



# OPPENHEIMER

WHAT HAPPENED TO OPPENHEIMER 1945-1954

AND

WE (?) GREW UP WITH THE BOMB

# RECAP OF THE MOVIE

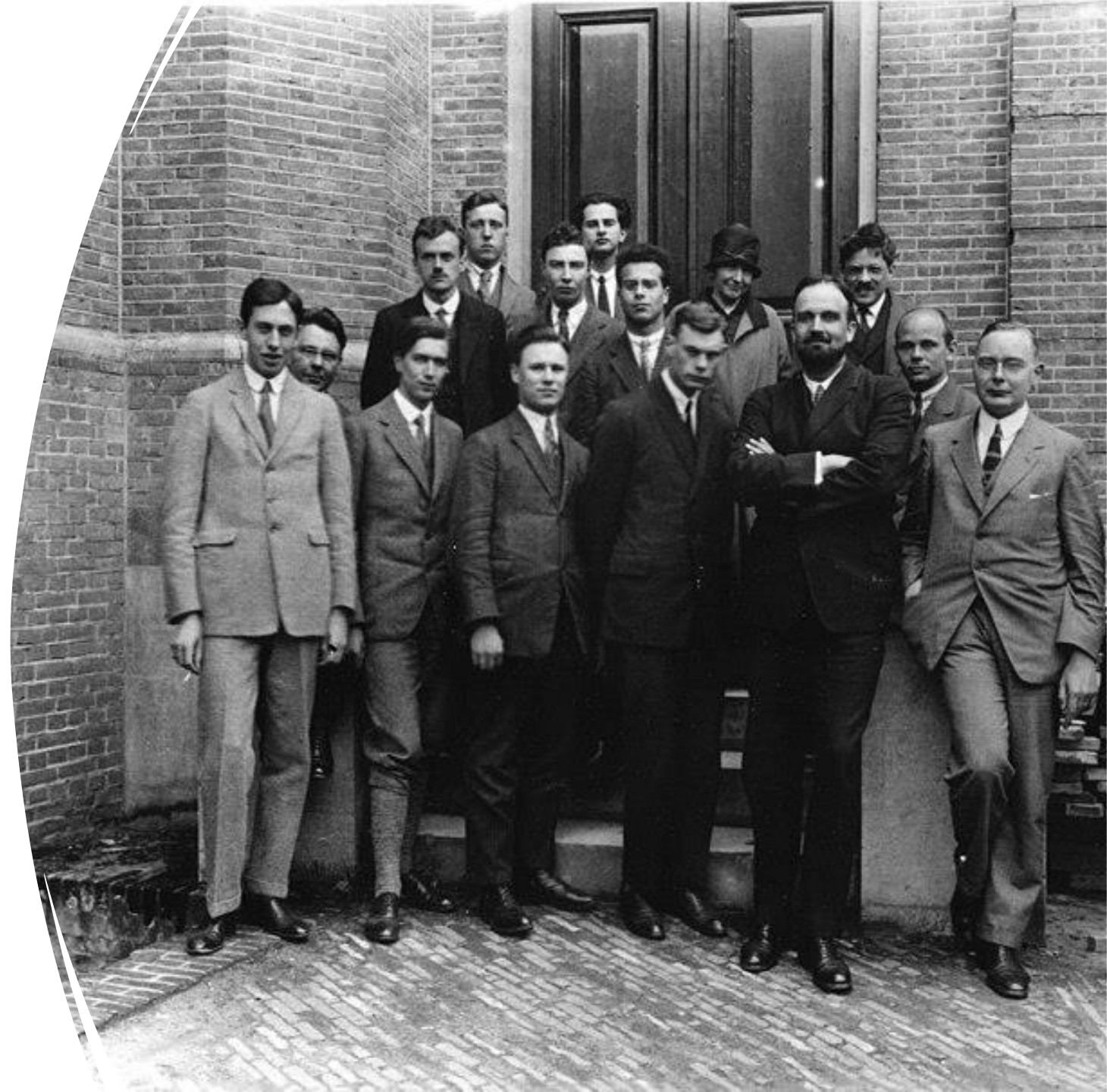
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- OPENS WITH THE SECURITY HEARINGS OF 1954
- SHIFTS TO OPPENHEIMER'S YOUTH
- HIS EDUCATION
- HIS EARLY CAREER



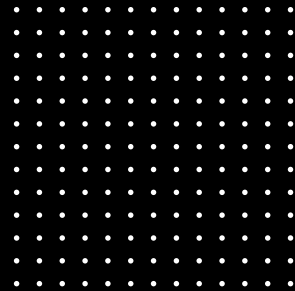
# OPPY'S TIME IN GERMANY

- GERMANY WAS THE BIRTHPLACE OF NUCLEAR PHYSICS AND QUANTUM MECHANICS (OR PHYSICS)---MAX BORN, MAX PLANCK AND NIELS BOHR
- THE GREAT STUDENTS OF THE 1920'S—WERNER HEISENBERG, FERMI, OPPENHEIMER, TELLER, GEROGE GAMOV, LEW LANDAU





# THE MOVIE



- HIS LIBERAL LEANINGS AND ASSOCIATION WITH THE COMMUNIST PARTY
- HIS SELECTION TO THE MANHATTAN PROJECT
- DEVELOPMENT OF THE A-BOMB
- THE TRINITY TEST OF JULY 16<sup>TH</sup> 1945

# WHAT HAPPENED BETWEEN 1945 AND 1954

AFTER THE TRINITY TEST THE MOVIE  
SHOWS TWO ARMY TRUCKS HAULING  
CRATES OUT OF THE GATE AT LOS  
ALAMOS



# WHERE WERE THEY GOING AND WHY?

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- HEADING TO MARE ISLAND SHIPYARD IN VALLEJO CALIFORNIA
- CARRYING TWO ATOMIC BOMBS TO BE LOADED ABOARD USS INDIANAPOLIS (CA 35)



