

One of the Great Chapters of the War Epic:

## The Secret History of RDX

A Presentation by Dr. Colin F. Baxter

THE SUPER-EXPLOSIVE THAT  
HELPED WIN WORLD WAR II



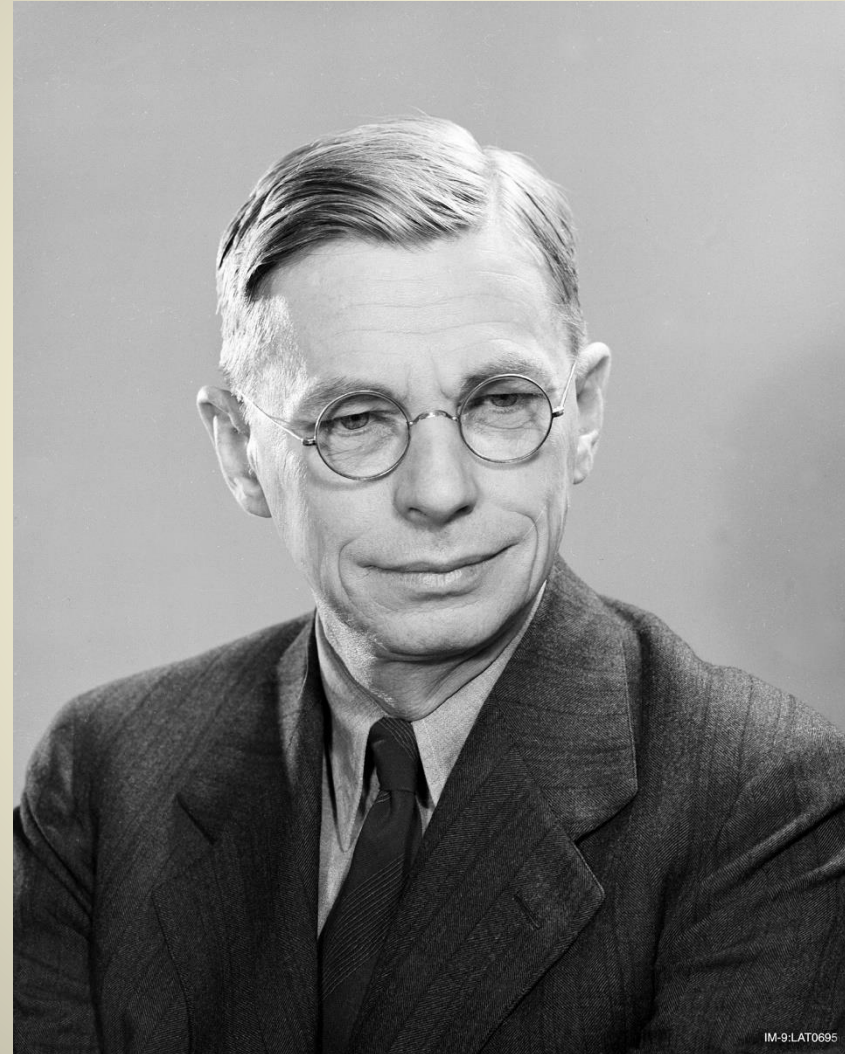
***The Secret  
History of  
RDX***

COLIN F. BAXTER

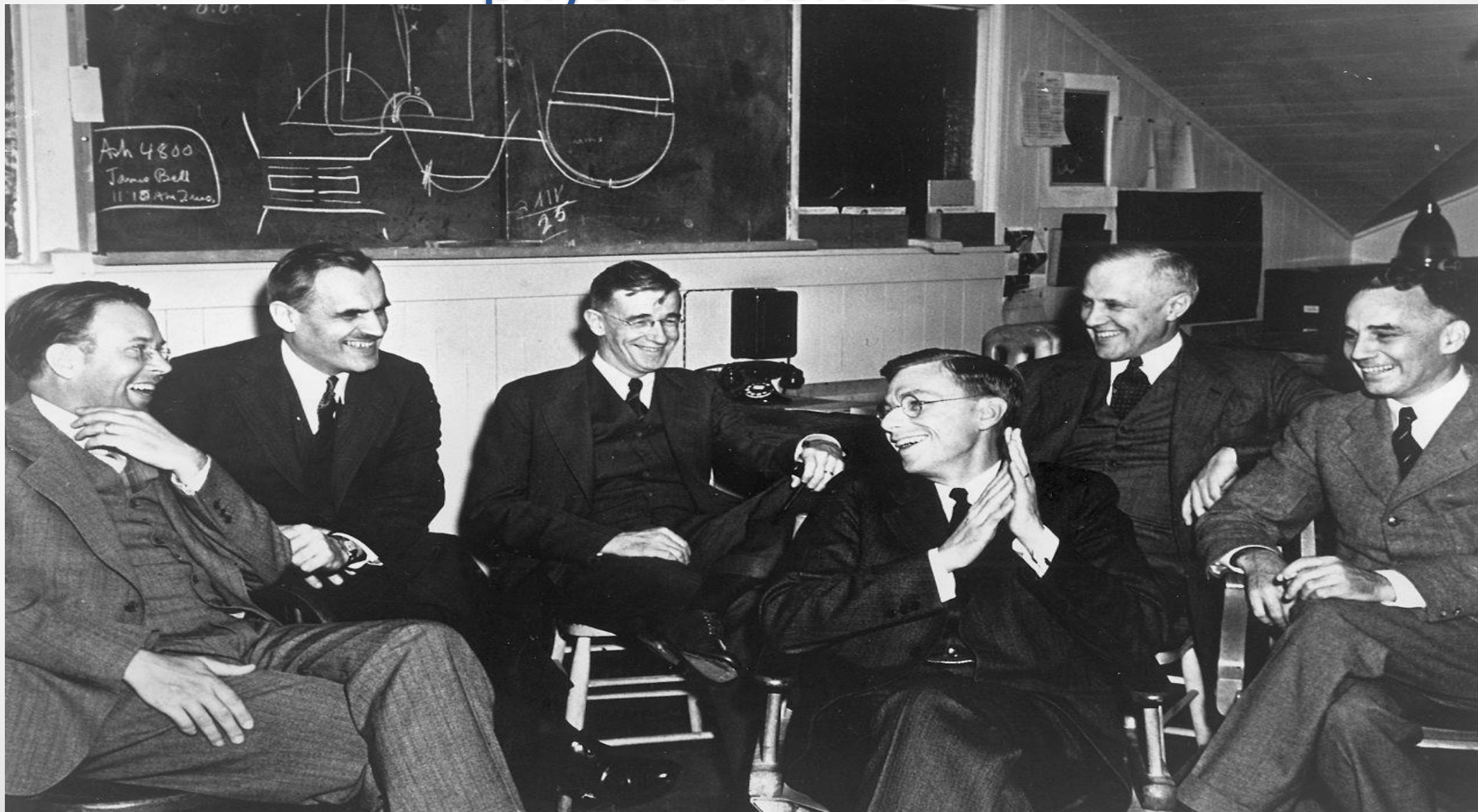
# RDX STEEL PLATE COMPARISON WITH TNT



# Dr. James B. Conant (NDRC) 1940



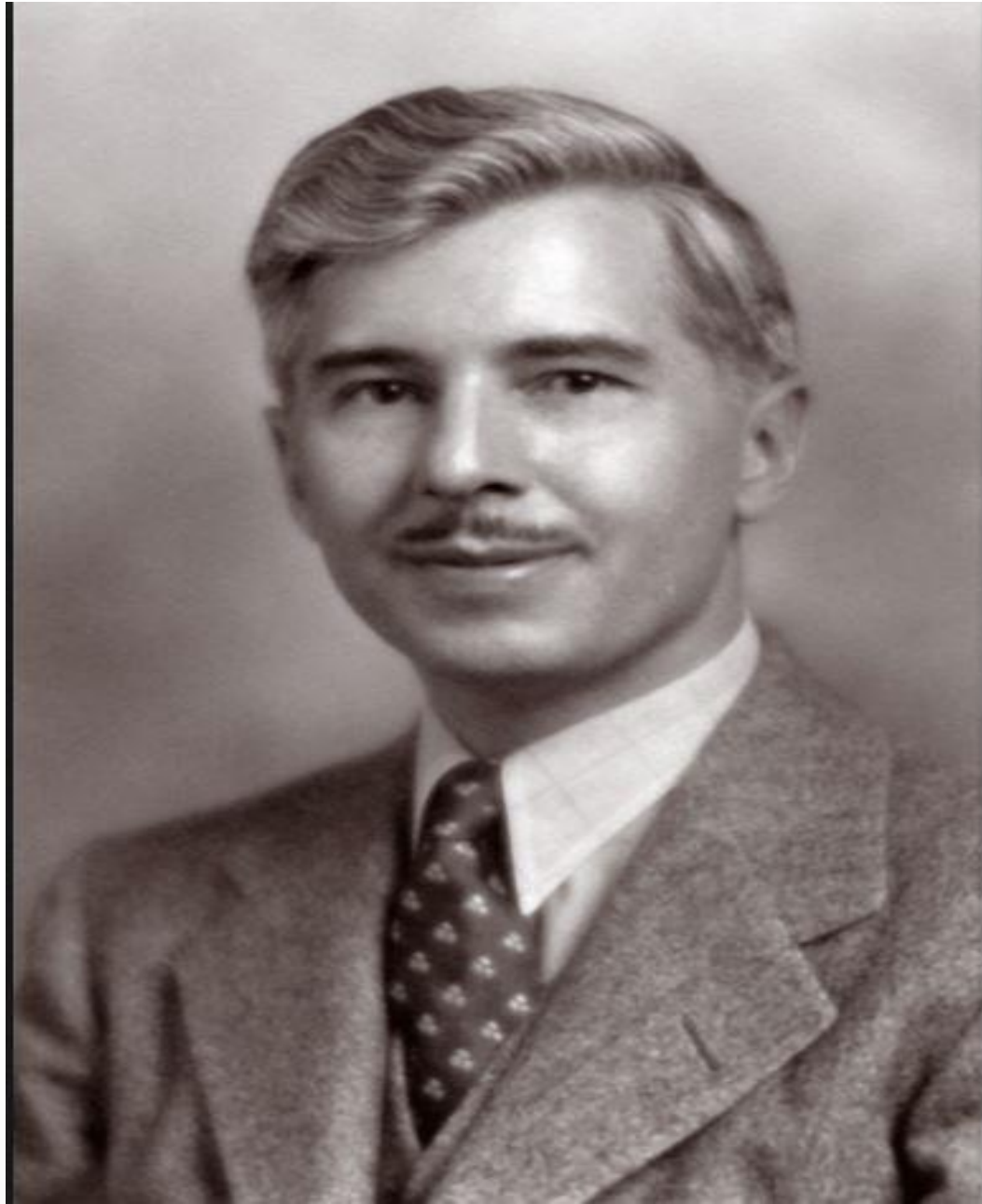
