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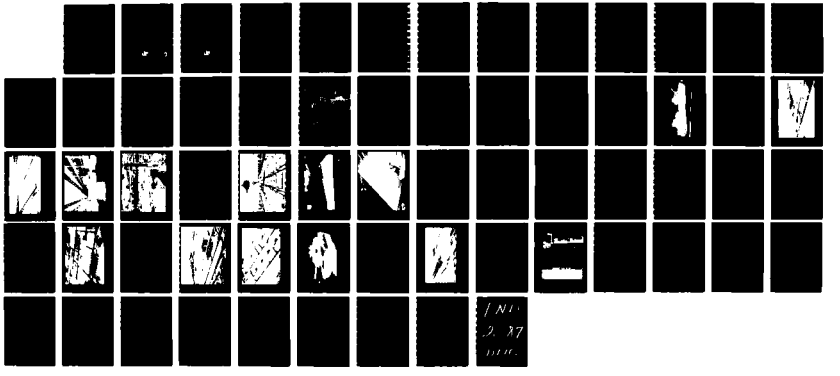

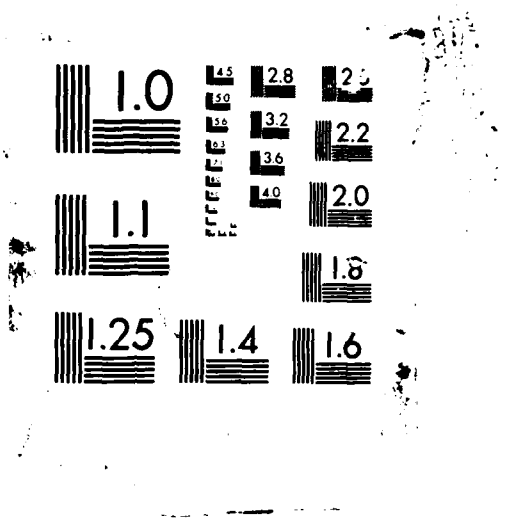
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HISTORIC PROPERTIES REPORT

DETROIT ARSENAL

AND SUBINSTALLATIONS

PONTIAC STORAGE FACILITY, MICHIGAN

AND

KEWEENAW FIELD STATION, MICHIGAN

FINAL REPORT

JULY 1984

This document was prepared under Contract CX-0001-2-0033
between Building Technology Incorporated, Silver Spring, Maryland
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EXECUTIVE SUMMARY

A part of the U.S. Army's Tank Automotive Command (TACOM), the Detroit Arsenal, located in Warren, Michigan, is divided into two adjacent parts. The "east site," the Detroit Arsenal Tank Plant, is a government-owned, contractor-operated facility responsible for manufacturing, shipping, and testing updated versions of the M-60 tank and the new M-1 Abrams Main Battle Tank. The present contractor-operator is General Dynamics. The "east site" is the older section of the Detroit Arsenal, having been constructed by the Chrysler Corporation to manufacture tanks for the Army in World War II. The "west site," government owned and operated, is devoted to research, development, and administrative functions associated with the Army's work on tank and automotive materiel. Initial development of the "west site" dates to the early and mid-1950s. Altogether, the Detroit Arsenal includes approximately 87 government-owned buildings on 352 acres. In addition, privately-owned Wherry Housing stands on this acreage, and the Arsenal has recently leased three industrial buildings on the perimeter of the main installation. There are no Category I historic properties at the Detroit Arsenal. The Tank Plant (Building 4) is a Category II historic property because of its importance as one of America's foremost World War II manufacturing plants in terms of its volume of tank production, historic associations, and architectural design. The Administrative Building (Building 1) is a Category III historic structure principally because of its historic association with the Tank Plant.

The Pontiac Storage Facility, government-owned and government-operated, is located in Pontiac, Michigan, approximately 20 miles north of the Detroit

Arsenal. It includes only five numbered buildings on 31.24 acres. Established in 1955-56, this subinstallation receive., inspects, stores, maintains, and issues industrial plant equipment and machine tools stored in production package lines for DARCOM. The main structure at Pontiac is a 609,000 square foot, single-story warehouse (Building 1) that provides controlled humidity storage space. There are no Category I, II, or III historic properties at the Pontiac Storage Facility.

The Keweenaw Field Station is a subinstallation located in Houghton County, Michigan, approximately 550 miles north of the Detroit Arsenal. The U.S. Army's Snow, Ice, and Permafrost Research Establishment initiated the field station in 1953. Its eight numbered buildings on the leased, 27.3 acre site were all constructed between 1955 and 1960. The Army owns the buildings, but Michigan Technological University operates the field station under a RDT&E funded contract. The field station provides military vehicle and tank testing, conducts scientific research, and evaluates vehicle components. There are no Category I, II, or III historic properties at Keweenaw Field Station.

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PREFACE

This report presents the results of an historic properties survey of the Detroit Arsenal and subinstallations Pontiac Storage Facility and Keweenaw Field Station. Prepared for the United States Army Materiel Development and Readiness Command (DARCOM), the report is intended to assist the Army in bringing these installations into compliance with the National Historic Preservation Act of 1966 and its amendments, and related federal laws and regulations. To this end, the report focuses on the identification, evaluation, documentation, nomination, and preservation of historic properties at the Detroit Arsenal, Pontiac Storage Facility, and the Keweenaw Field Station. Chapter 1 sets forth the survey's scope and methodology; Chapter 2 presents an architectural, historical, and technological overview of the installation and its properties; and Chapter 3 identifies significant properties by Army category and sets forth preservation recommendations. Illustrations and an annotated bibliography supplement the text.

This report is part of a program initiated through a memorandum of agreement between the National Park Service, Department of the Interior, and the U.S. Department of the Army. The program covers 74 DARCOM installations and has two components: 1) a survey of historic properties (districts, buildings, structures, and objects), and 2) the development of archeological overviews. Stanley H. Fried, Chief, Real Estate Branch of Headquarters DARCOM, directed the program for the Army, and Dr. Robert J. Kapsch, Chief of the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) directed the program for the National Park Service. Sally Kress Tompkins was program manager, and Robie S. Lange was project

manager for the historic properties survey. Technical assistance was provided by Donald C. Jackson.

Building Technology Incorporated acted as primary contractor to HABS/HAER for the historic properties survey. William A. Brenner was BTI's principal-in-charge and Dr. Larry D. Lankton was the chief technical consultant. Major subcontractors were the MacDonald and Mack Partnership and Melvyn Green and Associates. The author of this report was Larry D. Lankton. The author wishes to acknowledge the assistance rendered by Mr. Bruno Zane, Mr. Joseph Avesian, and Ms. Ann Bos at the Detroit Arsenal; by Dr. Sung Lee at the Keweenaw Field Station; by Mr. Joe Bedway at Albert Kahn Associates, Inc.; and by Ms. Madryn Johnson at the Chrysler Historical Collection.

The complete HABS/HAER documentation for these installations will be included in the HABS/HAER collections at the Library of Congress, Prints and Photographs Division, under the designation HAER No. MI-12.

Chapter 1

INTRODUCTION

SCOPE

This report is based on an historic properties survey conducted in 1983-4 of all Army-owned properties located within the official boundaries of the Detroit Arsenal, the Pontiac Storage Facility, and the Keweenaw Field Station. The survey included the following tasks:

- Completion of documentary research on the histories of the installations and their properties.
- Completion of a field inventory of accessible properties at the installations.
- Preparation of a combined architectural, historical, and technological overview for the installations.
- Evaluation of historic properties and development of recommendations for preservation of these properties.

Also completed as a part of the historic properties survey of the installations, but not included in this report, are 30 HABS/HAER Inventory cards documenting individual properties. These cards, which constitute HABS/HAER Documentation Level IV, will be provided to the Department of the Army. Archival copies of the cards, with their accompanying photographic negatives, will be transmitted to the HABS/HAER collections at the Library of Congress.

The methodology used to complete these tasks is described in the following section of this report.

METHODOLOGY

1. Documentary Research

The Detroit Arsenal, a part of the Army Tank Automotive Materiel Readiness Command (TACOM), first developed as a major tank manufacturing site on the eve of World War II and during the early years of that war. Its mission significantly expanded beyond manufacturing and into the research, development, testing, and acquisition of Army automotive-tank materiel beginning in the early and mid-1950s. The Pontiac Storage Facility and the Keweenaw Field Station also date from the 1950s. Documentary research focused on the physical development of the installations and their pre-military history. The Michigan State Historic Preservation Office was contacted about possible historic properties at the installations, but none were identified through this source.

Army records used for the field inventory included current Real Property Inventory (RPI) printouts that listed all officially recorded buildings and structures by facility classification and date of construction; the installations' property record cards; and base maps, drawings, photographs supplied by installation personnel. Especially in the case of the Detroit Arsenal, periodical literature since 1940 served as an important data source. A complete listing of documentary material may be found in the bibliography.

2. Field Inventory

The field inventory of the Detroit Arsenal and the Pontiac Storage Facility was conducted by Larry D. Lankton in August 1983. He surveyed the Keweenaw Field Station in February 1984. Field inventory procedures were based on the HABS/HAER Guidelines for Inventories of Historic Buildings and Engineering and Industrial Structures.[1] All areas and properties were visually surveyed. Building locations and approximate dates of construction were noted from the installation's property records and field-verified.

Field inventory forms were prepared for, and black and white 35 mm photographs taken of all buildings and structures through 1945 except basic utilitarian structures of no architectural, historical, or technological interest. When groups of similar ("prototypical") buildings were found, one field form was normally prepared to represent all buildings of that type. Field inventory forms were also completed for representative post-1945 buildings and structures.[2] Information collected on the field forms was later evaluated, condensed, and transferred to HABS/HAER Inventory cards.

3. Historic Overview

A combined architectural, historical, and technological overview was prepared from information developed from the documentary research and the field inventory. It was written in two parts: 1) an introductory

description of the installations, and 2) histories of the installations by periods of development, beginning with pre-military land uses. Maps and photographs were selected to supplement the text as appropriate.

4. Property Evaluation and Preservation Measures

Based on information developed in the historical overviews, properties were first evaluated for historical significance in accordance with the elegibility criteria for nomination to the National Register of Historic Places. These criteria require that eligible properties possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that they meet one or more of the following:[3]

A. Are associated with events that have made a significant contribution to the broad patterns of our history.

B. Are associated with the lives of persons significant in the nation's past.

C. Embody the distinctive characteristics of a type, period, or method of construction, represent the work of a master, possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction.

D. Have yielded, or may be likely to yield, information important in pre-history or history.

Properties thus evaluated were further assessed for placement in one of five Army historic property categories as described in Army Regulation 420-40:[4]

Category I	Properties of major importance
Category II	Properties of importance
Category III	Properties of minor importance
Category IV	Properties of little or no importance
Category V	Properties detrimental to the significance of of adjacent historic properties

Based on an extensive review of the architectural, historical, and technological resources identified on DARCOM installations nationwide, four criteria were developed to help determine the appropriate categorization level for each Army property. These criteria were used to assess the importance not only of properties of traditional historical interest, but of the vast number of standardized or prototypical buildings, structures, and production processes that were built and put into service during World War II, as well as of properties associated with many post-war technological achievements. The four criteria were often used in combination and are as follows:

1) Degree of importance as a work of architectural, engineering, or industrial design. This criterion took into account the qualitative factors by which design is normally judged: artistic merit, workmanship, appropriate use of materials, and functionality.

2) Degree of rarity as a remaining example of a once widely used architectural, engineering, or industrial design or process. This criterion was applied primarily to the many standardized or prototypical DARCOM buildings, structures, or industrial processes. The more widespread or influential the design or process, the greater the importance of the remaining examples of the design or process was considered to be. This criterion was also used for non-military structures such as farmhouses and other once prevalent building types.

3) Degree of integrity or completeness. This criterion compared the current condition, appearance, and function of a building, structure, architectural assemblage, or industrial process to its original or most historically important condition, appearance, and function. Those properties that were highly intact were generally considered of greater importance than those that were not.

4) Degree of association with an important person, program, or event. This criterion was used to examine the relationship of a property to a famous personage, wartime project, or similar factor that lent the property special importance.

The majority of DARCOM properties were built just prior to or during World War II, and special attention was given to their evaluation. Those that still remain do not often possess individual importance, but collectively they represent the remnants of a vast construction undertaking whose architectural, historical, and technological importance needed to

be assessed before their numbers diminished further. This assessment centered on an extensive review of the military construction of the 1940-1945 period, and its contribution to the history of World War II and the post-war Army landscape.

