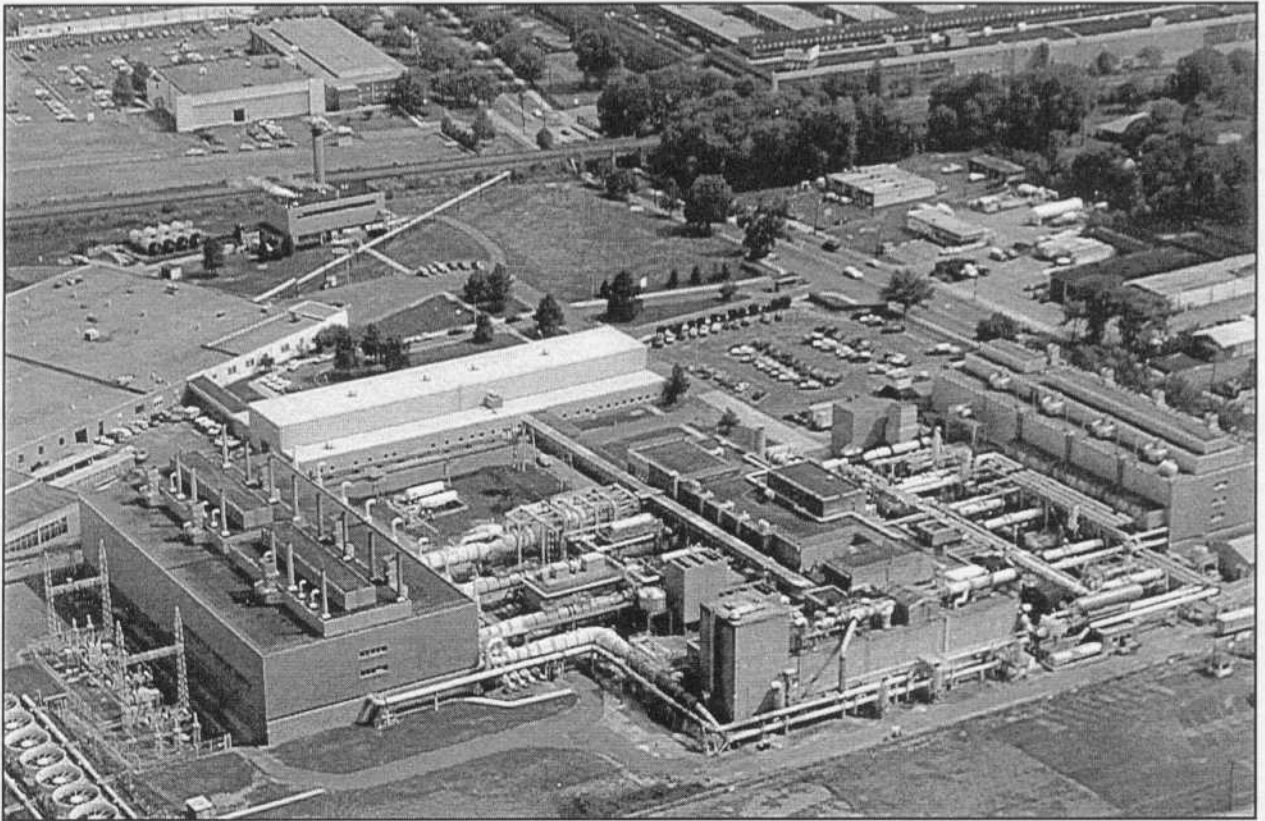


NATTS
NAPTC
NAPC
NAWCAD - Trenton News
June 1998 *Commemorative & Final Edition*



Closing with Pride and Dignity



After being a vital contributor to the development of U.S. Navy aircraft propulsion systems for more than 47 years, the Naval Air Warfare Center, Aircraft Division, Trenton (NAWCAD-TRN) will close in December 1998. Center employees provided full spectrum technical and engineering support in the Research, Development, Test & Evaluation of airbreathing propulsion systems, their components, accessories, and fuels and lubricants throughout all phases of the propulsion system life cycle.