# Dr. James B. Conant (NDRC) 1940 with chemistry and physics friends



# Admiral W. H. P. Blandy, Chief Naval Bureau of Ordnance



# BACHMANN FORMAL PORTRAIT



# WERNER E. BACHMANN (RIGHT SIDE) AT WORK IN THE LAB





# Herb G. Stone, Works Manager



# Wexler Bend Pilot Plant: An Efficient Madhouse



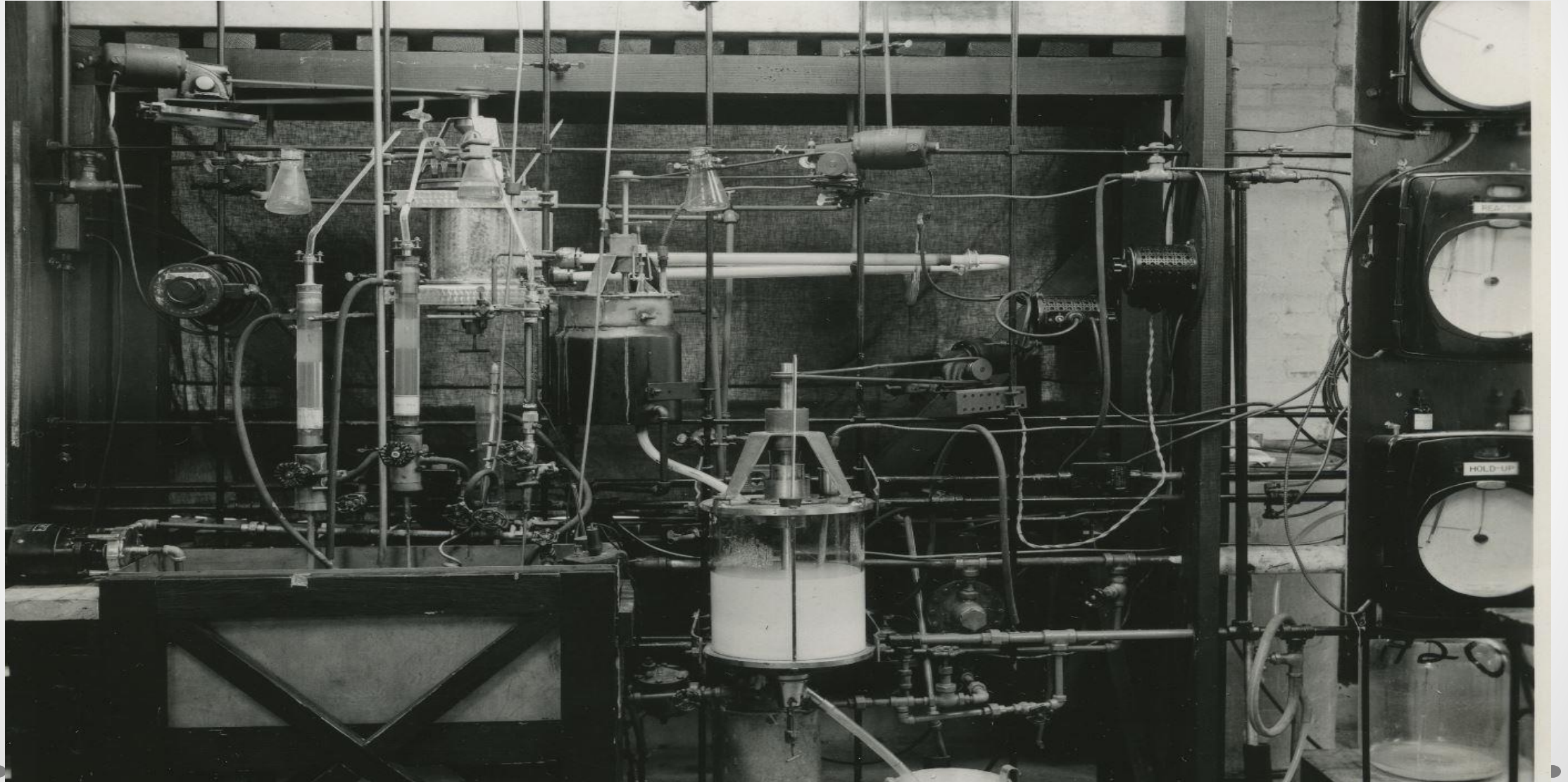
# MERCHANT SHIP SINKING...LIFEBOATS off U.S. East Coast 1942