# THE BOMBING OF JAPAN

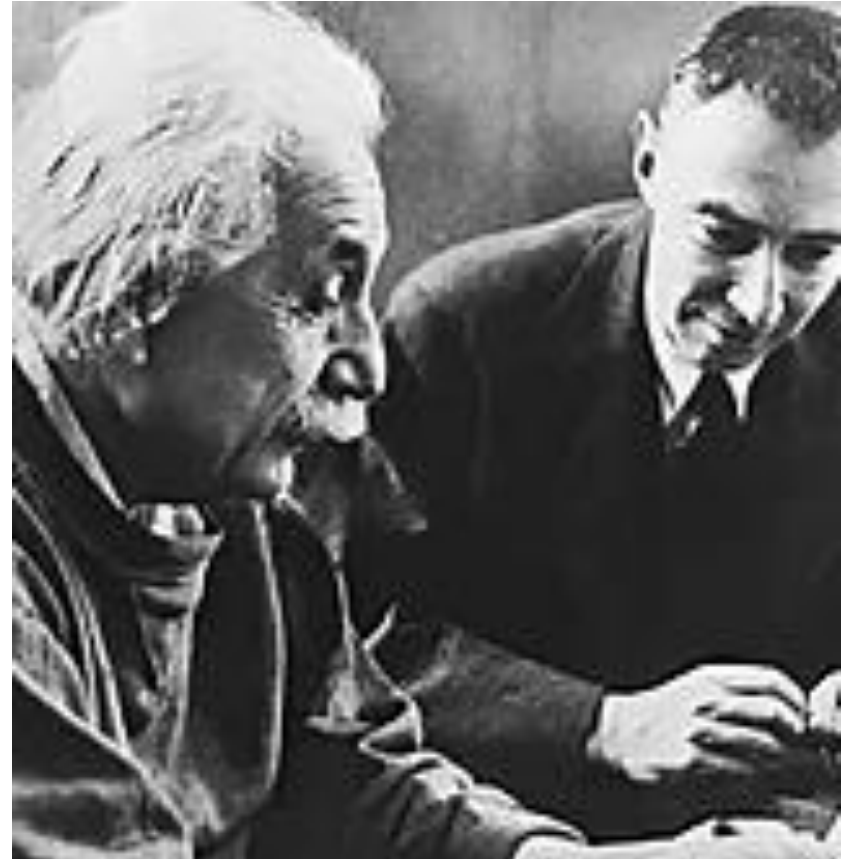
- HIROSHIMA, August 5<sup>th</sup> 1945
- NAGASAKI, August 9<sup>th</sup> 1945
- JAPAN SURRENDERS, August 14<sup>th</sup> 1945



# WHAT NEXT?

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- IN SPITE OF THE TRINITY TEST AND THE TWO BOMBS DROPPED ON JAPAN, THE A-BOMB HAD NOT REALLY BEEN TESTED UNDER THE PROPER CONDITIONS
- A PLAN FOR TESTING WAS QUICKLY PUT TOGETHER
- IN NOVEMBER 1945 OPENHEIMER LEAVES THE MANHATTAN PROJECT FOR A TEACHING JOB AT CALTECH





# JOINT TASK FORCE ONE

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- JTF-1 IS FORMED IN LATE 1945
- VADM BLANDY IS SELECTED BY JOINT CHIEFS TO THE JTF-1, WITH PRESIDENTIAL APPROVAL
- BLANDY SELECTS BIKINI AS THE TEST SITE AND NAMES THE OPERATION “CROSSROADS”



# HOW DO I KNOW SO MUCH ABOUT WHAT HAPPENS THEN?

- I LITERALLY GREW UP WITH THE BOMB
- MY DAD WAS JOHN JEROME FEE
- WHO WAS HE?



# JACK FEE

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- BORN IN 1913
- HIS FATHER, JEROME JOHN FEE, DIED IN 1920, SPANISH FLU
- RAISED BY HIS MOTHER AND UNCLE
- GREAT WORK ETHIC
- SELECTED TO US NAVAL ACADEMY IN 1931, GRADUATES IN 1935
- ENSIGN FEE ORDERED TO THE BATTLESHIP NEVADA



# LT(jg) FEE JOINS THE CONSTRUCTION CORPS

- SENT TO MIT IN 1937
- LEAVES MIT IN 1940
- SENT TO PUGET SOUND NAVAL SHIPYARD
- PEARL HARBOR, DECEMBER 7<sup>TH</sup> 1941
- FINALLY SENT OFF TO THE WAR IN 1943
- JUNIOR OFFICER ON THE PLANNING FOR THE CENTRAL PACIFIC CAMPAIGN



# THE PLAN

ISLAND HOP ACROSS THE PACIFIC

*Pacific Ocean*

# ADMIRAL NIMITZ APPROVES THE PLAN

An aerial photograph of a vast fleet of cargo ships, likely container vessels, scattered across a large body of water. The ships are seen from a high angle, showing their hulls and superstructures. The water is a deep blue, and the lighting suggests a late afternoon or early morning setting, with some ships appearing to have their lights on. The ships are of various sizes and colors, including red, blue, and white.