NAWCAD-TRN is a government-owned and operated ground testing complex that had unique characteristics. It was the only facility in the nation that had the capability at one

Continued on Page 4

The Final Issue

by Ed Nawrocik

When I assumed the task of publishing this newsletter in March of 1997, I set two main goals, publish an issue each month and the content of each issue should be "people-oriented." I am proud to say that this, the commemorative and final issue, will be the sixteenth consecutive month that the newsletter has been published before the end of the month, and, based on the feedback, we have kept the issues interesting for the readers.

Yes, this will be the final issue. As we downsize towards closure, our resources have reached the point where we can no longer support publication and distribution, at least not in this format. I will do my best to keep as many of you as possible informed of what is happening during the next six months, but it will probably be in the form of an occasional single page of notes, distributed by e-mail to those with that capability and hard copy at the retiree breakfasts and luncheons.

I compiled as much significant information on the Center as I could for this commemorative issue but the research was difficult. It was a task that should have been started a couple of years ago. Hopefully, this issue will provide you all with good memories.

Lastly, I must thank all those involved in the composition, publication and distribution of the newsletter over the last sixteen months. It certainly was not a task that could be accomplished by one individual. I extend my appreciation and thanks to the various individuals that have contributed articles, and special thanks to:

Jo Ann Cosbey, for organizing and formatting each issue, utilizing desktop publishing software, and putting up with my last minute changes and inputs (as the old saying goes, "stop the presses");

Ed Calvello, for his articles, researching of information and material, and constructive criticism (better he than the readers);

Sam Sessions and Khrysse Gabel, for their photographic contributions and quick response (hey, I need a picture of XXXXXX, and I need it now);

Bob Weis and Bob Malone, for their fast and efficient reproduction and distribution of each issue (our "circulation" was over 600 for the last few months and 800 copies of this issue);

Jim Thaler, for his proofreading and comments (even though I didn't always incorporate his comments);

CAPT Offerdahl, for his articles, support and confidence (giving me editorial license to ignore Thaler's comments); and, most importantly,

YOU, the readers - your positive feedback and comments have given me a great sense of accomplishment and driven me to provide a quality product.

<p>The NAWCAD - Trenton News is published on government equipment and printed with appropriated funds. It is issued in compliance with NAVSOP-35. Any views and opinions expressed are not necessarily those of the DoD, Navy, Commanding Officer, nor the Staff.</p>	
CAPT David C. Offerdahl, USN	Commanding Officer
Mr. James F. Thaler	Executive Director
Mr. Edward Nawrocik	Managing Editor
Ms. Jo Ann Cosbey	Editor
Mr. Edward Calvello	Staff
Mr. Sam Sessions	Staff Photographer

*CO's Corner**Thanks*

I want to begin this final CO's Corner by thanking Ed Nawrocik and all those who have supported him for their tremendous efforts, perseverance and professionalism in publishing the NAWCAD-Trenton News. Communications has never been more important than it has been during this closure environment and the Trenton News has played a very important role in keeping folks informed on everything from command policy issues, to civilian personnel issues, to rumor control...always with a little humor attached. It was one more important tool that allowed us to transition our propulsion capabilities with the same pride, professionalism and dignity that has been evident here for the past 47 years.

You will be pleased to see that they have really outdone themselves on this final commemorative edition. What a wonderful compendium of dates, events, facts, people and faces....a true reflection of what this world class organization has accomplished since standup on July 1, 1951. The accomplishments and accolades have been many, and each and ev-

eryone of you should be extremely proud of the contributions you provided in making this organization the best of the best. I know that I am, and I'm one of the short timers!

The Navy, DoD and the country are indebted to each of you for making Navy propulsion ground T&E what it has been for these 47 years and will continue to be. And for those of you who have been involved in transition for the past six years, I believe that there is an even greater debt of gratitude. Not only have you continued to perform the propulsion mission in a highly professional manner, you have also ensured that propulsion ground T&E will continue into the 21st century healthy and in state of the art facilities, albeit at different locations. I am honored to have been a part of this wonderful organization and I thank you for your tremendous support during periods of great adversity.

CO

Continuation - Closing with pride and dignity

site to test turbojet/turbofan engines, turboprop/turboshaft engines, piston engines, helicopter transmissions, fuels and lubricants, accessories and propellers under simulated flight and environmental conditions at sea level and altitude.