# THE JEEP: THE CONTINUOUS PROCESS



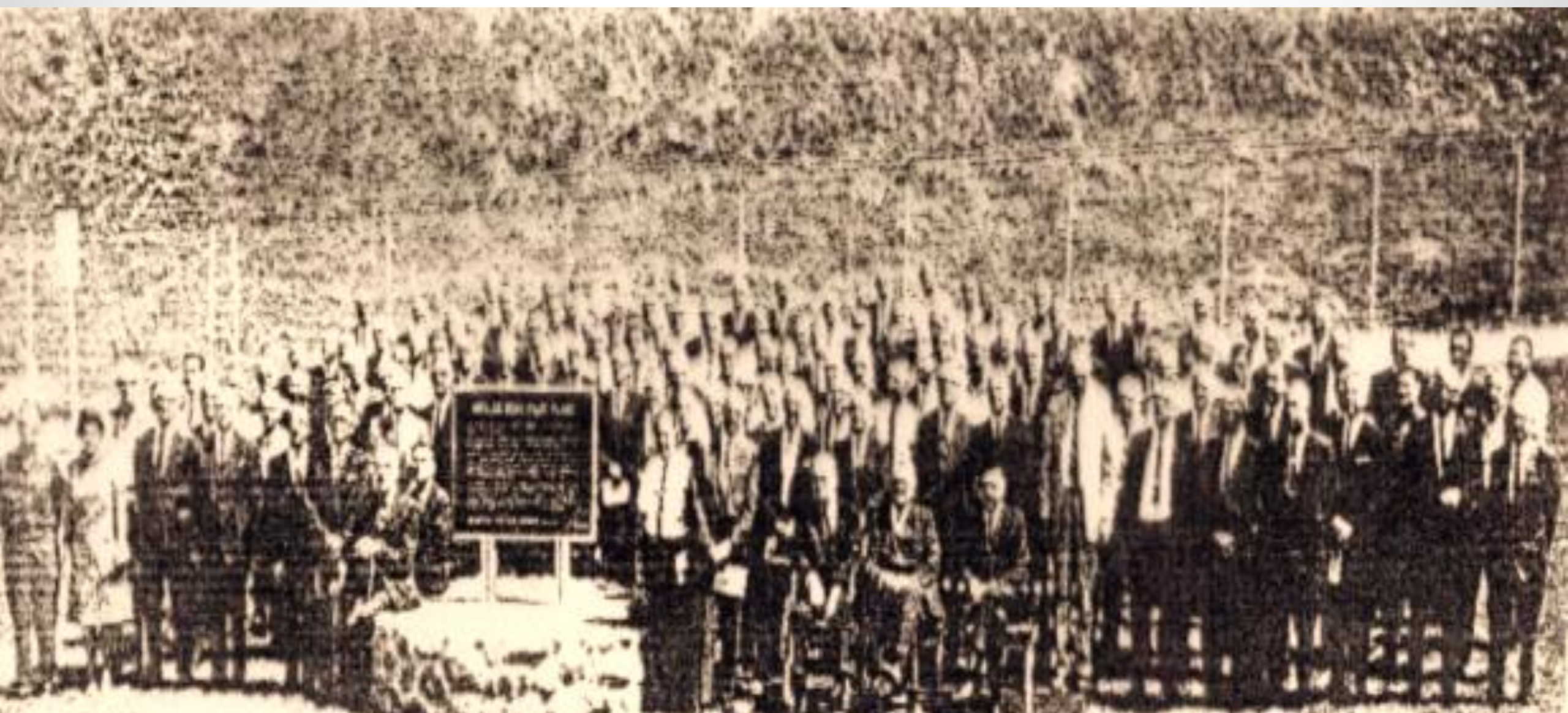
# Continuous Jeep Reactor



# Classified

## Laboratory Continuous Reactor

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## WEXLER BEND PILOT PLANT

ON THIS SITE DURING WORLD WAR II STOOD THE WEXLER BEND PILOT PLANT.

IN THIS PLANT TENNESSEE EASTMAN DEVELOPED A PROCEDURE FOR CONTINUOUS PRODUCTION OF THE EXPLOSIVE, RDX.

WORKING DAY AND NIGHT, THE PILOT PLANT STAFF STARTED THE FIRST SEMI-WORKS PLANT RUN ON FEBRUARY 17, 1942, ONLY 26 DAYS AFTER TENNESSEE EASTMAN WAS ASKED BY THE NATIONAL DEFENSE RESEARCH COMMITTEE TO UNDERTAKE EXPERIMENTAL WORK AND PILOT PLANT OPERATION.

THE WORK AT THE WEXLER BEND PILOT PLANT LED TO THE GOVERNMENT'S AUTHORIZING TENNESSEE EASTMAN ON JUNE 6, 1942, TO DESIGN AND OPERATE THE GREAT HOLSTON ORDNANCE WORKS FOR THE MANUFACTURE OF RDX, THE MOST POWERFUL EXPLOSIVE ANTEDATING THE ATOM BOMB.

