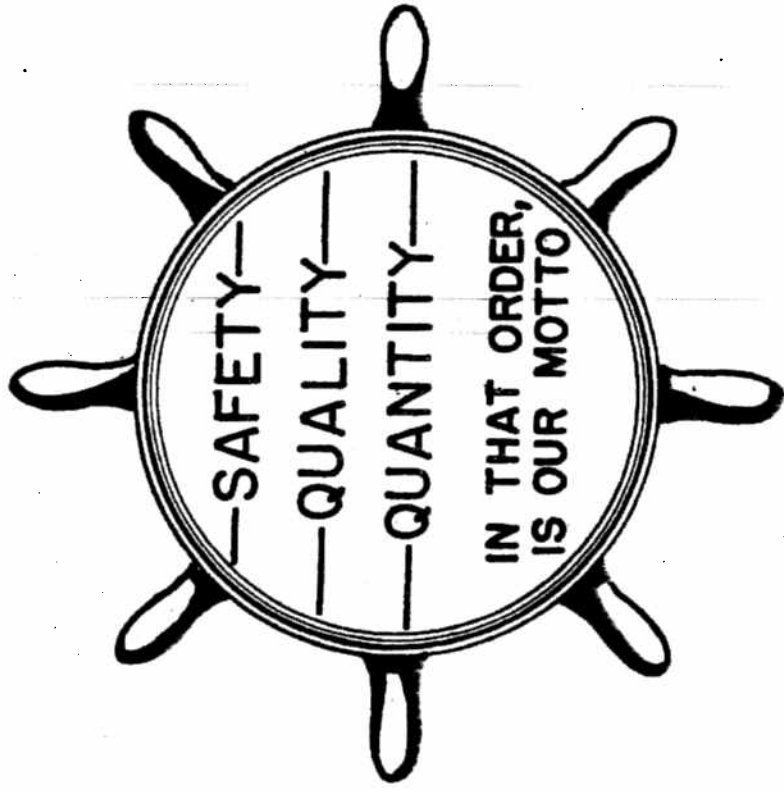


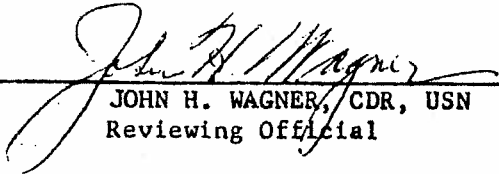
U. S. NAVAL  
ORDNANCE PLANT  
MACON, GEORGIA

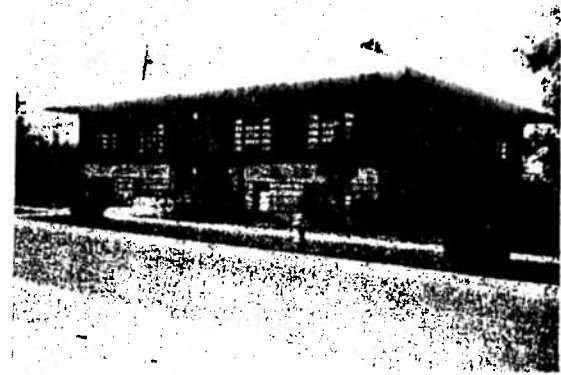


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REVIEWED AND APPROVED 5 September 1961

  
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JOHN H. WAGNER, CDR, USN  
Reviewing Official



ADMINISTRATION BUILDING  
U. S. NAVAL ORDNANCE PLANT  
MACON, GEORGIA

Welcome aboard!

This booklet has been designed to give you a better understanding of the mission, facilities, and organization of the Naval Ordnance Plant, Macon, Georgia. This station is an integral part of the Navy's ordnance shore establishment and operates under the management control of the Bureau of Naval Weapons.

It is sincerely hoped the information contained on the following pages will be informative and helpful, and that your tour of duty or visit will be most enjoyable.