Because technology has advanced so rapidly since the war, post-World War II properties were also given attention. These properties were evaluated in terms of the nation's more recent accomplishments in weaponry, rocketry, electronics, and related technological and scientific endeavors. Thus the traditional definition of "historic" as a property 50 or more years old was not germane in the assessment of either World War II or post-war DARCOM buildings and structures; rather, the historic importance of all properties was evaluated as completely as possible regardless of age.

Property designations by category are expected to be useful for approximately ten years, after which all categorizations should be reviewed and updated.

Following this categorization procedure, Category I, II, and III historic properties were analyzed in terms of:

- Current structural condition and state of repair. This information was taken from the field inventory forms and photogaphs, and was often supplemented by rechecking with facilities engineering personnel.

- The nature of possible future adverse impacts to the property. This information was gathered from the installation's master planning documents and rechecked with facilities engineering personnel.

Based on the above considerations, the general preservation recommendations presented in Chapter 3 for Category I, II, and III historic properties were developed. Special preservation recommendations were created for individual properties as circumstances required.

5. Report Review

Prior to being completed in final form, this report was subjected to an in-house review by Building Technology Incorporated. It was then sent in draft to the subject installation for comment and clearance and, with its associated historical materials, to HABS/HAER staff for technical review. When the installation cleared the report, additional draft copies were sent to DARCOM, the appropriate State Historic Preservation Officer, and, when requested, to the archeological contractor performing parallel work at the installation. The report was revised based on all comments collected, then published in final form.

NOTES

1. Historic American Buildings Survey/Historic American Engineering Record, National Park Service, Guidelines for Inventories of Historic Buildings and Engineering and Industrial Structures (unpublished draft, 1982).

2. Representative post-World War II buildings and structures were defined as properties that were: (a) "representative" by virtue of construction type, architectural type, function, or a combination of these, (b) of obvious Category I, II, or III historic importance, or (c) prominent on the installation by virtue of size, location, or other distinctive feature.

3. National Park Service, How to Complete National Register Forms (Washington, D.C.: U.S. Government Printing Office, January 1977).

4. Army Regulation 420-40, Historic Preservation (Headquarters, U.S. Army: Washington, D.C., 15 April 1984).

Chapter 2

HISTORICAL OVERVIEW

BACKGROUND

The Detroit Arsenal consists of two adjacent parts: a government-owned and contractor-operated tank manufacturing plant dating from the early 1940s, and a govenment-owned and -operated research, development, testing, and administrative facility constructed largely since the early 1950s. The Arsenal is located in Warren, Michigan. It occupies 352 acres and includes approximately 87 government-owned buildings. (Illustration 1)

Originally erected and operated by the Chrysler Corporation, the tank plant played a crucial defense role in World War II through its large production runs of M3 and M4 tanks. One-fourth of all American tanks produced between 1940 and 1945 (22,234 units) rolled from this one facility. The output of the Detroit Arsenal, in fact, nearly equaled the World War II tank production of all British industry (24,803 units) or all German industry (24,360 units). The Detroit plant was one of the earliest and largest defense plants to be erected as the nation mobilized for war. Designed by the firm of Albert Kahn, one of the nation's foremost industrial architects, it received considerable attention in the popular and technical press as a great mobilization and production success story. During the war it was visited and praised by President Roosevelt and numerous other American and foreign dignitaries.

Since World War II, tank production at the Detroit Arsenal has fluctuated, depending on peace or war, or whether there was a new tank program to launch. Shortly after World War II, the Army terminated Chrysler's contract

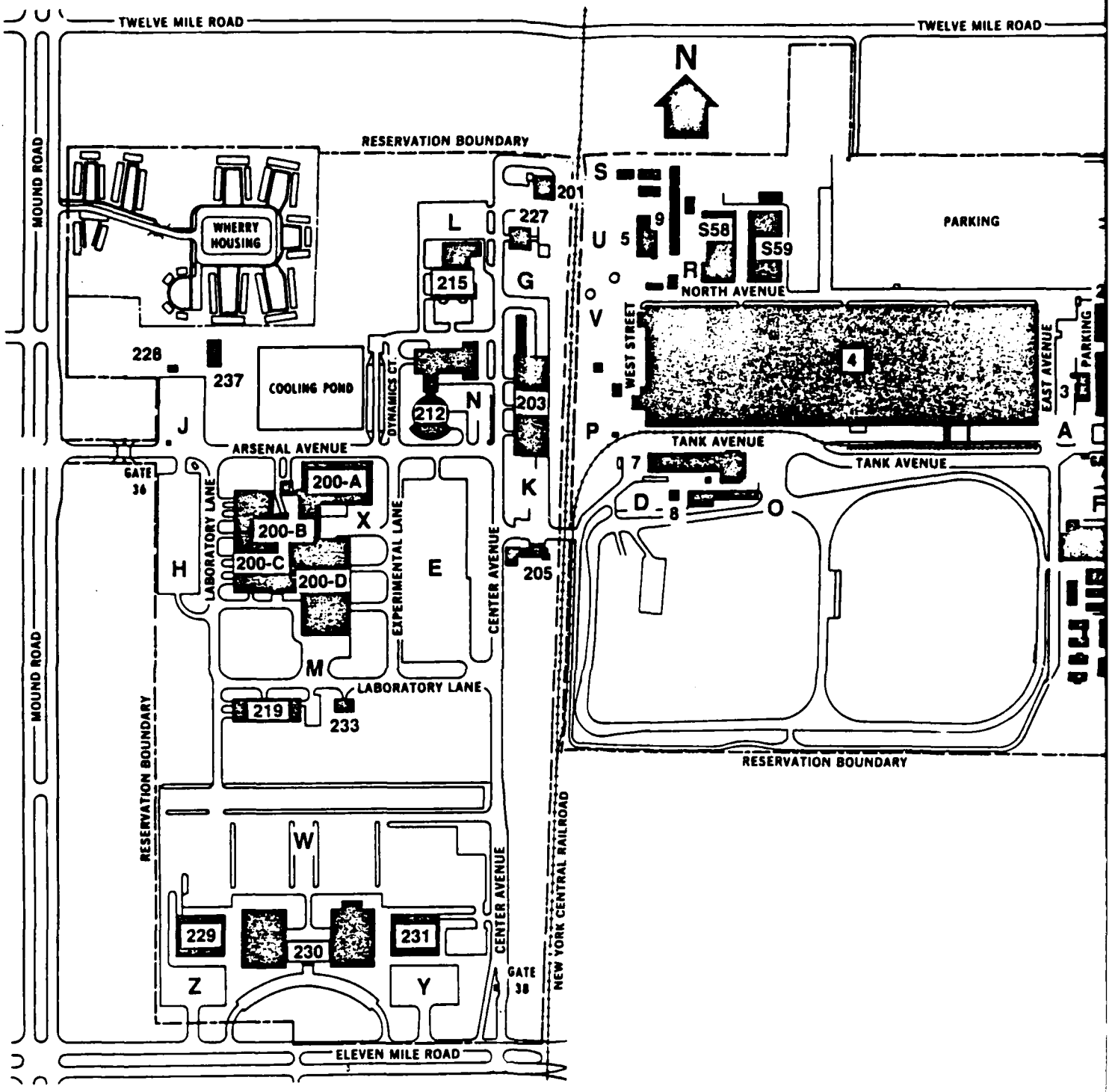

Illustration 1 Map of Detroit Arsenal, located between Eleven and Twelve Mile Roads and Van Dyke Avenue and Mound Road in Warren, Michigan. (Source: TACOM)

to produce tanks at the Arsenal, but the auto maker returned during the Korean War when a second crash tank-building program got underway. After Korea, another production lull ensued, but tank production stepped up again in 1960 when the Army shifted M60 tank production from Newark, Delaware, to the Arsenal. Since that time, the M60 has been revamped and considerably changed, but is still produced there. In October 1981, the tank plant began assembly of the new M1 Abrams Main Battle Tank. The plant's current contractor-operator is General Dynamics, which took over the facility in the early 1980s when the financially troubled Chrysler Corporation sold off its military-contract arm, Chrysler Defense.

Half the Arsenal is dominated by a massive factory building (Building 4), and the other half is allocated to research laboratories, experimental shops, and administrative office buildings constructed between the early 1950s and the present; this portion of the Arsenal is the product of the Army's decision in the early 1950s to carry on a more sustained, permanent research and development program related to military vehicles, including tanks.

The Pontiac Storage Facility is a subinstallation located on a 31.24 acre site in Warren, Michigan, about 20 miles north of the Detroit Arsenal. Established in the mid-1950s, its predominant feature is a vast, steel-frame, single-story warehouse that provides humidity-controlled storage for DARCOM production machinery.

Another subinstallation is the Keweenaw Field Station, located about 550 miles north of Detroit on Upper Michigan's Keweenaw Peninsula. Surrounded by Lake Superior and subject to much "lake-effect" precipitation, the peninsula

has a heavy annual snowfall and offers a good environment for testing equipment in a harsh winter climate. Today this modest facility consists of a small cluster of metal-covered administrative, laboratory, and maintenance buildings, all dating from 1955 to 1960. Michigan Technological University operates the facility under a RDT&E contract.

DETROIT ARSENAL

The Tank Plant and World War II Mobilization

The development of the tank was, figuratively, a case of beating plowshares into swords. These extremely heavy armored vehicles move about on endless tracks that provide the large bearing surface needed for covering all sorts of terrain. Tank builders were not the first to cope with the problem of moving a heavy vehicle over land, and were not the first to use endless tracks. At the start of this century, the logging industry and farm-equipment manufacturers sought a new means of providing traction for the heavy vehicles required to traverse snow-covered or soft ground. The endless track may have first appeared in a commercially successful form on steam-powered Lombard and Phoenix log haulers, built in the northeast and the Upper Great Lakes regions. It then appeared in California, where tractor builders had been resorting to very awkward, wide wheels to support their machines on soft soils. They turned to the endless track as a solution, and subsequently formed the Caterpillar Tractor Company. The company's gasoline-powered vehicles served as an important technological stepping-stone in the development of the military tank during World War I, and Caterpillar Tractor Company

representatives worked on both sides of that war: the U.S. firm aided in developing the first British tanks; an Austrian representative of the firm aided the German tank-building effort.

The tank did not become an important part of the American military arsenal for some time. Other nations—particularly England and Germany—pressed the tank's development and use much faster. From the first World War through the late 1930s, American tank research and production, undertaken at the Rock Island Arsenal, languished.[1] On the eve of the second World War, American tank designs were still relatively unsophisticated and untested, and American industry had no experience at all in the large-scale manufacture of these weapons.

This state of unpreparedness changed rapidly by 1940-41, as German aggression in Europe triggered increasing alarm. Since Germany's success was based in part on its use of tanks, America's military build-up included a crash program to manufacture battle-worthy tanks in large numbers.

In both World Wars I and II, the United States overcame an initial state of unpreparedness on the strength of industries that could be diverted from peacetime manufacturing to the production of war materiel. During the mobilization for World War II, the American automobile industry played an important role, just as it had in the previous war. William S. Knudsen, a past president of General Motors and a member of the National Defense Advisory Commission, was impressed by the military success of the German tanks and concerned over the lack of an American tank-building program. In

June 1940, he called K. T. Keller, president of the Chrysler Corporation, for help. Chrysler's board of directors had discussed what the corporation's role should be in support of national defense, and concluded that Chrysler should accept any defense work that would bring credit to the corporation and could be completed to the government's satisfaction. When Knudsen asked Keller if Chrysler could build tanks, Keller immediately said yes.[2]

Chrysler's fulfillment of its commitment proved difficult. The company had approximately 30 years experience in building automobiles, but much of the auto industry's technology could not be directly applied to tank manufacturing. The tank was a more complex and far heavier machine, and Chrysler had no heavy-equipment experience. Still, Chrysler lost no time in attacking the problem. After the call from Knudsen, company representatives traveled to the Rock Island Arsenal to get their first glimpse of a tank, and brought back 186 pounds of blueprints, one sheet for each tank component.[3] In approximately 14 days, Chrysler patternmakers fabricated and assembled every component in wood.

Chrysler then turned staff master mechanic Edward J. Hunt and about 180 other master mechanics to the task of planning tank production.[4] They quickly decided what tools, gages, fixtures, and machines were needed, how they should be arranged, and how much manufacturing space was required. All of this work was undertaken before Chrysler had a formal agreement with the government.