TENNESSEE EASTMAN COMPANY JUNE 6, 1942

Kodak

Wexler Bend Power Plant

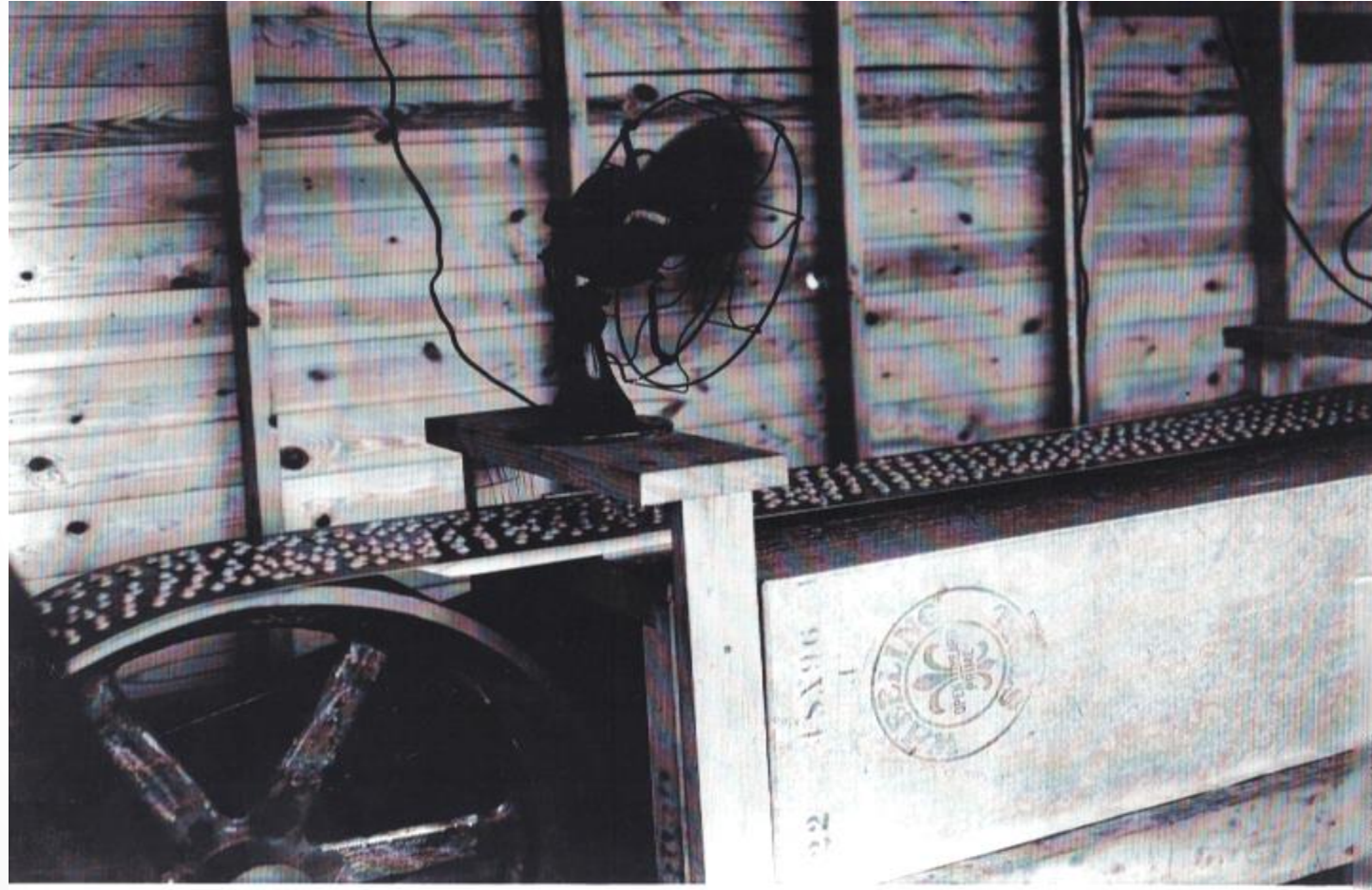
*Site Plaque*



# Horse Creek Pilot Plant Incorporation Bldg.



# Japanese Kisses







# HOLSTON ORDNANCE WORKS

## 1942

• • •

PEAK EMPLOYMENT 18,000 to 20,000 CONSTRUCTION WORKERS

# AERIAL VIEW OF H.O.W. TEN PRODUCTION LINES



# Area A: Raw Materials



# Area B: Slough Bridge





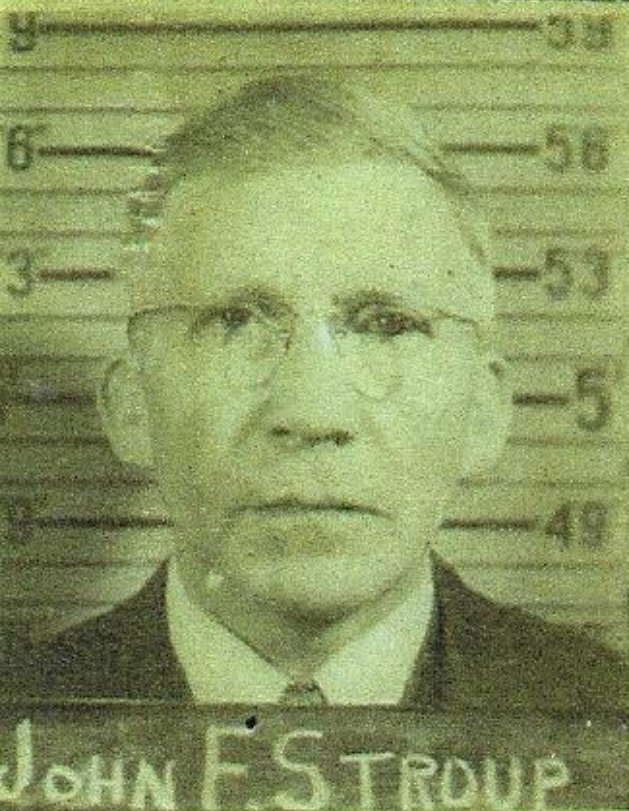
# Pipelines From Bldg. E to Bldg. B



# Interplant Railroad







*This is to certify that*

*J. F. Stroup*

---

*has been a loyal employee of the*

HOLSTON ORDNANCE WORKS

TENNESSEE EASTMAN CORPORATION

*and has rendered valuable services in the construction  
and operation of this war facility.*



Lt. Colonel W.E. Ryan, 1st Commanding Officer of Holston Ordnance Works, with his secretary. 25, September 1943.

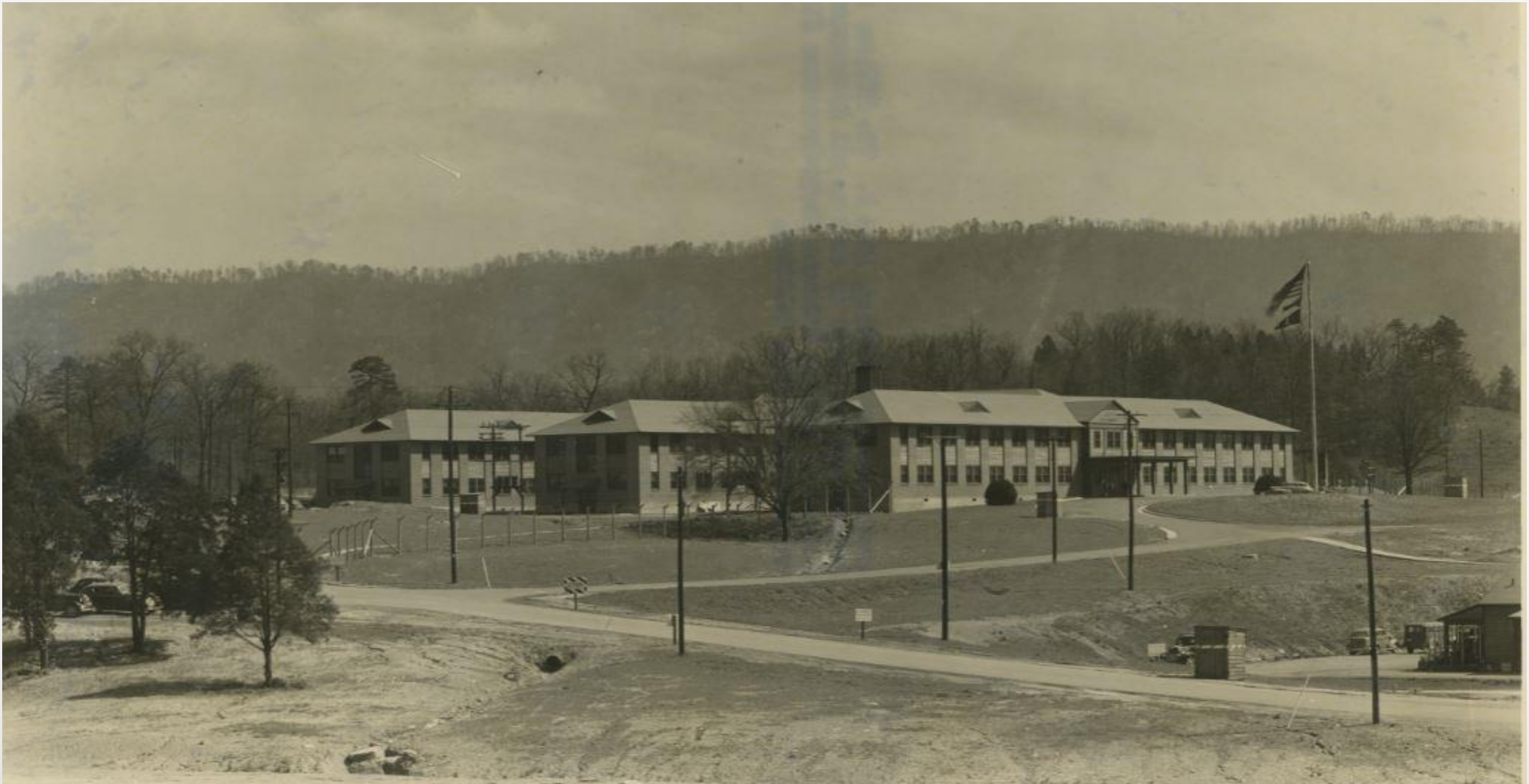
# Ed Guenther, Supt. Explosives Div.