THE COMMANDING OFFICER



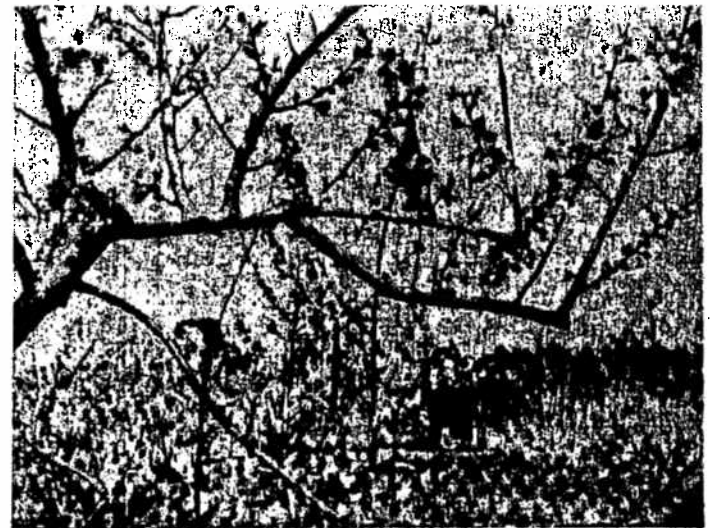
Main Entrance to Plant  
Showing Vinson Road

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#### I. Geographic Location

The U. S. Naval Ordnance Plant, Macon, is located in the geographical heart of the Empire State of the South. Georgia is the largest state East of the Mississippi River. Macon is located 100 miles Southeast of the State Capital, Atlanta, about 150 air miles West of the Atlantic Ocean and about 200 air miles North of the Gulf of Mexico. The area is characterized by flat rolling farm lands, with a profusion of fruit, nut, evergreen and hardwood trees. Lakes, rivers and creeks are plentiful and provide ready access to those interested in fishing and other water sports. Considerable rainfall and relatively mild climatic conditions produce a luxurious natural vegetation with a multiplicity of flowers, shrubs and plants.



Peach Trees in Full Bloom

## II. History

The plant was constructed in 1941 and was operated for the Navy by The Reynolds Corporation from September 1941 until November 1945. During World War II the plant assembled and loaded ammunition components, primarily fuzes, for the Navy. It operated in conjunction with the Naval Ordnance Plant, Milledgeville, Georgia, which produced many of the metal parts assembled and loaded here.

In November 1945, the operation of the plant was taken over by the Bureau of Ordnance, Navy Department. Many of The Reynolds Corporation employees shifted to Navy employment. In June 1947, the Navy Department sold its plant at Milledgeville to private industry and consolidated operations at the Naval Ordnance Plant, Macon. During 1947 and 1948, equipment and personnel were transferred here from Milledgeville.

From 1948 until 1958, the Naval Ordnance Plant at Macon was a mass production facility, in which machines were tooled up to produce millions of parts over long periods of time. The production areas and lines were layed out for repetitive type work. During this period the plant was engaged in the manufacture of metal parts, their assembly and explosive loading to produce ammunition components for the armed services. Orders came from the Navy Bureau of Ordnance with some items being produced for the Army, Air Force, and Marine Corps.

In 1958, a radical change occurred. Macon started receiving many project orders for smaller quantities of more complex, modern, and sophisticated ordnance items. Different materials were required, new machines and equipment were procured and in a short time the Naval Ordnance Plant, Macon, had changed from a long run production facility to a job shop.

Our requirements for quantities of millions diminished and in their place we now produce quantities of thousands and often only hundreds. These short run jobs are new to us and in some cases have never been done before. They require complete engineering, processing, and tooling and a continuing effort to improve the production processes to insure the most economical production methods. In addition to our orders from the Bureau of Naval Weapons, we produce some items for the Army, Air Force, and Marine Corps. Quite often this plant supports private contractors doing work for the Navy, by furnishing various explosive ordnance devices that they cannot produce for themselves or secure elsewhere at reasonable cost or soon enough for their requirements.

In an effort to promote greater strength, increased efficiency and technical development, the Bureau of Ordnance and the Bureau of Aeronautics were merged on 1 December 1959 to form our present management bureau, the Bureau of Naval Weapons.