Another part of the work entailed determining the most desirable contractual arrangements for erecting and operating a tank plant. At the end of the first World War, the Dodge Division of Chrysler had been saddled with ownership of a defense plant it had built for manufacturing 155-mm cannon recoil mechanisms, and did not want this to happen again. It therefore agreed to design and manage the tank plant, but not own it.[5] The Army awarded Chrysler a contract stipulating such an arrangement on August 15, 1940. The automaker was to build and equip a 690,000 square foot tank plant for $20,000,000.[6] Chrysler pursued the task with great vigor, and in April 1941 presented the government with the first Chrysler-built M-3 tank. Regular production deliveries began in July, less than a year after the contract award. (Illustration 2)

Only the crash, seven-day-a-week planning effort headed by Edward Hunt in the summer of 1940 allowed for such a quick negotiation of the tank-plant contract and for the extremely rapid construction of the installation. In a little over one month's time, Chrysler's master mechanics and tool designers developed equipment lists and machinery layouts, and determined dimensions, clearances, bay positions, and expansion provisions for the main manufacturing building. They delivered these specifications to the Detroit firm of Albert Kahn Associated Architects and Engineers, which designed an industrial plant around them. The work was let to the Detroit construction firm of O. W. Burke Company, and ground was broken for the tank plant in September 1940.[7] The installation was virtually completed over the course of one winter, a winter of harsh climatic conditions that had men and equipment working alternately in snow, mud, and frozen ground. Multiple construction

Illustration 2 The first regular production tank built by Chrysler, an M3 from 1941, is on the left; a Chrysler-built M-60-A1, which rolled off the line in 1963, is on the right. Note the M3's riveted construction and antiquated design. (Source: TACOM)

operations were conducted simultaneously: while one end of the giant factory building was still in the early stages of erection, the other was nearing completion. Each job, including machinery installation, was completed as rapidly as possible.

Pre-Military Land Use and Initial Construction

The Army and Chrysler had jointly selected a 113 acre agricultural parcel in then rural Warren Township as the site of the tank plant. The site, some four miles north of the Detroit city limits and 17 miles from the center city, stood between Eleven and Twelve Mile Roads alongside the Michigan Central Railroad. When acquired, the site had been used for growing corn, buckwheat, and onions. Several farm buildings were removed to clear ground for the new plant. (Illustration 3)

The heart of the facility was the tank plant, Building 4, a one-story, high-bay structure originally 1,380 feet long and 500 feet wide. (Illustration 4) The plant's overall layout reflected the flow of materials and work as projected by Chrysler's planners, who separated the building into three parts. The first was a receiving area with a 60-foot wide bay running the full 1,380 feet of the plant's north side. At right angles to this bay ran twenty-three 60-foot wide manufacturing bays. Parts and materials taken in at the receiving bay moved across the building in the manufacturing bays to emerge in an 80-foot wide, 1,380-foot long assembly aisle on the building's south side.[8] (Illustration 5)

The wide, steel-framed bays were laid out and dimensioned to obtain maximum flexibility and facilitate the movement of large tank parts among the 1,000 production machines. (Illustration 6) These machines were general purpose

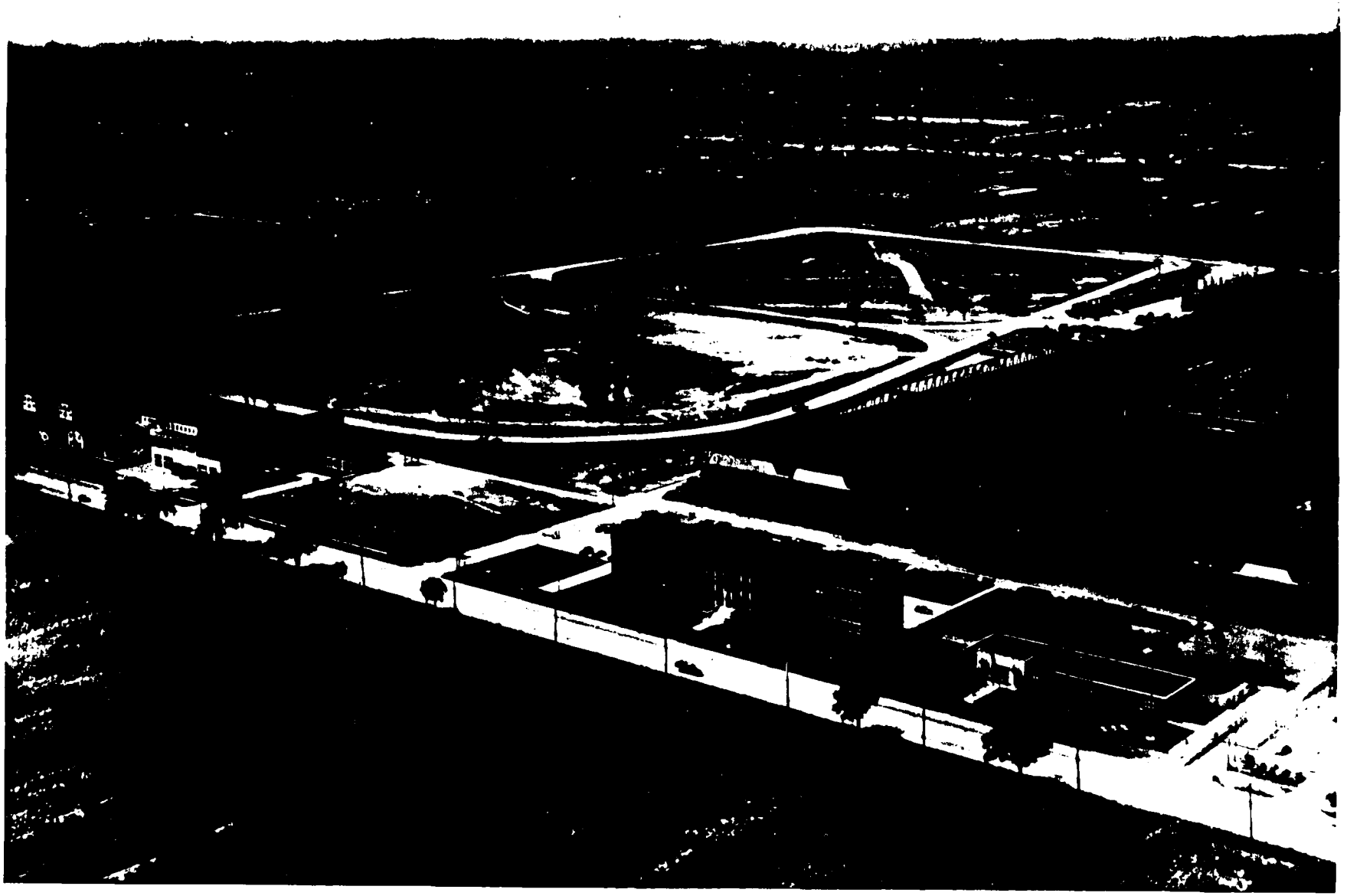

Illustration 3 This aerial view (looking southwest) shows the tank plant in 1946. Note the still-rural surroundings and the farm fields across Van Dyke Avenue from Buildings 1 and 2, lower right. The installation's cantonment area is on the left. (Source: TACOM)

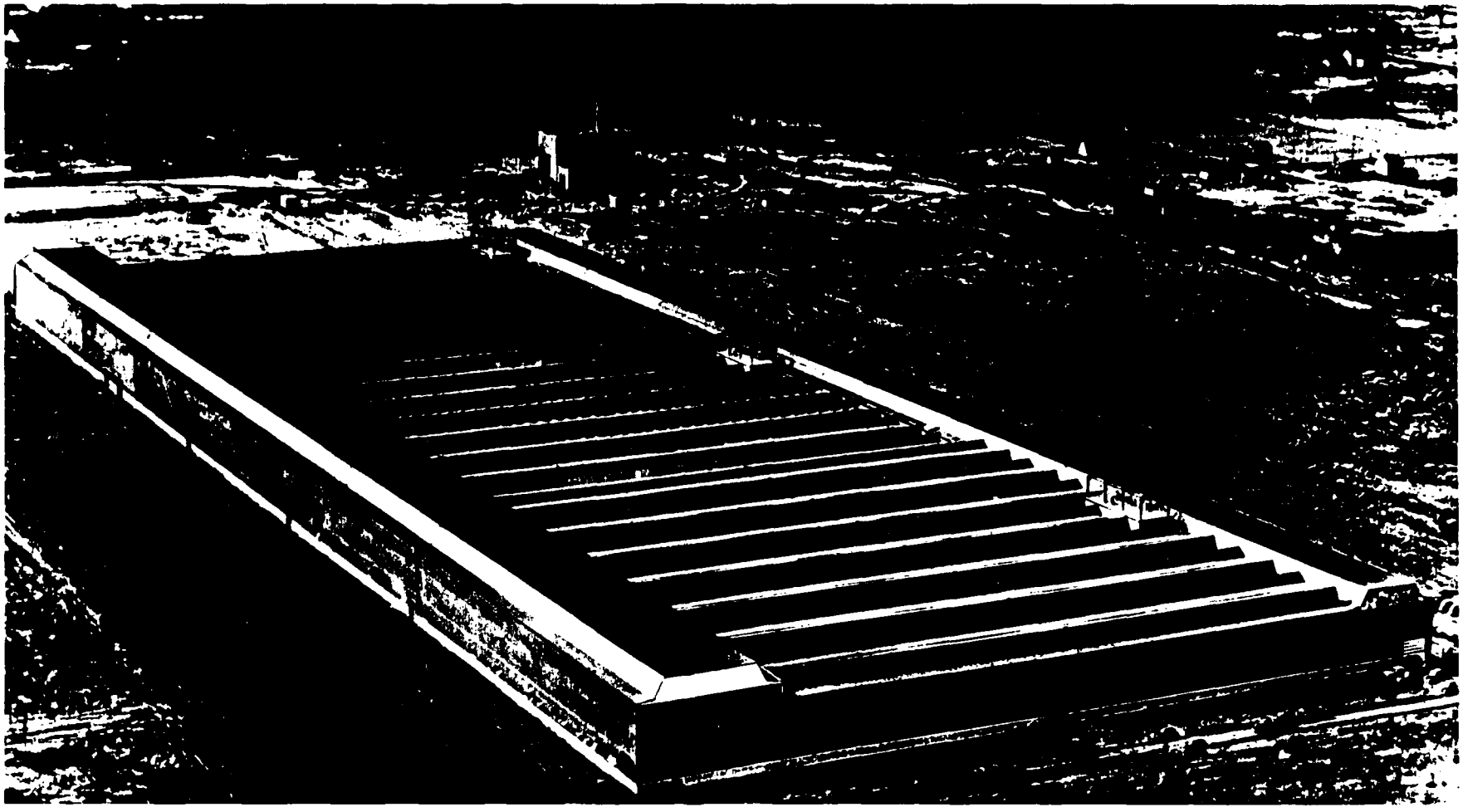

Illustration 4 This aerial view (looking northwest), taken in 1941, shows the main tank plant (Building 4) as originally built and prior to major additions. Building 5, the powerhouse, stands in the background. It also would be added onto later in 1941. (Source: Albert Kahn Associates)

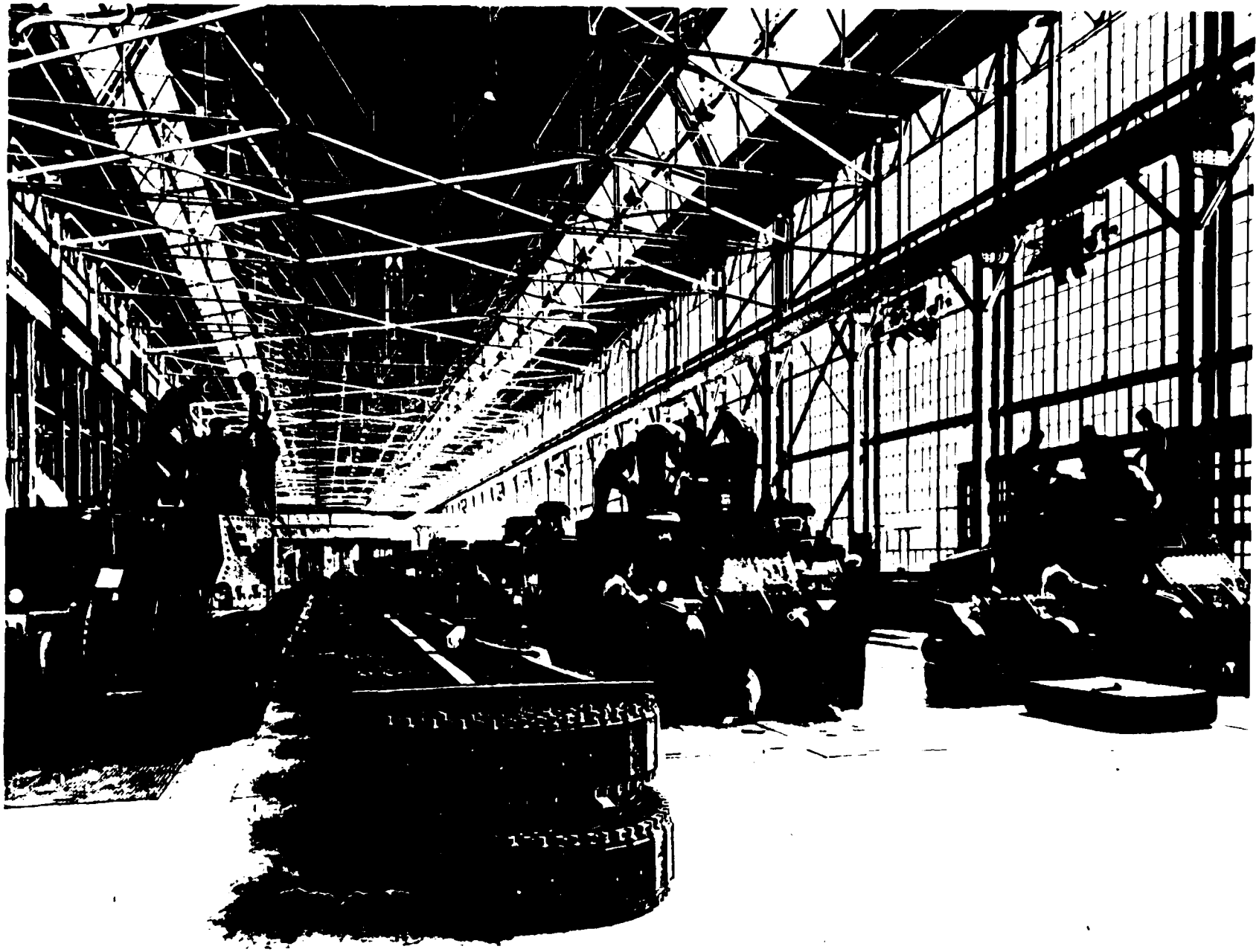

Illustration 5 M3 tank assembly within Building 4, shown in 1941. (Source: Albert Kahn Associates)

