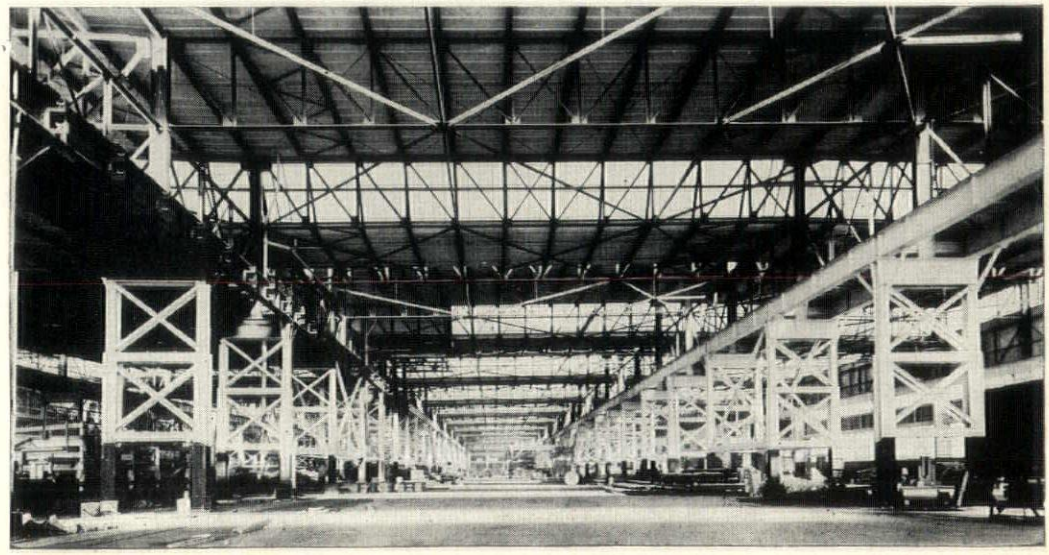
Office Building

AMERICAN STEEL FOUNDRIES, CHICAGO, ILL., CAST ARMOR PLANT ALBERT KAHN ASSOCIATED ARCHITECTS & ENGINEERS, INCORPORATED

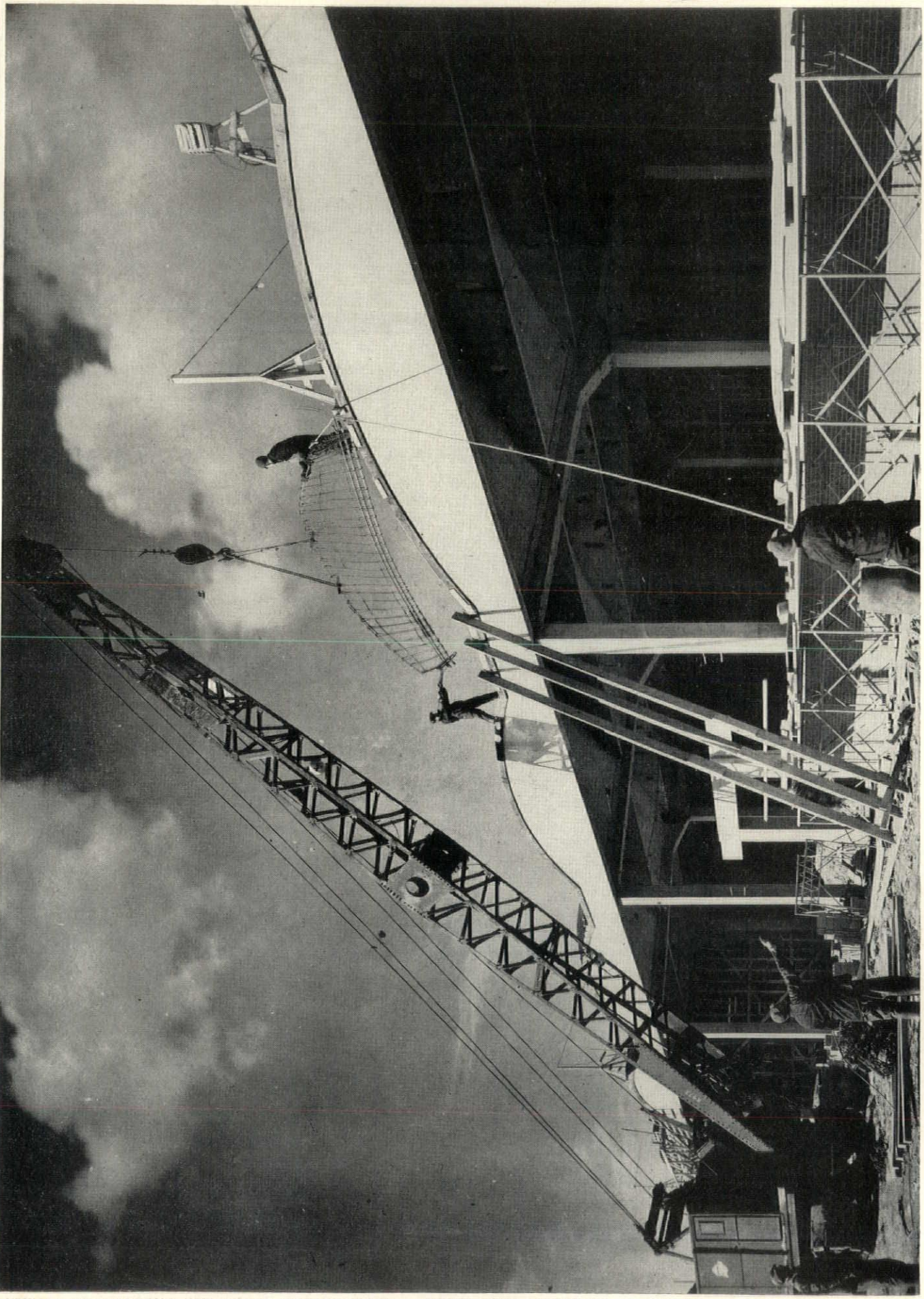


Machine Shop

AMERICAN STEEL FOUNDRIES, CHICAGO, ILL., CAST ARMOR PLANT ALBERT KAHN ASSOCIATED ARCHITECTS & ENGINEERS, INCORPORATED

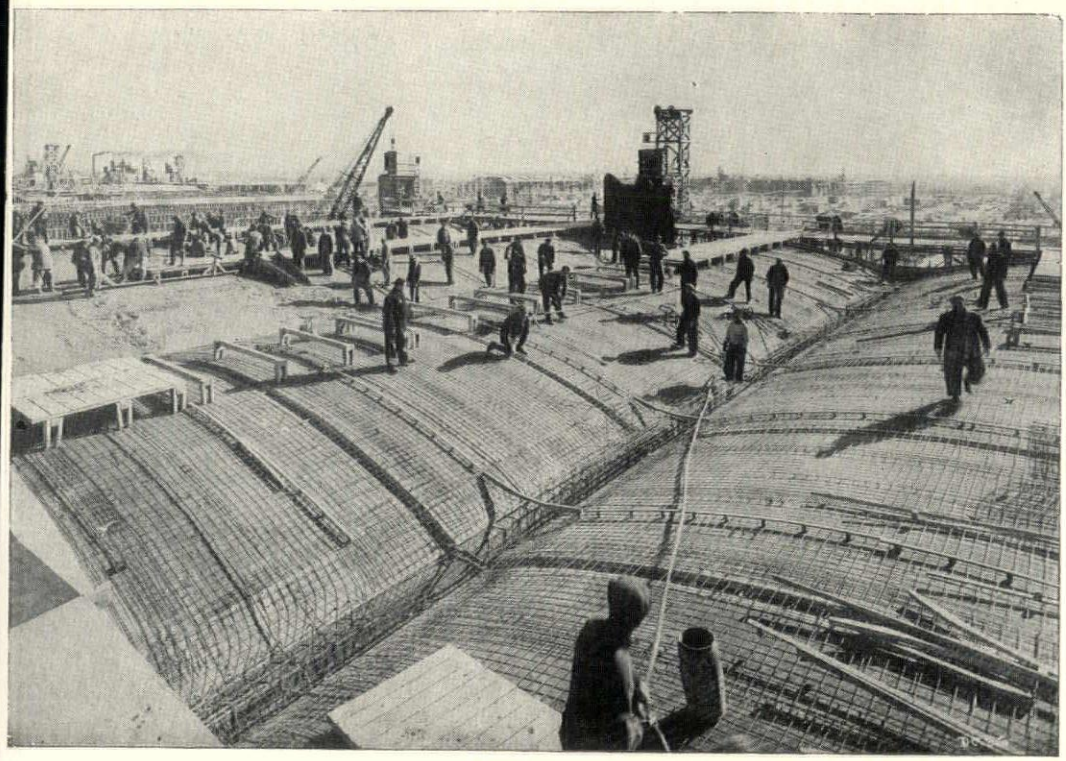


TO THE MEMORY OF ALBERT KAHN, ARCHITECT OF BEAUTIFUL AND USEFUL BUILDINGS, PIONEER IN THE DESIGNS OF MODERN INDUSTRIAL PLANTS, A DREAMER OF GREAT PROJECTS, WHO THEN MADE THEM REAL—TO THIS PATRIOTIC AMERICAN CHRYSLER CORPORATION OFFERS ITS TRIBUTE OF RESPECT.



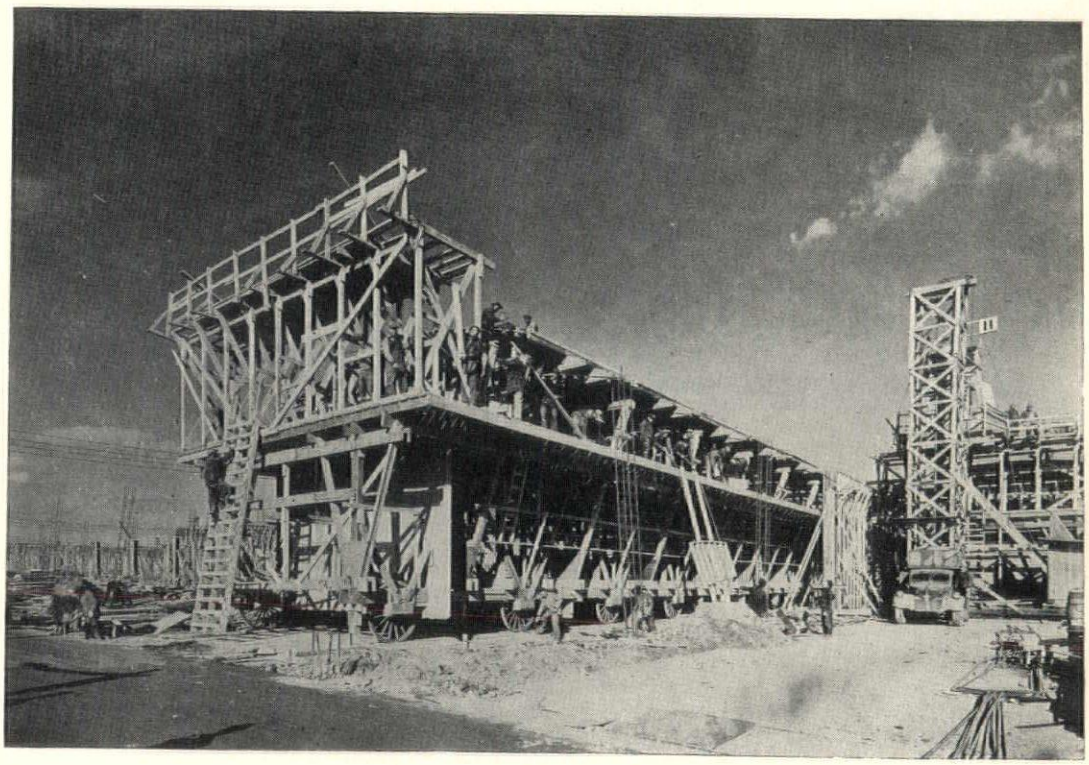
FIFTY CITY BLOCKS UNDER ONE ROOF—that will be the size of this building which will be one of fifteen in Chrysler Corporation's new Dodge Chicago Plant. When it is finished most of it will be fresh-air ventilated, but one small section of 22 acres will be completely air conditioned.

CHRYSLER CORPORATION'S NEW DODGE CHICAGO PLANT ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INCORPORATED
MARCH 30, 1943 GEORGE A. FULLER CO., GENERAL CONTRACTORS



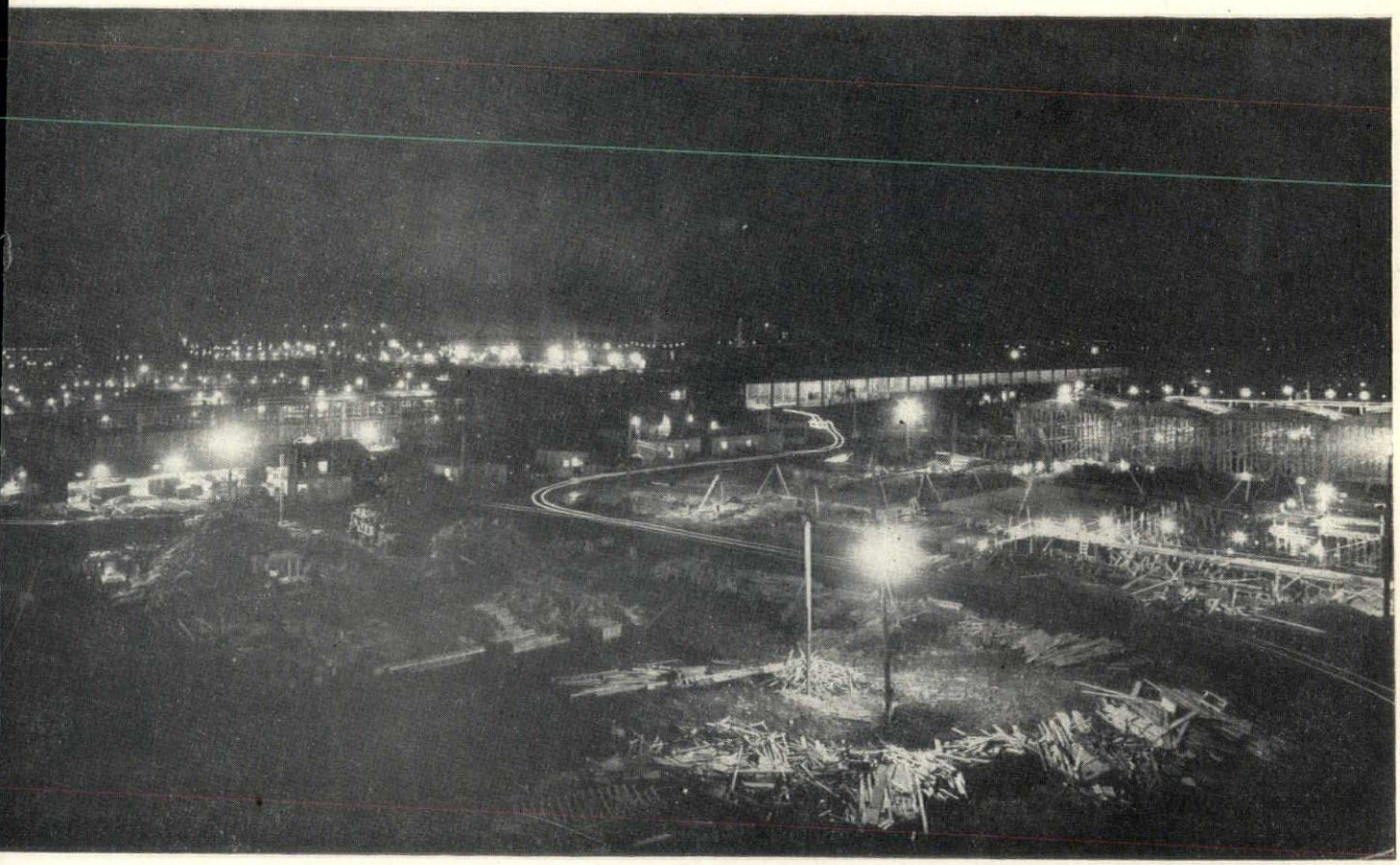
WORLD'S LARGEST FACTORY BUILDING — one of fifteen in Chrysler Corporation's new Dodge Chicago Plant is being built from both ends at the same time. What appears to be another plant in the background is really the other end of the one in the foreground. Its roof will cover more than fifty city blocks of land and a small section of 22 acres inside will be completely air conditioned. Most of the inside will be only fresh-air ventilated.

CONSTRUCTION JUGGERNAUTS HELP BUILD WORLD'S LARGEST PLANT. A development of the Fuller Construction Co., general contractors for this job, more than 60 juggernaut concrete forms such as these are being used on the construction of the Dodge Chicago Plant. After a cycle of seven days, during which the forms are rolled into place, set, and the concrete poured and dried, they can be moved to new positions in eight minutes. Fifty-two of the largest ones are more than 120 feet long and are making it possible to build this building in record time.