The Naval Ordnance Plant, Macon, has ~~142~~ buildings and structures located on 344 acres of land. There are over ~~460,000~~ square feet of usable floor space in operation with most of the buildings being of permanent construction.

Original cost to the Navy for all the buildings on the plant was 4.9 millions dollars. Replacement value of these buildings today or duplication of them at any other location in the country would probably cost over 10 million dollars.

The numbers of civilians employed at this plant as of 1 July of past years have been as follows:

1945	-	104	1951	-	1153	1957	-	809
1946	-	156	1952	-	1928	1958	-	694
1947	-	160	1953	-	2030	1959	-	664
1948	-	548	1954	-	2039	1960	-	683
1949	-	438	1955	-	1598	1961	-	750
1950	-	346	1956	-	810			

Macon has a facility for manufacturing and loading ordnance components, as well as a technically competent staff of engineers and designers who are completely versed in the art of process and development engineering. As the Bureau of Naval Weapons' requirements for the age of missiles have changed, so has the Naval Ordnance Plant, Macon, changed to produce missile components.



Air View of Plant

### III. Mission

The current mission of the U. S. Naval Ordnance Plant, Macon, Georgia, is the manufacture of ordnance material and/or equipment or components, with specific responsibility in designated areas as promulgated by the Bureau of Naval Weapons.

In accomplishing this mission, functional assignments, specifically directed by the Bureau of Naval Weapons, include the manufacture, assembly, loading, inspection, packaging, and distribution of: (1) Astronautic, missile and rocket components; (2) ASW devices; (3) Expendable ordnance components and end items. In addition, assistance is rendered various Bureau research and development activities toward the development of expendable ordnance; and, also, in the review of drawings and specifications of commercially developed ordnance items made on BUWEPS contract, recommending changes, etc., to insure producing an improved product at reduced cost.

Further, NOP Macon has the responsibility of maintaining a modern manufacturing and loading facility for expendable explosive ordnance material as well as a small gage facility in accordance with Bureau directives.

Each organizational component of NOP Macon has a specific part to play in insuring that the assigned mission of this Plant is successfully performed.

#### IV. Facilities

In the execution of its mission and in order to produce a steadily increasing complexity of weapons, components and explosives, it has been necessary for the Naval Ordnance Plant, Macon, to develop a unique pattern of supporting facilities. The Naval Ordnance Plant, Macon, has one of the largest banks of automatic screw machines in the Southeast. It also has the unique capacity of manufacturing and explosively loading ammunition components and parts at the same plant.



Swiss Automatic Screw Machines

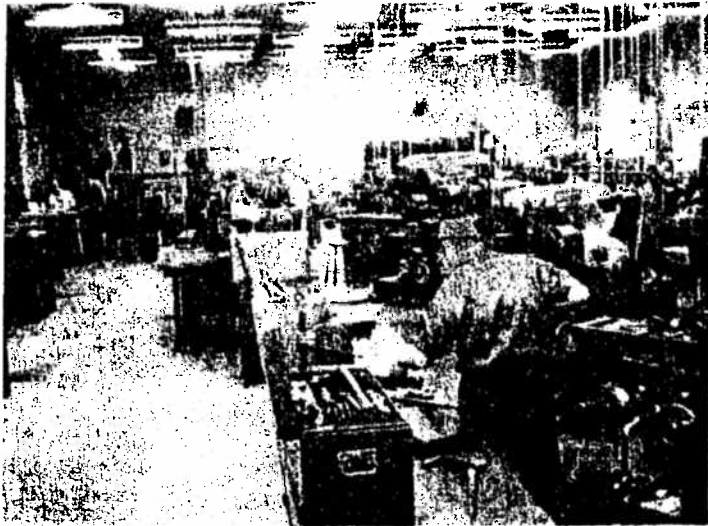
Inert manufacturing is performed principally in three manufacturing buildings. A fourth manufacturing building houses the high precision Swiss Automatics machines. The more than 1800 pieces of machinery at the Naval Ordnance Plant, Macon, includes: screw machines, turret lathes, milling machines,