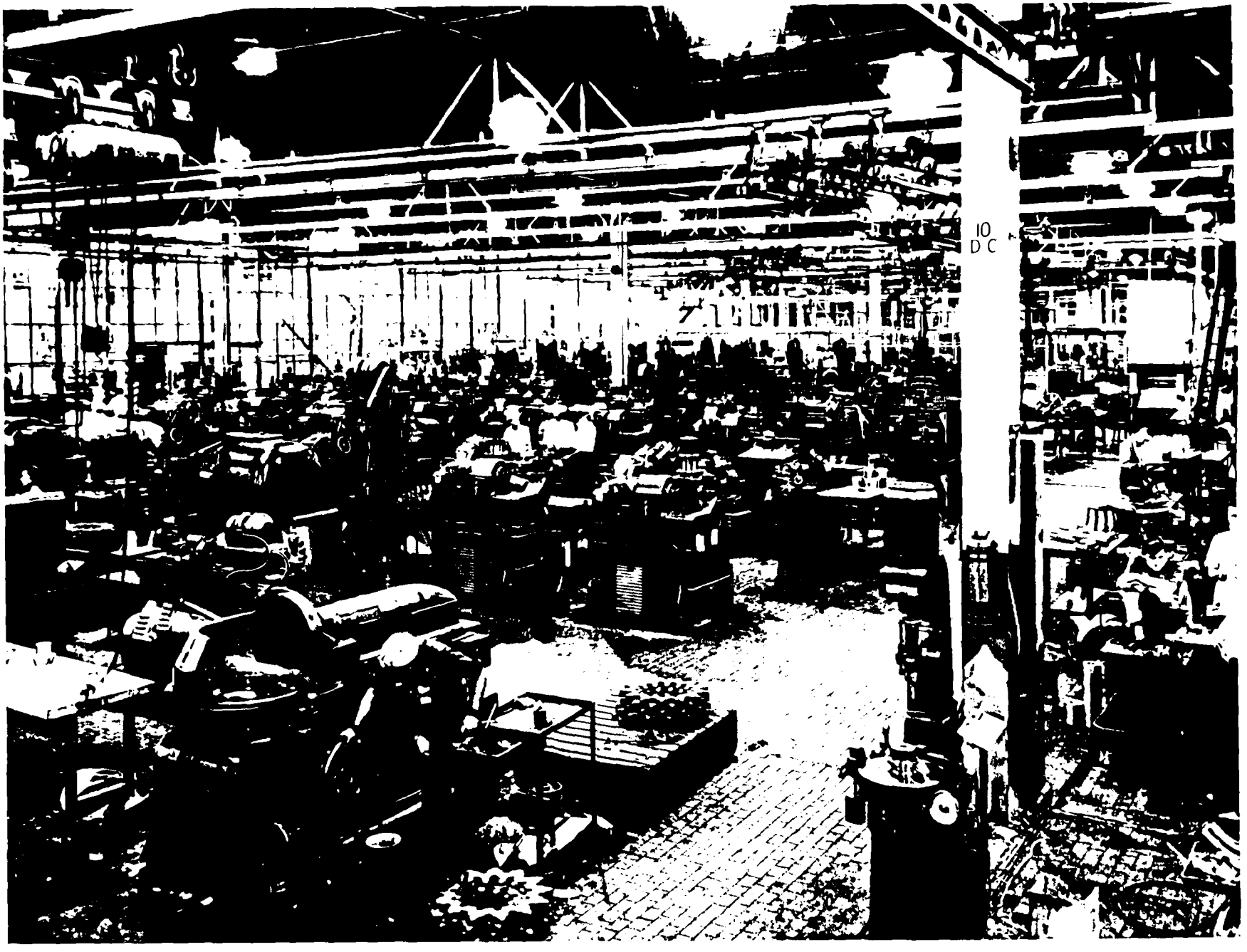

Illustration 6 As originally equipped, the tank plant (Building 4) housed approximately 1,000 machine tools. Those prominent in the foreground of this 1941 photograph are grinding machines. Note the openness of the manufacturing space and the wood-block flooring. (Source: Albert Kahn Associates)

tools—planers, borers, radial drills, milling machines, and engine lathes—rather than the more specialized machines that Chrysler used in its auto plants, and of a size more common to plants that produced heavy machinery and railroad equipment.[9] The entire plant was planned around the needs of a heavy manufacturing industry: Michigan Central rail spurs ran alongside and into the structure; numerous overhead, traveling cranes serviced the many manufacturing bays; and the production floor was of heavy reinforced concrete covered by wooden block. (Illustration 7) Butterfly monitors stood over the steel roof trusses and 80,000 single panes of glass set in steel sash covered about 95 percent of the exterior walls to provide working areas with abundant natural light.

In its architecture—particularly in its bold simplicity, butterfly monitors, and glazing—the tank plant clearly reflected the design precepts of Albert Kahn, the Detroit architect whose career had been tied closely to the rise of the automobile industry. (Illustrations 8 and 9) Kahn was a master of factory architecture and had built large-scale production facilities for numerous major companies, including Ford Motor Company's Highland Park and River Rouge plants—two of the most famous and significant industrial complexes in American history.

The Depression, particularly in its early years, temporarily limited the output of new Kahn buildings, but the mobilization effort of the late 1930s and early 1940s gave Kahn's firm a great deal of work. Between December 1939 and December 1942, the firm, enlarged to a staff of more than 600, designed

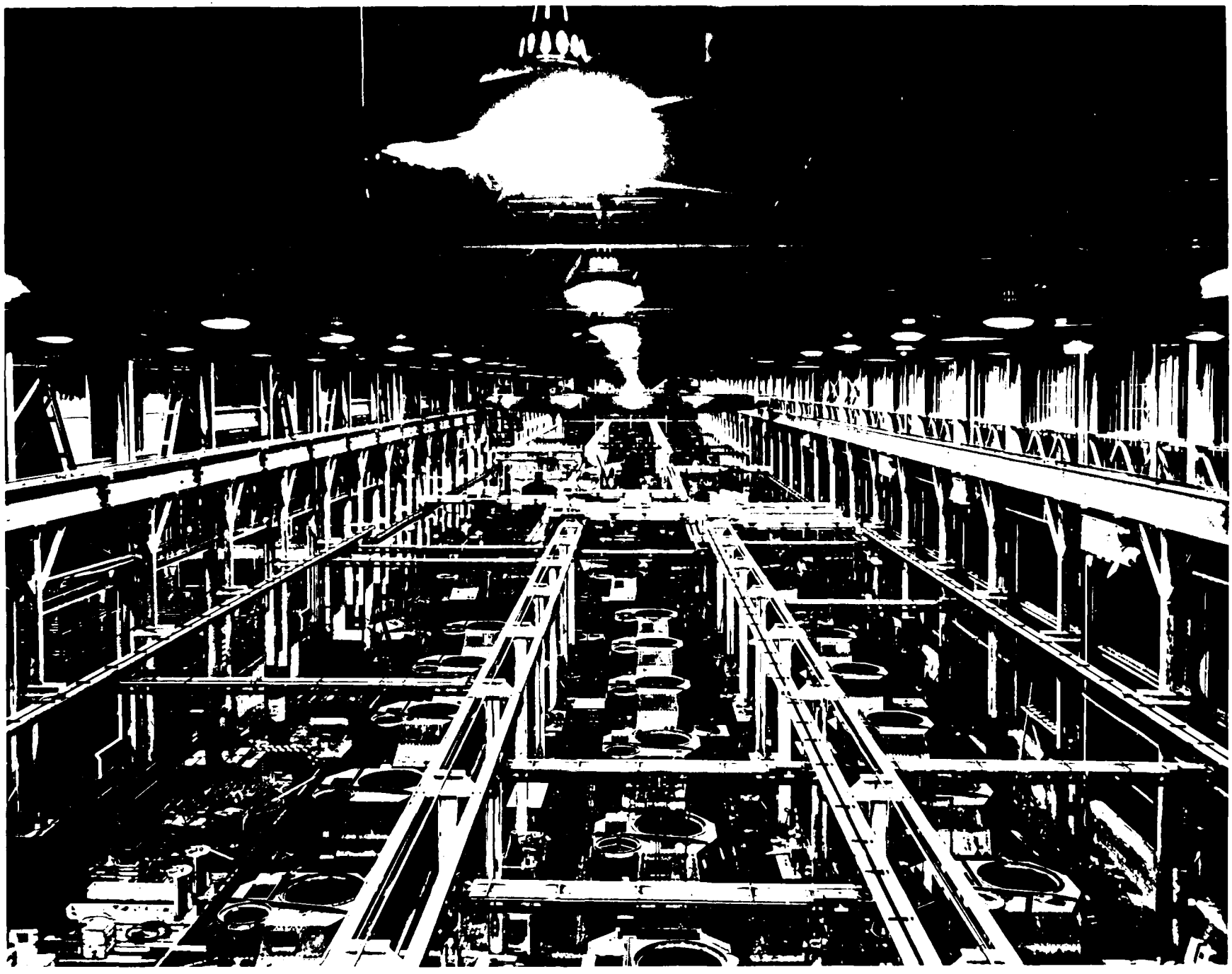

Illustration 7 Overhead view of M3 assembly in Building 4, shown in 1941. Note the travelling overhead crane. (Source: Albert Kahn Associates)