# Lee Davy, Supt. Chemical Controls



# H.O.W. Administration Buildings



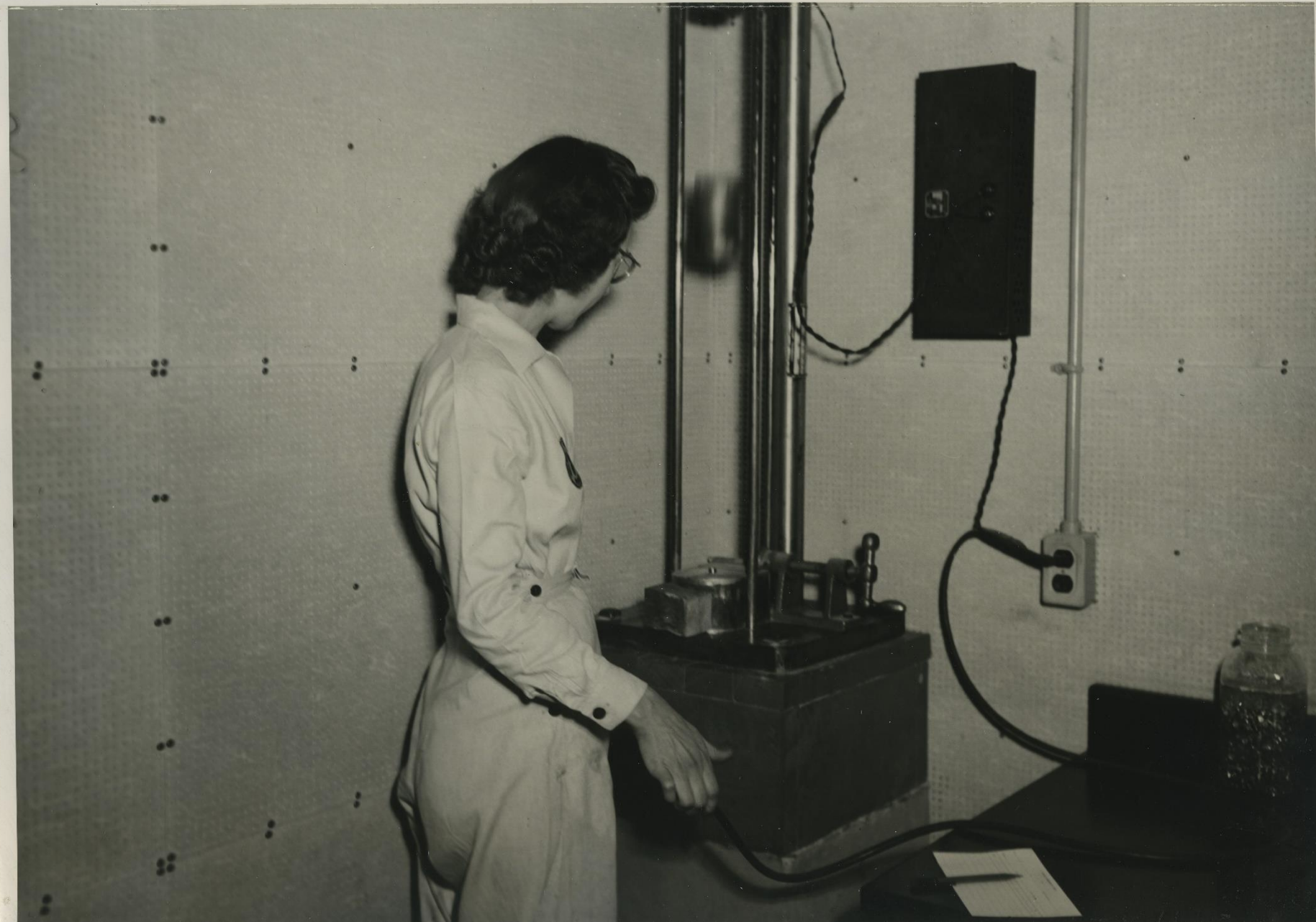




The Victory Buses ran three times a day from Limestone through Bowmantown, Sulphur Springs, and Gray Station to Eastman Chemical and Holston Ordnance defense plants during World War II. With wartime gasoline rationing, a national 30-mile-per-hour speed limit and worker ranks thinned by military service, plant owners bused workmen and women in from all over the three-state area.



The Limestone route for the Victory Bus that ran to Kingsport during World War II went through the villages of Bowmantown and Sulphur Springs three times a day, taking workers to the defense plants in Kingsport, primarily Tennessee Eastman and Holston Ordnance.









