

7. Naples 1943 - Part III

Chapter Contents:

7. Naples 1943 - Part III

Mom and Dad, Dick and I return to Naples 1943	110
The New Farm House	111
Living with Grandpa and Grandma	112
Dickie Sucked Raw Eggs	113
Mom took an Apartment in Vernal	114

8. Hanford Washington

Manhattan Project - 1944-45	115
Journeyman Machinist	115
Manhattan Project	117
Robert Oppenheimer The Theory Man	118
Leslie Groves The Practical Man	119
Hanford, Washington	120
Radiation Hazard	124
High Level Security and Reactor Cores	125



Mom and Dad, Dick and I return to Naples 1943

I believe that our -note "our" because Dick and I were now part of this clan- return to Naples around Dec. 1943, more likely than not was a result of the Remington Arms Plant being put on standby by the federal government. That was done in December 1943, and the plant never produced munition again. Dad had no more work in SLC so something had to be done to keep the family financially viable. It was a logical thing to return to Naples where there was free room and board while they figured out what to do next.



Dickie appears to be about a year old in this photo. That means it was taken about 1944, so it was either taken just before Dad left for Hanford or just after he returned. His ID was dated 09-12-44. He didn't spend long in Hanford, so he returned in early 1945, at which time Dickie would have fulfilled year. It is impossible in this photo to tell just how old he is, so the question remains: 1944 or



1945. This is the same setting as the title photo, but Dickie is wearing dad's hat.

The old car has what was called a "rumble seat." I don't know where the name originated. The seat is where the trunk of most cars is located, and opened up front of what corresponds to the lid of a trunk. Sitting there was actually sitting outside of the car which was fine in nice weather.

The New Farm House

While dad was off in Hanford building atomic reactor parts, we were in Naples. The original house that grandpa Merrell built on that property after moving from Rainbow was a log cabin and had been abandoned by the time we moved from SLC to live with him and grandma in 1943. Mom said the original log cabin was still standing when I was a kid but I have no memory of it. The "new" house, shown here, was stuccoed and had 5 or 6 rooms on the main floor and a full basement. The first time I became conscious of such a thing, a hole in the ground that people went down into with rooms to walk around in. New concept. A simple farm house built before the days of electricity.



Mom, Dick and I initially lived in a room on the main floor. After dad passed through on his way to Honolulu, we moved out back into an old uninsulated garage that had been divided with cellotex and 2x4 partitions into two rooms by Mom's dad and brothers.

Grandpa's house -this house- was just north of an irrigation canal that was in a ditch that was about 8 feet deep at that point due to the need to maintain the necessary grade. On the other side of the house was the garage -to the right in this picture- and then behind the garage there was a small irrigation ditch and on the other side of this ditch were the corrals, chicken coop and pig pen. Pastures extended north of these structures perhaps a mile before one saw any structures. Just a huge open pasture criss-crossed by a few fences denoting property divisions. I could see west to Highway 40 and north to the Naples School and church a mile away.

In that picture you see Tommy again, ears flapping. He had the biggest ears of any of us cousins and was a great kid to be with. He and I argued about things now and then but we got along we, the way some cousins do, which is interesting. There is sometimes a special chemistry between cousins. Tommy and I got along better than we did with most other people.

The yard is dirt, there being basically no real grass, certainly no lawn. It was fall or spring so the trees are also bare. There is a house on the left in the background that is located across the road that ran east-west. Ross' house is several hundred yards behind grandpa's house, and Harold's house is behind the camera about the same distance, also on the canal.

Mom is outfitted in nice clothing as usual. She always took good care of herself and looks sort of incongruous in this humble setting doesn't she. She was a truly beautiful woman. Wearing her high-heel shoes sitting on the rugged dirty porch. I'm sitting there with my hand in my mouth. One of my own children asked me recently about that, why do kids put their hands in their mouths. I guess it's in the genes. Haha.