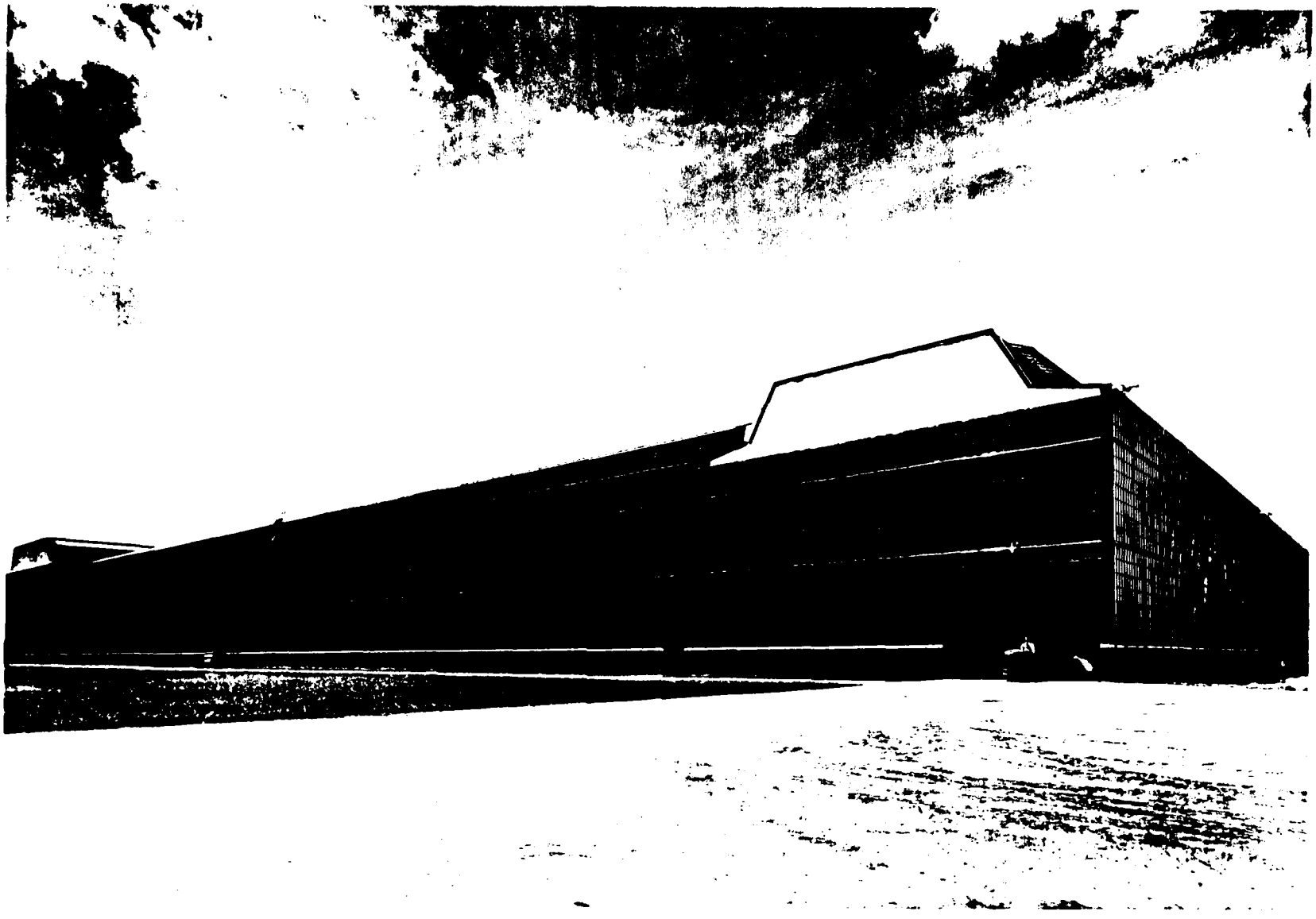

Illustration 8 The dominant architectural features of Building 4 were its distinctive roofline and its vast amount of glazing. The east elevation is shown in 1941, before a major addition added 100 feet to its width. (Source: Albert Kahn Associates)

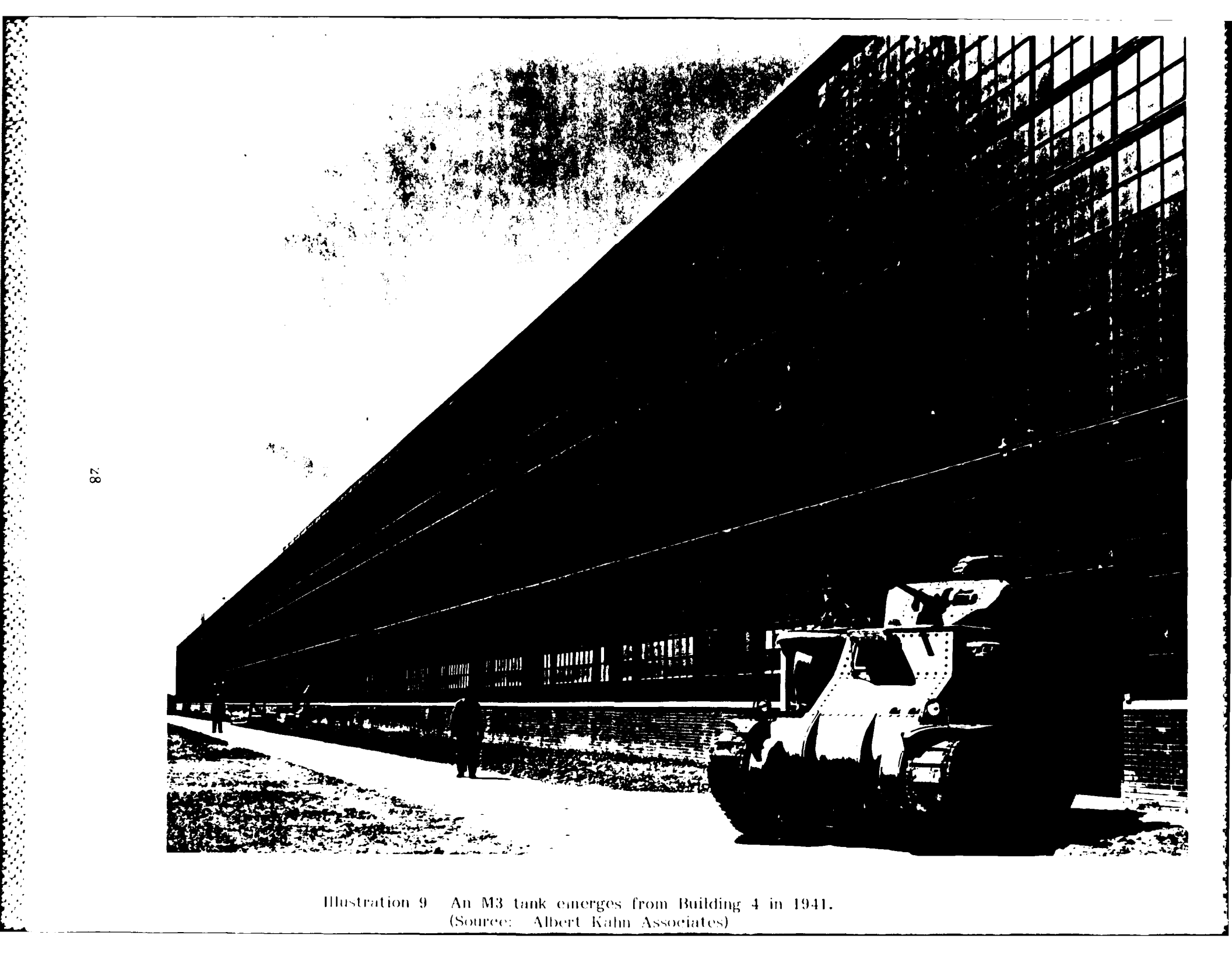

Illustration 9 An M3 tank emerges from Building 4 in 1941.
(Source: Albert Kahn Associates)

in excess of $200 million worth of construction for the government. Under such pressures, the Kahn firm worked frenetically, and "just about machine-like," on factories such as the tank plant.[10]

By 1941, the tank plant dominated its rural surroundings and dwarfed other buildings and structures put up concurrently, including Buildings 1, 2, 3, and 5 (also designed by Kahn). Building 1 is a substantial and attractive brick administration building in the art moderne style. It is located just off the eastern end of the main tank factory, with its original entrance facing Van Dyke Avenue. Three stories high, it has a total floor area of 53,532 square feet and originally housed government offices and the departments for tool design and plant engineering.

Building 2 is a one-story, steel-frame and brick structure located just north of Building 1 along Van Dyke Avenue. This 8,000 square foot building originally housed the personnel and medical divisions. Building 3, standing between Buildings 1 and 4, is a one-story brick structure with a floor area of 6,205 square feet. The Kahn firm designed the building as a garage for the main administrative offices, but it later housed the telephone exchange.

Building 5, the main power house, stands northwest of Building 4. It is a two-story, steel-framed, concrete and brick structure of 29,600 square feet. The power house originally contained pumps, electric air compressors, and boilers that provided steam for the entire complex. Other miscellaneous buildings or structures erected in 1941 included sentry stations (Buildings 36 and 300), a small waste treatment plant (Building 6), and two pump houses (Buildings 34 and 35). In addition, a 1.8 mile, figure-8 test track for tanks was built south of Building 4.

World War II: 1941-1945

Shortly after tank production began at the site, and before America entered the war, the Army decided to augment the installation's production capabilities by constructing numerous additional buildings and facilities. Chrysler received $19 million to enlarge the installation in November 1941,[11] and in 1942 two major buildings were substantially altered, one of which was Building 4. The Kahn architects and engineers designed major additions to the south side and west end of this building. These additions, done in the same architectural style as the original, increased the length of the main tank factory from 1,380 to 1,830 feet and its width from 500 to 600 feet.[12] The building now provided 1.1 million square feet of floor space. The power house, Building 5, was also altered to provide room for additional boilers.

Between 1942 and 1945, the following buildings (all of which are still standing) were added to the tank plant:

- Building 7: A Kahn-designed, steel-frame, high-bay structure originally built as a paint shop.
- Building 8: A Kahn-designed brick structure with numerous large overhead doors, built as a tank repair shop.
- Building 9: A Kahn designed brick structure with continuous wood-sash windows, built as a storage building.
- Building 10: A concrete block, utilitarian structure first used for food storage and preparation.

- Building 11: A small, brick, one-story pumping station.

- Building T-12: A Kahn designed, wood-frame, single-story building originally used for administrative purposes, classrooms, shops, and training.

- Buildings T-14 through T-22: Wood-frame structures built from standardized plans devised by the Construction Division of the Office of the Quartermaster General. These "temporary" structures have been used for numerous purposes since their construction: Building T-14 was built as a Type M-300, 300-man mess hall; Building T-15 as a Type OQM-16 standard frame building, Officers' Quarters and mess hall; Building T-16, a modified S.A.-2 structure used for storage; Building T-17, a modified C.P.X. structure; Buildings T-18 through T-22, two-story structures, built as 63- and 74-man barracks.

Several other small, utilitarian structures round out the tank plant's World War II facilities. They include two sentry stations (Buildings 24 and 37), four guard towers (Buildings 28, 30, 31, and 32), and four small shops and storehouses (Buildings 40, 43, 55, and 211).

In addition to augmenting the production capabilities of the tank plant, Chrysler accelerated production by converting 12 of its Dodge, DeSoto, and Plymouth

auto plants into factories for producing tank parts and sub-assemblies. These plants became parts suppliers to the main tank plant, significantly contributing to, and perhaps doubling, its production capacity.[13]

Although Chrysler spread its tank manufacturing work across the corporation, Detroit Arsenal remained the center of activity and attention. As one of the earliest and largest mobilization efforts, the Arsenal attracted considerable attention in the popular and technical press. It was a prominent success story of how a major U.S. corporation could swiftly and efficiently adapt its peacetime expertise to wartime needs. President Roosevelt and numerous American and foreign dignitaries made the tank plant an important stop on tours of American defense plants. The government lauded Chrysler for rapidly erecting the plant, for meeting production schedules and quotas, and for its tank testing and development work.

What Chrysler accomplished was in fact laudable, especially because its task was greatly complicated by rapidly changing tank technology just before and during the war; this put a premium on manufacturing flexibility and adaptability. As first conceived, the tank plant was designed to manufacture 23-ton M2A1 tanks, but before ground was broken, Army Ordnance scrapped the design in favor of the 28-ton M3 tank. Chrysler built 3,350 M3s from the middle of 1941 through the middle of 1942, and without losing production, stopped M3 production and retooled to produce the 32-ton M4 General Sherman tank. The M4 presented a radically new design; it was the first U.S. tank to have an all-welded (instead of riveted) body, and the first to carry its main gun on a 360-degree rotating turret.

Chrysler manufactured about 18,000 M4s from the summer of 1942 through the summer of 1944. Production of the M4 required considerable manufacturing flexibility in its own right, because the same basic tank was equipped in a variety of ways. There were seven different models of the M4, including tanks powered by several engines; various models were equipped with 75 and 90 mm guns, 105 mm howitzers, special artillery cannons, mine detectors, and related accessories.[14] In 1945, the plant initiated a relatively small production run of yet another new tank, the 43-ton Pershing.

Detroit Arsenal was by no means the sole source of U.S. tanks during World War II, but it was the single largest source. From 1940 to 1945, German industry produced 24,360 tanks; British industry, 24,803; and American industry, 88,410. The Chrysler tank plant, one of 17 American tank producers, manufactured 22,234 new tanks, or one fourth the U.S. total.[15] The value of government tank contracts and purchases from Chrysler during the war amounted to about $1.35 billion.

The Korean War Era

At war's end, the Army no longer required large-scale tank production, and in October 1945 it terminated Chrysler Corporation's contract for operating the Detroit Tank Arsenal.[16] At the same time, it designated the Arsenal a Class IV installation, which allowed government employees at the site to engage in production operations. Between World War II and the Korean War, the tank plant, now a government-owned, government-operated facility, built developmental tanks and rebuilt heavy, medium, and light tanks, but at levels far below those of 1941-45.[17] Beginning in 1946, the installation served as

"the principal source of all technical information and the principal procurement and supply agency for all tank-automotive equipment."[18] Thus the installation's role expanded beyond the production of tanks to include research, design, and development work related to tanks and automotive equipment.