# Lady Chauffeurs



# Unloading TNT



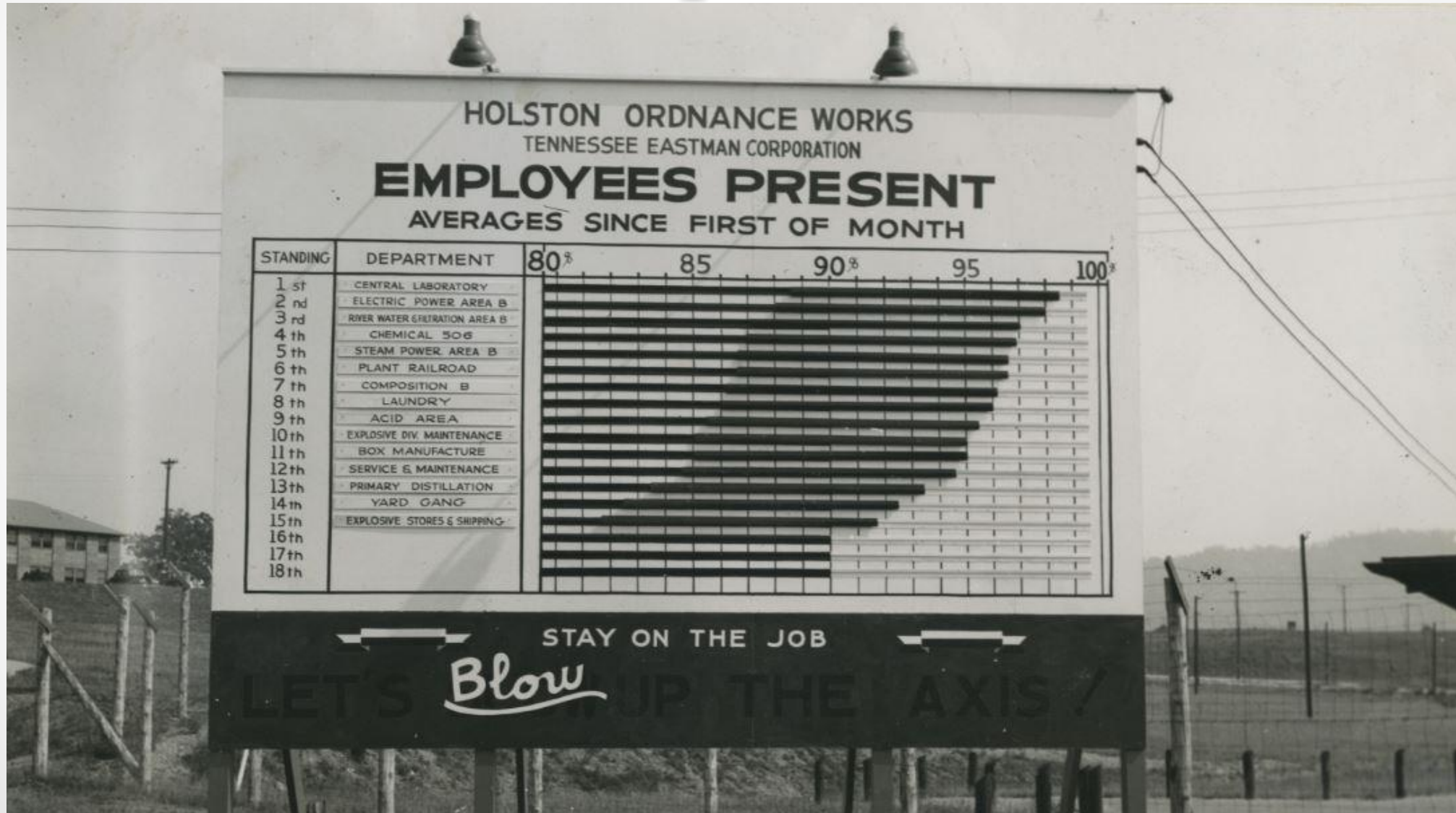


# Composition B “Beehive” Magazine





# Presentee Bulletin Board: Let's Blow up the Axis



# HOLSTON EMPLOYEES:

YOU WILL BE  
INTERESTED IN  
THESE TWO  
CLIPPINGS FROM  
RECENT NEWS-  
PAPERS.

Oct. 28, 1944

## **RDX REPLACES TNT, PULLS NAZI 'DRAGONS' TEETH'**

Boston, Mass., Oct. 11 (AP).—Known only by the cryptic symbol "RDX," a super-explosive was built by army ordnance for engineers to blast a way thru miles of concrete anti-tank defenses on the approaches to Aachen.

Col. H. B. Sheets, commander of the Boston ordnance district, explained that these obstacles, "known as 'dragons' teeth' and looking like Martian molars," had to be leveled to permit passage of tanks and other combat vehicles. Aerial reconnaissance disclosed the "teeth" and army ordnance was put on the job. The result is "RDX" which takes up much less space than TNT and, said the colonel, is much more effective.

The Engineers, said the colonel, placed the plastic explosive around the bases of the obstacles, embedded a detonator cap, withdrew to a safe distance and then blasted the obstacles.

*Henry H. Brown*  
WORKS MANAGER

## **EARTHQUAKE BOMB PROVES EFFECTIVE**

### **Hailed as War's Most De- structive Air Weapon**

By HENRY B. JAMESON  
LONDON, Oct. 14 (AP).—The air ministry announced tonight that the RAF has been breaking dams, sea-walls, and submarine pens recently with a new-type, 12,000-pound earthquake bomb which it described as "undoubtedly the most destructive air weapon ever used."

The big weapon combines great penetrative power with a terrific blast effect, the air ministry said, adding that "no other bomb used in this war, either by ourselves or by the enemy, has had these two advantages."

"Even the old-type, 12,000-pound factory buster detonated on the surface and destroyed its target by the blast alone," the ministry observed.

#### **Nazi Bomb A Toy**

The blast of either one makes that of the Nazi flying bomb look like a toy.

The new bomb is three times the size of the original blockbusters, one of which is known to have destroyed at least 30 buildings during an attack on Emden. That would mean that under the same conditions the "earthquake" might flatten up to 100 buildings.

Scientists estimate that its blast damage covers an area of approximately 80,000 square yards.

It is streamlined so that it will penetrate into the earth even from moderate altitudes. It carries a delayed action fuse so that the bomb does not explode until it is inside or under its target. The head contains the heaviest possible charge of "a very powerful explosive."

Its extraordinary penetrative power was shown in recent attacks on the submarine pens at Brest. They were among the strongest shelters ever built by man, with concrete roofs 12 feet thick.

"Four 12,000-pounders hit the roof and drilled their way right through the concrete to explode inside," the air ministry declared.

The new bombs also have been used with great success in knocking out formidable German long-range weapon sites. One of them dropped on a hillside in France buried hundreds of flying bombs the Germans had stored in limestone caves.

It took only one to put the big German battleship Tirpitz out of action, probably for the duration. They also were used to drain the vital Dortmund-Ems canal, to crumble the sea walls around Walcheren island off the Dutch coast where the Germans had long-range guns and to smash the Dembs dam in southern France.