- 5,000 SHIPS ASSEMBLED (the world's biggest armada)
- THE SERVICE FORCE SHIPS

# USS CASCADE AD 16

FLAGSHIP FOR SERVICE SQUADRON 10



## SERVICE SQUADRON 10 ON THE MOVE

- TARAWA, MAKIN, KWAJALEIN
- ENIWETOK, ULITHI
- MARIANAS, PHILIPPINE SEA,  
LEYTE GULF
- IWO JIMA , OKINAWA





# COMMANDER JACK FEE FINALLY COMES HOME

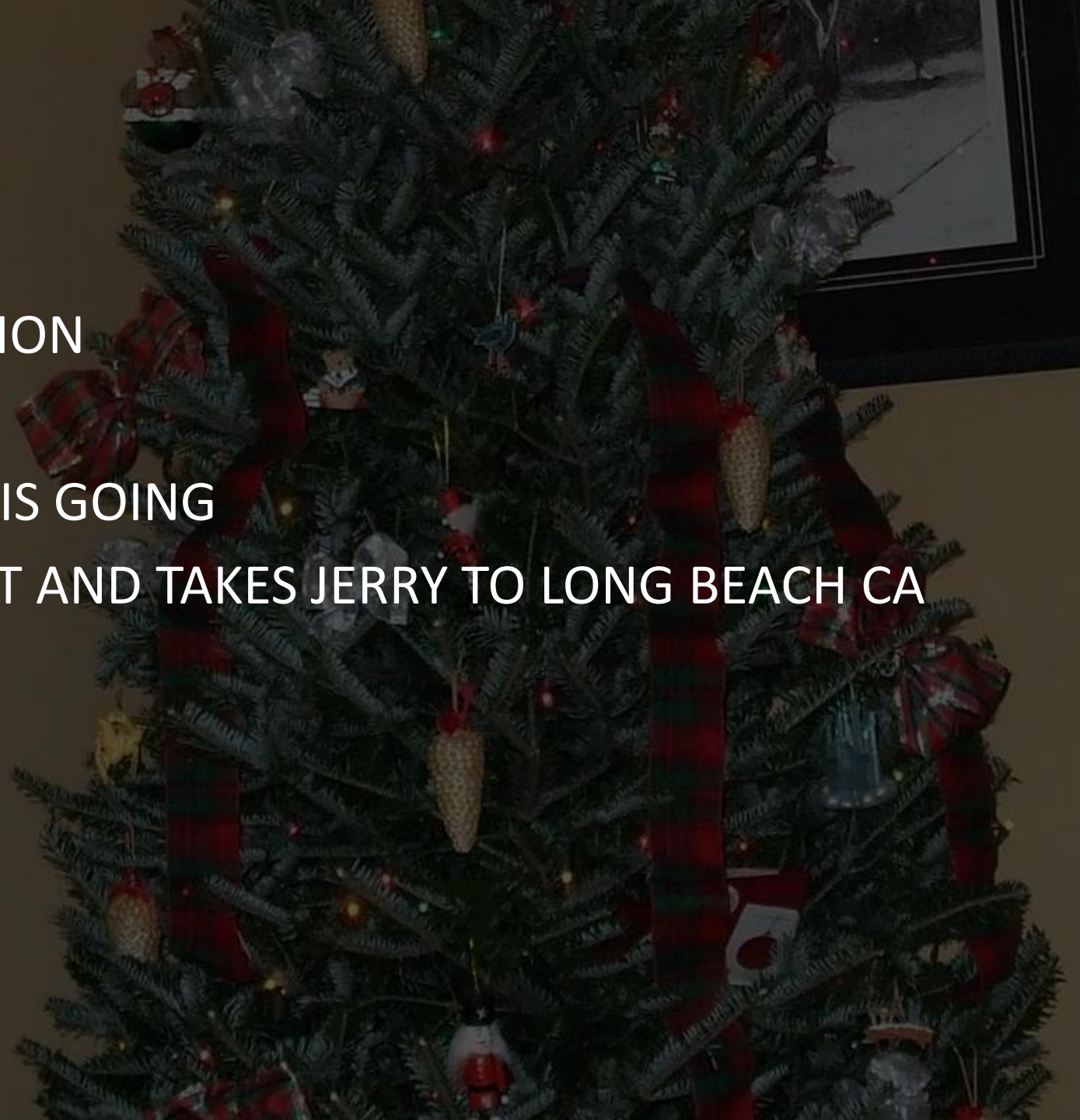
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- August 1945, gone almost 2 and ½ years
  - We head to Washington D. C.
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# CHRISTMAS 1945

- GOING ON A SECRET MISSION
- COULD BE MONTHS
- CAN'T TELL US WHERE HE IS GOING
- MARGIE FEE THROWS A FIT AND TAKES JERRY TO LONG BEACH CA



# WHERE IS HE GOING: BIKINI



- THE BIKINI TESTS WERE VERY CONTROVERSIAL
- FINAL APPROVAL DID NOT COME UNTIL JANUARY 1946
- THE ARMY WANTED GENERAL GROVES TO HEAD THE TESTS
- PRESIDENT TRUMAN WANTED ADMIRAL PARSONS FOR THE JOB
- PARSONS WORKED FOR BLANDY