Post-war operations were carried out in essentially the same physical plant as that built in 1940-42. Extant structures were adapted to serve new purposes and consequently relatively few new buildings were erected between 1946 and 1950. In support of the site's research function, a cold-room for low-temperature vehicle testing was added in 1949 to the east end of Building 7, and vehicle test cells were added to the south side of the east end of Building 8. These were substantial additions with concrete, concrete block, and brick exteriors. Several small metal buildings were also put up at this time, including Buildings T-54, T-56, T-61, and T-63.

Activity at the installation picked up considerably after fighting broke out in Korea in the summer of 1950. In October of that year the Detroit facility, charged with tank-automotive development, engineering, and manufacturing responsibilities, became one of the two major divisions of the Ordnance Tank-Automotive Center. In 1951, government workers at the tank plant stepped up the production of combat vehicles, emphasizing the assembly of M47 tanks earmarked for United Nations Command Forces in Korea.[19] The Army redesignated the Chrysler Corporation as the contractor-operator of the tank plant's production facilities on July 19, 1952. During the Korean War era, the tank plant produced 370 M46A1 and 2,034 M47 medium tanks, plus approximately 200 60-ton, M51 tank retrievers. Engineers at the Arsenal

continued their research, development, and testing programs during the war, developing such equipment as the T98 105mm and T99 155mm self-propelled howitzers.

By 1951, the tank plant occupied 153.6 acres. Before the end of 1952, the Army purchased land parcels north and west of the original reservation that brought the acreage up to 340.7.[20] This land acquisition allowed the facility to be divided into two general parts with separate functions. The original part of the reservation, the "east site," continued to be characterized as the manufacturing area. Most post-1952 buildings erected on the new "west site" consisted of administrative, laboratory, and testing facilities, and housing.

Numerous buildings were constructed between 1951 and the end of the Korean War in 1953. A privately-owned 150 unit Wherry Housing Project for military personnel and civilian employees was built on government-owned land in the west site. Also erected were storehouses (Buildings S-58, T-221, and T-225); salvage and surplus buildings (Buildings T-202 and T-224); warehouses (Buildings T-59, 201, and 203); a sentry station (Building T-45); and a wash platform (Building T-57). Most of these structures were metal buildings, but Buildings 201 and 203 were of permanent brick and block construction.

Post-Korean War Era

The signing of the Korean Armistice in July 1953 meant an end to the crash program of tank manufacturing at the Arsenal, but tank production was never stopped. Shortly after the Armistice, the Soviet Union unexpectedly detonated their first hydrogen bomb, and much of America's military planning and spending since that time has been directed towards nuclear armament. At

the same time, however, the Army has continued to build highly mobile conventional forces that rely on tanks and other combat vehicles. It has also continued a strong peacetime research and development program for tank and automotive hardware. As a result, the west site of the Detroit Arsenal has expanded greatly since the end of the Korean War. The east site has seen far less physical growth in the last 30 years, but still remains a major tank-producing facility.

During the second half of the 1950s, Chrysler continued as contractor-operator of the east site's tank plant, which it managed on almost a stand-by basis.[21] During the Korean War, the corporation had erected a new tank plant in Newark, Delaware. After the war, the Newark plant continued to assemble tanks, while the Detroit production facility was reduced to providing Newark with select parts. Yet while production at the Arsenal's east site slackened in the late 1950s, research and development activities picked up on the west site.

Between 1954 and 1959, the Army erected Building 205 (an engineering administration building); Building 200A-D (a research, development, and administration complex of four connected buildings); Building 219 (a high-bay shop for constructing models or mock-ups of experimental vehicles); and Building 212 (a propulsion systems laboratory). (Illustration 10) These structures symbolized the Army's commitment to a sustained tank and automotive research, development, and testing program. Between 1954 and 1959, the Army erected six additional utilitarian service structures at the installation (Buildings T-52, T-68, T-209, T-216, T-219, and T-220).

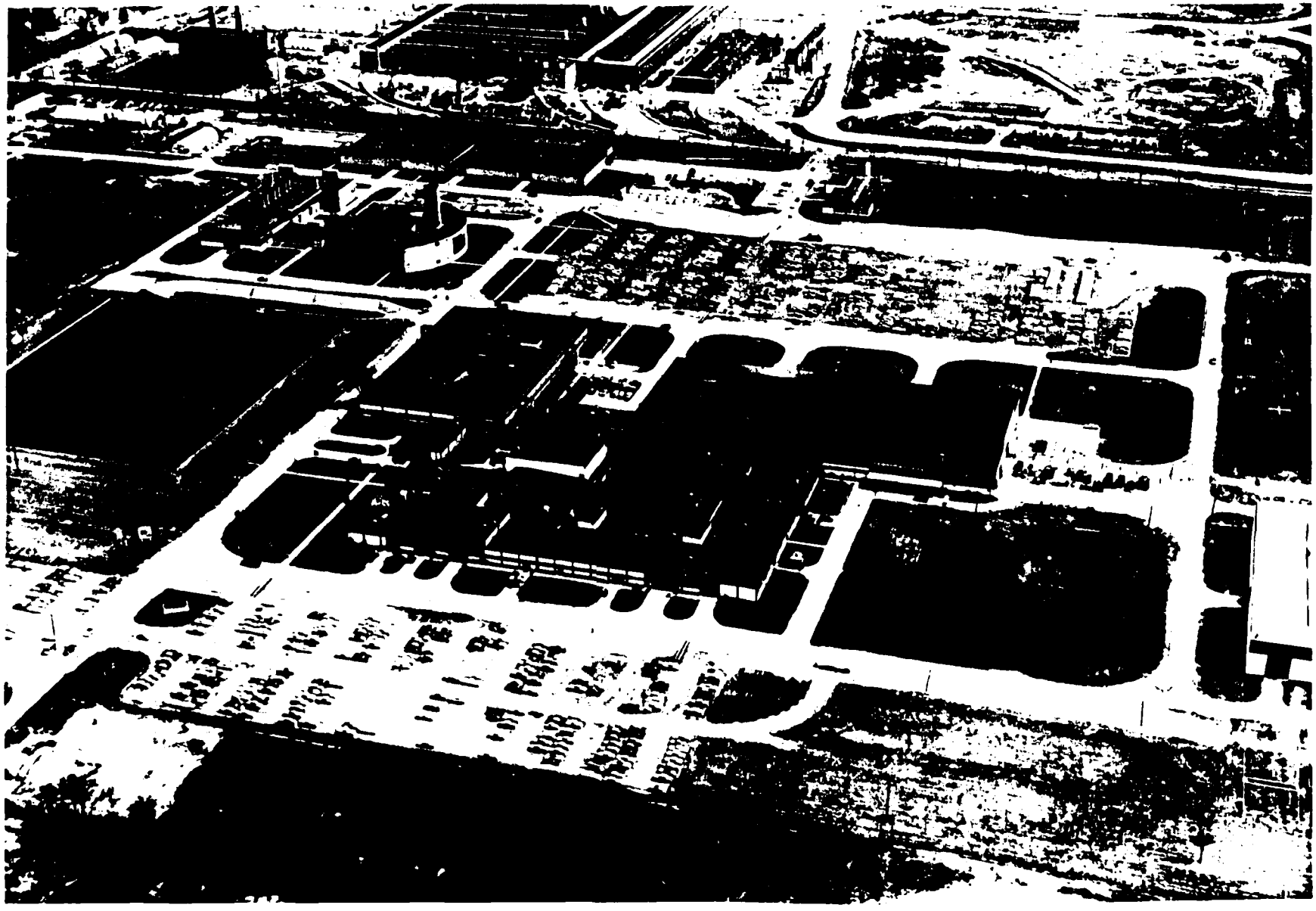

Illustration 10 This 1960 aerial view of Detroit Arsenal (looking east) shows the research and development complex (Buildings 200A-D) in the foreground; the Propulsion Systems Facility (Building 212, with the circular wing) in the middle-distance; and Building 4 in the far distance. (Source: TACOM)

In the 1960s, tank-making returned to Detroit. Chrysler had begun production of the diesel-powered M60 medium tank at Newark in 1959; a year later the Army shifted M60 production to the Detroit Arsenal Tank Plant.[22] The M60 has undergone several model changes since 1959, but the Detroit plant still produces it today, largely for export to other nations. Of eight structures erected at the installation in the 1960s, the most important was Building 230, a two-story brick administration building facing Eleven Mile Road that serves as the headquarters for TACOM. (Illustration 11) In 1960, seven dwellings, constructed in 1941 for the Navy, were transferred to the Arsenal. These two-story brick homes stand in an enclave near the main installation. (Illustration 12) The houses have been used for general officers, field grade officers, and installation commanders.[23]

In the late 1970s and early 1980s, the exteriors of several buildings at the Arsenal were drastically altered, largely for the sake of energy conservation. The most significant structure to be so modified was Building 4, the main tank plant. (Illustration 13) After the vast majority of its thousands of glass panes had been removed, the structure received a new skin of insulated metal panels. As a result, the curtain walls, once 95 percent glass, are now perhaps 5 percent glass. The building retains its distinctive shape, due largely to the butterfly monitors surmounting the roof line, but its architectural appearance, which had once made it a classic product of the Kahn firm, has been greatly altered. Other structures whose exteriors were similarly altered were Buildings 200A-D. The inside of Building 4 has also undergone considerable upgrading, in terms of production technology, with the advent of the M1 tank program.

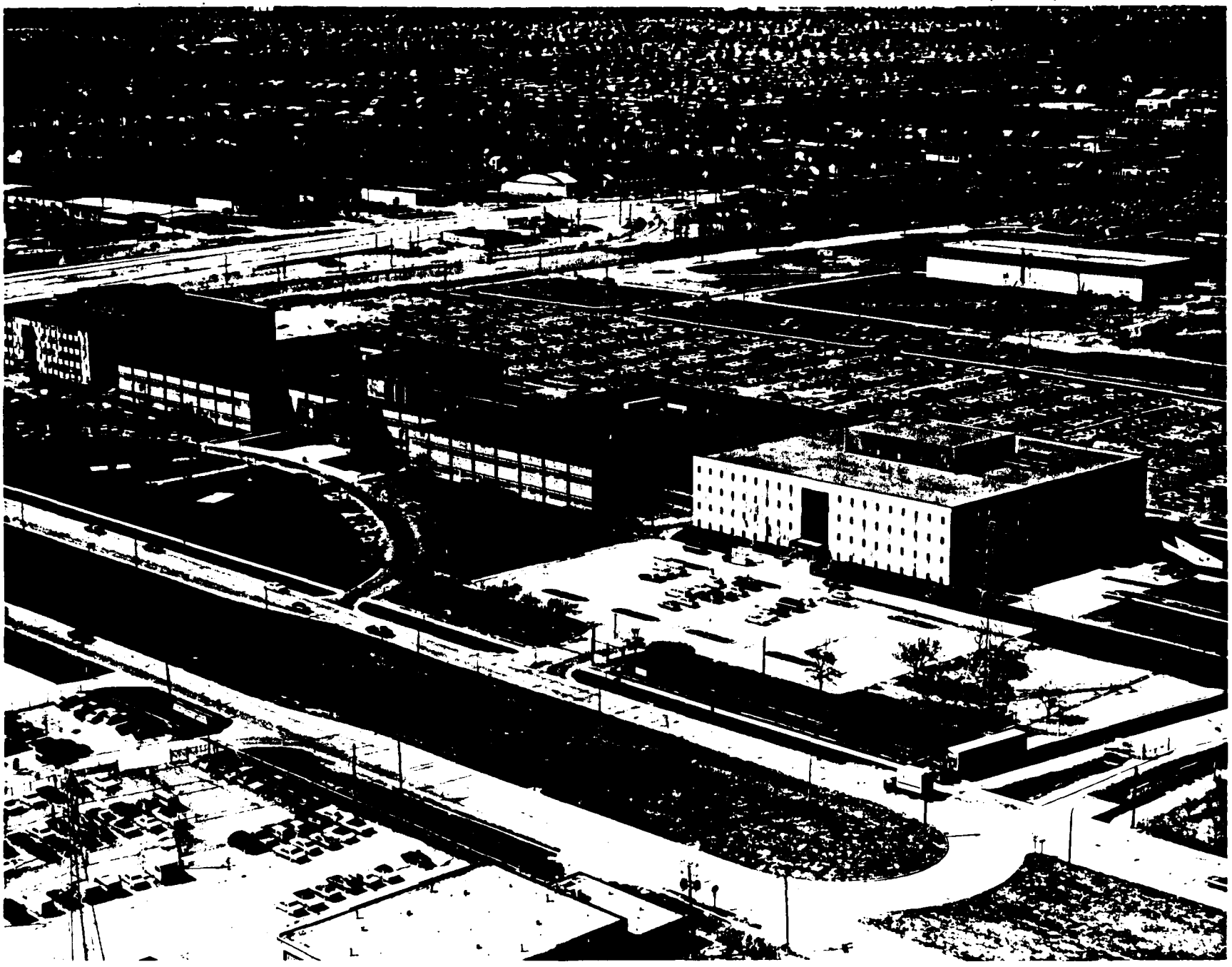

Illustration 11 Main TACOM and Detroit Arsenal administrative offices are shown in this recent aerial photograph, looking north. Building 230 stands in the center, flanked by Buildings 229

Illustration 12 This aerial photo of "Arsenal Acres" was taken in 1960, the year these dwellings (built in 1941 for the Navy) were transferred to the Detroit Arsenal. They stand near the Arsenal, but on a separate parcel of land on Mound Road between Nine and Ten Mile Roads. (Source: TACOM)

Illustration 13 The M1 Abrams Main Battle Tank--developed by Chrysler, but now produced by General Dynamics at the Detroit Arsenal Tank Plant and the Lima (Ohio) Army Tank Plant. (Source: TACOM)

Since 1970, the Army has built several new buildings and leased, with options to buy, a number of others. Recently leased structures include Buildings 249, 250, and 252. All stand on East Eleven Mile Road outside the boundary of the Arsenal; they are small, industrial buildings of brick and/or block construction, probably built in the 1950s. In 1972, another modern laboratory (Building 215) was built for researching vehicle tracks and suspensions. The most recent structures at the Arsenal are two administrative offices buildings (Buildings 229 and 231), which were erected in the early 1980s.