Established on 1 July 1951 as the Naval Air Turbine Test Station (NATTS), the Center has changed names and expanded its mission capabilities several times, employing well over 700 during its peak workload years. However, in 1991, the Base Realignment and Closure (BRAC) Commission decided to transfer the Center's propulsion engineering function to NAWCAD, Patuxent River, Maryland (NAWCAD-PAX) and its large engine altitude testing function to the Air Force Arnold Engineering Development Center (AEDC) in Tullahoma, Tennessee. Then, in 1993, the BRAC Commission decided to completely close NAWCAD-TRN, transferring its sea level ram air and small engine altitude testing functions to AEDC and relocating its accessories test cells, fuels and lubricants laboratory, fuel system test facilities, Unmanned Air Vehicle test cells, and the test support staff for those facilities to NAWCAD-PAX. As a result, the Center has had the following four-part mission since 1993:

- complete the scheduled advanced gas turbine engine test workload;
- ensure the smooth transition of facilities and capabilities to AEDC and NAWCAD-PAX;
- transition the workforce via reassignment and/or relocation to positions at other federal activities, separation from the federal sector for employment in the private sector, or retirement; and
- transition the property to the local community for reuse.

The Center has been very successful in accomplishing the mission to date, and continues towards closure with pride and dignity.

NAVAL AVIATION HISTORY

The following significant events, downloaded from the Naval Aviation History website at <http://www.history.navy.mil>, led to the establishment of NATTS.

26 FEB 1913 - Action to provide the Navy with a wind tunnel, a basic tool in aeronautical research and development, was approved formally by the Chief Constructor of the Navy. The resulting tunnel, which was built at the Washington Navy Yard, remained in operation until after the end of World War II.

9 MAR 1914 - The wind tunnel at Washington Navy Yard was tested. Calibration required about 3 months, and its first use in July was a test of a ship's ventilator cowling.

1 JUL 1914 - Aviation was formally recognized with the establishment of an Office of Naval Aeronautics in the Division of Operations under the Secretary of the Navy.

10 JUL 1915 - The Aeronautical Engine Laboratory has its beginnings at the Washington Navy Yard with an authorization by the Secretary to outfit a building for testing aeronautic machinery.

12 OCT 1915 - A directive was issued establishing an Officer in Charge of Naval Aeronautics under the newly created Chief of Naval Operations and giving authority for aviation programs in the Navy Department to the Chief of Naval Operations.

27 JUL 1917 - Construction of the Naval Aircraft Factory at the Navy Yard, Philadelphia, was authorized for the purposes of constructing aircraft, undertaking aeronautical development

and providing construction cost data.

10 AUG 1917 - Ground was broken for Naval Air Factory at the Philadelphia Navy Yard.

1 SEP 1921 - The Bureau of Aeronautics, under its Chief, Rear Admiral W. A. Moffett, began functioning as an organizational unit of the Navy Department.

6 FEB 1923 - Transfer of the Aeronautical Engine Laboratory (AEL) from the Washington Navy Yard to the Naval Aircraft Factory (Philadelphia Navy Yard) was authorized by the Secretary of the Navy, thereby clearly establishing the Naval Aircraft Factory as the center of the Navy's aeronautical development and experimental work.

NOTE: Construction of the new AEL facilities in Philadelphia began in 1923. In 1924, AEL moved to Philadelphia and became part of the Naval Air Factory.

7 JAN 1943 - Development of the first naval aircraft to be equipped with a turbojet engine was initiated with the issuance of a Letter of Intent to McDonnell Aircraft Corporation for engineering, development, and tooling for two VF airplanes. Two Westinghouse 19-B turbojet engines were later specified and the aircraft was designated XFD-1. It became the prototype for the FH-1 Phantom jet fighter.

5 JUL 1943 - The first turbojet engine developed for the Navy, the Westinghouse 19A, completed its 100-hour endurance test.

14 JUL 1943 - The Secretary issued a General Order forming the Naval Air Material Center (NAMC), consisting of the separate commands of the Naval Air Factory, the Naval Air Modification Unit, the Naval Air Experimental Station and the Naval Auxiliary Air Station. This action, effective 20 July (1943), consolidated in distinct activities the production, modification, experimental, and air station facilities of the Naval Air Factory organization.