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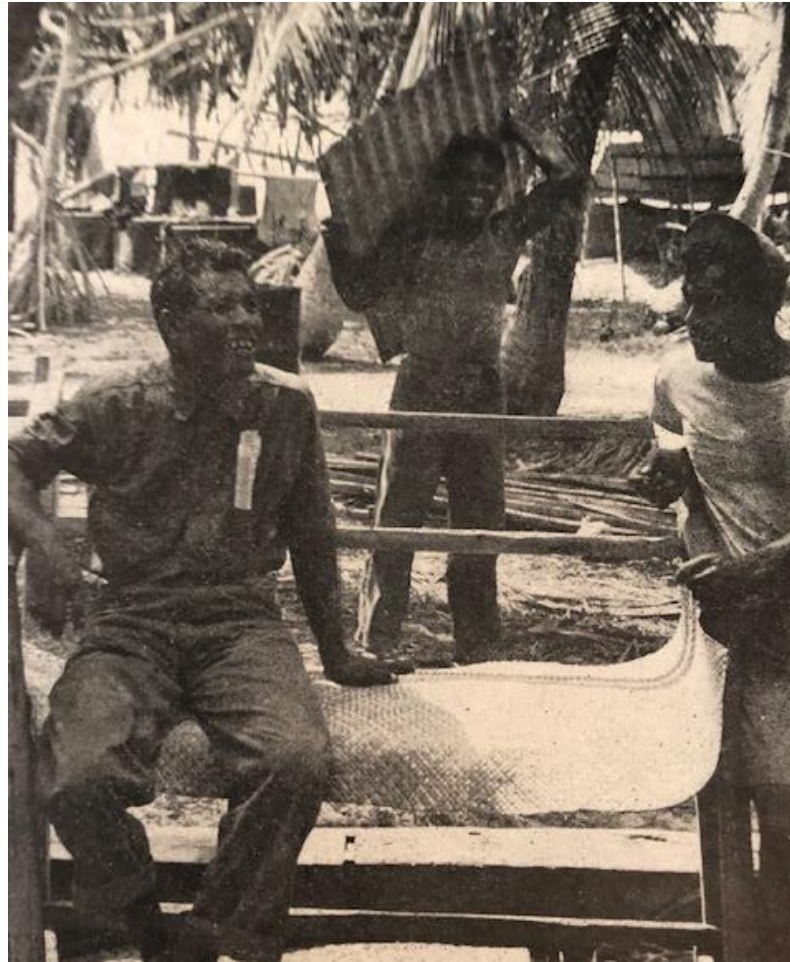
# WHAT WAS ADM BLANDY'S BACKGROUND



- AT THE BEGINNING OF THE WAR BLANDY WAS THE CHIEF OF THE NAVY'S BUREAU OF ORDINANCE AND GUNNERY
- BLANDY WANTED TO GET OUT TO THE WAR AND FIGHT
- IN 1945 HE WAS PICKED TO HEAD THE AMPHIBIOUS LANDINGS AT IWO JIMA AND OKINAWA UNDER ADMIRALS HALSEY AND SPRUANCE
- BY THEN CDR JACK FEE HAD RISEN TO BE THE FLEET MAINTENACE OFFICER AND WORKED CLOSELY WITH BLANDY. THEY FORMED A BOND

# WHY BIKINI?

- ISOLATED
- AIR STRIP WITHIN RANGE
- SMALL POPULATION THAT WOULD AGREE TO MOVE
- GOOD WEATHER
- PROPER ANCHORAGE FOR TARGET SHIPS



# WHAT WAS THE OBJECT OF THE TESTS?

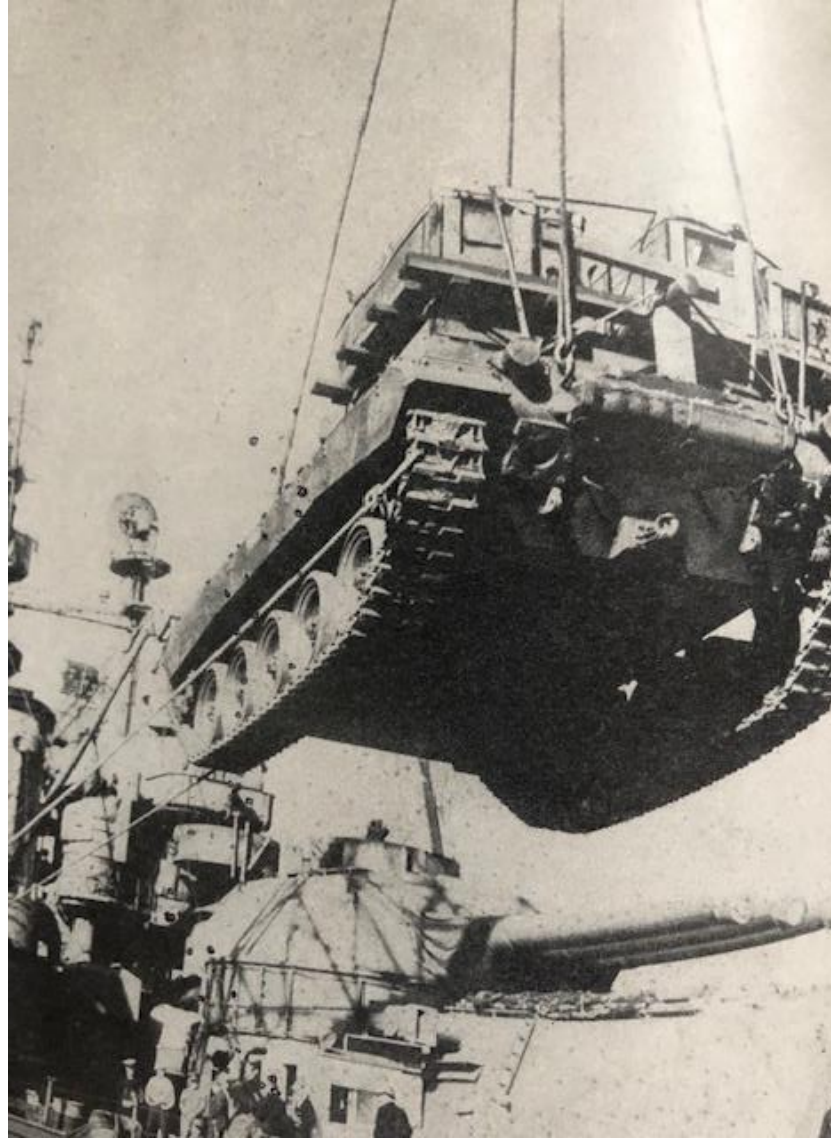
WHAT AMOUNT AND TYPE OF DAMAGE WOULD THE BOMB HAVE ON TANKS, SHIPS AND OTHER STRUCTURES?