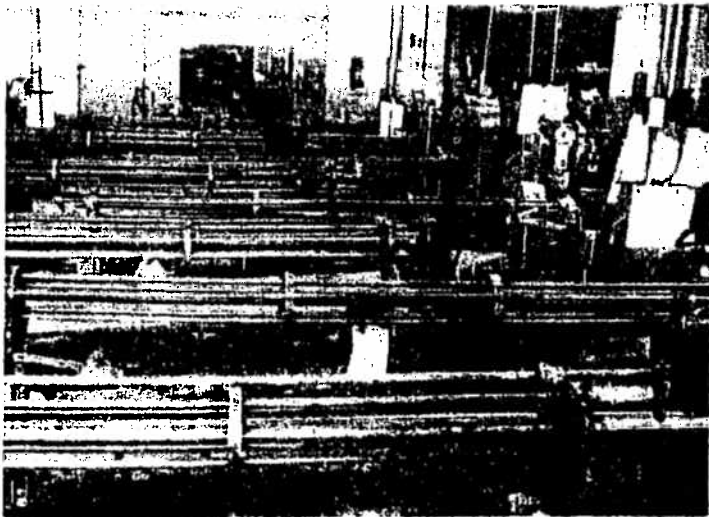
Pratt & Whitney Jig Borer

shapers, planners, jig borers, a tape-controlled Burgmaster multiple spindle drill, heat treat ovens, die casting facilities, two plating lines for electroplating, and numerous other special purpose pieces of machinery. Some of these special purpose machines were designed and built at this plant. The value of all this machinery is approximately six million dollars and it provides such a range of flexibility that we can produce items the size of a second hand on a watch or a shaped billet weighing 40 pounds or more.

The Naval Ordnance Plant, Macon, provides a quality product using the latest statistical quality control techniques. A large Quality Evaluation Laboratory including such testing aids as an environmental test chamber, an aircraft high frequency vibration simulator, a drop test tower, a jolt machine, jumble machine, an x-ray inspection facility, and a well equipped chemical analysis laboratory are also used to insure a quality product.



Machine Shop

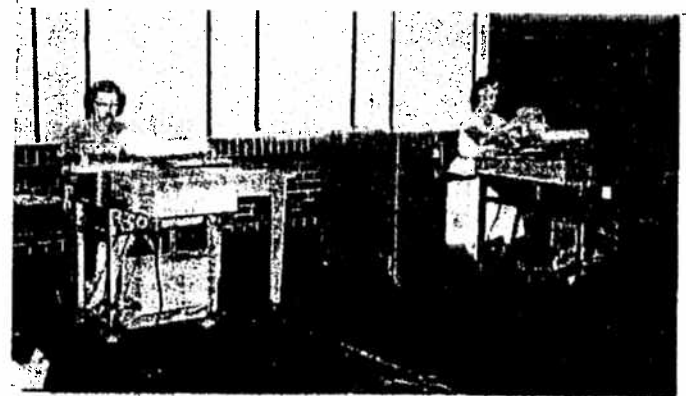


Multiple Spindle Automatic Screw Machines

The Bureau looks to our highly qualified engineering staff for the very important function of product engineering new designs originated by the Bureau and by private industry. In performing this function, Macon must examine every item for produceability, for possible material substitution, for methods improvement, for unit cost reduction and for correctness and adequacy of specifications and drawings.

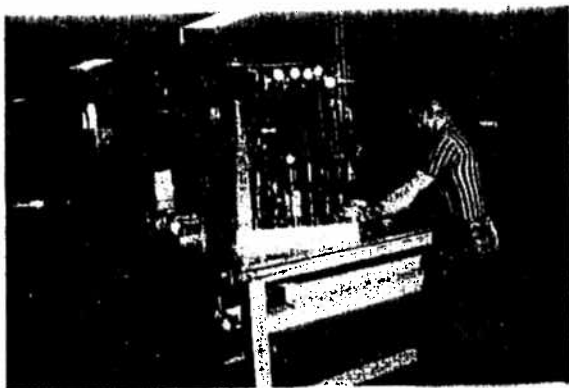
The Naval Ordnance Plant, Macon, has three large brick buildings which are used for warehousing, receiving and shipping of materials and supplies. During Fiscal Year 1961, our purchases amounted to \$2,871,744.00; 50% of this came from small business firms and 2% came from government sources of supply.