AMERICAN STEEL FOUNDRIES, CHICAGO, ILL., CAST ARMOR PLANT ALBERT KAHN ASSOCIATED ARCHITECTS & ENGINEERS, INCORPORATED

FROM PRAIRIE TO OPERATIONS IN 94 DAYS. the tool shop is the first of the Dodge Chicago Plant's many factory buildings to be completed. Using a new kind of arch-rib reinforced concrete construction, the amount of steel necessary per square foot of floor area has been reduced from a customary 5.5 pounds to 2.6 pounds. By this method enough steel will be saved to build 14 destroyers or more than 600 Medium tanks.



LIKE A NEW WORLD'S FAIR, construction proceeds 24 hours a day at Chrysler Corporation's new Dodge Chicago Plant—the world's largest manufacturing unit. All the lights seen in this picture are on the plant property. Recently described as "big enough to put the Ford Willow Run plant inside and have room enough for 20 baseball diamonds around the edges," one of the buildings alone will cover space equal to 50 city blocks. For the manufacture of high-powered aircraft engines, its weekly output is scheduled to have a rated horsepower equal to the entire generating capacity of Boulder Dam. In other words, when in full production it will turn loose for war purposes the power of four Boulder Dams every month.

CHRYSLER CORPORATION'S NEW DODGE CHICAGO PLANT ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INCORPORATED

Multiple-Arch Concrete Roof Saves Steel

Design of the biggest industrial building in the world, the Dodge Machine & Assembly Building at Chicago, covering 82 acres, was changed from structural steel to concrete frame and multi-arch thin slab concrete roof when steel was banned for such projects. This design requires only 2.56 lb. steel per sq. ft. of floor area, as compared with about 5 lbs. for concrete slab and 12.7 for structural steel. Critical materials were largely eliminated throughout, though the plant is functionally designed for high production efficiency. About one-fourth of building is air conditioned, remainder is fan ventilated.

"To save steel," cryptically replied Albert Kahn, industrial architect and engineer of Detroit, when asked why his staff went to a multiple-arch thin slab concrete roof design for the 82-acre main shop and assembly building of the Dodge engine plant being built in Chicago for the Chrysler Corp. under Defense Plant Corp. financing. "Our final design of concrete columns and thin-arched roof slab requires only 2.56 lb. of steel per sq. ft. of floor, as compared with about twice that much for ordinary flat slab design and 12.7 lb. for structural steel. We would have gone to all-wood framing but the necessary hardware simply isn't available for a huge plant like this. After all, Leonardo da Vinci went to arch construction because he had no steel, we are using it because we haven't very much. Throughout we have eliminated every possible bit of critical material without sacrificing efficiency in production operation."

The project was originally designed in structural steel, calling for some 30,000 tons. Detail and shop drawings were completed, and the steel was on mill order when last May, WPB ruled no more structural steel would be available for war industrial plants.

World's Largest Building

The main shop and assembly building, one story and part basement is 2,340x1,520 ft. in plan, covering nearly 82 acres, and is believed to be the largest single building in the world, exceeding even the Willow Run bomber plant near Detroit. While the main shop dominates the project, there are 15 other buildings with a total area of 5½ million sq. ft. These include personnel, office, foundries, forge and heat treatment, boiler houses, tool, oil and chip storage and propeller and engine test buildings. The personnel and office structures are brick walls with wood frame all others are concrete with multiple-arch roofs.

The magnitude of the project is further shown by the fact that 395 acres are enclosed within the plant fencing. Outside the fence line are four parking areas totaling 98 acres in area. Ten railroad spurs serve the site, and access roads tap every building.

Concrete Frame and Roof

Chief interest from the structural standpoint is the new type multiple-arch thin-section concrete roof. The roof is made up of arch slabs spanning 38 ft. between concrete girders, which in turn, are supported by concrete columns every 30 ft., thus dividing the building up into 30x38-ft. bays. The arched slabs are 3 in. thick, except at the edges where they meet the girders, built to a uniform radius of 46 ft. 10½ in., which gives a rise of 4 ft. They are reinforced with one layer of 4x4-in. No. 6 woven wire mesh. Some of the slabs carry ventilation penthouses, with necessary vent openings, and in such cases the thickness is increased.

Each 30 ft. length of arch roof is stiffened by two concrete ribs, 5¾ in. wide, 15 ft. apart, at the column lines and at center point of the bay. These ribs, placed under the arch, are solid web of uniform thickness except for four oval-shaped holes, 10 in. maximum width and 22 in. high. for passage and piping. The holes, smaller at bottom, are designed to receive wooden wedges that support the pipes. In addition there are six 1-in. pipe sleeves through each rib, just above bottom steel, to serve as hanger inserts.

Slabs and ribs frame into the girders, 18 in. wide and 27 in. deep. Columns supporting the girders are 18 in. square, flared for the top 21 in. for 5 ft. on each side along the girder lines. From floor to bottom of ribs, the lowest point of roof framing, is a clear height of 21 ft. 10 in.

Foundations are Simple Spread Footings Throughout

There are 40 bays at 38 ft. (arch spans) in the transverse direction of the building, and 78 longitudinal bays at 30 ft. As the arch roof of each bay is divided into two parts by the center rib, there are over 6,200 separate arches to form. The roof framing is designed for a live load of 25 lb. and a dead load of 75 lb. per sq. ft. The arch ribs are also designed to carry two 500-lb. capacity trolleys per bay. Details of slabs, ribs and girders are shown in an accompanying drawing.

All bay framing and roof is similar except for local roof curbs and thickened slabs supporting various pent houses, and except for a section over a heat treatment pit, where wider spans were desired. Here, for a length of 465 ft. along on side of the building the two outside arched roof bays have been replaced with one arch span of 63 ft. 4 in. and a flat slab span of 12 ft. 8 in., with corresponding changes in column spacing. For the wider span the arch slab is increased to 4-in. thickness, raised to a rise of 7 ft. 3 in. The stiffening ribs are increased to 9 in. thick, and are designed as open rigid ribs rather than as solid ribs.

Expansion and Construction Joints

Naturally in such a vast expanse of roof area expansion is a problem. This is taken care of by cutting the structure completely by two longitudinal and four transverse joints. The longitudinal joints consist of split columns and girders with high curbs over the girders to carry the roof expansion detail. In the transverse direction the joints are at mid-bay points, with the girders cantilevered from adjacent bays. At these joints high curbs on the arch slab carry the roof detail. The expansion joint details, shown in an accompanying drawing, consist of wood blocks and strips anchored to the high curbs and covered with reinforced asbestos flashing. A protecting fin is made up of two sheets of 3-ply asbestos roofing. At the wall line, between double columns the vertical expansion joint consists of a V-shaped assembly of the same asbestos roofing, held at the intersecting point by a metal binder; the tips of the V are nailed to wood inserts in the columns.

In any such arch structure when the construction supports are removed there is a tendency for the arch to settle under the dead load, introducing a thrust at the haunches. Even though the arch slabs are tied by the ribs, the designers estimated that in the total width of 1,520 ft. for the 40 spans, the accumulative thrust would push the wall columns out 7½ in. on each side. To eliminate this possibility eight rows of arch spans the full length of the building are being left to be poured after the remaining sections have been poured and their falsework removed. The maximum number of bays between these construction joints bays is eight, and specifications dictate that they shall be poured in alternate rows.

Comparison with Other Types

The multiple arch-roof was not finally adopted until several other designs had been investigated. In accordance with Chrysler's plan of operation, the original steel design called for 76 ft. truss spans 30 ft. apart. When lack of steel became apparent, a similar design was worked out with wood columns and trusses, but inability to obtain the large amount of connecting hardware eliminated this design.

Then the designers turned to concrete. First a flat slab, 5 in. thick at center and 9 in. at the haunches, was worked out with 30x30 ft. bays. This scheme required 5.3 lb. of steel per sq. ft., which was considered too high. Next a lighter slab in 20x20 ft. bays was investigated, which ran about 3.5 lb. of steel. However, Chrysler objected to the small bays as unsuitable to their planned operations.

Finally the arched slab was suggested. First studies on 40x40 ft. bays showed a steel requirement of 4 lb. (Subsequent redesign along similar lines for an engine plant now being built in Kansas City reduced the steel to 3.1 lb.). Then, to the delight of the Chrysler management, it was found that by cutting the originally-planned 30x76 ft. structural steel bays in half, using 30x38-ft. arched concrete

slabs, the use of steel would be reduced to the lowest of all figures, 2.7 lb. per sq. ft. This adopted design interfered but little with the plan of plant operations, requiring only the widening of spans over the heat treatment pit, mentioned above.

Interesting, too, is the saving in concrete. Flat slab designs ran as high as 8.46 in. of concrete per sq. ft. of floor. The 40x40-ft. arches total 6.4 in. per sq. ft., while concrete in the final design of 30-38 ft. arches amounts to only 6.03 per sq. ft.

General Layout

With the cooperation of the Chrysler organization the architects strove for functional efficiency in the general site layout and in the design of the buildings. The huge shop and assembly building, of course, dominates the site. Adjacent to this structure are the engine and propeller test blocks. Nearby is the tool shop, oil storage and a boiler house. Separate from, but connected to the big shop, is an H-shaped two-story office building, and flanking one corner is the personnel building. Off by themselves are the foundries and forge shops.

Except for stairways to part-basement areas and truck and railroad shipping facilities, the entire floor of the shop and assembly building is kept free for manufacturing operations. There is no general basement, but several areas are excavated for various services.

Two long, narrow basements, each 88½ ft. wide, run the full length of the building. These contain men's and women's coat and wash rooms and two lunch rooms. A corridor runs along one side, a pipe and vent tunnel along the other side. Six fan rooms for ventilating these rooms are offset from one side, seven sets of toilet rooms and four transformer pits are likewise offset from the opposite side. Ejector pits are located in some of these auxiliary rooms.

A basement kitchen and cafeteria, 288x330 ft., with its own fan rooms and truck unloading facilities, occupies an area mid-point along one wall. A transverse basement corridor, 18½ ft. wide, runs across the building, connecting the cafeteria and the two long washroom areas.

In addition there are 15 separate isolated basement toilet rooms, each accessible from the main floor by stairways. Six transformer vaults are located alongside these rooms. Conventional flat slab construction is used for the basement ceilings, with columns, designed to support the arch roof framework. The arrangement of stairs to toilet rooms, etc., being located along the side of main basement areas, reduced to a minimum the number of openings in the flat slab construction over the basements.

Wall Details

The exterior walls consist of 12½ in. of brick, capped with a stone sill, 8½ ft. above floor line. Above this is a continuous band of sash, usually 12½ ft. high, flush with outside of columns. This sash is Kahn's "Victory" design, entirely of wood except for a few metal strips and fastenings (EN-R May 21, 1942, p. 90). It is made up in panels 4 ft. wide, with the bottom row of panels hinged for ventilation. Cement-asbestos panels replace glass over the columns.

Above the sash at the ends of the buildings and end of arch roof spans is a 12-in. concrete headwall of 3 ft. minimum depth, rising to 5½ ft. at center of arches. It does not project above the arch slabs except at the low points. Along the sides of the building is a combination concrete eave strut and parapet, 3 ft. high, into which are framed the arch slabs, stiffening ribs and outside columns.

Heating and Ventilating

About one-fourth of the big shop and assembly building is air-conditioned, the assembly area, 450x1,520 ft. at one end of the structure. The remainder of the building is heated and ventilated by fans, aided by natural ventilation through the sash. All ventilating and air conditioning equipment for the main floor area is located in penthouses on the roof.

Air conditioning of the assembly area is by 81 fan units and 81 compressors, located in nine long penthouses straddling the valley between adjacent rows of arch slabs. These penthouses are in two sections, one long and one short, broken by one of the transverse expansion joints. Each of the 81 fan units has a capacity of 21,000 C.F.M., or a total of 1,701,000 C.F.M. They discharge into the main room through holes in the roof slab. Exhaust is through separate roof vents. Each of the 81 refrigerator units is rated at 60 tons of ice per day. Heating is by steam-heated blast coils.

The fan houses, 20 ft. wide and 12 ft. high, are of wood frame construction covered with corrugated asbestos siding, except for louvres, and a wood roof. Air intake is through the louvres.

On the non-air conditioned remainder of the shop building there are 51 fan units, each in a separate penthouse, rated at 100,000 c.f.m. each. These penthouses, 15x45 ft. in plan, 12 ft. high, also straddle valleys between arch slabs. They are wood frame with corrugated asbestos side walls, but are also insulated on the inside. The air is heated by steam-heated blast coils. Intake air can be drawn through louvres in the fan houses on up through openings in the slab for recirculation if desired.

Distribution of the air from these fans is through continuous wood frame supply ducts running down the top of arch crown at every third bay. The supply ducts, 4x6 ft. in section, are lined with smooth cement-asbestos sheets. Round openngs in top of arch slab, 22 in. diameter, admit air to the main room below. Exhaust, when not desired for recirculation, is through separate exhaust units in the roof, fan operated with motor-controlled louvres for exhaust regulation. These exhaust units are blackout type.

Basement fans that ventilate the areas below main floor level are connected with vent shafts leading to exhaust and intake chambers above roof level. Toilet rooms, all in basement areas, are fan vented through stacks. The 97 fans in the basement area have a total capacity of 500,000 c.f.m.

The various fan houses are carried on curbs built above the arch slabs, but the roof framing is so designed that the slabs carry no extra load, all of it goes into the ribs and girders. In some places the slabs are thickened around vent openings.

Electric and Piping

Illumination in the main manufacturing building is by combination mercury and Mazda light units hung flush with bottom of the ribs. Each unit carries one 400-watt mercury tube and three 100-watt mazda lamps. The units are staggered, two in one bay, one in alternate bays, each covering a floor area of 400 sq. ft. They are considered the most economical, in use of critical materials, per unit of output. They require only 2.3 watts per sq. ft. of lighted floor area, as compared with 7 watts for straight mazda lighting.

In the office and personnel buildings lighting is by fluorescent units with non-metallic reflectors.

All electric power is supplied by a public utility, augmented by feed-back from the engine test cells, which amounts to about 20,000 Kva. Here 2,300-volt synchronous motors start the engines, then are converted to generators during the engine power tests. Power from the outside comes in at 33,000 volts to two main 15,000 Kva transformer stations. All secondary distribution is at 12,000 volts and light circuits are at 440 volts to save copper in the distribution system.

In the big shop and assembly building 16 vault transformers are located below main floor level. There are 34 transformers in the manufacturing rooms up to 2,000 Kva capacity each. From the transformers the circuits radiate out to the main bus systems through fiber ducts. The bus systems are carried on the columns 17 ft. above floor level.

The structural designers permit ¾-in. o.d. thin wall conduits to be placed in the arch roof slabs; all other conduits and piping must be supported through or from the ribs and girders.

Pipes running down the 38-ft. aisles are supported directly from the small sleeves cast in the bottom of the ribs, or are carried on wedges in the rib openings, except pipes that are too small to span the 15-ft. width between ribs may be supported also by hangers from the arch slabs. However, no loads exceeding 400 lbs. are permitted to hang from the slabs themselves. Pipes running parallel to the ribs are carried either on hangers from the ribs or separate special supports spanning between the ribs. The small transformers within the main room are hung from the girders.

Other Buildings

Except for the office and personnel buildings, which are wood frame, all other structures are variations of the concrete

frame and arched roof design of the main shop building. The tool building, 100x500 ft., is of special structural interest. It is made up of a high center bay 50 ft. wide, and a lower side bay, 25 ft. wide on each side. Extending out from the outside of one of the smaller bays for the full length of the building is an arched cantilevered concrete canopy 15 ft. wide. Longitudinal column spading is 20 ft. Outside columns are 14 x 16 in., but the two rows of inside columns are 16 x 24 in., for they support an industrial craneway in the center bay.

The side bay arch roof slabs are 2½ in. thick, stiffened by tapered solid web ribs 5 in. wide at the bottom, spaced 10 ft. apart. For the outside bay supporting the canopy, the ribs pass through the arch roof as a cantilever to support the canopy slab, from above. In the side bays the vertical clearance is 16 ft. to bottom of ribs.

At the interior columns the side bay roof slabs and ribs frame into the crane girders. Extending above the girders are 16 x 16-in. columns that support the high center bay roof. The roof slab of this bay is 3½ in. thick, and is stiffened by tapered ribs 8 in. wide at the bottom, at column line, 20 ft. apart. This bay has a clearance of 24½ ft. beneath the ribs. All ribs are designed to carry heavy pipe loads.