WHAT DEFENSIVE MEASURES COULD BE TAKEN TO MINIMIZE DAMAGE?

WHAT KIND OF RADIATION TAKES PLACE AND HOW LONG DOES IT LAST?

# PREPARATIONS

- 81 OLDER SHIPS MOVED TO BIKINI
- TANKS, AIRPLANES AND OTHER MILITARY VEHICLES
- ANIMALS
- INSTRUMENTATION



# THE SHIPS

- US CARRIERS SARATOGA AND INDEPENDENCE
- US BATTLESHIPS ARKANSAS, NEW YORK, NEVADA AND PENNSYLVANIA
- JAPANESE CARRIER SAKAWA AND BATTLESHIP NAGATO
- GERMAN HEAVY CRUISER PRINCE EUGEN





# THE VIP'S



RUSSIAN OBSERVERS BOARD THE PANAMINT.  
At Oakland, California, Lt. (j.g.) G. W. Osten  
checks in Russian observers as they board the  
"Panamint" bound for Bikini. These scientists from  
the Soviet Union were part of the United Nations

- GEN. KENNEY,  
COMMANDER OF SAC,  
STUART SYMINGTON, AST.  
SEC. OF WAR AND GEN.  
CURTIS LEMAY
- RUSSIANS DR.  
ALEXANDROV AND DR.  
MESCHERYAKOV

# THE TESTS

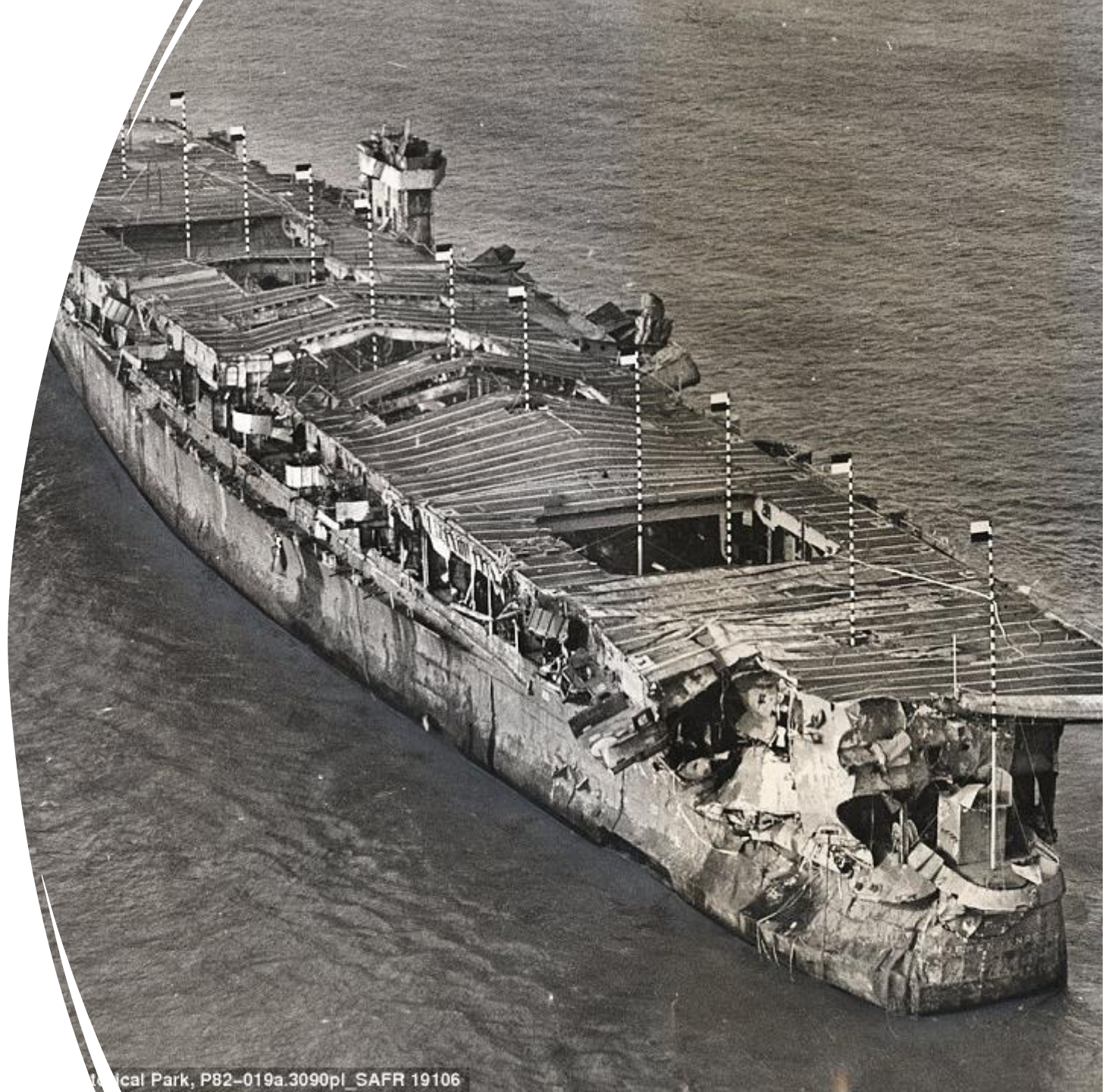
- TEST ABEL ON 1 JULY 1946 (AIR BLAST)
- TEST BAKER ON 25 JULY 1946 (UNDERWATER BLAST)



# WHAT DID WE LEARN

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- THE AIR BLAST, TEST ABEL—LESS RADIATION THAN EXPECTED, ONLY 5 SHIPS SANK, BUT THE REST HAD A HUGE AMOUNT OF TOPSIDE DAMAGE.