6 NOV 1944 - Recognition of the future importance of turbojet and turboprop power plants led the Bureau of Aeronautics to request the NAMC to study requirements for a laboratory to develop and test gas-turbine power plants. This initiated action which led to the establishment of the Naval Air Turbine Test Station, Trenton, N.J.

NOTE: The Naval Aviation History does not mention Mt. Washington, the "real" start of jet engine research and testing. "Project Summit" was first established on top of Mt. Washington, New Hampshire in 1945 by the Air Force under the direction of the Air Material Command, Wright Paterson Air Force Base, Dayton, Ohio. In sub-zero temperatures, Air Force personnel tested an aircraft reciprocating engine (R-2800) with propellers and the system was mounted on a truck. The purpose of the test was to investigate ice prevention and deicing by means of lights and heated surfaces. During the winter of 1947-48, the Navy joined them to test the first jet engine under icing conditions. The Navy furnished a McDonnell XFD-1 airplane (the original Phantom I) powered by two Westinghouse J30 turbojets. The Navy was responsible for running the mechanical tests while the Air Force was responsible for housing, transportation up to the mountain and the commissary.

During that winter, the icing tests on the airplane proved that the turbojet could be rendered inoperative in less than one minute during a severe icing storm. The full operation of the test facility took place in the fall of 1948 when Everett Evans, John Campbell, Tom Dickey and Frans Van Gelder installed two engines on test stands. One stand was for testing inlet ducting and the other was for testing full scale engines.

When the top of the mountain was not visible from the valley below, it was nature

providing one of its many forms of rough weather such as for, rain, snow and high winds. Low temperatures were necessary to run many of the tests. Winds ranged from 30 to 140 miles per hour, while the temperatures got as low as 46 degrees below zero.

Some of the other personnel that worked atop Mt. Washington and also worked at AEL in Philadelphia are Pat Mangione, Jim Menei, John Bullion, John Thorpe, Joe Mendrala, Bill Woessner, Ward Albert and Dick Corey.

Frans Van Gelder began his career with AEL in September 1940, working for Walter A. Paulson, and continued with the assignment to Mt. Washington as supervisor of the facility. Van transferred to NATTS in 1955 and continued at the Center until his retirement on 2 April 1997 with over 56 years of service.

John Campbell is another Mt. Washington alumni that continued his career at the Center. John was very active in various Center organizations and activities; he was very instrumental in establishing the local chapter of the Federal Mangers Association (initially the Quartermen and Leadingmen Association) and was the real force behind Chapter 66, serving as its president from 1956 to 1965 & 1967 to 1981; and was president of the Center's bowling league for many years. In honor of John's leadership and dedication to the Center, its supervisors and employees, Chapter 66 established the "John Campbell Award" for the Outstanding Supervisor/Manager of the Year and annually presented that award, since 1984, to the Center supervisor or manager selected for their outstanding accomplishments during the previous year.

Also, Pat Mangione, Jim Menei, Joe Mendrala, Bill Woessner and Ward Albert also continued and completed their federal careers with the Center.