The two-story H-shaped office building is of brick bearing walls, with wood interior framing in 16 x 16-ft. bays, except for concrete beams and columns around stairwells, storage areas and vaults. First story columns are 10 x 10 timber, second story are 8 x 8 in. Second story floor framing is a pair of 6 x 16 in. timbers running longitudinally down each column line, dapped into the top of the 10 x 10-in. columns, forming a picket into which the top 8 x 8-in. columns set and bearing on posts through timber connectors. Spanning between girders are 2 x 12-in. floor joists carrying a wooden floor.

Direction

W. L. Drager, chief engineer, is in charge of all Defense Plant Corporation construction. Mr. Culbertson represents D.P.C. on this project. K. T. Keller is president of the Chrysler Corporation.

For Albert Kahn Associated Architects and Engineers, Charles R. Swinford is project manager on the job. The design organization that prepared the plans is headed up by H. Altmiks, architectural; F. K. Boomhower, mechanical; and Harry Ellsberg, structural.

The Geo. A. Fuller Co., New York and Chicago, is general contractor. James Murphy is superintendent in charge of the job.

Fig. 1. Structural details of concrete framing are shown by these typical part elevations and sections.

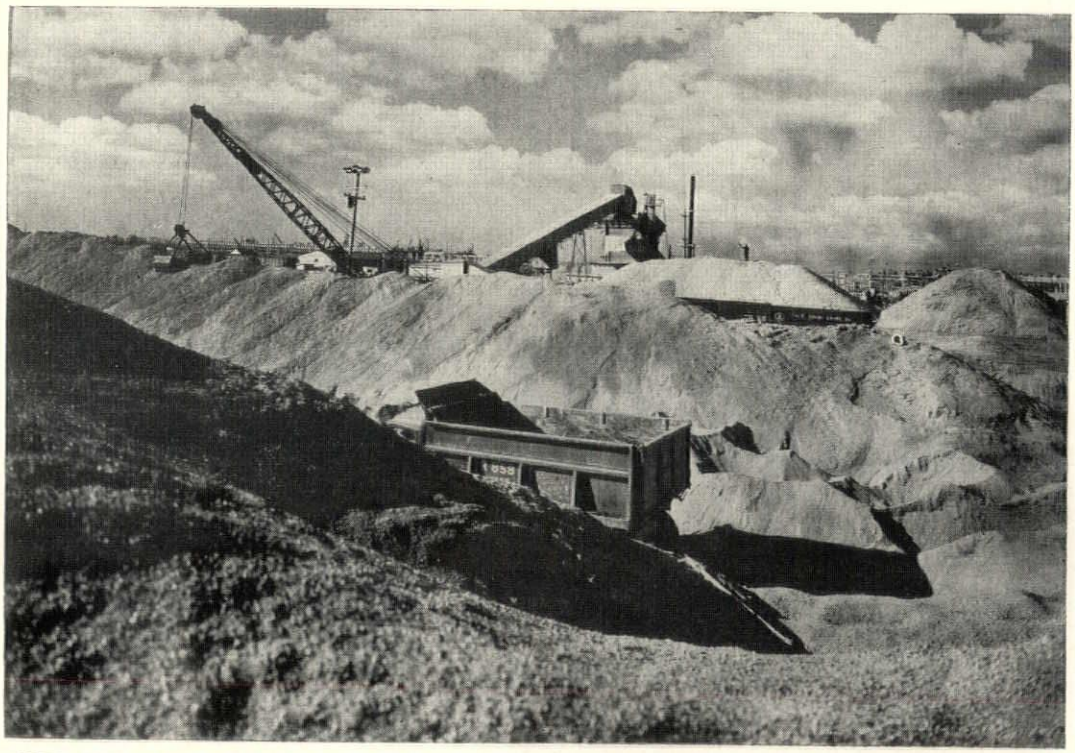
Fig. 2. Expansion joint details. Two longitudinal and four transverse joints divide the building into 15 sections.

Fig. 3. Special long-span arches for carrying the roof over the heat treating pit.

Fig. 4. Ventilation and air conditionding units are housed on the roof. Air distribution to non-air conditioned area is through long supply ducts on top of roof.

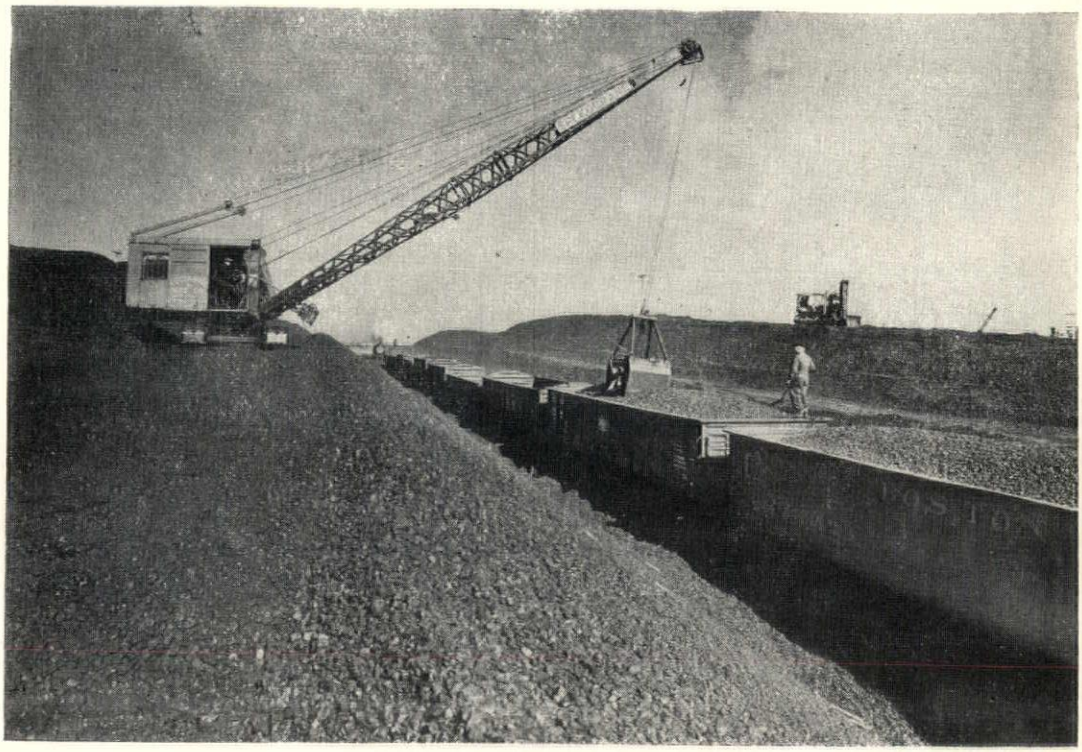
Fig. 5. How oval holes through girders support piping.

Fig. 6. Several other buildings are designed with variations of arched roofs. This is the big tool shop.



ONE HUNDRED FIFTY CAR LOADS of sand, cement and stone are brought into the Dodge Chicago Plant every day for construction work. In the background of this picture can be seen one of the two concrete mixing mills which were built on the plant property for this construction job alone.

ENOUGH WOOD TO BUILD 2,000 FOUR-ROOM BUNGALOWS. Thirty million square feet (1,000 car loads) of lumber are being used for concrete forms and supports during construction at Chrysler Corporation's new Dodge Chicago Plant—to be the world's largest manufacturing unit. Recently it has been described as "big enough to put the Ford Willow Run bomber plant inside and have room enough to put 20 baseball diamonds around the edges."



TWO THOUSAND CAR LOADS OF COAL have already arrived at Chrysler Corporation's new Dodge Chicago Plant. Storage capacity will be in excess of 300,000 tons, 105,000 of which are shown in the above picture. This is enough to operate the plant a few months.

CHRYSLER CORPORATION'S NEW DODGE CHICAGO PLANT ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INCORPORATED

Chrysler Bofors Gun Manufacturing Plants

Chrysler Corporation is the nation's largest producer of highly efficient 40 m.m. rapid-firing anti-aircraft gun. Almost all of its plants in Michigan, Indiana, and Ohio, are participating in this job.

For two of Chrysler Corporation's Detroit plants, Albert Kahn Associated Architects and Engineers, Inc., has designed additions to existing facilities to make room for the production of gun parts. These additions were started late in the summer of 1941. In January, 1942, the structures stood completed. It was fast work on the part of the architects and builders, completed in the face of the difficulties encountered.

Parts for the gun will be made not only in these new buildings, but in many others designed by Albert Kahn Associated Architects and Engineers, Inc. Each unit will contribute certain parts of the gun.

The new structure at one of the plants is a 281-foot addition to a long press shop building which, when it was completed several years ago, was hailed as a model building of its kind. Designed by Architect Kahn, this press shop received recognition as an outstanding example of the use of large glass areas in sidewalls and roof monitors.

Actually, the addition is a separate building. The walls touch, giving the appearance of one long unit. Both buildings have a common craneway, running their 963-foot total length. The crane, which has a capacity of 10 tons and a 28-foot lift, travels through an opening in the joining walls. This opening does not permit transferring materials from the press shop to the new plant, or vice versa. The arrangement merely makes possible the full use of the crane in either building. The craneway serves the receiving docks in both buildings.

The craneway extends along the entire west side of the joined structures. Clear distance from floor to the bottom chords of the overhead trusses is 34½ feet.

Near the craneway is the new building's one-story manufacturing area.

Between the manufacturing area and the wall that separates the new plant from the press shop is a two-story section. Employees entering the building on the east side, walk up an incline to the second floor, where are located rooms, wash rooms, lunch rooms and also a transformer room. After checking in, workmen proceed downstairs to the manufacturing area.

In the manufacturing area, columns are spaced 40 feet apart north and south, east and west. Clear distance from floor to bottom chords of the trusses is 16 feet. The floor is of wood block on concrete.

From the exterior, the new building and the press shop look to be one building. Craneway of the new plant is of brick from the ground to the sill, a height of 4 feet. Then there is a 29-foot high strip of continuous sash. From sash to roof, gunite construction is used.

The walls of the one-story manufacturing area are of brick from ground to sill, likewise a distance of four feet. Then there's a 12-foot high strip of continuous window sash, topped by a section of gunite.

The roof of the whole structure is of tile and composition.

Glare proof glass is used in the south and east walls, standard glass elsewhere.

While, under this glass arrangement, a maximum amount of daylight enters the plant, the day lighting is supplemented by illumination from scientifically placed fluorescent units.

The building is heated by unit heaters connected with the press shop's boiler house.

The Second New Addition

This building is an addition to an existing one-story machine shop. It is considerably longer than the building to which it was added.

Unusual is the fact that the whole building tilts slightly. It is built on a gradual south to north slope. Its floor slants at the rate of 1/16 of an inch to 1 foot. Its walls and uprights, being at right angles to the floor, "lean" accordingly. This was done so that every entrance to the building is "at grade."

The addition to the building will be used in the machining of gun parts.

Column spacing inside the addition is 40 feet, both ways. Two "butterfly-type" monitors run the length of the building. There is 14 feet clear distance from the floor to the bottom chords of the overhead trusses.

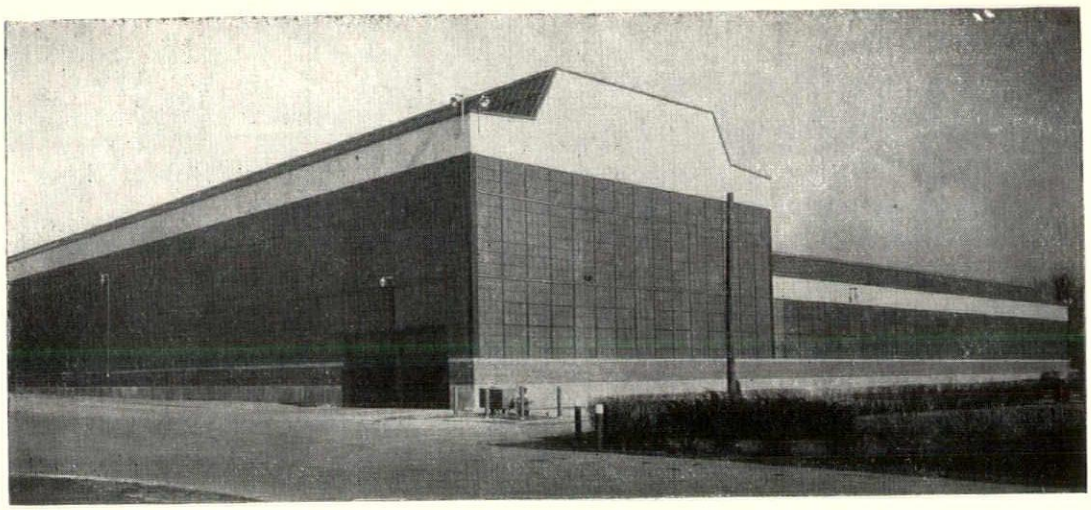
The floor is of monolithic finish with silica chips.

Conveniently located are three mezzanine-type areas containing toilets and locker rooms. These are reached by metal stairways.

The walls are of brick, from ground elevation to the five-foot high sill. Then comes a 12-foot high strip of continuous sash, without vertical mullions, which extends to the roof of the building. Gunite tops the sash in the ends of the monitors.

The roof is of metal deck, composition-covered.

Unit heaters, fed by lines from the factory's boiler house, heat the plant. Fluorescent units provide artificial illumination.



Addition to Press Shop

CHRYSLER CORPORATION'S DE SOTO PLANT, WYOMING AVE., DETROIT ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC
F. H. MARTIN CONSTRUCTION CO., GENERAL CONTRACTORS

Enduring Monuments To The Genius Of ALBERT KAHN

THE Detroit News takes great pride in having been one of the early recipients of the fruits of Albert Kahn's extraordinary genius.

Those who worked with Mr. Kahn in shaping the framework of The Detroit News building to the peculiar requirements of the newspaper happily remember his keen and sympathetic understanding.

The building which resulted is the embodiment of Albert Kahn's unique synthesis of utility and art. Built in 1917, the correctness of the architect's vision has been verified by the infallible test of time. The companion building across the street from The Detroit News which houses America's pioneer broadcasting station, WWJ, was completed in 1936 and exemplifies Mr. Kahn's ability to include changing trends in his concept of architecture without losing the spirit of permanence.

Both buildings pay tribute to the greatness of Albert Kahn, the man and the architect. Both reflect the simplicity of his character and the soundness of his art.

Above, home of WWJ

Below, home of The Detroit News

Albert Kahn Associates Built Russian Defenses

The good news coming these days from Stalingrad is being followed with more than usual interest by the folks in the Detroit offices of Albert Kahn Associated Architects and Engineers.

For that great Russian stronghold which has so bravely withstood the heaviest Nazi siege guns is a part of the Kahn organization. Many years ago the late Albert Kahn and his co-workers were getting Stalingrad ready for war . . . the fierce, all-out, mechanical war of the present day.

In fact, Albert Kahn and his associates went to war as far back as 1930, when Russia's first major industrial project was planned for Stalingrad. The design for that vast factory sprang into being on the drawing boards in their Detroit offices.

No Wheelbarrows in Russia

That was an easy task, in spite of the fact that measurements were in meters, stresses were figured in kilograms per square centimeter, and moments were in kilogram meters.

Construction of the project was not so easy. Recall that materials were scarce in Russia, and for such materials as were available, there was meagre transportation. It was necessary, therefore, to list large amounts of materials which had to be purchased in America, assemble these materials, catalouge them and ship them to the site which was then far more remote and far less famous than it is today.

There was no construction equipment as we knew it here, even the lowly wheelbarrow being unknown, and more important, there was no one available in Russia who was capable of organizing a construction project of this magnitude.

It, therefore, devolved upon the architects to assemble the key construction personnel in this country—the chief superintendent, superintendents for the mechanical trades and key foremen. This groups went to Stalingrad, organized the construction forces, assembled such material as was available in Russia, received the material which was available in Russia, received the material which was shipped from America, and went to work. How well they worked and organized is attested to by the fact that the foundry building was completed in six months from the date of starting—a remarkable achievement.

Kahn Organized All Russia

This experiment with American construction genius was so successful that Albert Kahn was requested to aid in the organization of all Russia on an industrial basis. That commission required that a force of architects, engineers, and superintendents who were well grounded in American industrial practices be sent to Russia to teach these methods to Russia technicians.

The American group, augmented by thousands of semi-trained and untrained Russian men and women, formed the largest architectural and engineering organization the world has ever seen. It was a marvel of organization, and considering the fact that the majority of the Russian technicians were untrained, it was a marvel of efficiency. The factories which were built in Russia in those two years, and which were constructed since then as a result of that training, helped to equip the Russian Army, and were a major factor in making it the formidable bulwark it has proved to be.

Kahn Goes to War for U. S.

Albert Kahn and his associates went to war in 1939 when the Bureau of Yards and Docks commissioned him to design Navy air bases in widely scattered but strategic points throughout the globe. This effort necessitated the design of hangars, shops, mens' quarters, warehouses, and innumerable other buildings together with the necessary specifications. This major offensive was successfully completed in less than seven months, and at the unbelievable rate of 1.9 buildings every working day. You've stubbed your foot on several of these, Mr. Hirohito, and your subs, Mr. Hitler, have learned that they exist.