# Ground troops destroy dragon's teeth on Siegfried Line





# Women's Barracks







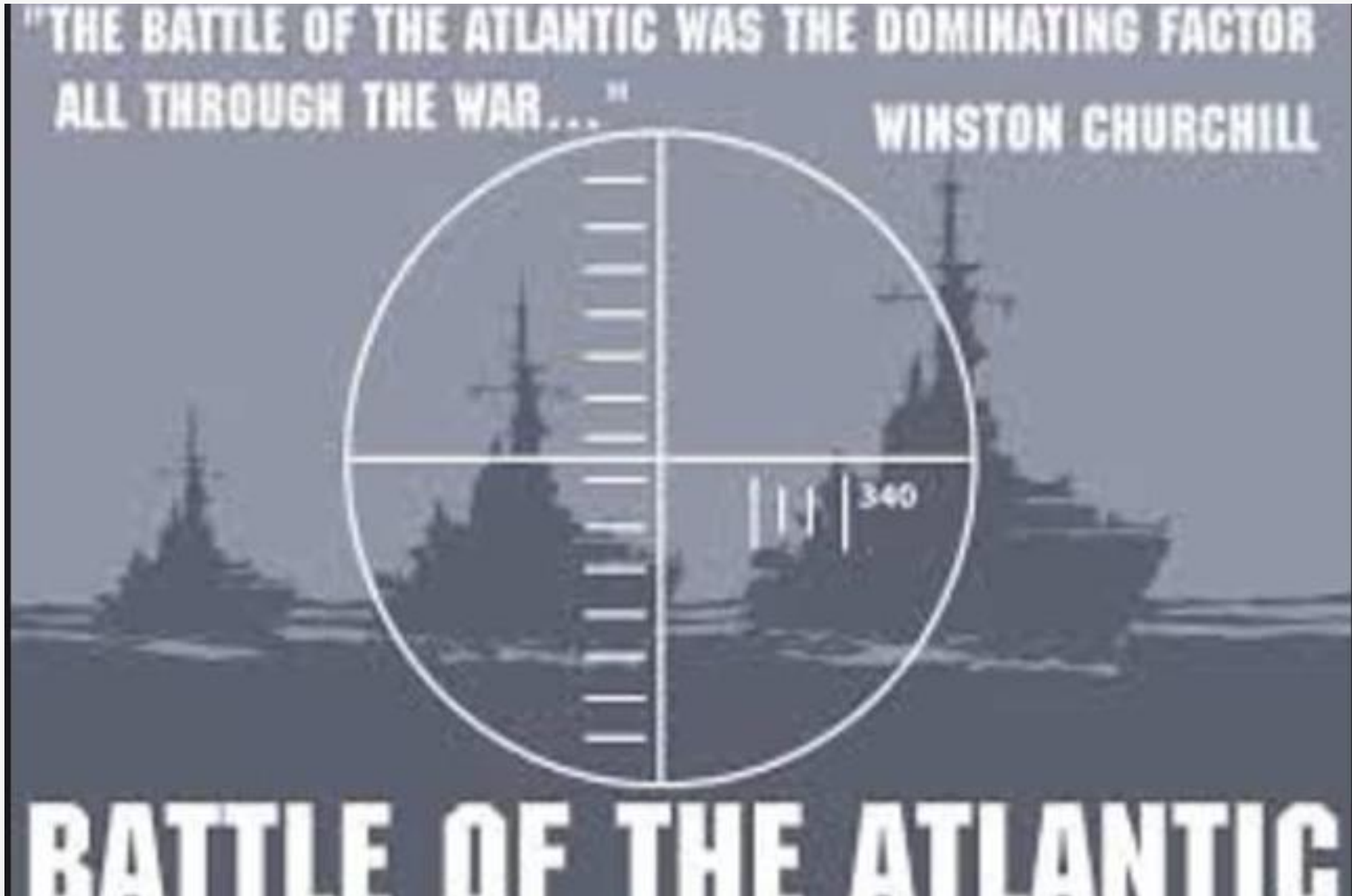








# BATTLE OF THE ATLANTIC



# Loading a Torpex Depthcharge



# AVENGER ATTACKS FROM USS BOGUE

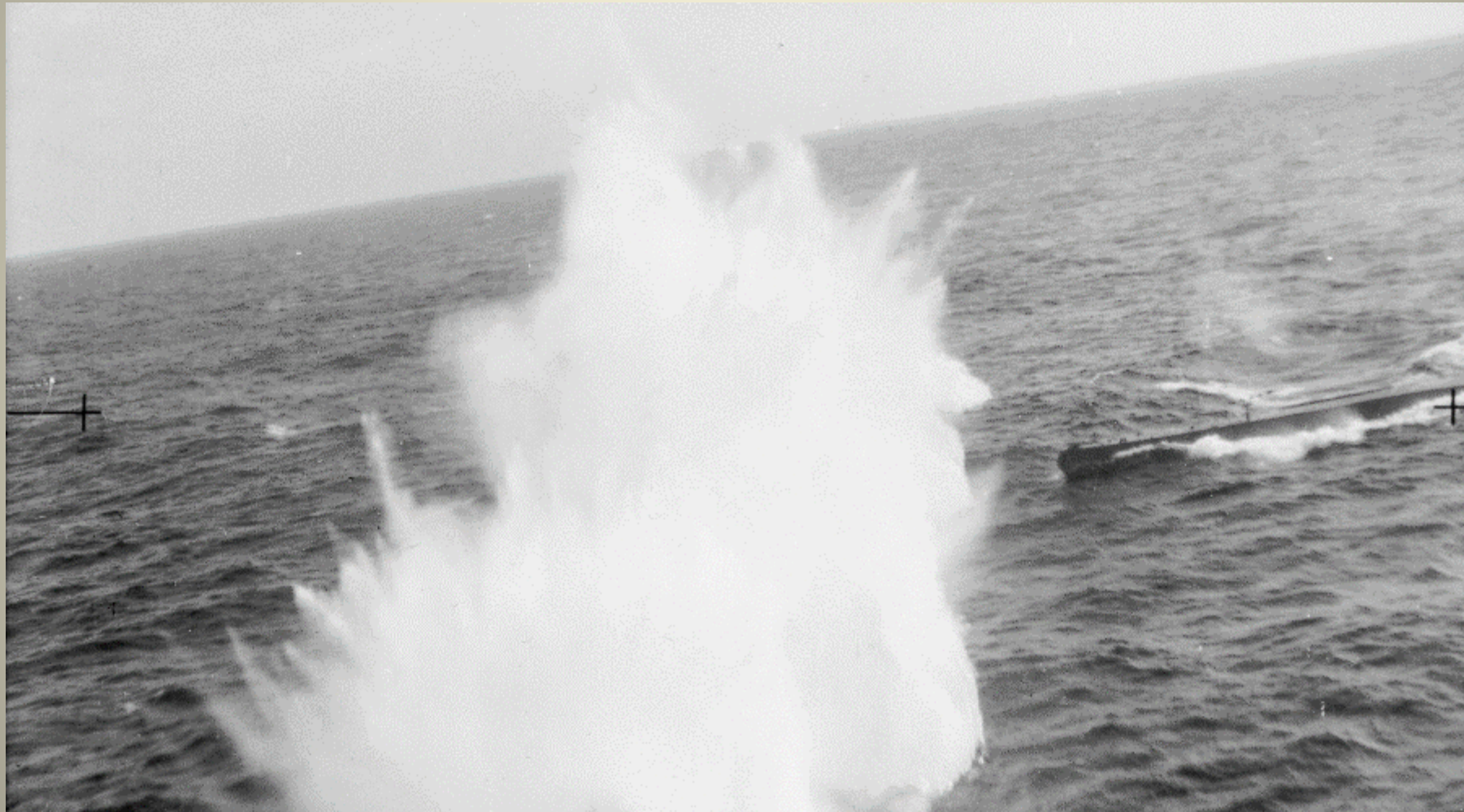


# U-Boat after the attack





# AIRCRAFT DROPPING TORPEX AERIAL DEPTH CHARGES ON U-BOATS



# LIBERATOR WITH LEIGH LIGHT DROPS TORPEX DCs ON U-BOAT



# THE 22,000 POUND GRAND SLAM EARTHQUAKE BOMB




# LOADING B-29 BOMBERS WITH COMP B

The July 10 issue of Life shows the road  
Composition B takes from Holston to Japan.



# *Dambusters' Raid on the Ruhr*



On May 16, 1943, Avro Lancasters of the Royal Air Force's No. 617 Squadron, flown by Flight Lt. Harold Martin (foreground) and Wing Commander Guy Gibson (at upper left), try to draw anti-aircraft fire away from Squadron Leader H.M. Young's plane (at lower left), whose bomb exploded just after he cleared the Möhne dam, in Robert Taylor's Operation Chastise (Military Gallery, Ojai, Calif.).

A handful of specially trained pilots dealt a blow to the industrial heart of Germany with their 'bouncing bombs.'

*By Patrick Cooney*

It was almost dark when Royal Air Force Wing Commander Guy Gibson wheeled his bomber G-George between two other Avro Lancasters waiting on Scampton's grass airfield on the night of May 16, 1943. The 25-year-old commander of RAF No. 617 Squadron made his final cockpit checks, then raised his thumb to the flight-control truck, whose Aldis lamp flashed the message, "Take off."