MORE SHIPS SANK,  
MORE RADIATION THAN  
EXPECTED

# THE UNDERWATER TEST, TEST BAKER



# FURTHER TESTS?

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- TEST CHARLIE DID NOT HAPPEN
- TONS OF DATA FROM ABEL AND BAKER
- JACK FEE RETURNS HOME IN LATE AUGUST 1946



## 1947-THE ATOMIC ENERGY COMMISSION (AEC) IS FORMED



- CONTROL OF ALL NUCLEAR MATTERS WOULD BE TRANSFERRED FROM THE MILITARY TO THE AEC
- THE AEC IS TO BE LED BY 5 COMMISSIONERS AND CHAIRED BY DAVID LILEINTHAL
- WHERE'S OPPENHEIMER?



# THE GAC IS FORMED

OPPENHEIMER IS LURED AWAY FROM CALTECH BY PRINCETON TO CHAIR THE GENERAL ADVISORY COUNCIL



# DAVID LILIENTHAL



- HE WAS A CONTROVERSIAL PICK
- A WEALTHY POLITICIAN WHO WAS PICKED TO HEAD THE TVA
- HE WAS ONE OF FIVE COMMISSIONERS PICKED TO RUN THE AEC
- FRICTION DEVELOPED BETWEEN THE ARMY AND AEC AND WITHIN THE AEC
- DEBATE ON WHAT SHOULD HAPPEN WITH THE A-BOMB AND THE SUPER BOMB





## THE OTHER MAJOR 1947 DECISION

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- THE DATA FROM THE BIKINI TEST IS SO VAST THAT TWO NEW LABORATORIES WERE NEEDED--- THE LIVERMORE LAB NEAR THE CAL-BERKLEY CAMPUS AND A NATIONAL RADIOLOGICAL DEFENSE LAB



# ESTABLISHING NRDL

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- THE NATIONAL RADIOLOGICAL DEFENSE LAB ESTABLISHED 1947
- HUNTERS POINT WAS SELECTED
- CREATE A WORK SITE
- RECRUIT A WORK FORCE
- CDR JACK FEE SELECTED TO CREATE AND HEAD UP THIS NEW LAB





# THE SHIPYARD



# CAPTAIN RICKOVER ENTERS THE PICTURE

1948 THE NAVY DECIDES THEY WANT TO BUILD  
A NUCLEAR-POWERED SUBMARINE



# RICKOVER COMES TO VISIT NRDL

- CHRISTMAS PLANS OF 1948 ARE RUINED
- FEE AND RICKOVER BEGIN A LONG RELATIONSHIP



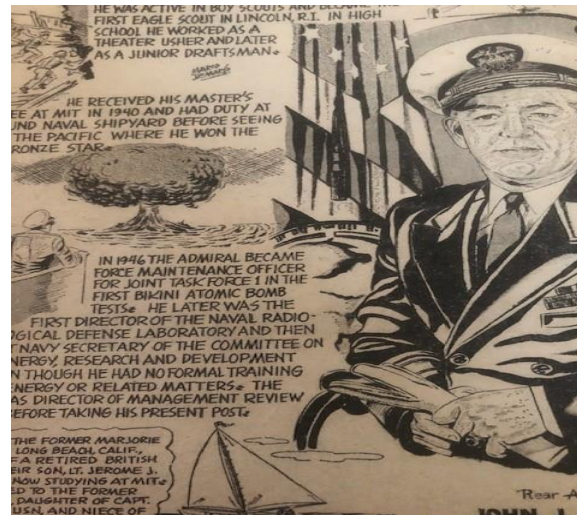
1949

SOVIET UNION SETS OFF ITS FIRST A-  
BOMB

# SOVIET A-BOMB INCREASES FRICTION IN AEC



- REORGANIZATION
- NEW CHAIRMAN, GORDAN EVANS DEAN
- INCREASED MILITARY PRESENCE IN AEC
- CDR JACK FEE SELECTED AS THE NAVY SECRETARY TO AEC





## PRESIDENT TRUMAN CHANGES HIS MIND ON THE H-BOMB

- OPPENHEIMER AND EINSTEIN  
UPSET
- DR EDWARD TELLER AND LEWIS  
STRAUSS GET THE UPPER HAND





# DEVELOPMENT OF THE H-BOMB

TRUMAN ORDERS A COMMITTEE TO STUDY THE FEASIBILITY OF SUCH A BOMB

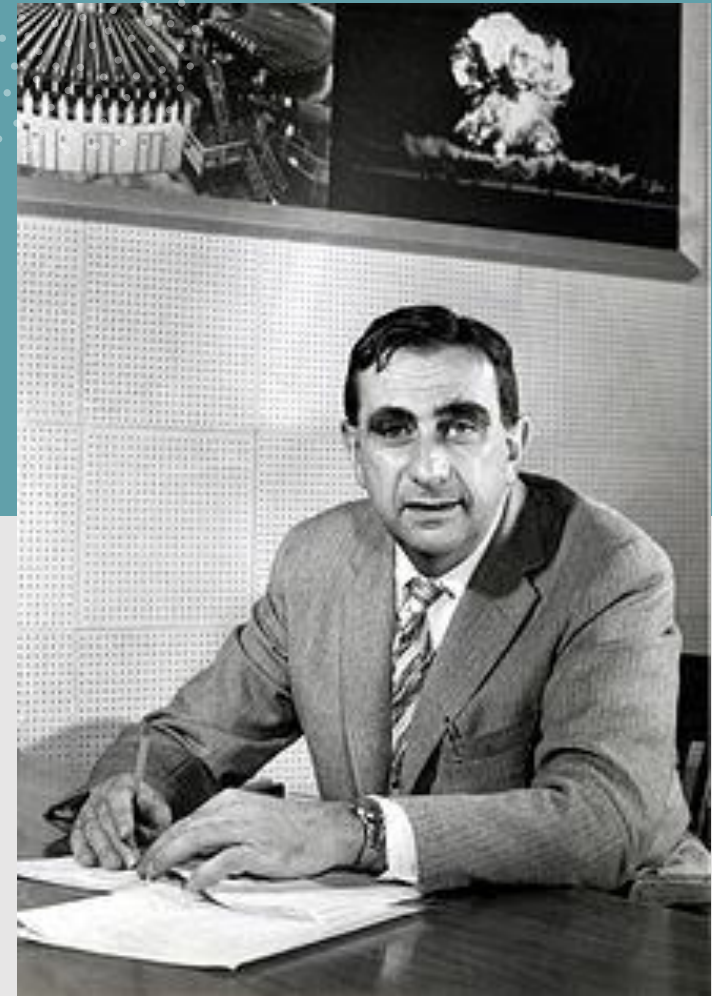
TELLER AND STRAUSS ARE THE BIGGEST ADVOCATES. DEAN IS ON BOARD BUT INITIALLY OPPENHEIMER AND FERMI EXPRESS GREAT DOUBTS.