On Offensive Since

Albert Kahn Associated Architects & Engineers, Inc., has been on the offensive ever since the year 1940 saw the initiation of war construction on a major scale, and with the advent of actual declared war there had been completed in the country a vast area of production space actually producing the implements of war, and of victory. The record of American industry in turning from peacetime pursuits to the production of war equipment is an achievement unequalled anywhere, and a glorious chapter in the history of industrial America.

The facilities for this remarkable achievement were the results of magnificent cooperation. The effort of the Government agencies in initiating them, the expediency of architects and engineers in designing them; the organization of the construction company and the efforts of labor in building them; the impatience of the industrial operator in utilizing them; the attitude of labor in manning them: all these stand as a high tribute to the faith of all Americans in the institutions of America.

More han 60,000,000 square feet of war production facilities in widely scattered projects throughout the world stand as a monument of achievement and as proof that Albert Kahn Associated Architects and Engineers have gone to war in defense of those institutions.

W.A.C. Goes to War

Wright Aeronautical Corporation has also gone to war. The development of Plant No. 7 was only a skirmish in the far reaching battle of production in which that organization is engaged. But the approach and deployment of forces for this skirmish is typical of the efficiency and coordination to be found in the development of numerous facilities of this type. In the general headquarters we find "General Mike" Gordon directing the startegy, ably supported by his staff. Development of the service of supply of facilities is entrusted to the architects' headquarters and their staff of technical experts, all of whom are well grounded in this type of warfare. A round table discussion among delegates of the two headquarters' staffs decides the major problems involved. "General" Gordon and his staff officers know what it is necessary to accomplish. The architects coordinate these requirements, determining the type of construction best fitted for those requirements, the availability of materials, the distribution of services and the general plan.

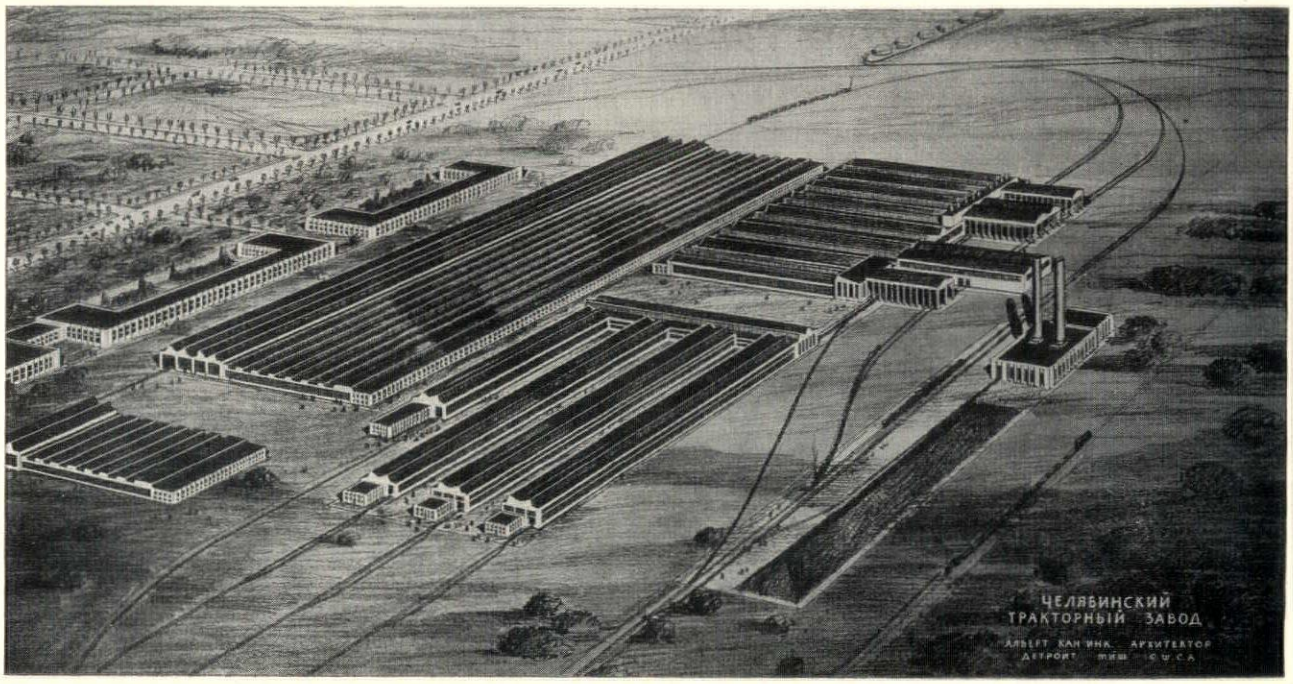
Once these have been determined, an officer and his division from the architects' staff are then assigned to embody these ideas into sketches, to permit an accurate estimate of cost to be prepared. The preparation of sketches and estimates requires the attention of all departments of the architectural headquarters.

Telegram to Mrs. Albert Kahn

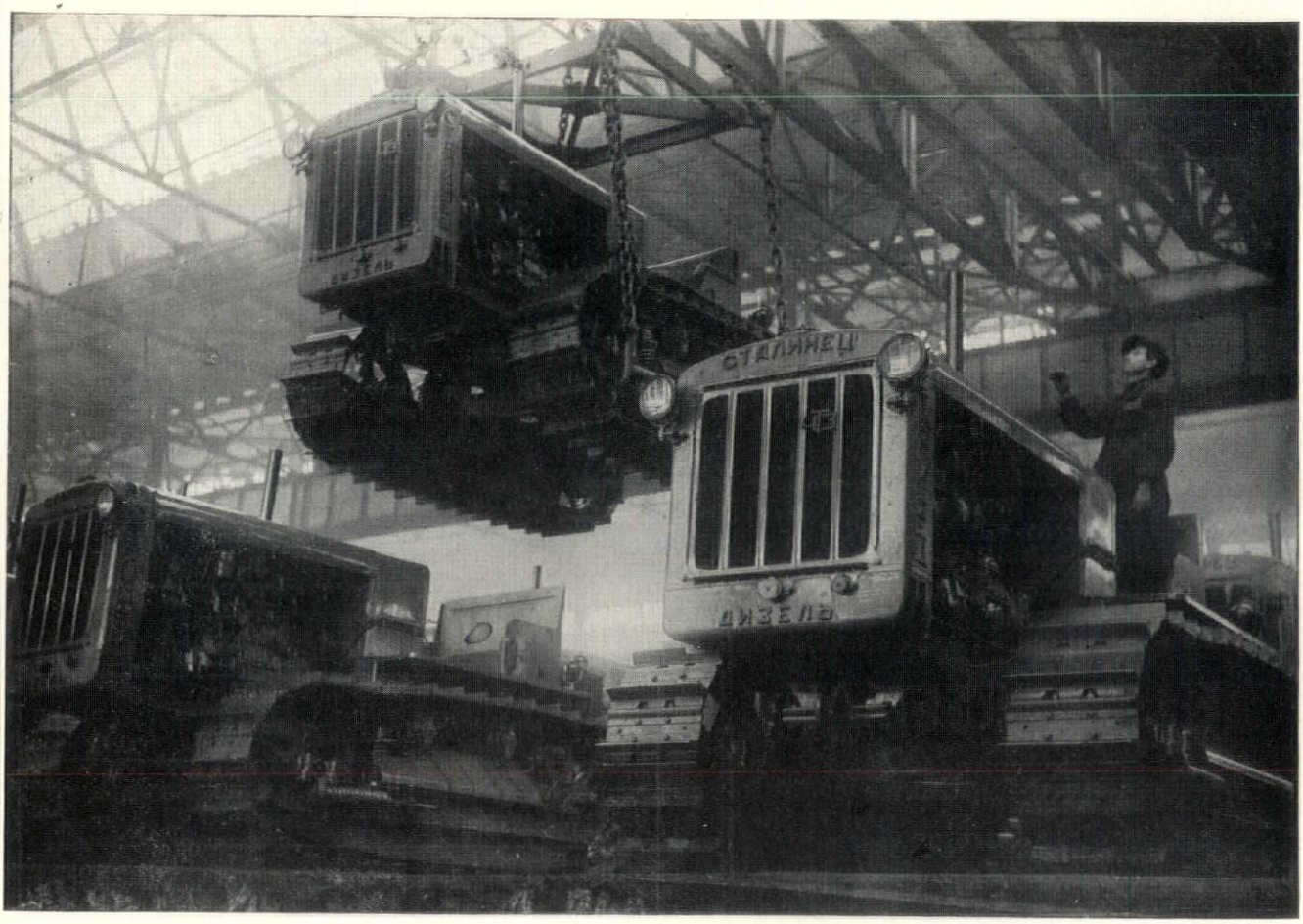
THE EMBASSY OF THE UNION OF SOVIET SOCIALIST REPUBLICS HAS RECEIVED FOR TRANSMISSION TO YOU THE FOLLOWING CABLE:

"SOVIET ENGINEERS BUILDERS ARCHITECTS SEND YOU THEIR SINCERE SYMPATHY IN CONNECTION WITH THE DEATH OF YOUR HUSBAND, MR. ALBERT KAHN, WHO RENDERED US GREAT SERVICE IN DESIGNING A NUMBER OF LARGE PLANTS AND HELPED US TO ASSIMILATE THE AMERICAN EXPERIENCE IN THE SPHERE OF BUILDING INDUSTRY. SOVIET ENGINEERS AND ARCHTECTS WILL ALWAYS WARMLY REMEMBER THE NAME OF THE TALENTED AMERICAN ENGINEER AND ARCHITECT, ALBERT KAHN.

SIGNED BY
V. A. VESNIN, ARCHIECT ACADEMICIAN



Cheliabinsk Plant, Russia



Shortly after completion of the Stalin plant in Cheliabinsk, Russia mastered the production of this complicated machine and produced more than 5,000 diesels before the end of 1937.

ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC.

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Ten Years Ago

From Malcolm W. Bingay's Column, "Good Morning," Detroit Free Press, July 16, 1942

The fate of our world depends on how long the Russian Reds can stem the Nazi horde.

In this maddest of all mad worlds the Pariah among Nations stands as our only hope.

We must go back a brief decade to get the perspective.

* * *

The very name Russia was anathema to the so-called civilized world. Even the Fascist-Nazi doctrine was accepted and condoned in preference to the Soviet system.

As late as 1938 the Chamberlain Government at Munich sought to appease Hitler by throwing Czechoslovakia to the dogs with the ill disguised hope that the ravenous gang would next turn on Russia and devour it until its blood lust was satiated.

Russia pleaded for an alliance with France and Britain and even the United States against Germany and was scorned. The Hoover Administration refused to recognize the Soviet Government.

Hitler proclaimed himself the enemy of Communists and the democracies were content. Let them fight it out unto the death and all would be well with us.

But not all Americans thought down the line of that blind alley which has led us into the present impasse. In fact, two of Detroit's most famous citizens had different views. I sat at dinner the other evening with one of them and he told me the story. The speaker was Albert Kahn, America's most distinguished architect.

* * *

This quiet, modest gentleman had been commissioned by the Soviet Government in 1929 to plan their great factories, the products of which—behind the Ural Mountains—are now holding the Nazis at bay. I remember what he said when he came back from Moscow in 1932, just ten years ago. He said then: "There is little communism in Russia today and no one can tell what Sovietism will stand for ten years from now."

The ten years being up, I reminded him of that remark and asked him if he suspected then what might happen. The thing that had fascinated him was the spirit of the people, their evangelical zeal for a cause. "My brother Moritz and I suspected something," he said, "because of their insistence upon heavier foundations than were needed. They merely smiled when we suggested lighter construction and said we did not understand their 'weather.' We agreed then that they were planning armament buildings. They were kind and considerate but revealed nothing of their purposes.

"I was frankly fearful of their success despite their tremendous enthusiasm and their willingness to sacrifice. We found the Russian engineer to be an excellent technician, mathematician, scientist and laboratory man. But he lacked the 'know-how.'

* * *

Now, it was a daring thing for Albert Kahn to accept that commission to Russia in the face of American public opinion, for very few Americans wanted their names associated wtih those "awful people." But he immediately got moral support from a wholly unexpected source.

The day it was announced that he had signed his contract his largest customer in the designing of factories, Henry Ford, called him on the phone and asked him to see him before he sailed.

"Mr. Ford," said Mr. Kahn, "was just leaving with his wife for a trip to the Virginia colonial settlement at Williamsburg. 'I hear,' he said, 'that you have agreed to build factories for the Russia Government. I am very glad of it. I have been thinking that these people should be helped.'

"I could hardly believe my ears, but Mr. Ford continued: 'I think the stabilization of Russia through industry is the hope of the world. The more industry we can create, the more men and women, the world over, can be made self sufficient— the more everybody will benefit. The Russian people have a right to their destiny and they can only find it through work. We are willing out here to help them all we can.

" 'So you can tell them for me that anything we have is theirs for the asking—free. They can have our designs, our work methods, our steel specifications—anything. We will send them our engineers to teach them and they can send their men into our plants to learn.'

"I gave that story to a Free Press reporter that afternoon and it appeared in your evening edition. The Russian Commission called me from New York. They wanted to know if it were true. I assured them it was. They came to Dearborn and finished their negotiations. That broke the ice. They have been building ever since—have learned by their mistakes. If they are able to beat back the Nazis now one of the reasons will be because Mr. Ford played no small part in helping them.

* * *

And Albert Kahn played no small part either.

Architects Introduce Mass Construction

Not all of Detroit's war products are the expendable materials of war, such as guns, tanks, planes, shells and trucks.

One of Detroit's greatest contributions to the war effort is the mass-construction of factories for the production of the instruments of war, factories which may play an equally important role in the postwar reconstruction period.

And it is in tribute to the late Albert Kahn, world's greatest industrial architect, that the output of his firm of Albert Kahn, Inc., is listed here among Detroit's war products.

The story of Kahn's architectural miracles, such as the 77-day construction of the Glenn L. Martin Co. plant near Baltimore, has been written often. But little has been told of Kahn's last mass-production triumph—the aircraft engine plants at Chicago and Kansas City.

Mobile Forms

Never before in the history of plant construction has the theory of the architectural assembly line been brought to such a degree of practical usage as in these twin projects.

The mass-construction "line" is a relatively simple affair, consisting of a series of mobile roof forms 80 feet in length and standing side by side to the aggregate distance of 1,000 feet. Each form is mounted on wheels, fitted to rails.

Every seven days the forms are rolled forward 80 feet, and 80,000 square feet of reinforced concrete roofing and supporting columns have been poured, set and prepared for immediate installation of lighting and other fixtures and machine tools. Pouring of the concrete floor always is one jump ahead of the superstructure construction.

Once the barrel-shaped mobile form is in place for the next pouring, it is jacked up to proper level to receive the light fabric of reinforcing steel rod and mesh fitted to the wooden arch to hold the concrete.

Saving in Steel

When the concrete has set, the forms are lowered and moved on to the next station, revealing the curved ceiling with a heavy concrete girder between the columns to carry the arch. Spaced regularly between the girders are a series of concrete ribs, designed to withstand any horizontal thrust exerted by the arch section.

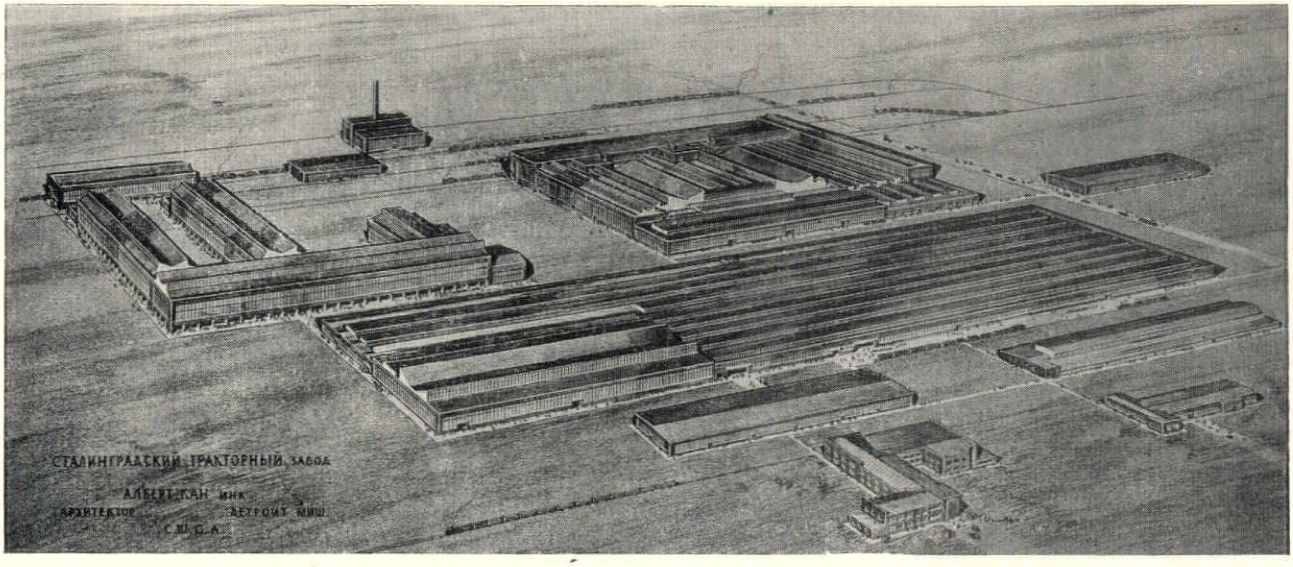
By working in from the ends of the plant toward the center, as in the Chicago project, the construction pace is doubled, permitting the pouring of 160,000 square feet of factory area every week.