The stock record card entry system has been automated through the use of National Cash Register accounting machines hooked up through intercouplers to IBM Key punch Machines. This system drew the attention of the National Cash Register people themselves who made a special visit to Macon just to learn how we had employed their machines to such good advantage.



National Cash Register Machines

Automation was the only answer to a supply system which jumped from 19,000 line items of issue when we were a long-run production facility to 60,000 line items of issue when we had become a job shop. The Naval Ordnance Plant utilizes commercial sources of supply when it is economically more sound to purchase rather than manufacture.



Automatic Loading Machine Designed and Constructed at NOPM

Three dimensional scale models are employed in the shop areas for plant layout functions. Two extremely versatile tape-controlled production machines, a Pratt & Whitney Jig Borer and a Burgmaster Drill, have recently been purchased. A Management Improvement Committee carries on a continuing study of machinery modernization to provide the Naval Ordnance Plant, Macon, with the flexibility and versatility which has characterized its operation for the past few years, and also to further reduce labor costs by automation whenever possible.

## V. Organization

The U. S. Naval Ordnance Plant is one of six similar field establishments under the technical and management control of the Bureau of Naval Weapons. The Commandant of the 6th Naval District exercises military control over the station through the Commanding Officer.

Internally, the Commanding Officer heads an organization composed of four staff departments: Safety, Comptroller, Industrial Management, Quality Control; five service departments: Industrial Relations, Administrative, Supply, Medical, Public Works; and one operating department: Production.

### ADMINISTRATIVE DEPARTMENT

The Administrative Department is responsible for the overall security of the Plant, fire protection and prevention and for providing a variety of office services connected with mail handling, communications, military and civilian travel, maintenance of military personnel records and providing secretarial service for the Commanding Officer and Executive Officer.

### COMPTROLLER DEPARTMENT

This department is a staff organization whose function is: to develop, coordinate, and maintain an integrated staff service in the Financial Management area that will provide the Commanding Officer and other operating officials factual data essential for effective management control. The Naval Ordnance Plant, Macon, operates under the Navy Industrial Fund (NIF)



which is a working capital structure. The Plant holds a Charter similar to that which private corporations hold and was granted an initial cash allocation of 5½ million dollars from which to finance its operation. Monthly Financial Statements are prepared including a balance sheet, an operating Statement, and a financial summary of each individual cost center. As with commercial concerns, we are required to generate income equal to cost. All expenses are financed from our cash account and we are then reimbursed by billing the customer for the finished product.



IBM 1401 Data Processing System

The IBM 1401 Data Processing System is used to process source documents into tabulation of Financial Management and Production Control Systems.

## PRODUCTION DEPARTMENT

The Production Department manufactures, reconditions, loads and assembles all ammunition and missile components as contracted for by the station. In accomplishing this mission, each of its six divisions has assigned functions in various areas of production as follows:

The Production Engineering Division provides all engineering services as required for the manufacturing of ammunition and missile components, including tool design, inert and assembly line processing, and design of test equipment;

The Production Planning and Control Division controls production through its Scheduling and Progressing Sections; is responsible for cost estimates and submits bids on future work in a continuing effort to keep the workload increasing;

The Explosive Loading and Assembly Division assembles and loads the machined items and places special emphasis on safety regulations in handling the highly sensitive explosive items:

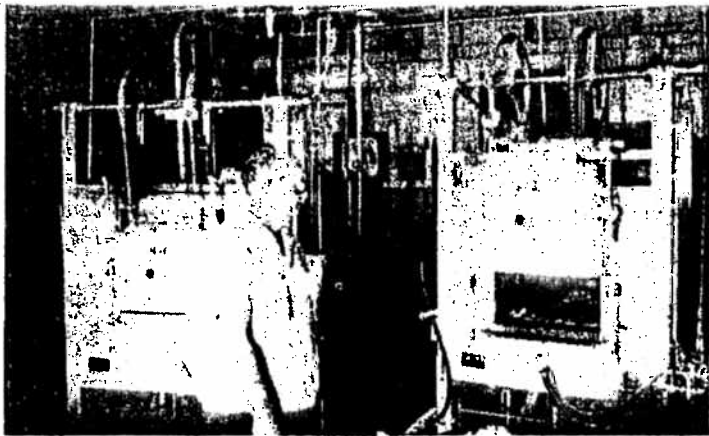


Explosive Loading

The Manufacturing Division, through its automatic production equipment, provides the majority of the machined items required for each project;

The Development Engineering Division utilizes all fields of engineering while performing research and development work on new or revised ordnance components, and in developing new production capabilities for the station.

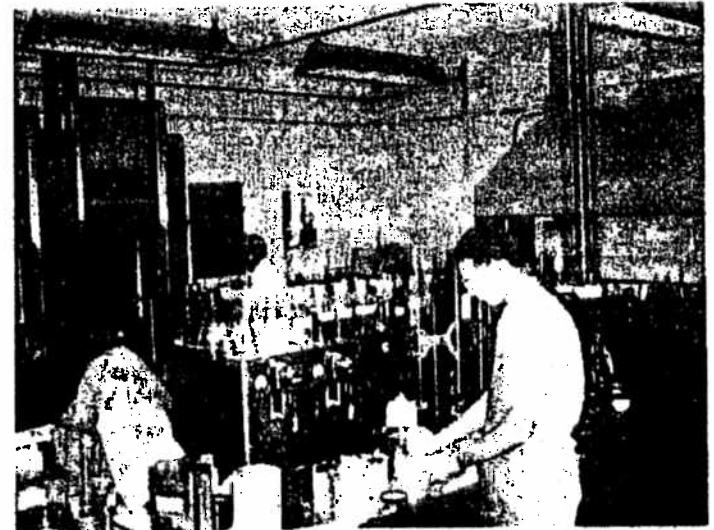
The Ordnance Division maintains, under proper surveillance, the ammunition and explosives in stores. Also disposes of obsolete and unserviceable ammunition and explosives. Releases components for shipment based on results of ballistic acceptance tests.



Heat Treating Ovens

#### QUALITY CONTROL DEPARTMENT

The Quality Control Department is responsible for providing acceptance and in-process inspection for the plant and for advising the Commanding Officer and all Departments on inspection procedures and techniques. Also, maintains liaison with other government activities relative to inspection procedures and techniques and provides chemical laboratory service for the activity.



Chemistry Laboratory



Carpenter Shop

#### PUBLIC WORKS DEPARTMENT

The Public Works Department is responsible for the operation of all station public works, public utilities, public housing and transportation equipment, including such functions as administration, engineering, maintenance, repair, assignment and construction.

This Department is also responsible for manufacturing support services, and administration and supervision of formal construction contracts, architectural and engineering service contracts for the Naval Ordnance Plant, Macon, and Forms and Publications Supply Office, Byron, Georgia.

Public Works Department also provides staff assistance to the Commander for the Disaster Control Unit in the Middle Georgia area and plans and implements the station Disaster Control Program.

#### INDUSTRIAL RELATIONS DEPARTMENT

The Industrial Relations Department consists of four Divisions; namely, Employment, Training, Employee Relations and Services, and Wage and Classification. A personnel staff of 11 promotes a sound overall personnel management program for Naval Ordnance Plant, Macon, and Forms and Publications Supply Office, Byron. Effects all types of personnel actions through delegated authority by the Civil Service Commission and the Navy Department.

#### SAFETY DEPARTMENT

The Safety Department exercises staff supervision over all matters pertaining to accident prevention program to conserve health, life and property by reducing or eliminating unsafe personal acts and unsafe physical conditions. Provides safety engineering and technical services on matters of explosives, industrial and traffic safety, industrial hygiene and safety education. Provides for local administration of the Federal Employees' Compensation Act.