MANY BREAK THROUGHS ARE MADE IN 1951. TELLER TAKES CREDIT FOR THE BREAK THROUGHS??

OPPENHEIMER AND FERMI COME AROUND, BUT OPPY STILL FIGHTS IT

# IS DR. TELLER REALLY THE FATHER OF THE H-BOMB?

- TELLER'S IDEAS WERE GOOD BUT HIS CALCULATIONS WERE WRONG
- OTHER GREAT MINDS ATTACKED THE PROBLEM
- TELLER IS NOT PUT IN CHARGE, BUT AFTER THE FACT TELLER TAKES ALL THE CREDIT
- TELLER HAS A FALLING OUT WITH SOME OF THE OTHER GREAT SCIENTISTS

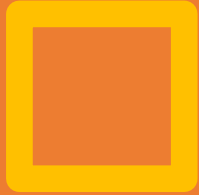


# OPERATION IVY MIKE

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- A TEST IS MADE ON NOVEMBER 1<sup>ST</sup> 1952
- IT CAN BE TURNED INTO A BOMB





# 1953 AND AEC GETS NEW CHAIRMAN

DEAN IS OUT AND STRAUSS IS IN

# TIME FOR A HISTORY LESSON

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# 1954 SECURITY HEARINGS

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STRAUSS GOES AFTER  
OPPENHEIMER

OPPENHEIMER SECURITY  
CLEARANCE IS TAKEN AWAY



# CAPTAIN JACK FEE LEAVES THE AEC

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GOES TO BUSHIPS



# THE REST OF JACK FEE'S CAREER, 1954-1963

- 1954 HE LEAVES THE BOMB PART OF THE NUCLEAR NAVY BUT STAYS IN THE NUCLEAR BUSINESS AS THE SUCCESSOR TO RICKOVER
- RICKOVER DOES NOT RETIRE
- FEE RETURNS TO THE PART OF THE NAVY HE LOVES BEST (NAVAL SHIPYARDS)
- REPAIR OFFICER NORFOLK
- PRODUCTION OFFICER BREMERTON
- SHIPYARD COMMANDER, LONG BEACH AND MAKES ADMIRAL





# WHAT IS OPPENHEIMER DOING 1954-1963

- HE IS DEFAMED AND EMBARRASSED, BUT NOT BROKEN
- HE OWNS HOMES IN THE VIRGIN ISLANDS AND NEW MEXICO RANCH
- HE BECOMES A POPULAR LECTURER

# 1961-JOHN F KENNEDY BECOMES PRESIDENT

- SALT TALKS
- TACTICAL NUCLEAR WEAPONS
- RESTORES OPPENHEIMER TO HERO STATUS
- FREEDOM MEDAL AND INVITATION TO WHITE HOUSE
- KENNEDY ASSASSINATED BEFORE THE AWARD