Kahn had the reputation last spring of requiring for his construction only one-third the structural steel an architect normally would design into a plant the size of the two under discussion. Yet in these projects he has slashed his steel requirements to half of the estimates of six months ago.

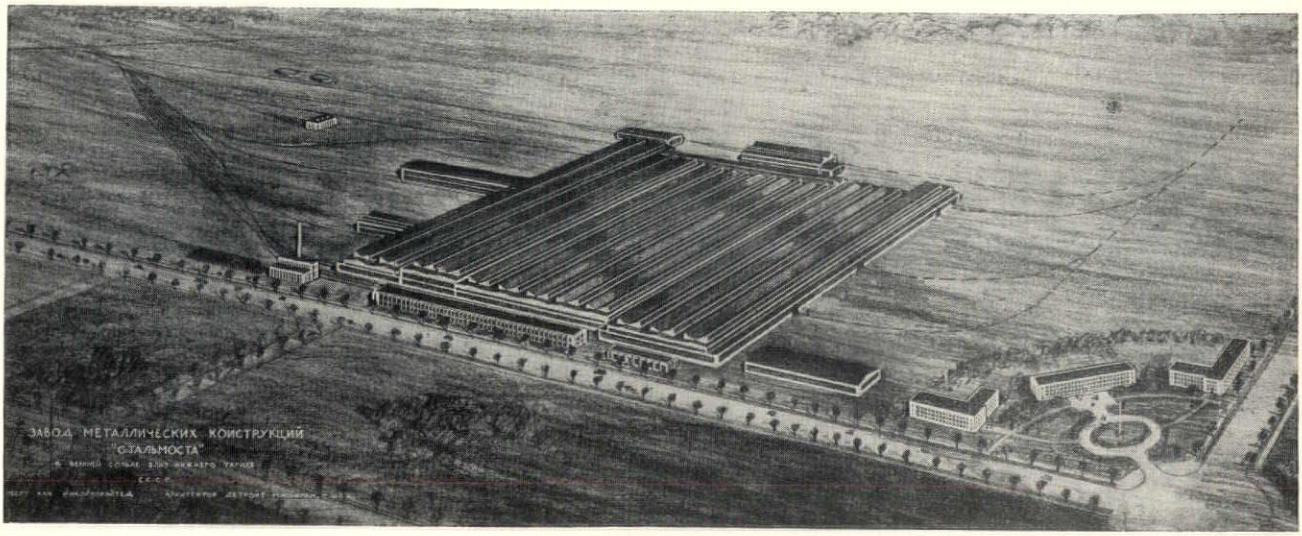
Kahn engineers report the reduction was made possible by the design of arches and ribs with supporting concrete pillars, plus the great strides which have been made in improving the quality of the pre-mixed concrete.

End results of the ingenuous method of construction are tremendous savings in critical materials and a vastly accelerated tempo of construction.

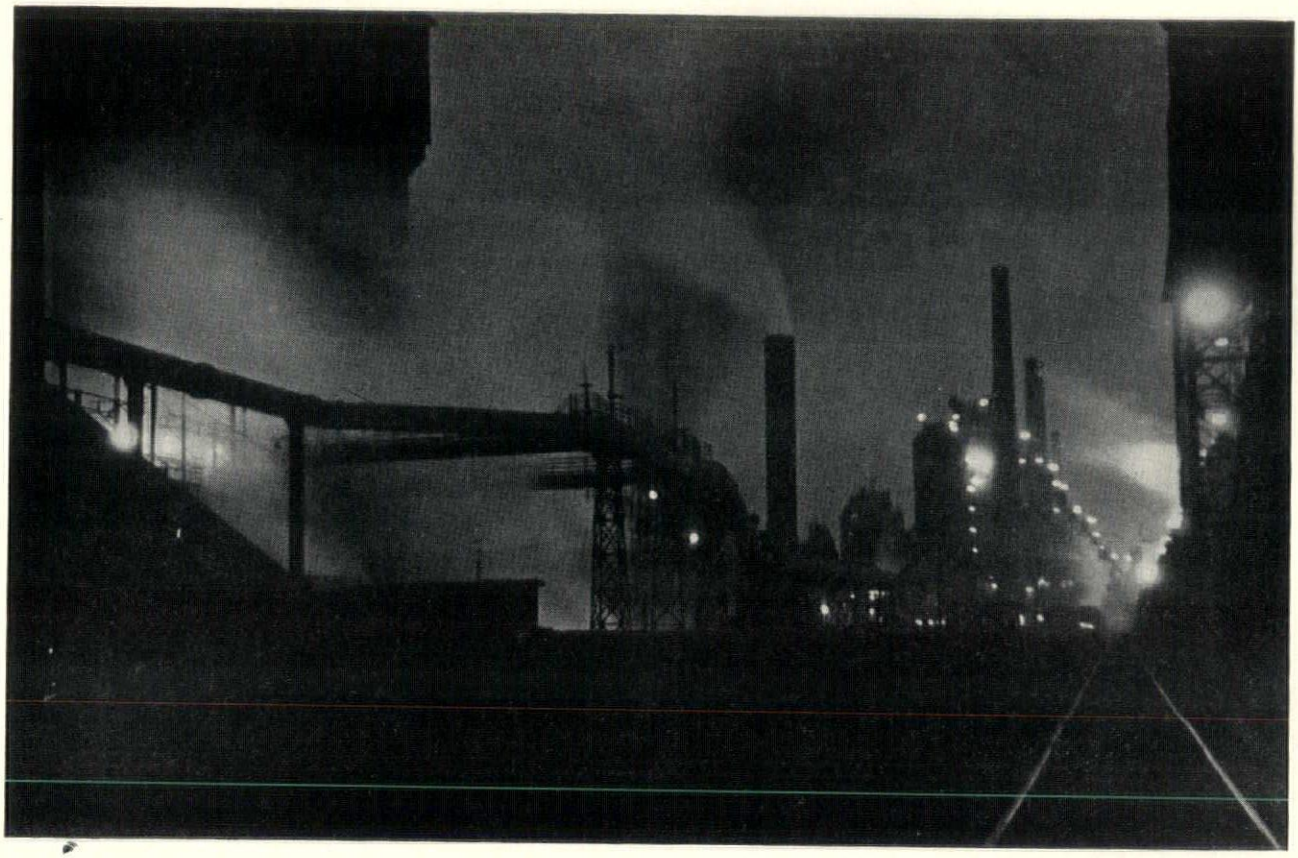
These two great plants, and scores of others of more conventional construction which already are in operation, are Detroit's war products.



Stalingrad Tractor Plant

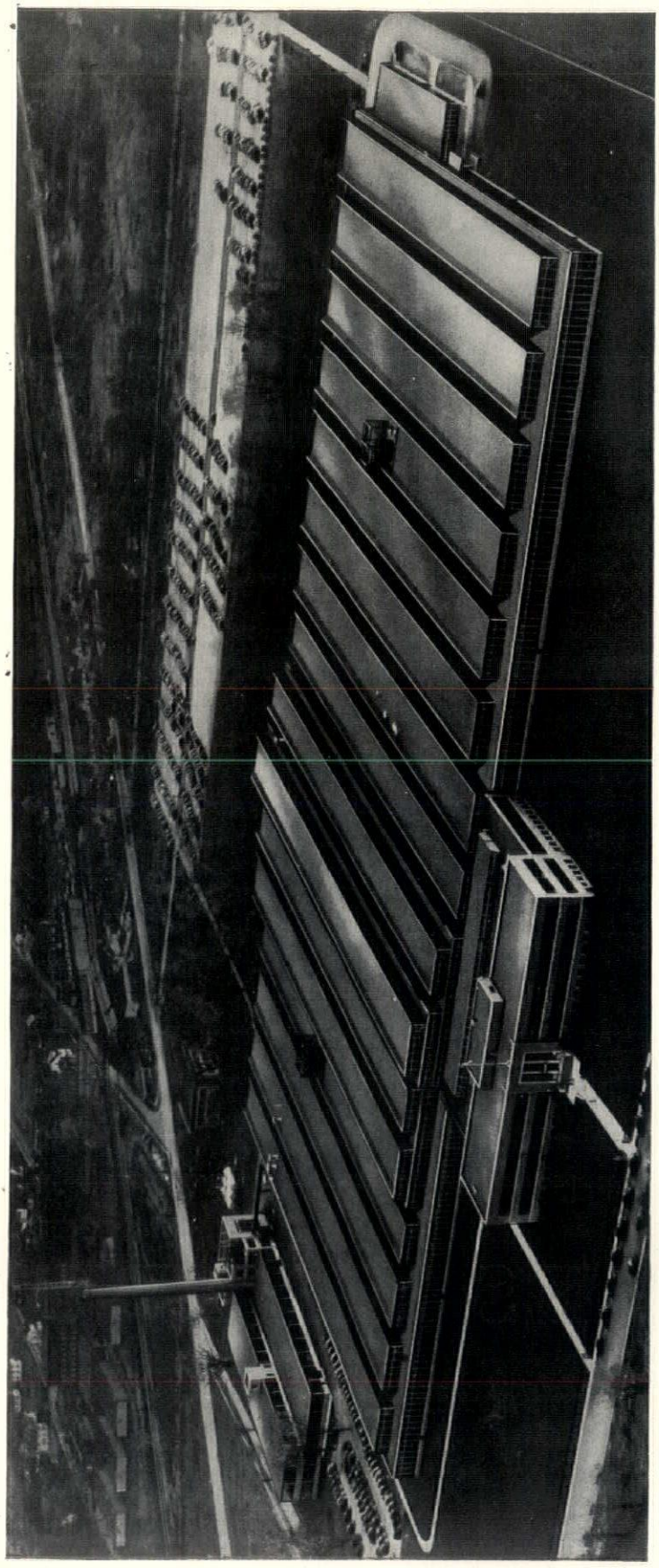


ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC.



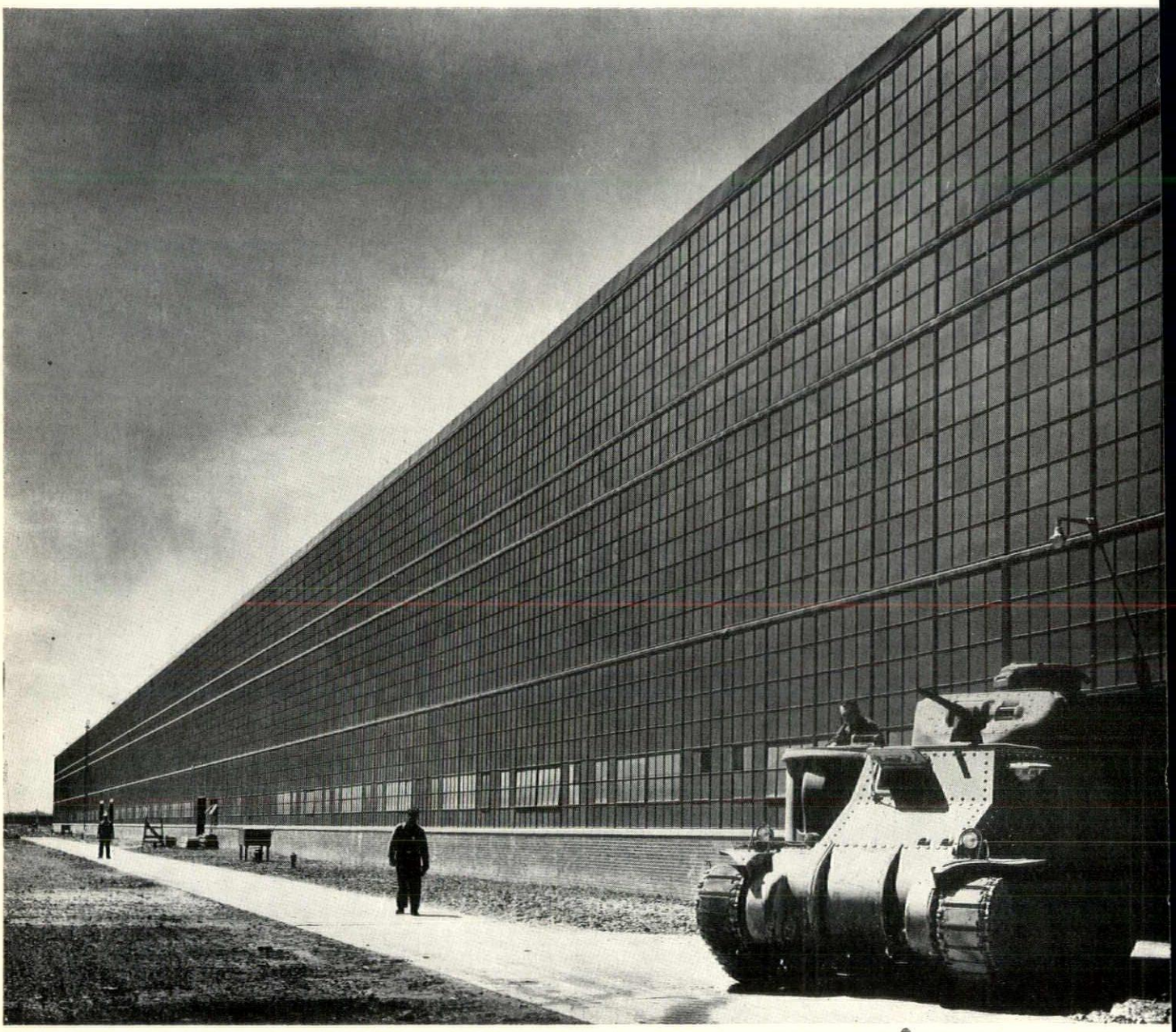
The Stalingrad Metallurgical Combinat in Kuznetsk, Russia
A Night View of the Blast Furnace Section

ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC.



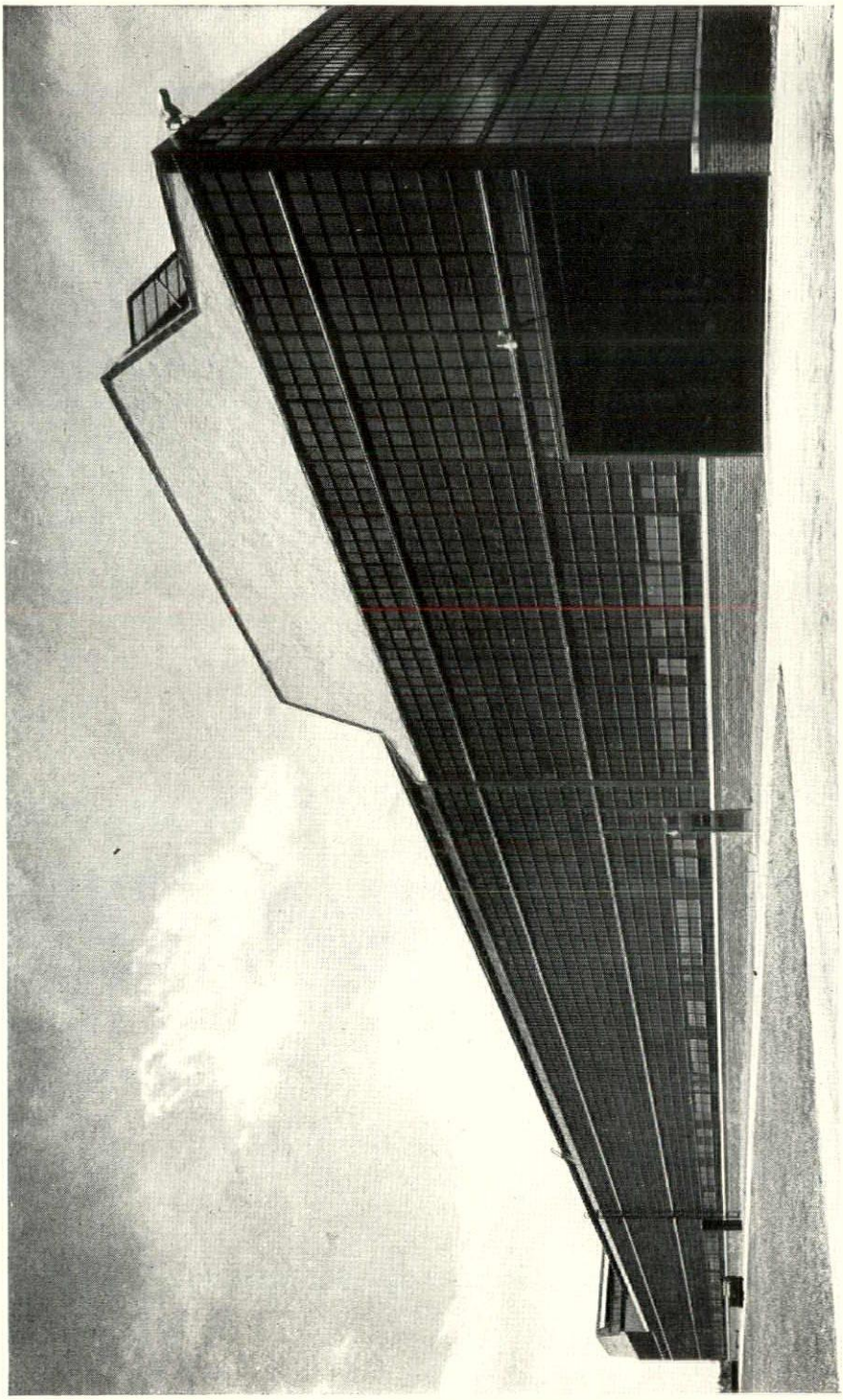
Pratt & Whitney Div. of Niles-Bement-Pond, West Hartford, Connecticut

ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC.
TURNER CONSTRUCTION CO., GENERAL CONTRACTOR, NEW YORK, N. Y.
JAS. STEWART CO., GENERAL CONTRACTORS, NEW YORK, N. Y.