Gibson eased the throttles forward until G-George shuddered, then he flicked off the brakes and the Lancaster began to roll. The tail lifted and G-George wanted to fly, but Gibson held the nose down. As the fence came into sight, he coaxed back the stick and climbed slowly into the sky

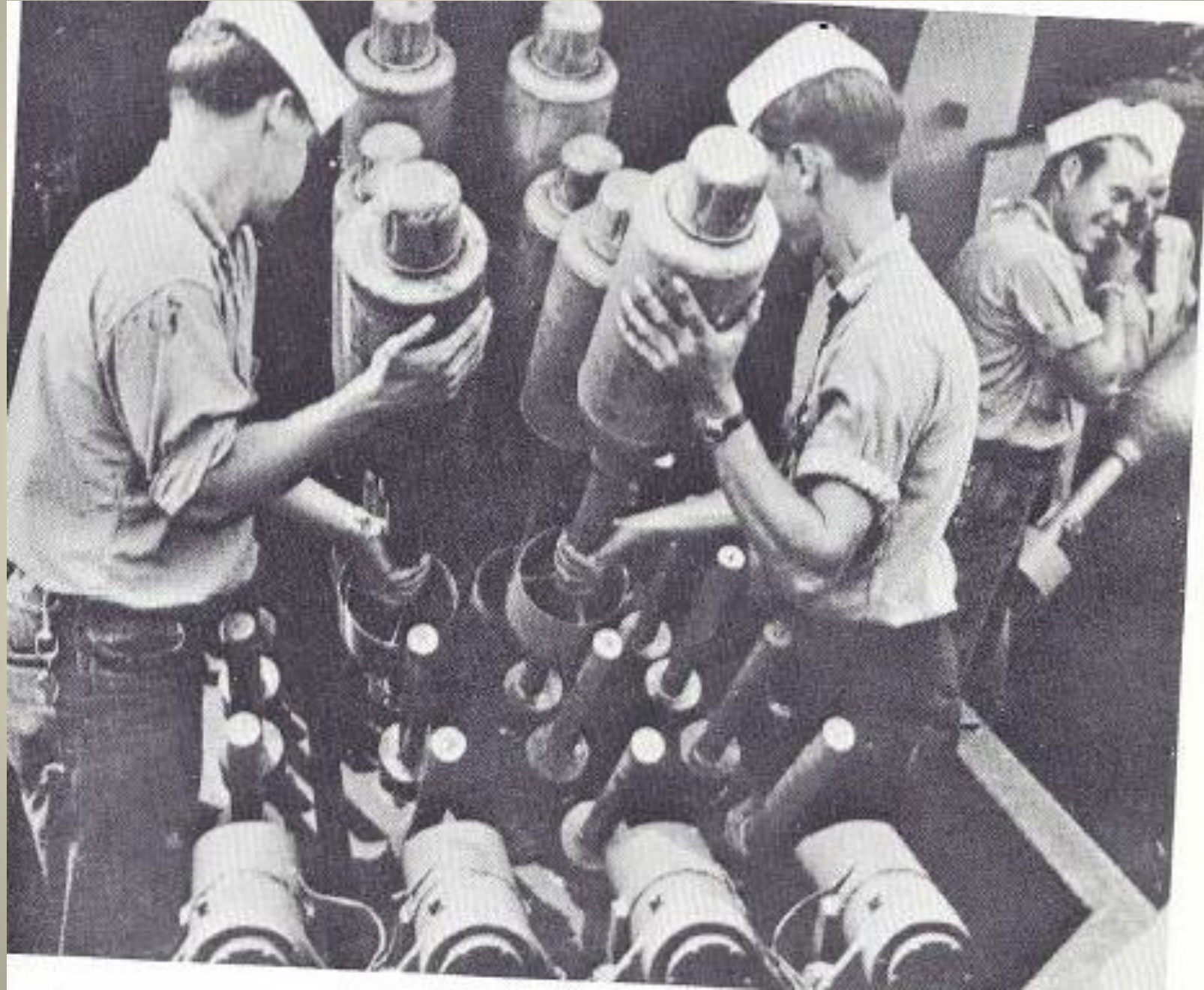
# Tallboy Bombs Sink the Battleship Tirpitz



# Tirpitz finally turtled



# HEDGEHOG ANTISUBMARINE WEAPON ARMED WITH TORPEX

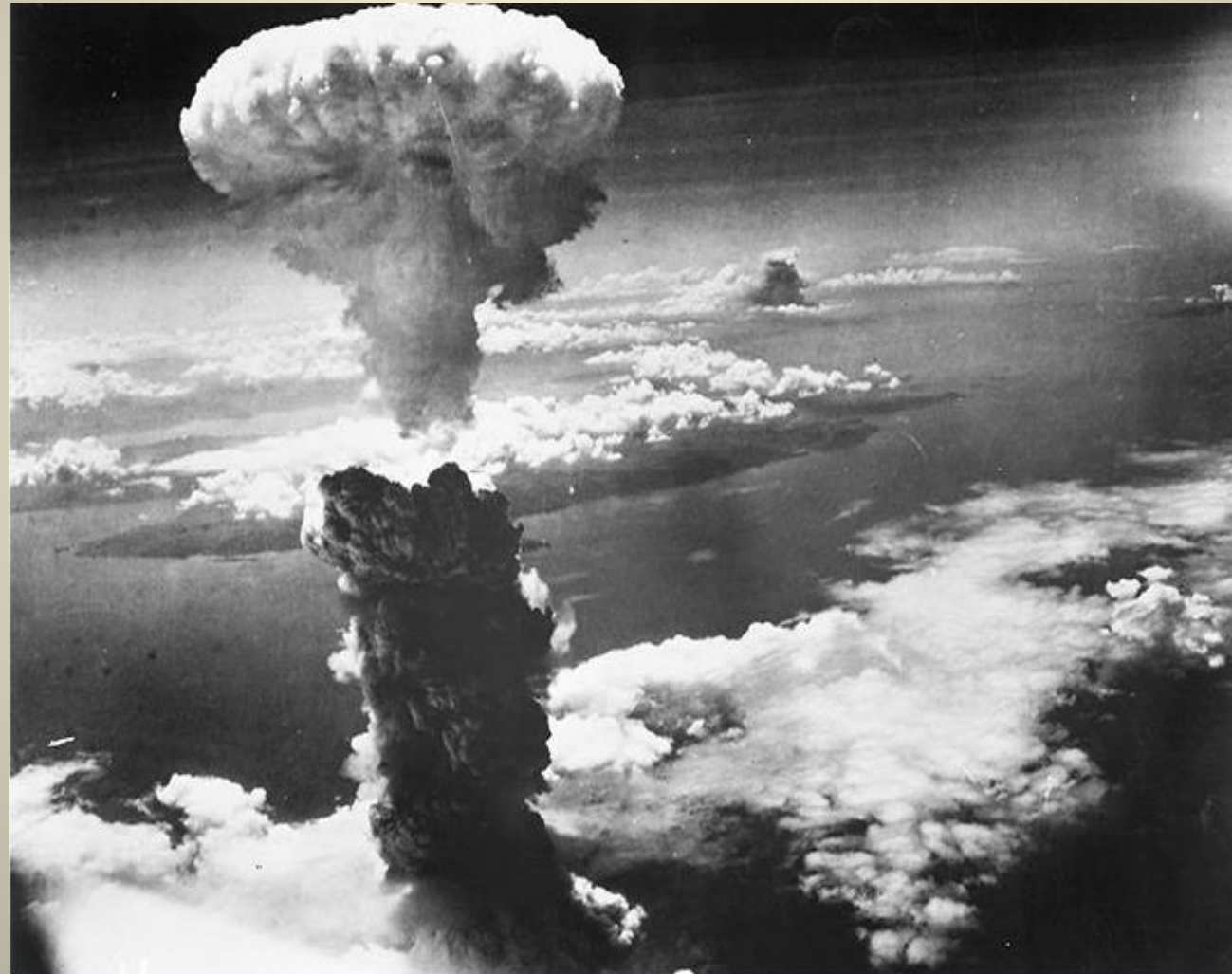






Utica, N.Y.-June 20-Alfred Dean Slack, Syracuse chemist, shown escorted by deputies. He will be taken to Knoxville, Tenn., today to face a charge of espionage. Acme Telephoto

# COMPOSITION B HELPS TO END THE WAR



Thank you for your time today and please feel free to ask any questions.

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