CENTER HISTORY

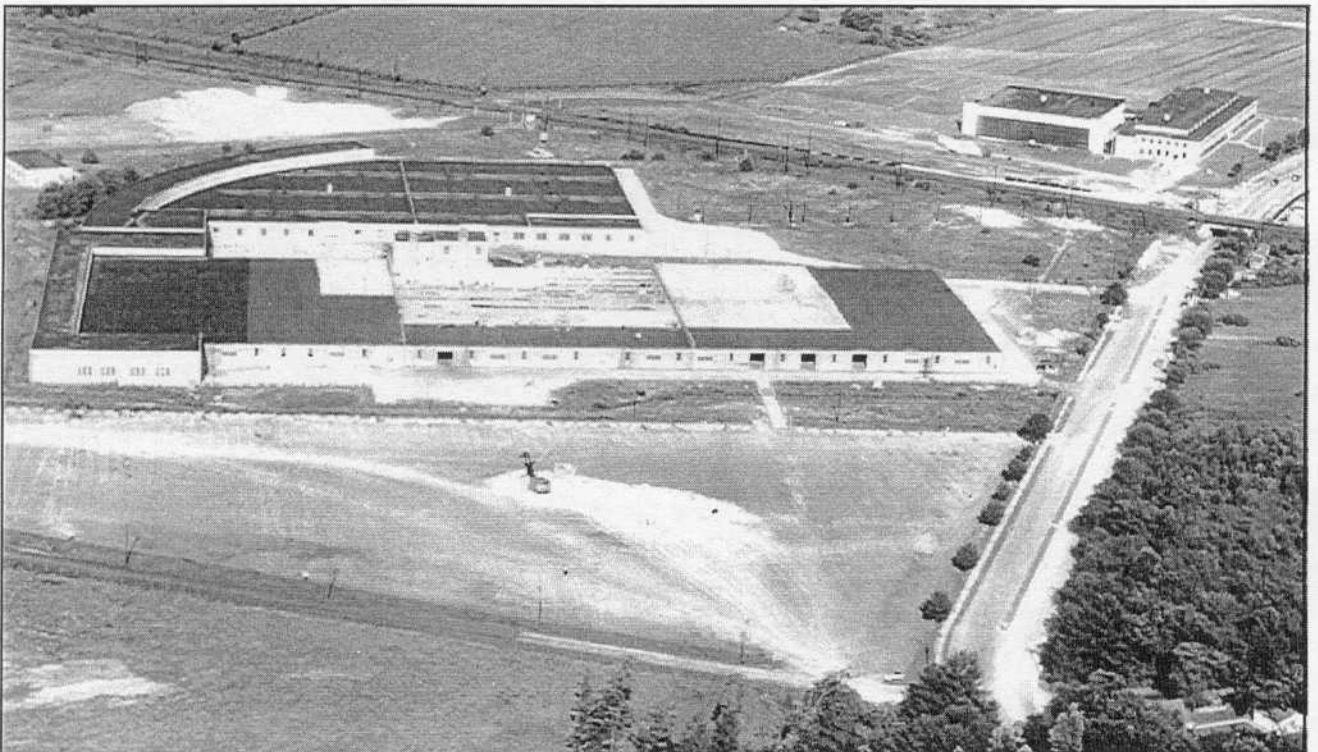
World War II was still in progress when the Navy recognized the potential of large gas turbine engines as power plants for future Navy aircraft. It also realized that these engines would require testing on the ground under repeatable and controlled flight conditions prior to installation in aircraft to minimize the risk and cost of flight testing.

In 1942, the Bureau of Aeronautics, Power Plant Design Division, under CAPT S. B. Spangler, began studies of an advanced aeronautical turbine laboratory. The study concluded "there are no laboratories available either in the commercial industry or the government capable of conducting dynamometer tests of large full-scale internal combustion turbines under simulated altitude conditions" and "conversion or modification of existing facilities for gas turbine testing would be both uneconomical and unsatisfactory." As a result, in 1944, the Bureau of Aeronautics requested the C.O., NAMC to "give the problem serious consideration and submit recommendations with suggested layouts and estimates....." The Bureau had roughly estimated the total cost for such a facility would be \$6.6M.

AEL was given the challenge to consider the problem but no one person was officially assigned to the Aeronautical Gas Turbine Laboratory (AGTL) project. Once Mr. Walter A. Paulson arrived at AEL, he promoted the idea of the Center through all levels of the Navy Department. Mr. Paulson was considered the person most responsible for the technical quality of the laboratory and had final responsibility for decisions on all engineering matters; he was known and thought of as "The Father of NATTS". Although efforts were slowed with

the ending of the war with Japan in August of 1945, the engineering firm of Jaros, Baum and Bolles of New York was contracted to do preliminary design studies. Mr. Paulson worked with the firm in the development of the preliminary design, and later worked with the contracted engineers to obtain the best design and equipment for the new laboratory.

In 1946, a site in Trenton, New Jersey, was selected for the new laboratory. The site was being used by the War Assets Administration and was one of several alternatives. Assessments of the probable speed of advancement of turbine engine technology caused substantial increases in basic capability requirements. The estimated costs for construction of the facility rose accordingly and a request for \$24M was included in the Public Works Bill for FY48. The funding was approved and, in July 1949, the first construction contract was awarded to the Belli Company of Trenton for \$2,233,000.