In October 1981, the tank plant, while continuing to build M60s, began to assemble the new M1 Abrams Main Battle Tank. (Illustration 14) Chrysler, working within guidelines set by the Army, had developed this tank in the mid- and late-1970s and had won its production contract. Associated since 1940 with Army tank manufacturing, the automaker started assembling the M1 "Supertank" in Lima, Ohio, as well as in Detroit. But, after producing about 40,000 tanks and other tracked vehicles, Chrysler's tank-building history was about to end.[24] The financially troubled corporation sold off its profitable tank-manufacturing arm, Chrysler Defense, to General Dynamics in the early 1980s. General Dynamics, not Chrysler, now serves as contractor-operator of the Detroit Arsenal Tank Plant.

PONTIAC STORAGE FACILITY

Located in the southeastern corner of Pontiac, Michigan, this subinstallation of the Detroit Arsenal receives, maintains, and issues industrial plant equipment and machine tools stored in production package lines for DARCOM

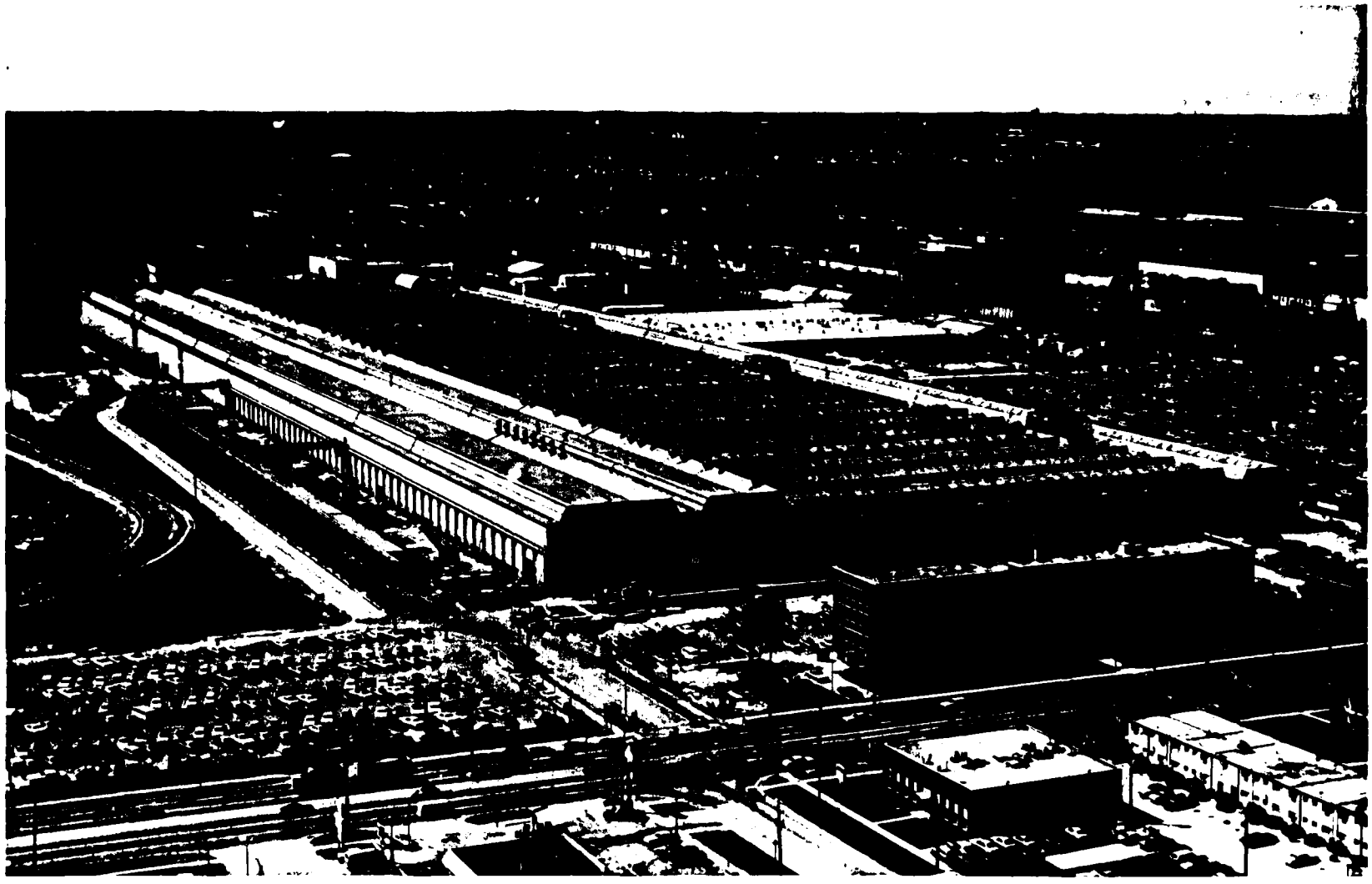

Illustration 14 This recent aerial photo shows the east end of Building 4, after insulated metal panels replaced the original glazing. Building 1 and a portion of Building 2 are also shown. (Source: TACOM)

mobilization requirements. The government-owned, contractor-operated facility occupies 31.24 acres in Pontiac, Michigan, approximately 20 miles north of the Detroit Arsenal, and includes only five numbered structures, all erected in 1956. None pre-date military acquisition and use of the site. (Illustration 15)

The main structure at Pontiac is a huge, 609,000 square foot, single-story warehouse (Building 1). Virtually all of this steel-frame, metal-clad, utilitarian building is devoted to providing controlled-humidity storage space. Supplementing Building 1 are a small sentry station (Building 2), a pump house (Building 4), an elevated steel water tank (Building 6), and a heating plant (Building 7).[25]

KEWEENAW FIELD STATION

The U.S. Army's Snow, Ice and Permafrost Research Establishment (SIPRE) originally established the Keweenaw Field Station in 1953. Desiring a winter test site, they located the station on Upper Michigan's Keweenaw Peninsula, about ten miles north of Houghton/Hancock, an area that receives in excess of 200 inches of snow each year. In 1963, when SIPRE moved its operations to Hanover, New Hampshire, the Army Tank-Automotive Command acquired the field station. On November 1, 1963, ATAC turned the facility over to Michigan Technological University for operation and maintenance, while it retained ownership of the structures on this leased, 27.3 acre tract. The University's Keweenaw Research Center continues to operate the field station under a RDT&E funded contract with TACOM.[26]

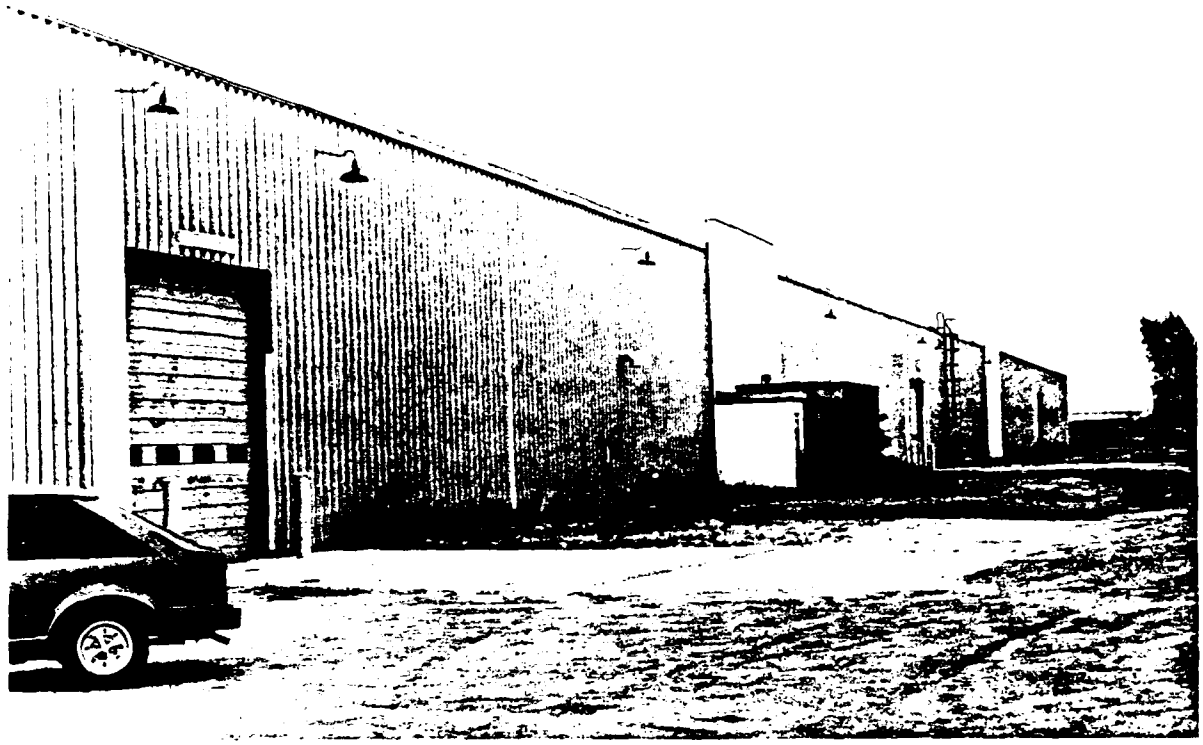

Illustration 15 West elevation of the steel-framed, metal-clad controlled humidity warehouse (Building 1) at the Pontiac Storage Facility. (Source: Field inventory photograph, 1983, Larry Lankton, Building Technology, Inc.)

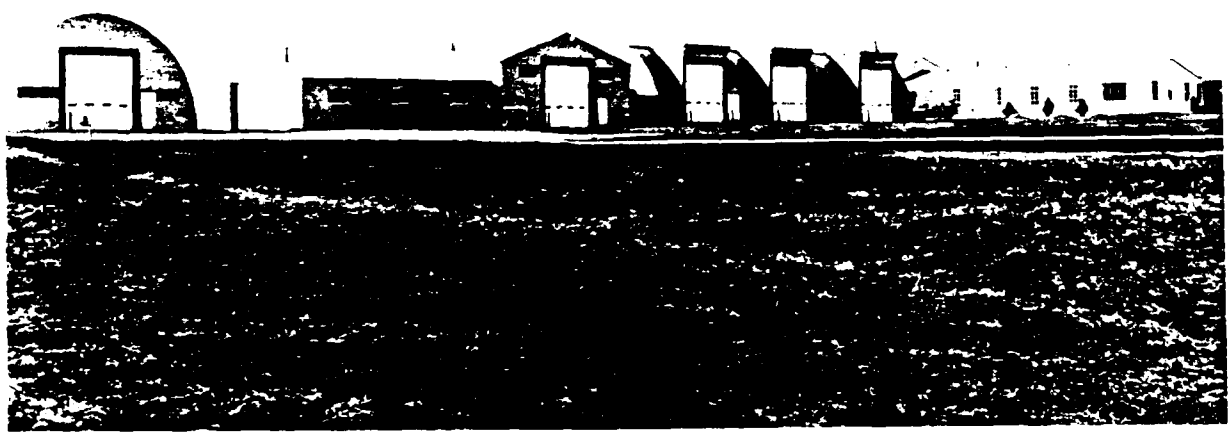

Illustration 16 View looking north of the overall subinstallation, the Keweenaw Field Station. The site is comprised of a small cluster of quonset hut and Butler-type buildings used for administrative, research, storage, and repair and maintenance functions. (Source: Field inventory photograph, 1983, Larry Lankton, Building Technology, Inc.)