# 1956 JERRY FEE JOINS THE NAVY



# ENSIGN JERRY FEE

STARTS OUT AS AN AVIATOR



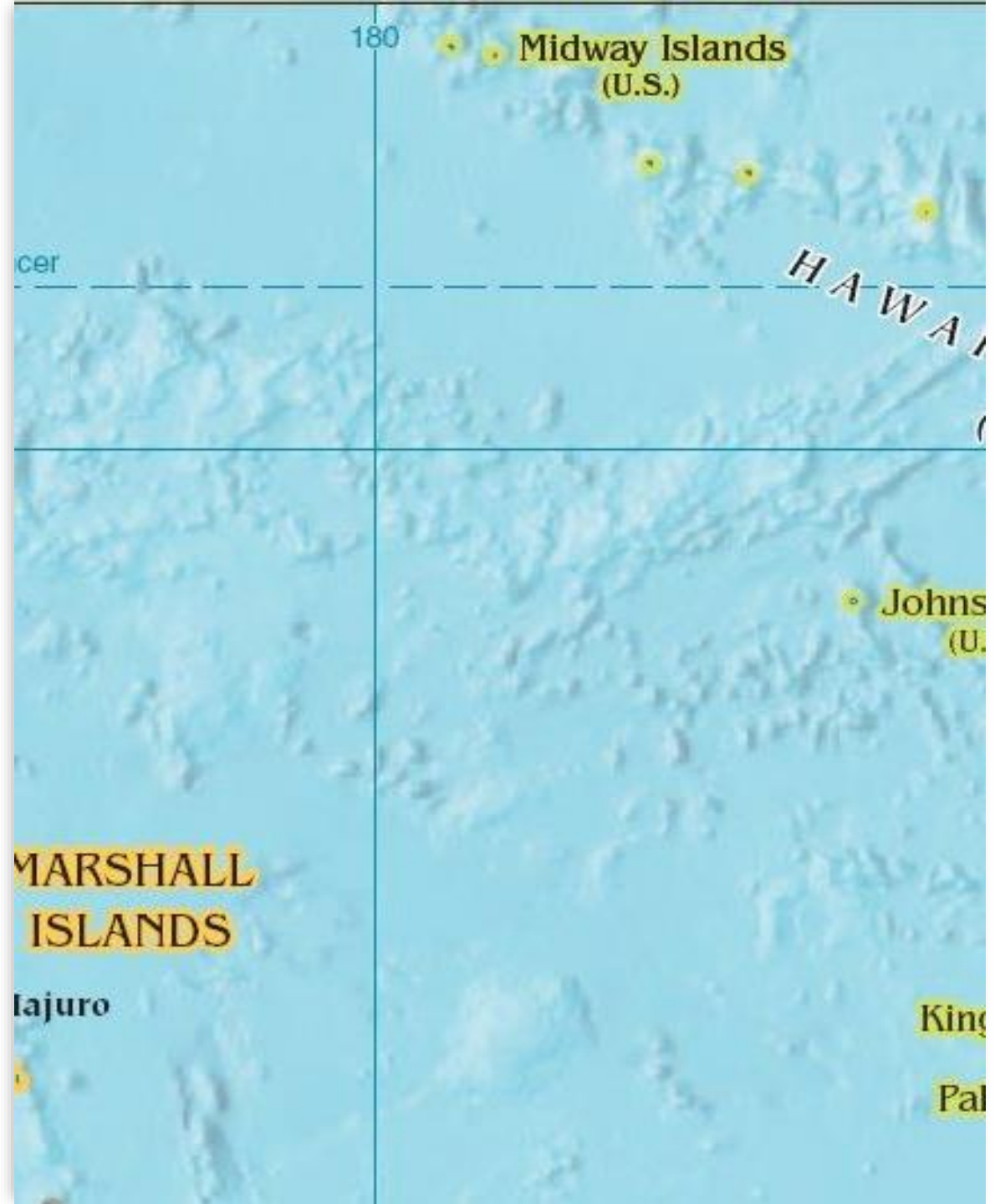
# ENSIGN FEE SHIFTS TO DESTROYERS

- USS TAYLOR DDE 468, ASW OFFICER, NAVIGATOR
- 1962, MOVES TO ENGINEERING DEPARTMENT AS DCA
- DAMAGE CONTROL SCHOOL AND ABC SCHOOL



# OPERATIONS DOMINIC AND FISHBOWL

- ATMOSPHERIC TESTING ON NUCLEAR WEAPONS TO END IN 1962
- MAD DASH TO COMPLETE TESTING
- 42 NUCLEAR WEAPONS SET OFF FROM 25 APRIL-30 OCTOBER
- BLUEGILL AND STARFISH SERIES MOST DRAMTIC
- SEVERAL ACCIDENTS





# FISHBOWL ACCIDENTS

- JUNE 2<sup>ND</sup>—BLUGILL
- JUNE 19<sup>TH</sup> STARFISH
- JULY 25<sup>TH</sup> BLUGILL PRIME

JULY 8<sup>TH</sup> STARFISH PRIME

SUCCESS AT  
LAST





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# HISTORY (OF SORTS) IS MADE

- JACK FEE WITNESSES THE FIRST TRUE A BOMB TESTS AT BIKINI, 1945
- JACK FEE WITNESSES THE FIRST H BOMB TEST AT ENIWIKTOK, 1952
- JERRY FEE WINESESSES THE LAST ATMOSPHERIC HBOMB TEST, 1962 AT JOHNSONS ISLAND



# WHAT HAPPENS NEXT

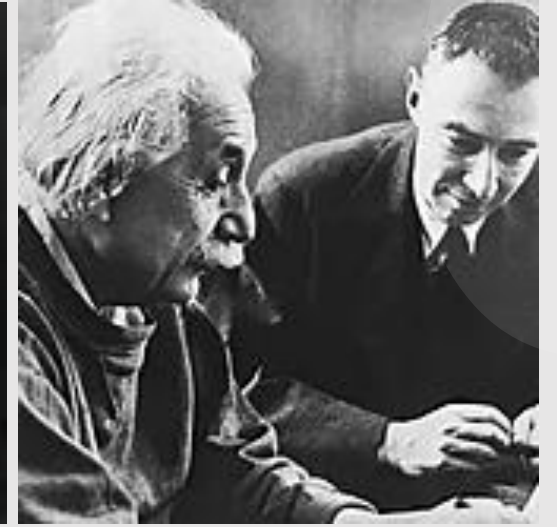
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- AFTER OPERATION DOMINIC ALL ATMOSPHERIC NUCLEAR TESTING ENDS
- NOVEMBER 22, 1963, PRESIDENT KENNEDY IS ASSASSINATED
- 1964 PRESIDENT JOHNSON PRESENTS OPPENHEIMER THE MEDAL OF FREEDOM
- 1967 OPPENHEIMER DIES OF CANCER



# THE END OF AN ERA

- ADM DEAK PARSONS DIES IN 1953
- ADM BLANDY AND ENRICO FERMI DIE IN 1954
- EINSTEIN DIES IN 1955
- OPPENHEIMER DIES IN 1967
- GEN GROVES DIES IN 1970
- ADM FEE DIES IN 1971
- LEWIS STRAUSS DIES IN 1974





## EXCEPTIONS

- ADMIRAL RICKOVER GOES ON TO SERVE ANOTHER 30 YEARS AFTER HE WAS EXPECTED TO RETIRE IN 1953
- DR EDWARD TELLER LIVED UNTIL 2003. DIES AT AGE 95