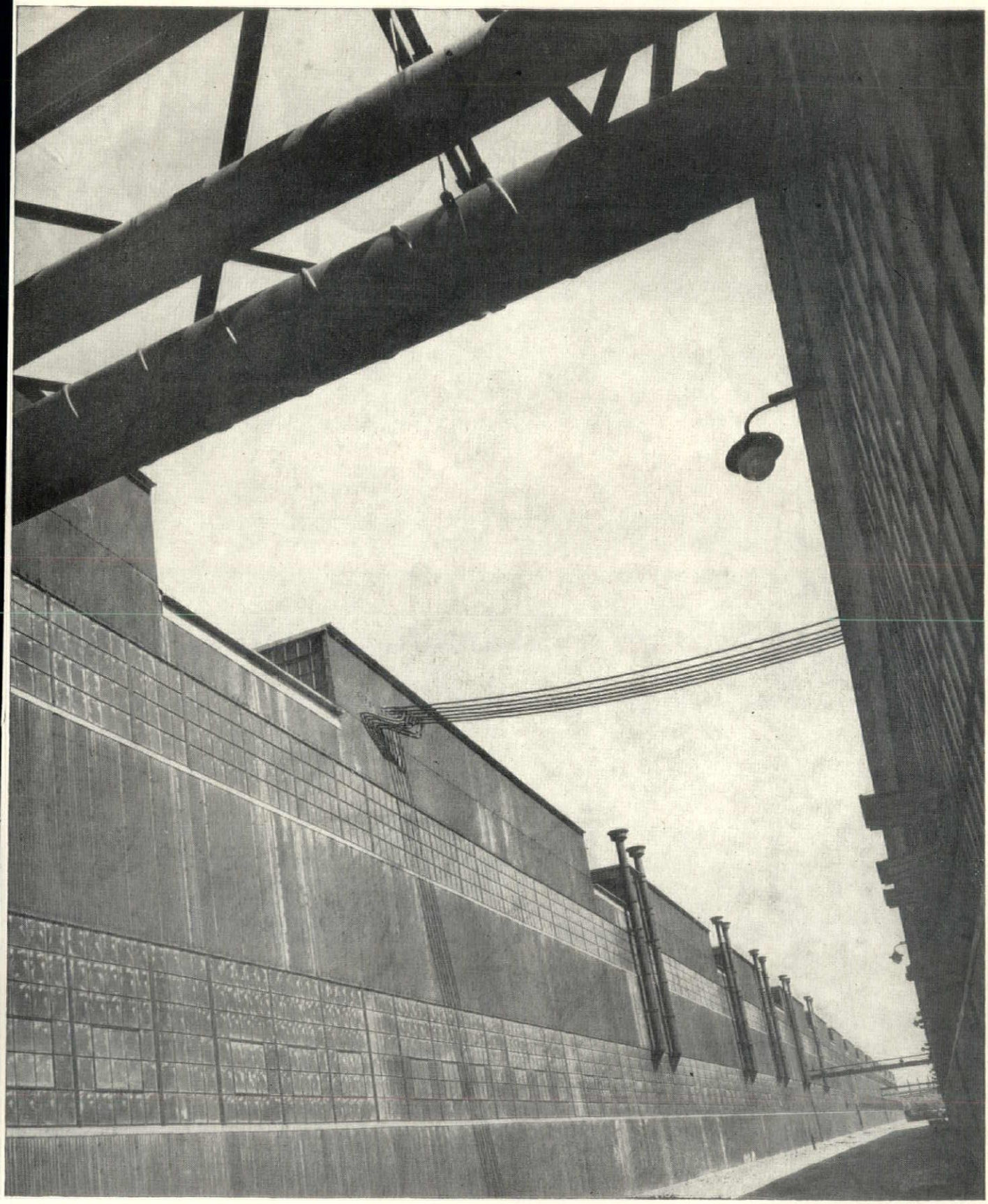
CHRYSLER TANK ARSENAL, DETROIT—In this issue the selections from the Kahn office afford but a glimpse of the large volume flowing from that office in a constant stream—to the far flung corners of the world.

ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC.



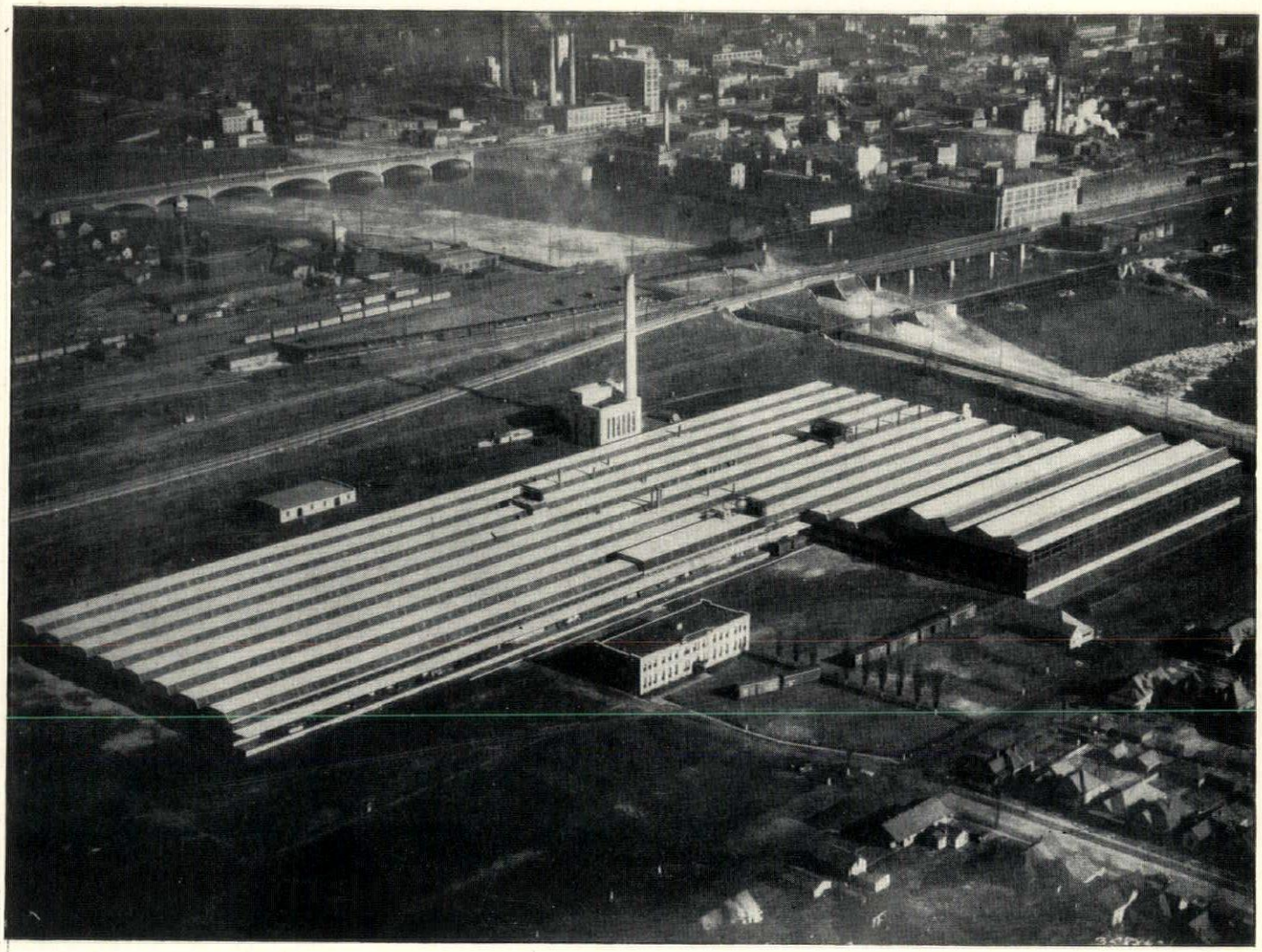
Exterior View, Chrysler Tank Arsenal, Detroit

ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INCORPORATED



Hot and Cold Strip Mill, Republic Steel Corporation, Cleveland, Ohio

ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC.



Commercial Body Plant, Chevrolet Division, General Motors Corporation, Indianapolis, Ind.

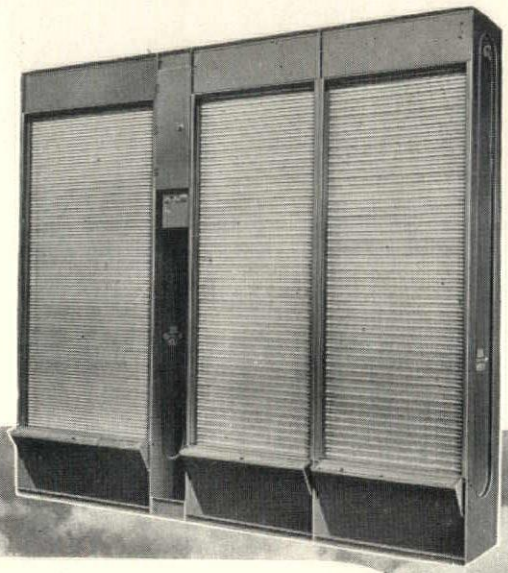
ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC.

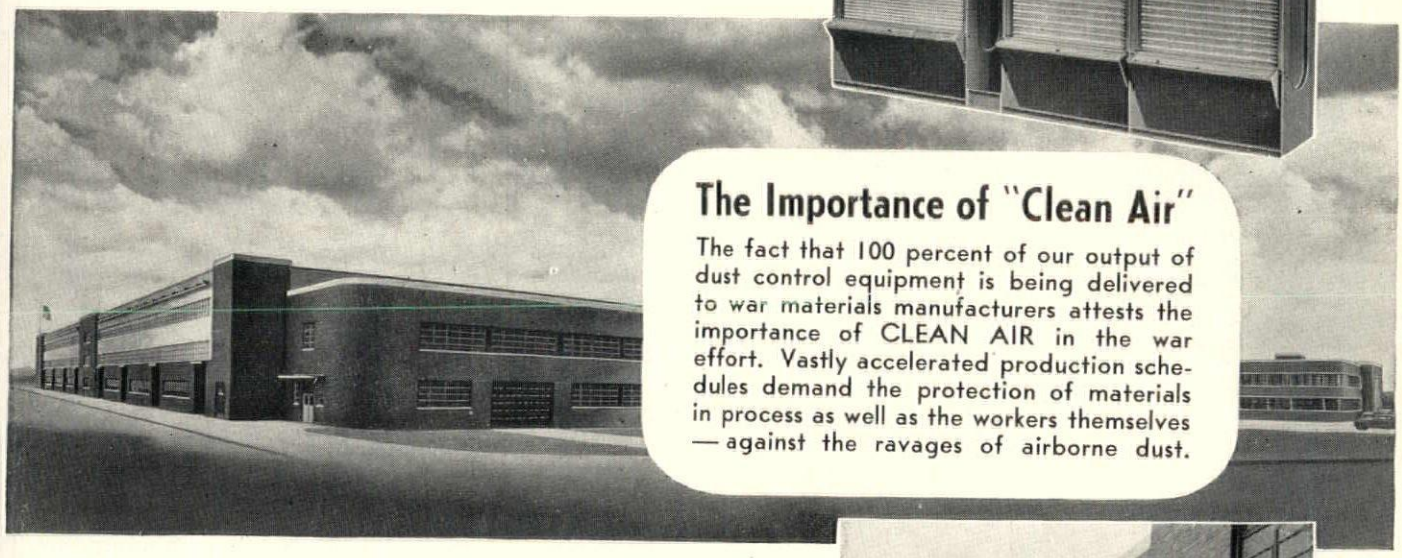
Ford Rotunda, Dearborn, Michigan — Completed 1935

ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC.

AAF Automatics

KEEP THE AIR CLEAN IN THE HUGE FORD BOMBER PLANT





The Importance of "Clean Air"

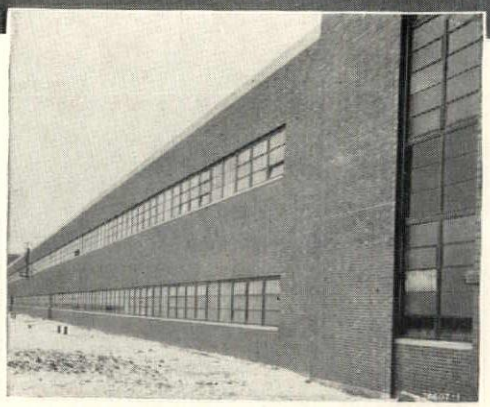
The fact that 100 percent of our output of dust control equipment is being delivered to war materials manufacturers attests the importance of CLEAN AIR in the war effort. Vastly accelerated production schedules demand the protection of materials in process as well as the workers themselves — against the ravages of airborne dust.

MILLIONS of cubic feet of air per minute pass through the big batteries of American Automatic Filters installed in this bomber plant to protect manufacturing operations and personnel from atmospheric dust.

American manufacturers have found AAF Automatic Filters a most economical and satisfactory means of cleaning air. The self-cleaning feature insures a constant, uniform air supply. No time out for cleaning is necessary — they clean themselves as they clean the air.

The collected dust is deposited in the Viscosine reservoirs at the bottom of the filters where it may be removed without disrupting continuous operation.

Send for "AAF in Industry" which completely describes the entire line of American Air Filtering and Dust Control equipment.