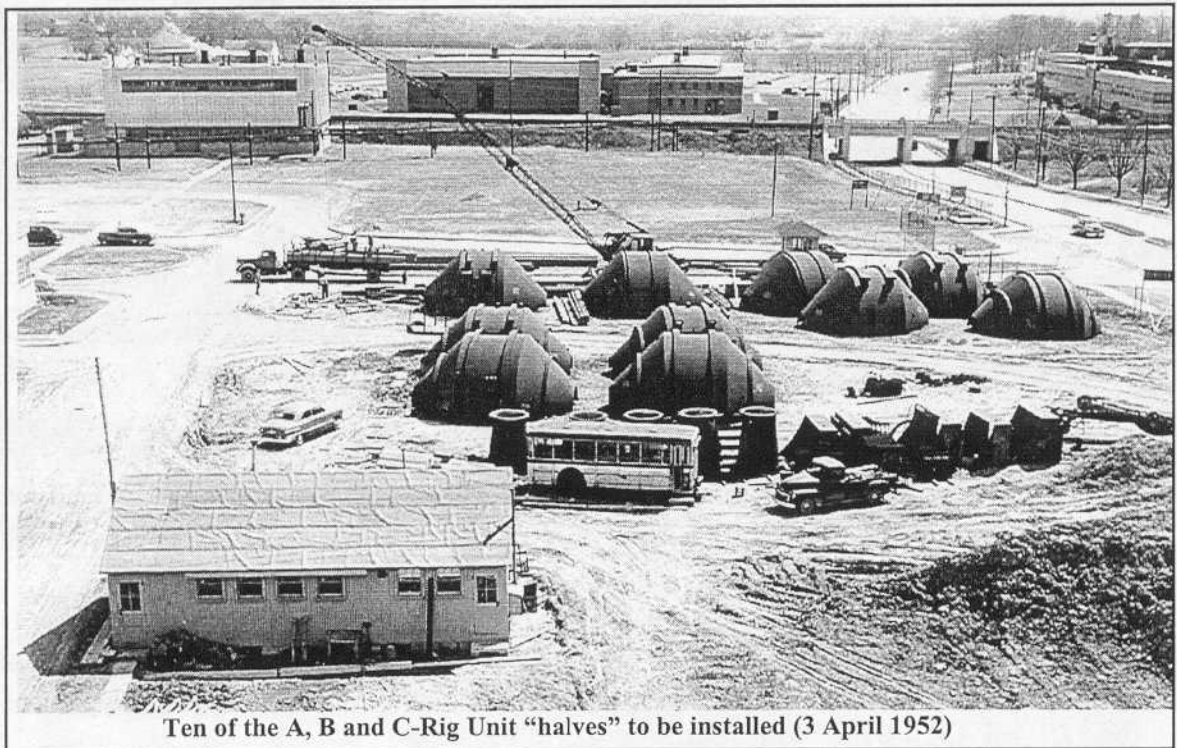


The first "steam shovel" on the NATTS construction site in August 1949

Ground was broken in August 1949 for the Shop Building (Bldg. 21), River Pumping Station, Water Treatment Plant, Reservoir, Boiler House and miscellaneous construction. Additional contracts were awarded to Ingersoll Rand for High Pressure Combustion Air Blowers (\$817,944), De Laval Steam Turbine Co. for Altitude Exhaust Equipment (\$2,157,000), and Foster Wheeler Co. for Exhaust Gas Cooling Equipment (\$655,000). Public Service Electric & Gas Co. began plans to build a ten-mile high-tension electric line for supplying power to NATTS at 132,000 volts, and contracts were awarded for the other required equipment and facilities.

Construction proceeded satisfactorily and the facility was commissioned on 1 July 1951 as a Research and Development station with CAPT W. T. Hines, USN, as Commanding Officer under the Military Command of the Commandant, Fourth Naval District and the Management Control of the Bureau of Aeronautics. NATTS first Executive Officer, CDR A. G. Rejebian reported on 2 July 1951.