## INDUSTRIAL MANAGEMENT DEPARTMENT

The Industrial Management Department functions as an advisory staff to the Commanding Officer and Department Heads. It is the responsibility of this Department to conduct industrial engineering studies and to make recommendations regarding plant organization, methods improvements and the utilization of manpower, machines, and materials. The Paperwork Management Program encompassing paperwork procedures and forms and reports managements, is also administered by this Department.

## SUPPLY DEPARTMENT

The Supply Department is a service department with a personnel complement of 37 employees. The three divisions; namely, Control, Material and Inventory perform all supply functions of procuring, receiving, storing, issuing, and shipping of materials and equipment.

The Supply Officer has broad latitude and full authority, with minor exceptions, in the field of purchasing which has accelerated purchase of 99% of all production and maintenance material requirements.

In every instance, where it is more economical to purchase rather than manufacture, commercial sources of supply are utilized, enabling the Supply Department to spread its procurement business over all the country, with the bulk of the volume being awarded to small business firms.

## VI. The City of Macon

Macon, with almost two centuries of colorful history, has an estimated population of 130,000. It is a progressive city located almost in the geographical center of the State of Georgia. This central location makes it a hub for highway and rail transportation. Twelve hotels provide 1,250 rooms and in addition, there are 27 approved motor courts in Macon with 350 modern rooms. There are many fine restaurants where excellent meals may be obtained conveniently.

Macon is one of the few cities with a planned downtown business center. Its wide streets, downtown parks, and wide variety of shops and department stores make shopping a pleasure. In addition to the downtown shopping area, modern shopping centers are located throughout the city. The new Westgate Shopping Center is the second largest in the South located under one roof and has the largest air-conditioned mall of any shopping center in the South.

The Macon and Bibb County School System is one of the best in the Southeastern United States. There are 7 Senior High Schools, 7 Junior High Schools, and 37 Elementary Schools, with a total of 35,281 students and 1,201 teachers and administrators. Macon has two colleges, Mercer University and Wesleyan College, and an Extension Center of the University of Georgia is located at Warner Robins, Ga. which is 14 miles south of Macon.

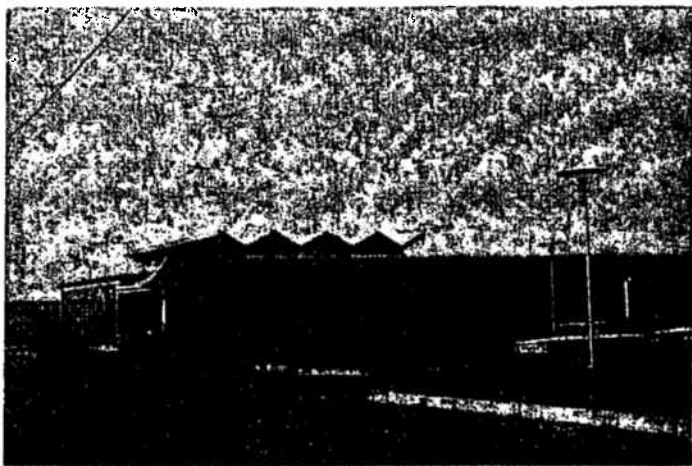
The city boasts 22 parks and playgrounds, swimming pools and an excellent 18-hole golf course, in addition to the Country Club and nearby lake resorts. The Macon Dodgers, pro baseball team of the South Atlantic League, Class A, owned by the Los Angeles Dodgers, reside in Luther Williams Park. The residential sections of Macon are outstanding for their charm and beauty.

## VII. Travel Information

Four railroads serve Macon, the Central of Georgia, Southern, Georgia, and Seaboard Airline. First-class terminal facilities are maintained by these railroads.

Airline passenger service consists of Eastern and Delta. There are seventeen flights to and from Macon daily, each supplying passenger air travel and air express service.

Greyhound Lines, Southern Trailways and Southern Stages operate approximately eighty-three air-conditioned busses and scenic cruisers in and out of Macon daily and provide fast transportation to most cities, with convenient connections to other bus terminals.



Macon Municipal Air Terminal

=NOTES=