Two views of the Ford Bomber Plant
Albert Kahn Associated, Architects & Engineers, Detroit

AMERICAN AAF AIR FILTERS

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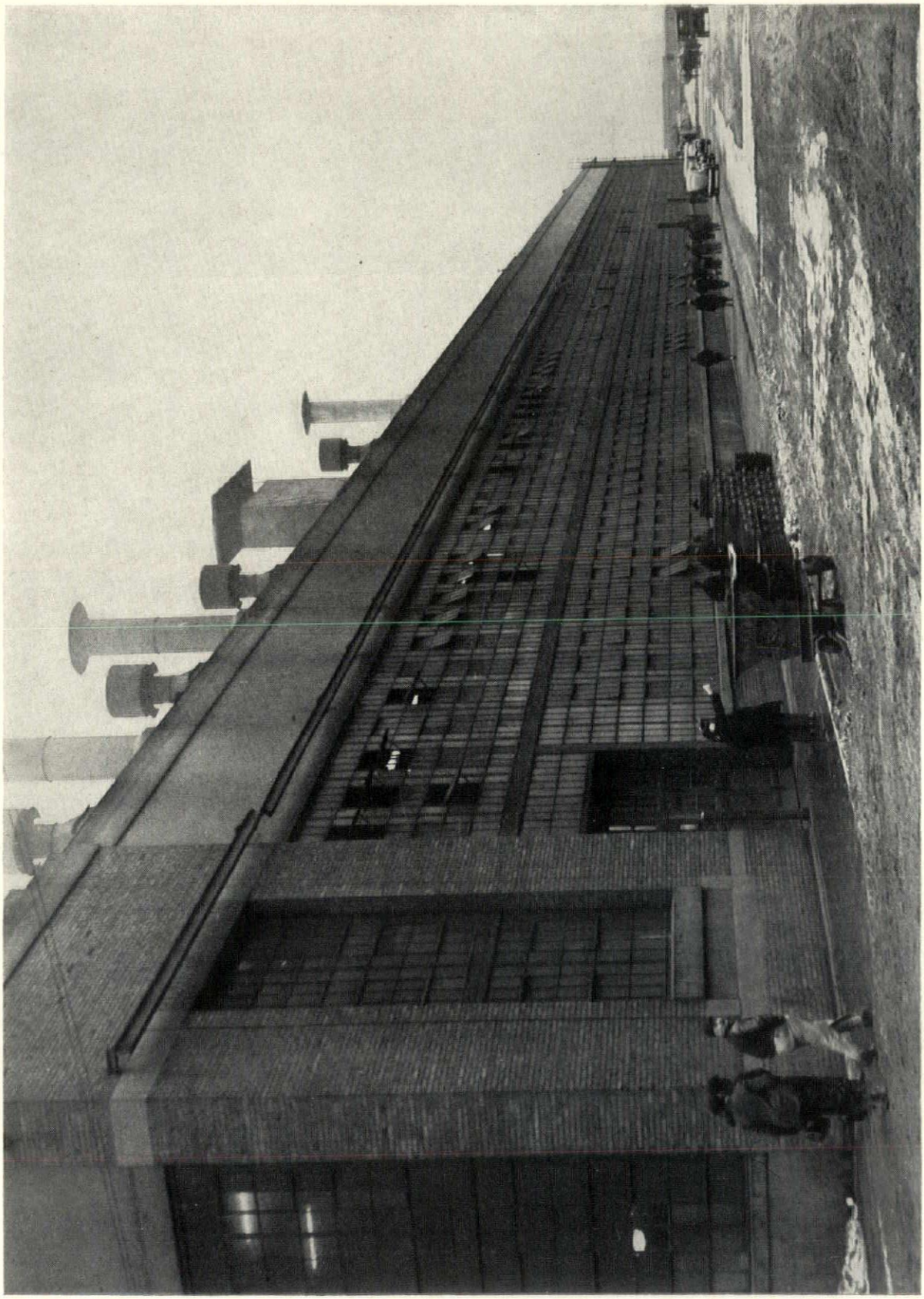
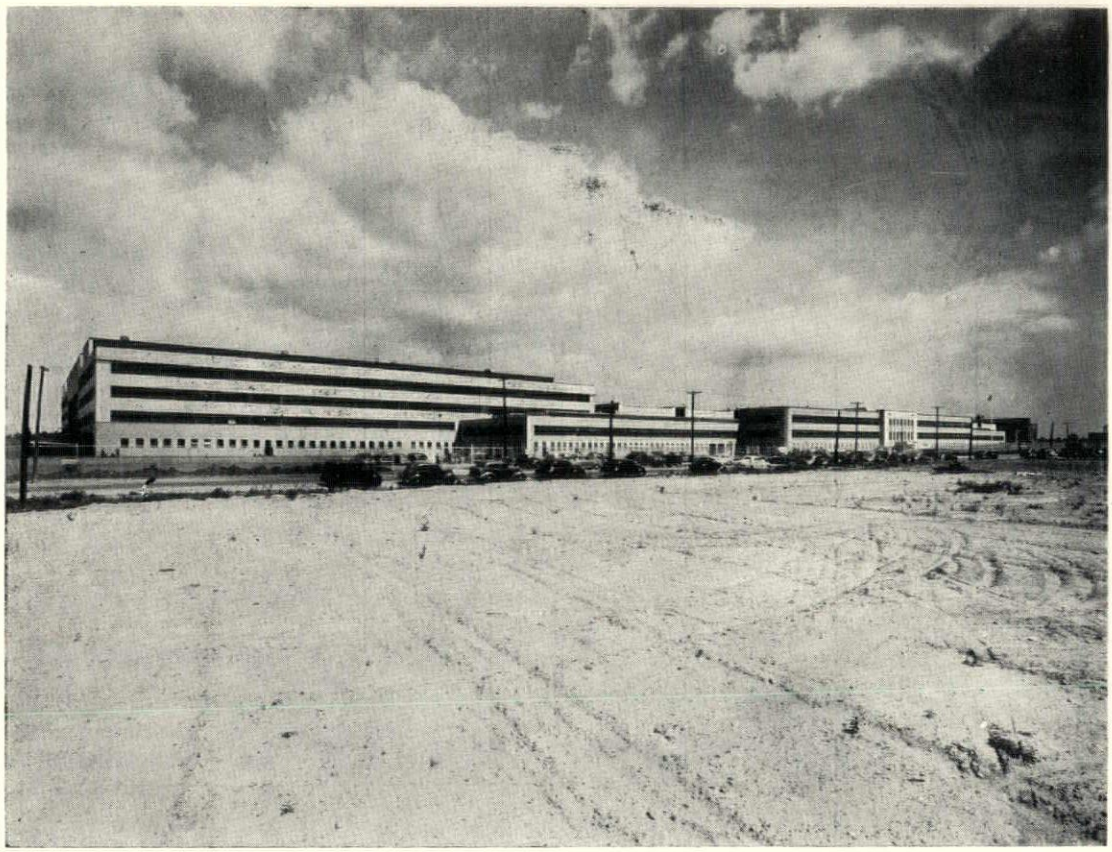


Ford Motor Company's Manufacturing Building, Dearborn, Mich.

ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC.
BRYANT & DETWILER, GENERAL CONTRACTORS



Office, Engineering Building and Factory, Curtiss-Wright Corp., Airplane Division
Buffalo Airport Plant

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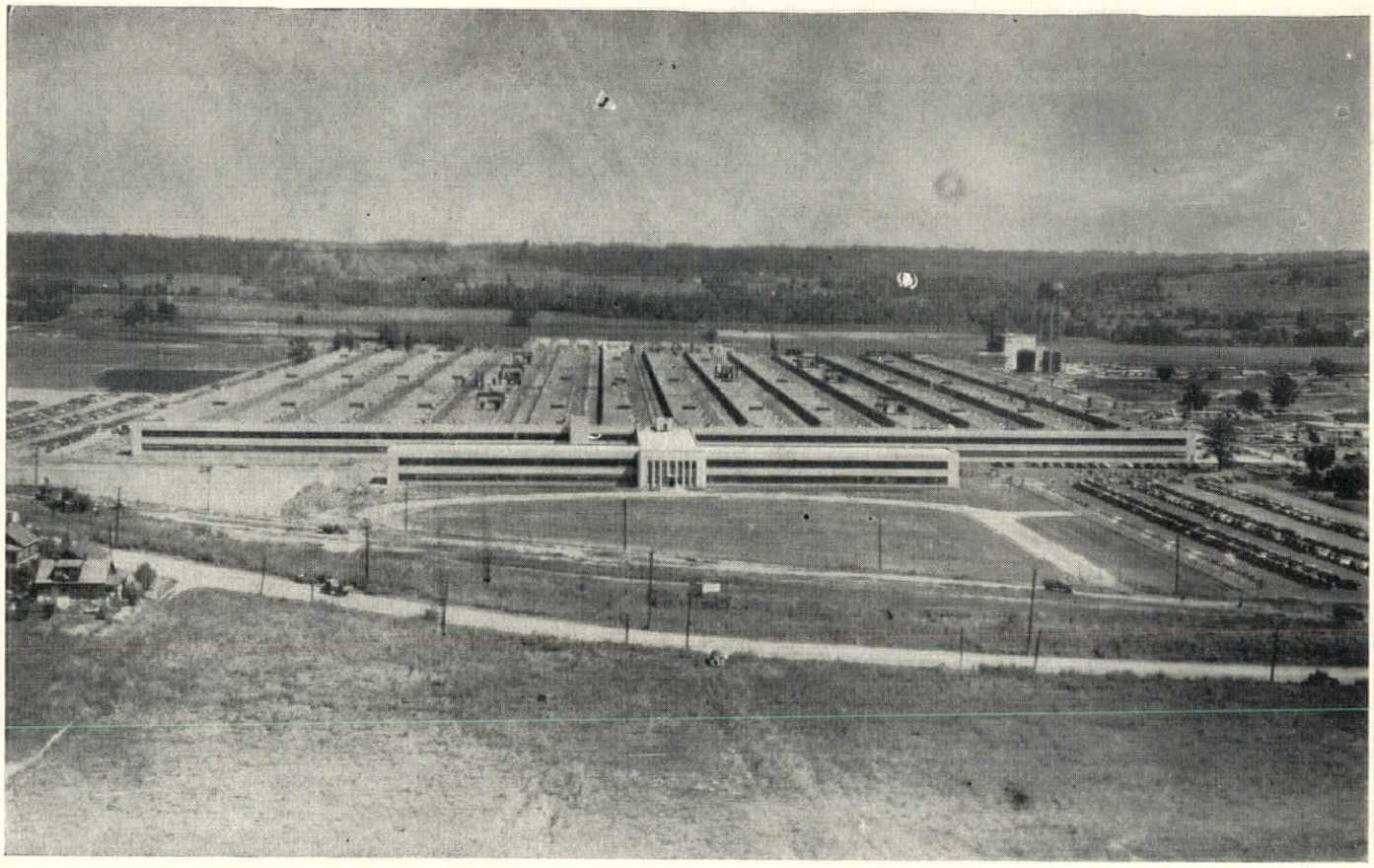
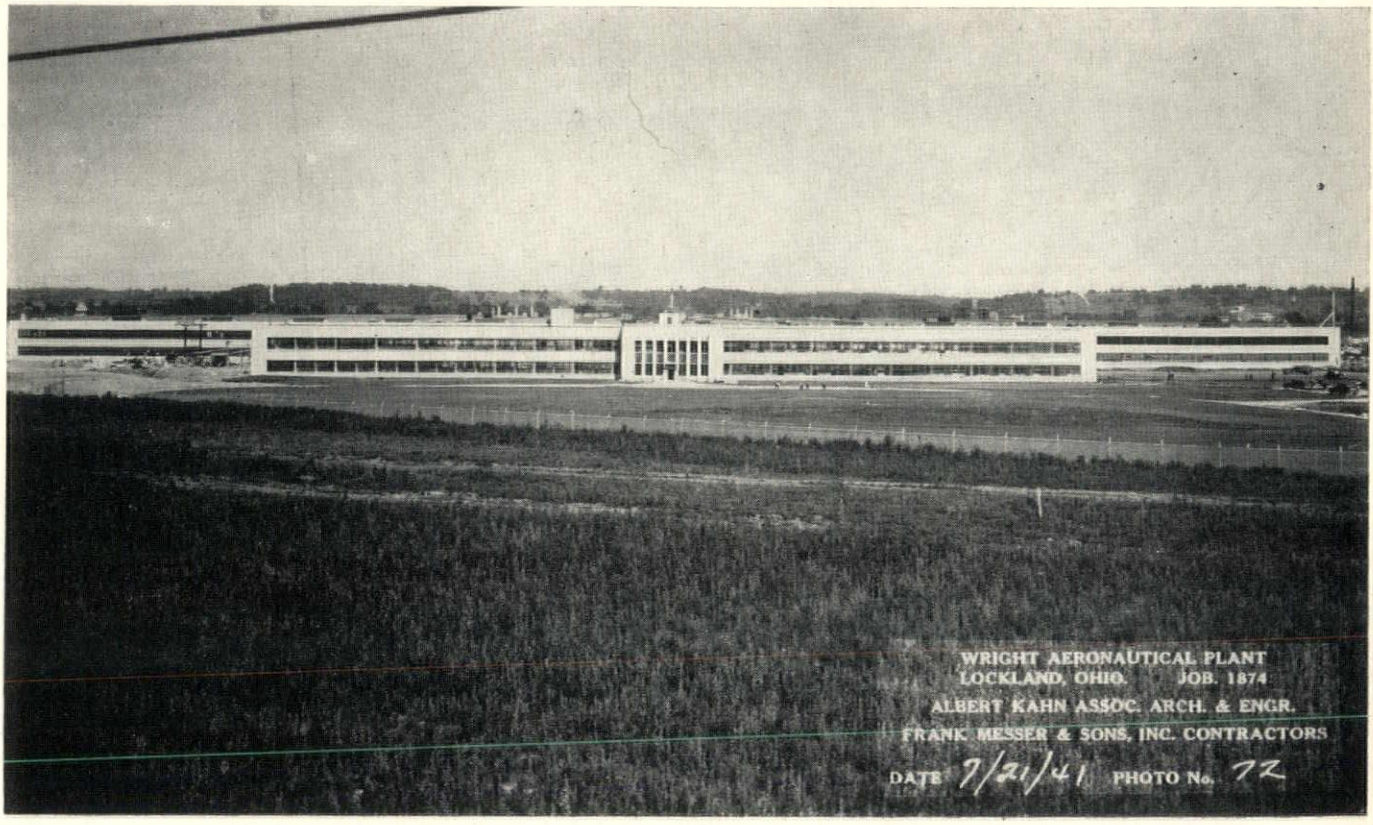


Wright Aeronautical Plant, Lockland, Ohio

ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC



Wright Aeronautical Plant, Lockland, Ohio

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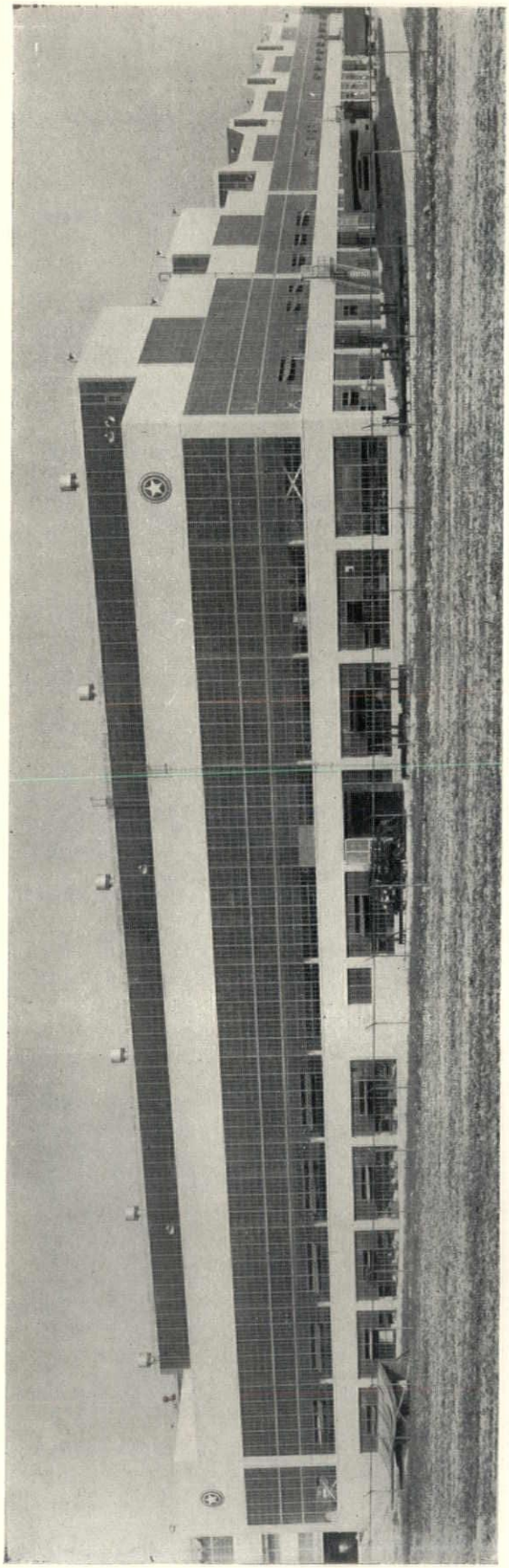
FRANK MESSER & SONS, INC., GENERAL CONTRACTORS, CINCINNATI, OHIO