In August 1951, fourteen "halves" of the A, B and C-Rig units arrived at the Trenton Marine Terminal. The units were

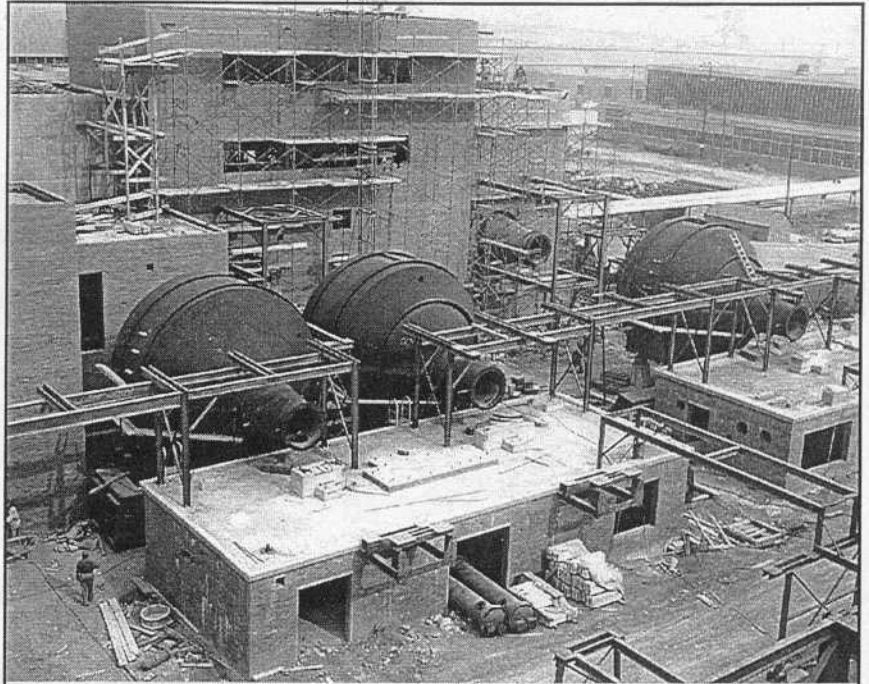


Ten of the A, B and C-Rig Unit "halves" to be installed (3 April 1952)

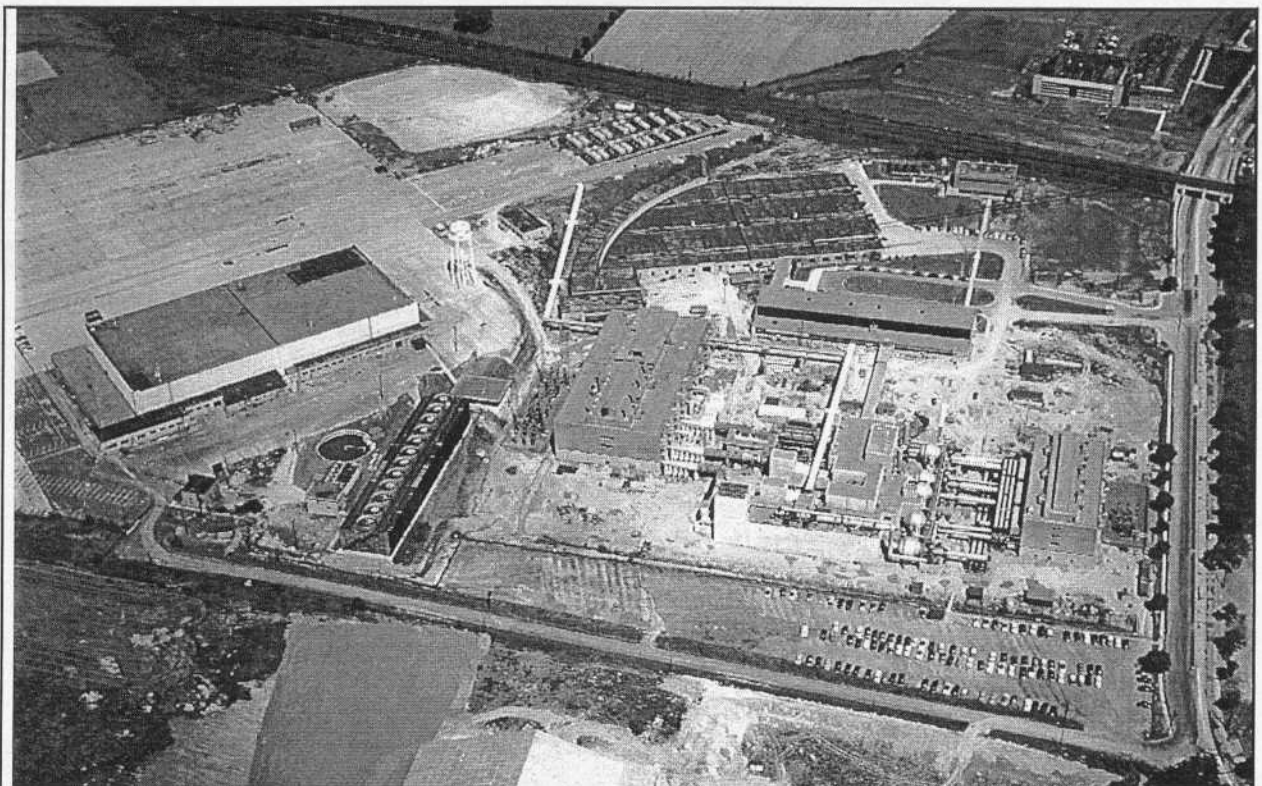
so large and heavy (up to 14 tons) that they were shipped by barge from Philadelphia. Police escorts were required when each of the units was "trucked" to the construction site, and it was often necessary to remove tree branches along the way. To minimize traffic problems, some