At the field station, University researchers undertake a variety of projects for TACOM and other government organizations. Tank and military vehicle testing is conducted year round, but predominantly in winter. Projects include the performance testing and evaluation of vehicle components and scientific investigations into the properties of snow, the principles of over-snow vehicle design, and the mechanics of frozen soils.

The site, leased from Houghton County, stands amidst an historic copper mining district. (Illustration 16) Only eight numbered structures, erected between 1955 and 1960, are located at the field station. These administrative, laboratory, warehouse, and maintenance structures are all small steel buildings of utilitarian design.

NOTES

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2. K. T. Keller, "The Detroit Tank Arsenal: The Chrysler Plant for Mass Production of the Medium Tank," Army Ordnance (January-February 1942), p. 545, and TACOM, "Management of Tank-Automotive Items during the Technical Services Era, 1899-1962 (29 July 1983), p. 6.

3. K. T. Keller, "The Detroit Tank Arsenal: The Chrysler Plant for Mass Production of the Medium Tank," Army Ordnance (January-February 1942), p. 546.

4. "Brand New and Shiny: Detroit Tank Arsenal of Chrysler Corporation," Time (January 27, 1941), p. 19.

5. Keller, "Detroit Tank Arsenal," p. 546.

6. "Factories for Defense: Chrysler Builds a Tank Arsenal," Engineering News-Record (April 10, 1941), p. 526.

7. "Chrysler Corporation, Detroit, Plant for the Manufacture of Tanks," Architectural Forum (August 1941), p. 98.

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9. "Tanks Ahead of Schedule," American Machinist (December 10, 1942), p. 1267.

10. Grant Hildebrand, Designing for Industry: The Architecture of Albert Kahn (Cambridge: MIT Press), p. 197.

11. "Autos to Tanks," Business Week (November 15 1941), p. 18.

12. Ordnance Tank-Automotive Center, Detroit Arsenal, "Analysis of Existing Facilities," (April 1951), p. 16.

13. Business Week, November 15, 1941, p. 18.

14. Chrysler Corporation, Press Information Service, "Historical Summary, Detroit Tank Plant, " (circa 1965), pp. 2-3.

15. "Managment of Tank-Automotive Items," p. 18.

16. Ibid., p. 20.

17. TACOM, table, "U. S. Tank Production, 1946-1977."

18. "Management of Tank-Automotive Items," p. 21.

19. Ibid., p. 26.

20. TACOM, "Historical Synopsis, Detroit Arsenal," p. 2.

21. Chrysler, "Detroit Tank Plant," p. 4.

22. Ibid., p. 4.

23. DARCOM, "Installation and Activity Brochure — Detroit Arsenal," (31 December 1976), p. 16.

24. Chrysler, "Detroit Tank Plant," p. 5.

25. Information on the Pontiac Storage Facility is all drawn from the following: TACOM, "Historical Synopsis, Pontiac Storage Facility," (4 May 1982); TACOM, map, "Installation Inventory of Military Real Property, Pontiac Storage Facility," 7 September 1982.

26. Information drawn from TACOM, "Historical Synopsis, Keweenaw Field Station," 4 May 1982; and DARCOM, "Installation and Activity Brochure, Keweenaw Field Station," 30 September 1978.

Chapter 3

PRESERVATION RECOMMENDATIONS

BACKGROUND

Army Regulation 420-40 requires that an historic preservation plan be developed as an integral part of each installation's planning and long range maintenance and development scheduling.[1] The purpose of such a program is to:

- Preserve historic properties to reflect the Army's role in history and its continuing concern for the protection of the nation's heritage.
- Implement historic preservation projects as an integral part of the installation's maintenance and construction programs.
- Find adaptive uses for historic properties in order to maintain them as actively used facilities on the installation.
- Eliminate damage or destruction due to improper maintenance, repair, or use that may alter or destroy the significant elements of any property.
- Enhance the most historically significant areas of the installation through appropriate landscaping and conservation.

To meet these overall preservation objectives, the general preservation recommendations set forth below have been developed:

Category I Historic Properties

All Category I historic properties not currently listed on or nominated to the National Register of Historic Places are assumed to be eligible for nomination regardless of age. The following general preservation recommendations apply to these properties:

a) Each Category I historic property should be treated as if it were on the National Register, whether listed or not. Properties not currently listed should be nominated. Category I historic properties should not be altered or demolished. All work on such properties shall be performed in accordance with Sections 106 and 110(f) of the National Historic Preservation Act as amended in 1980, and the regulations of the Advisory Council for Historic Preservation (ACHP) as outlined in the "Protection of Historic and Cultural Properties" (36 CFR 800).

b) An individual preservation plan should be developed and put into effect for each Category I historic property. This plan should delineate the appropriate restoration or preservation program to be carried out for the property. It should include a maintenance and repair schedule and estimated initial and annual costs. The preservation plan should be approved by the State Historic Preservation Officer and the Advisory Council in accordance with the above referenced ACHP regulation. Until the historic preservation plan is put into effect, Category I historic properties should be maintained in accordance with the recommended approaches of the Secretary of the Interior's Standards for Rehabilitation and Revised Guidelines for Rehabilitating Historic Buildings[2] and in consultation with the State Historic Preservation Officer.

c) Each Category I historic property should be documented in accordance with Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) Documentation Level II, and the documentation submitted for inclusion in the HABS/HAER collections in the Library of Congress.[3] When no adequate architectural drawings exist for a Category I historic property, it should be documented in accordance with Documentation Level I of these standards. In cases where standard measured drawings are unable to record significant features of a property or technological process, interpretive drawings also should be prepared.

Category II Historic Properties

All Category II historic properties not currently listed on or nominated to the National Register of Historic Places are assumed to be eligible for nomination regardless of age. The following general preservation recommendations apply to these properties:

a) Each Category II historic property should be treated as if it were on the National Register, whether listed or not. Properties not currently listed should be nominated. Category II historic properties should not be altered or demolished. All work on such properties shall be performed in accordance with Sections 106 and 110(f) of the National Historic Preservation Act as amended in 1980, and the regulations of the Advisory Council for Historic Preservation (ACHP) as outlined in the "Protection of Historic and Cultural Properties" (36 CFR 800).

b) An individual preservation plan should be developed and put into effect for each Category II historic property. This plan should delineate the appropriate preservation or rehabilitation program to be carried out for the property or for those parts of the property which contribute to its historical, architectural, or technological importance. It should include a maintenance and repair schedule and estimated initial and annual costs. The preservation plan should be approved by the State Historic Preservation Officer and the Advisory Council in accordance with the above referenced ACHP regulations. Until the historic preservation plan is put into effect, Category II historic properties should be maintained in accordance with the recommended approaches in the Secretary of the Interior's Standards for Rehabilitation and Revised Guidelines for Rehabilitating Historic Buildings[4] and in consultation with the State Historic Preservation Officer.

c) Each Category II historic property should be documented in accordance with Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) Documentation Level II, and the documentation submitted for inclusion in the HABS/HAER collections in the Library of Congress.[5]

Category III Historic Properties

The following preservation recommendations apply to Category III historic properties:

a) Category III historic properties listed on or eligible for nomination to the National Register as part of a district or thematic group should be treated in accordance with Sections 106 and 110(f) of the National Historic Preservation Act as amended in 1980, and the regulations of the Advisory Council for Historic Preservation as outlined in the "Protection of Historic and Cultural Properties" (36 CFR 800). Such properties should not be demolished and their facades, or those parts of the property that contribute to the historical landscape, should be protected from major modifications. Preservation plans should be developed for groupings of Category III historic properties within a district or thematic group. The scope of these plans should be limited to those parts of each property that contribute to the district or group's importance. Until such plans are put into effect, these properties should be maintained in accordance with the recommended approaches in the Secretary of the Interior's Standards for Rehabilitation and Revised Guidelines for Rehabilitating Historic Buildings[6] and in consultation with the State Historic Preservation Officer.

b) Category III historic properties not listed on or eligible for nomination to the National Register as part of a district or thematic group should receive routine maintenance. Such properties should not be demolished, and their facades, or those parts of the property that contribute to the historical landscape, should be protected from modification. If the properties are unoccupied, they should, as a minimum, be maintained in stable condition and prevented from deteriorating.

HABS/HAER Documentation Level IV has been completed for all Category III historic properties, and no additional documentation is required as long as they are not endangered. Category III historic properties that are endangered for operational or other reasons should be documented in accordance with HABS/HAER Documentation Level III, and submitted for inclusion in the HABS/HAER collections in the Library of Congress.[7] Similar structures need only be documented once.

CATEGORY I HISTORIC PROPERTIES

There are no Category I historic properties at the Detroit Arsenal, Pontiac Storage Facility, or Keweenaw Field Station.

CATEGORY II HISTORIC PROPERTIES

Detroit Arsenal Tank Plant (Building 4)

- Background and significance. The Detroit Arsenal Tank Plant, constructed in 1940-41, was one of the nation's premier World War II mobilization efforts. Including its 1942 addition, the Tank Plant enclosed over one million square feet of production space. By war's end it accounted for one-fourth of all tank production in the United States and was the single largest producer of tanks anywhere in the world. See Chapter 2 and Illustrations 3-10.

  The Tank Plant was designed by the firm of Albert Kahn on the basis of a production program developed by Chrysler Corporation. Conceived in the summer of 1940 and built that winter, the giant plant produced

its first tank in April 1941, a remarkable feat that was highly publicized at the time. In 1942, President Roosevelt made it his first stop on a secret tour of the nation's defense plants.

The Tank Plant is an often cited and illustrated work of the Kahn firm. Its great mass, dramatic roofline, and huge glass curtain walls (later replaced with insulated metal panels) have made it one of the better known industrial buildings in the United States. During World War II, it was notable among the defense establishments that earned Detroit the title of "Arsenal of Democracy." Because of the Tank Plant's importance as a work of industrial design, its record and reputation as a major World War II production facility, and its importance in the history of tank development and manufacture, it is a Category II historic property.

- Condition and potential adverse impacts. The Tank Plant's glass curtain walls were replaced ca. 1981 with a new skin of insulated metal panels. This work, done under the direction of the present Kahn firm, has greatly altered the appearance of the facade, but the building's roofline and overall mass, and hence its great visual power, remains intact. The plant is currently used as a production facility and there are no plans to change its use, or to further alter the property's exterior.

- Preservation recommendations. Refer to the general preservation recommendations for Category II historic properties. The Tank Plant should be nominated to the National Register of Historic Places when it reaches 50 years of age in 1991. The Administration Building (see below) should be included in the nomination as an associated structure.

CATEGORY III HISTORIC PROPERTIES

Detroit Arsenal Administrastion Building (Building 1)

- Background and significance. The Administration Building is one of the original Arsenal structures and serves as the Arsenal's "public face." It fronts on Van Dyke Avenue; the Tank Plant is located directly behind it. Designed in the art moderne style by the Kahn firm, the building is architecturally interesting but not distinctive, and is a Category III historic property because of its role as frontispiece to the Tank Plant and because of its strong association with the Arsenal's overall history. See Chapter 2 and Illustration 11.

- Condition and possible adverse impacts. The Administration Building is in good condition and is architecturally intact, except for the ca. 1981 change to more energy-conserving windows with solar reflective film. There are no current plans to alter or demolish this property.

- Preservation recommendations. Refer to the general preservation recommendations for Category III historic properties. The building should be included, as an associated structure, in the nomination of the Tank Plant to the National Register of Historic Places (see Detroit Arsenal Tank Plant, above).

NOTES

1. Army Regulation 420-40, Historic Preservation (Headquarters, U.S. Army: Washington, D.C., 15 April 1984).

2. National Park Service, Secretary of the Interior's Standards for Rehabilitation and Revised Guidelines for Rehabilitating Historic Buildings, 1983 (Washington, D.C.: Preservation Assistance Division, National Park Service, 1983).

3. National Park Service, "Archeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines," Federal Register, Part IV, 28 September 1983, pp. 44730-44734.

4. National Park Service, Secretary of the Interior's Standards.

5. National Park Service, "Archeology and Historic Preservation."

6. National Park Service, Secretary of the Interior's Standards.

7. National Park Service, "Archeology and Historic Preservation."

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