Glenn L. Martin Corporation, Middle River, Maryland

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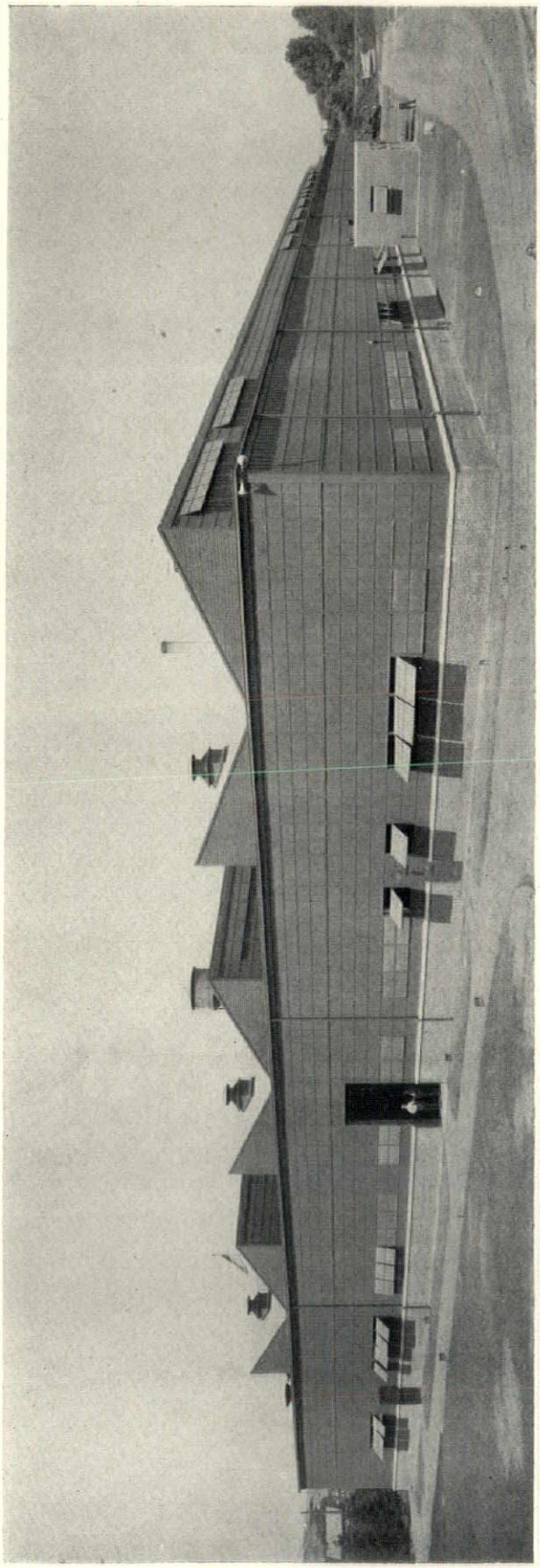
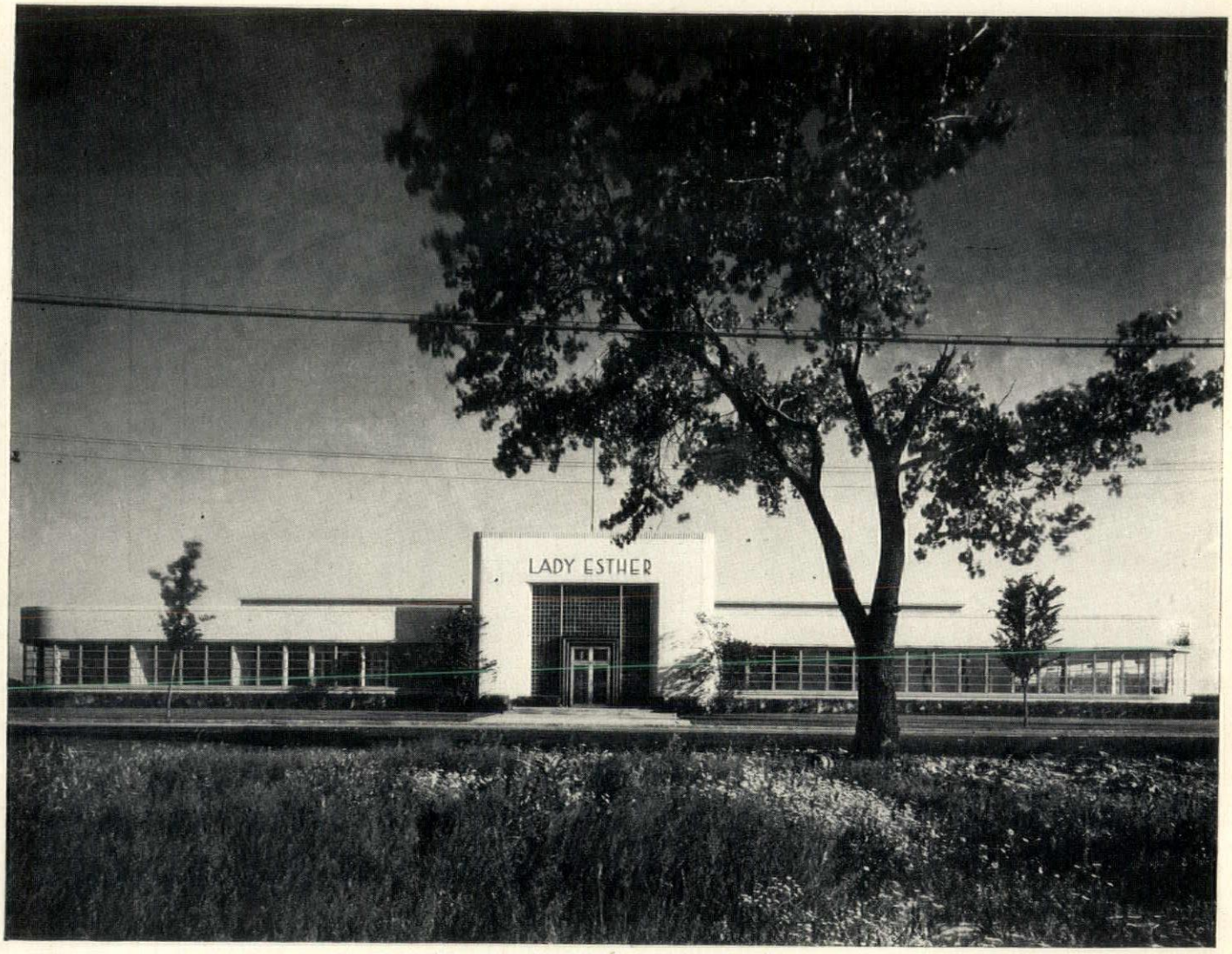
CONSOLIDATED ENGINEERING CO., GENERAL CONTRACTORS, BALTIMORE, MD.



Aeronautical Manufacturing Building, New Jersey

ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC.
MAHONY-TROAST CONSTRUCTION CO., PASSAIC, N. J.



Factory and Office, Lady Esther, Clearing, Illinois

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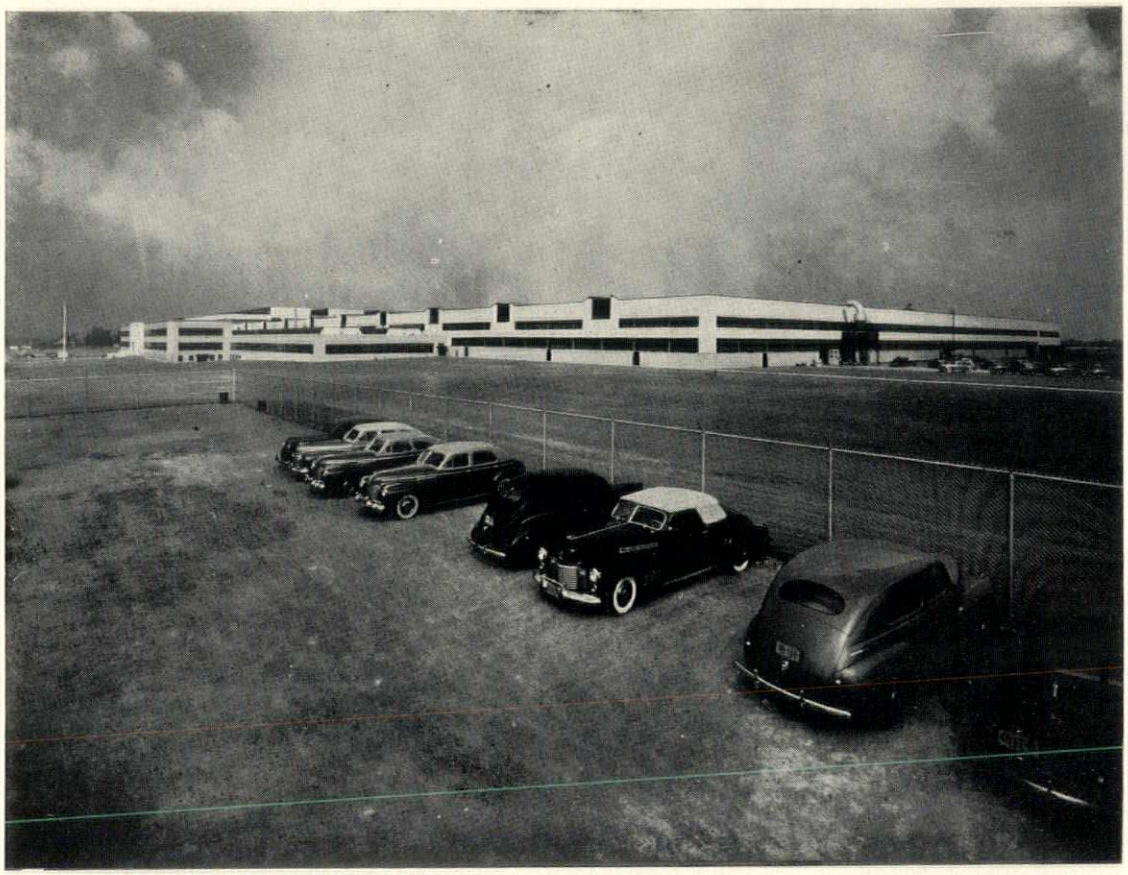

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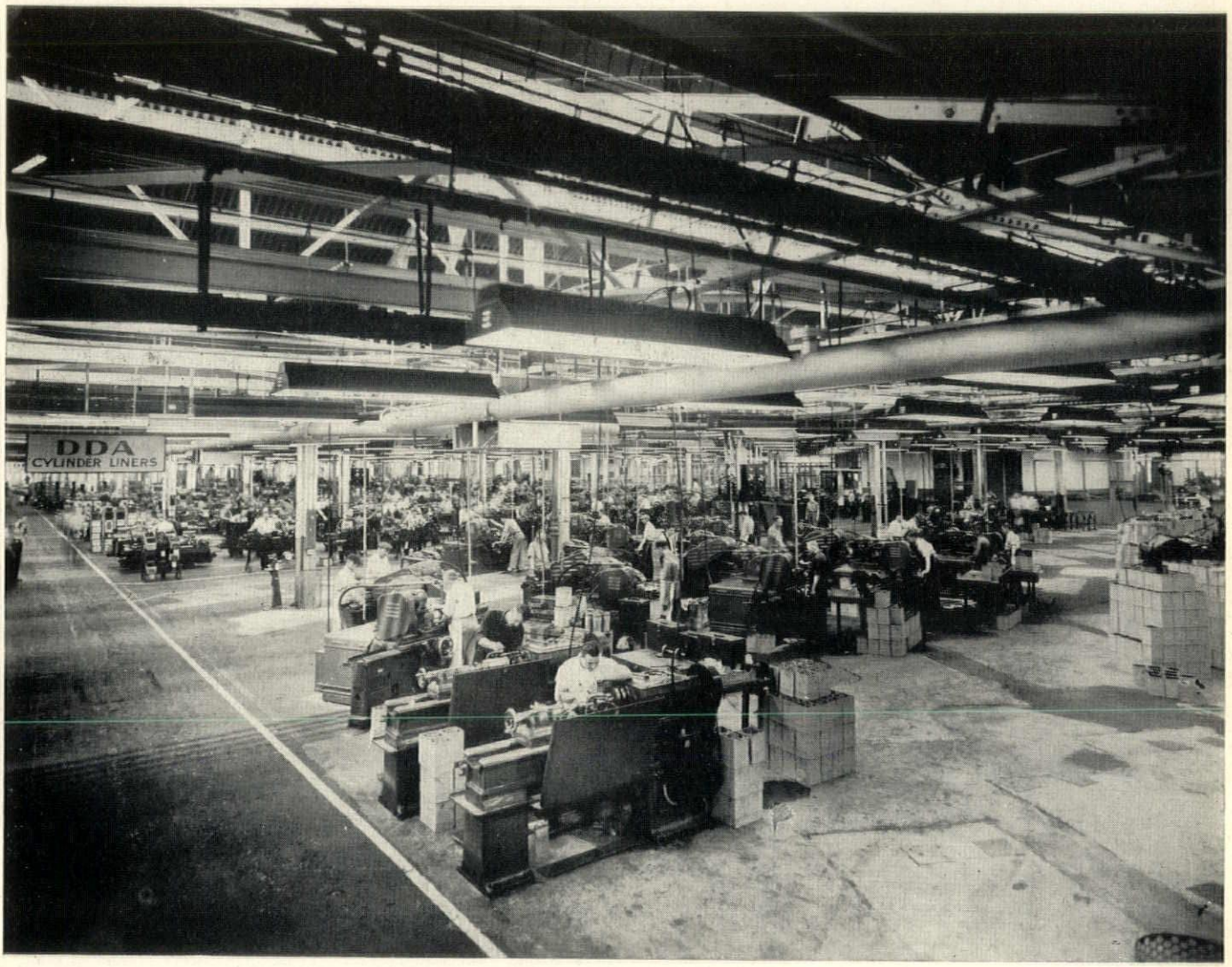

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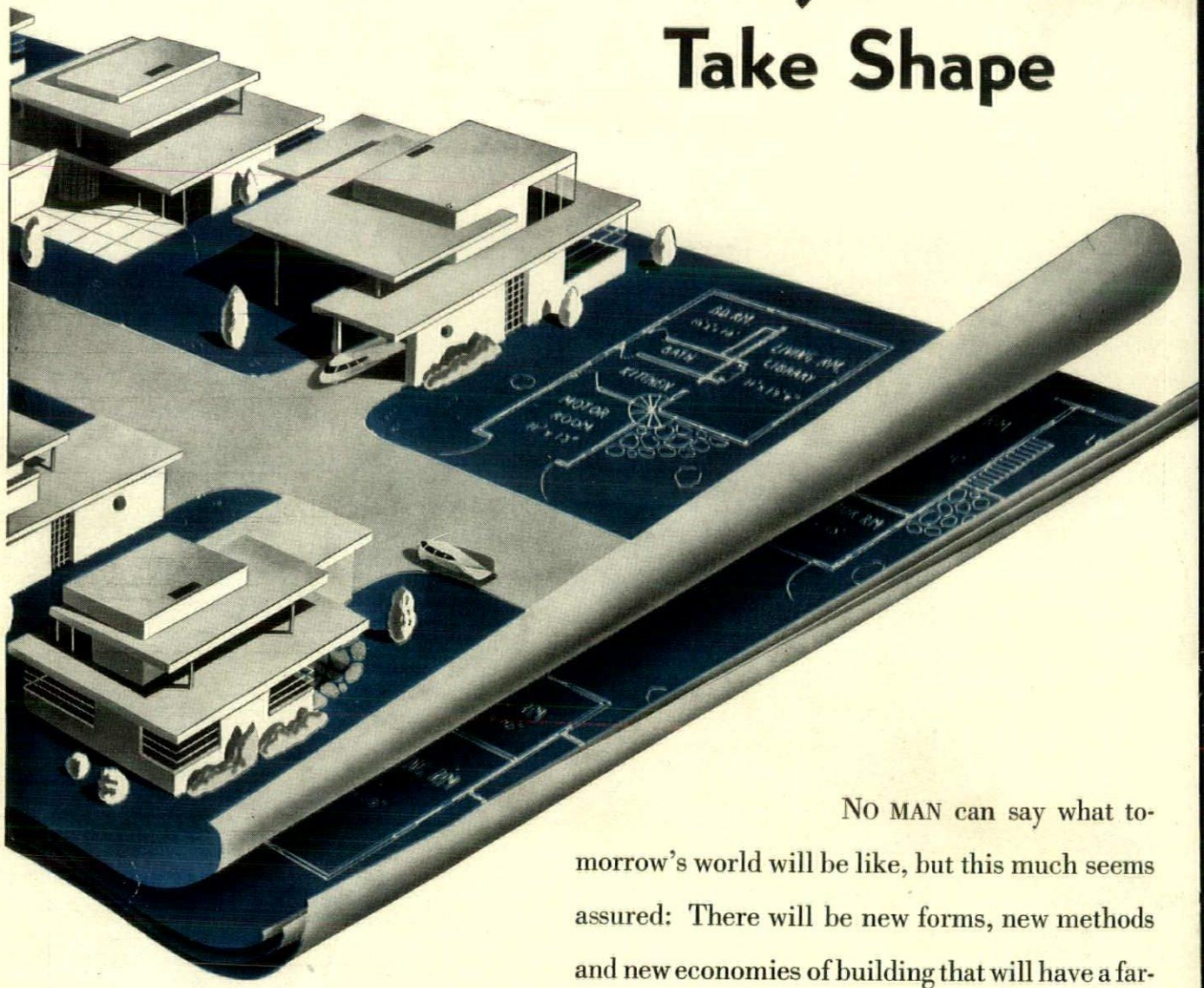

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