of the largest pieces were transported to the site between 3 and 4 a.m.

Mr. Paulson and Lester G. Tilton were the first civilian engineers to be employed at NATTS, both transferring from AEL in November 1951. Mr. Paulson was appointed to the position of Chief Engineer of ATL in November 1951 when the position was established, but he passed away in June 1953, shortly after seeing his ideas come to fruition. Mr. Tilton, also a contributor to the development of the design of ATL while working at AEL, was appointed Head of the Operations Division after NATTS became operational. In that position, Les was responsible for the operation of NATTS labo-



Some of the "halves" installed to form the (L-R) 1W, 1E and 2E C-Rigs



Aerial view of NATTS in June 1954

ratory equipment, the design of new testing equipment, and the development of long-range plans for future engine testing. Both gentlemen were major contributors to the development, construction and operation of ATL, and will long be remembered for their devotion and dedication to the success of the Center.

In June 1954, NATTS was placed under the Military Command and Technical Coordination Control of Rear Admiral S. B. Spangler, USN, Commander of the Naval Air Develop-



Official Inauguration of U.S. Naval Air Turbine Test Station 4 November 1955. Ribbon cutting ceremony in front of graphic panel in the supervisory control room on the 4th floor of the test wing.

L to R: Mrs. Mary G. Roebing, Chairman of the Board, Trenton Trust Company; Rear Admiral E.H. von Heimburg, USN, Commandant, 4th Naval District; Captain J.E. Dodson, U.S. Navy, Commanding Officer, NATTS; Honorable Frank Thompson, Congressman of the Fourth District, State of New Jersey; Vice Admiral Thomas S. Combs, U.S. Navy, Deputy Chief of Naval Operations; Mr. J.P. Stewart, President, De Laval Steam Turbine Company and Greater Trenton Chamber of Commerce; and Rear Admiral Selden B. Spangler, U.S. Navy, Commander, Naval Air Material Center.

ment and Material Center, Johnsville, PA. On 1 August of the same year, CAPT J. E. Dodson, USN, relieved CAPT Hines as CO. While in his new assignment at the Naval Air Station in

Jacksonville, FL, Hines was promoted to Rear Admiral in 1955.

In November 1954, a Westinghouse J40-WE-8 engine was operated in 1E to checkout the facility and train operating personnel. Carl McDermit was the project engineer for this historic occasion. Under the guidance of project engineer Joe Mendrala, an Allison T40-A-6 was operated in the 3W turboprop cell for the same purpose 22 July 1955; and the first sea level test was conducted in 2W on 10 August 1955, using a Westinghouse J40 engine under the direction of project engineer Bill Westfield.

In 1955, funds for expansion of NATTS were requested and eventually included in the Public Works Bill of 1956. The additional funding brought the capital investment in the facility to \$41M.

NATTS was officially opened at a dedication ceremony on 4 November 1955. Over 650 representatives of government, industry and employee families attended the inauguration, including a long list of high ranking military guests and notable civilians.

During the following years, NATTS staffed a fully trained and competent workforce (See Vacancy Announcement on page 12) while concurrently checking out the new facilities



Official Inauguration of U.S. Naval Air Turbine Test Station 4 November 1955; Capt Dodson speaking to audience in Building 34 Hangar