Living with Grandpa and Grandma

One of the earliest memories I have is eating breakfast with Grandpa in his



house. In the morning grandma got up at 5:00 am and cooked a huge farm breakfast for six or eight people. Remember, these were farmers who got up early on the south end of a shovel for the day so needed to stoke their furnaces. Any self-respecting farm breakfast includes potatoes, eggs, perhaps a steak or chop, and fried ham or bacon which produced a thick layer of fat in the bottom of one or two cast iron skillets. Grandpa offered me bits of heavy home-made food across the half-door. One of the tastiest was the bread chunks that he broke from his own piece and handed over. Instead of putting butter on the bread, he just dipped it into the bacon fat in the skillet. The flavor of smoky fat in heavy home-made bread is wonderful. Poor grandpa. His life was shortened by the fat and cholesterol that he ingested with every breakfast. He died prematurely - at the age of 86 years. His oldest son in 2001 is only 98. Turns out that it's the genes, not the diet, that will get you. So while it's true that "Those who indulge, bulge," it's true that you will live until your genes die.

Dickie Sucked Raw Eggs

Of all the uncles hanging around those days, Grant was my favorite. He was nice to us, and kidded a lot, doing things that real adults didn't do^[1]. He got us to do things mom didn't like. Like he got Dick to eat preserved fishing minnows out of the bottle. That is so funny now - but mom didn't see the humor at the time. And he taught Dick to suck raw eggs, something that made me sick.

That created a problem actually. Dick who was probably 3-4 years old would just go out to the henhouse whenever he wanted to have an egg. He'd take one, crack and slurp it and leave the shells. Well, this began to affect grandma's economy because she sold excess eggs for cash, an essential part of the family welfare. The topic was raised over the dinner table and everyone started suspecting a particular dog that Grant had. For some reason it was a likely suspect

¹His jokes got us in trouble with mom. Grant was a Lothario and said things that we thought were so funny that we went around saying them. The one that got us into the most trouble was, "I'm going to be a bachelor - and teach all my kids to be bachelors!" It was many years before I finally understood why that was 'bad'. To my mind it was a logical impossibility and struck me as funny for that reason.



for this dastardly deed. So guess what. They shot the dog. Better him than Dick. But the broken shells kept appearing. People paid closer attention to what was actually happening in the henhouse and finally figured out that it was Dick helping himself.

So we lived with mom's parents, Grandma and grandpa Merrell, while dad went off to the war but as a mechanic, not a soldier. I don't see today that the sacrifice was much different, except that he didn't have to be disciplined and wear a uniform. He spent about six months in Hanford, Washington working on Project Manhattan and then he went to Pearl Harbor to work on the reconstruction. After another year doing that, he returned to be with us in Naples. Somewhere around my 5th year, dad and mom scraped up a down payment to buy a 2 acre farm with a 5 room house on it. From a guy named Ashton. A mile south of Vernal on its south side.

Mom took an Apartment in Vernal

At the time that dad returned from Hanford, mom was feeling anxious about living with grandma and grandpa. After he left to go to Pearl Harbor, mom^[2] felt that she had exhausted her welcome with her parents or she was so stressed by it herself that she felt she needed to do something different - or something else that I can't guess. So she took a few dollars, went into "town", i.e. Vernal, found an apartment to rent for herself and us 2 boys with the intention of moving in and getting a job to take care of herself. Perhaps she already had a job, I don't know and she didn't say.

When her parents found out that she had done this, she said that her mom came as close as she ever saw her to getting mad, and of course, Fuller did get mad. They told her in no uncertain terms that she could not move into town because she had to stay right there "so they could take care of the boys", i.e. me and Dick and my heart twinges right now. So Fuller agreed that living in the same house was a bit tough so he agreed that he would now convert the garage into a

^c This is one of the stories that mom has told me in the last 6 months as I've researched her story. This is a story I never heard during the time I lived as her oldest child for 18 years.



two-room apartment for mom to live in with us boys. That was done and we stayed in the garage until dad came home.



8. Hanford Washington**Manhattan Project - 1944-45****Chapter Contents:**

Journeyman Machinist	<u>155</u>
Manhattan Project	<u>157</u>
Robert Oppenheimer The Theory Man	<u>158</u>
Leslie Groves The Practical Man	<u>159</u>
Hanford, Washington	<u>160</u>
Radiation Hazard	<u>164</u>
High Level Security and Reactor Cores	<u>165</u>

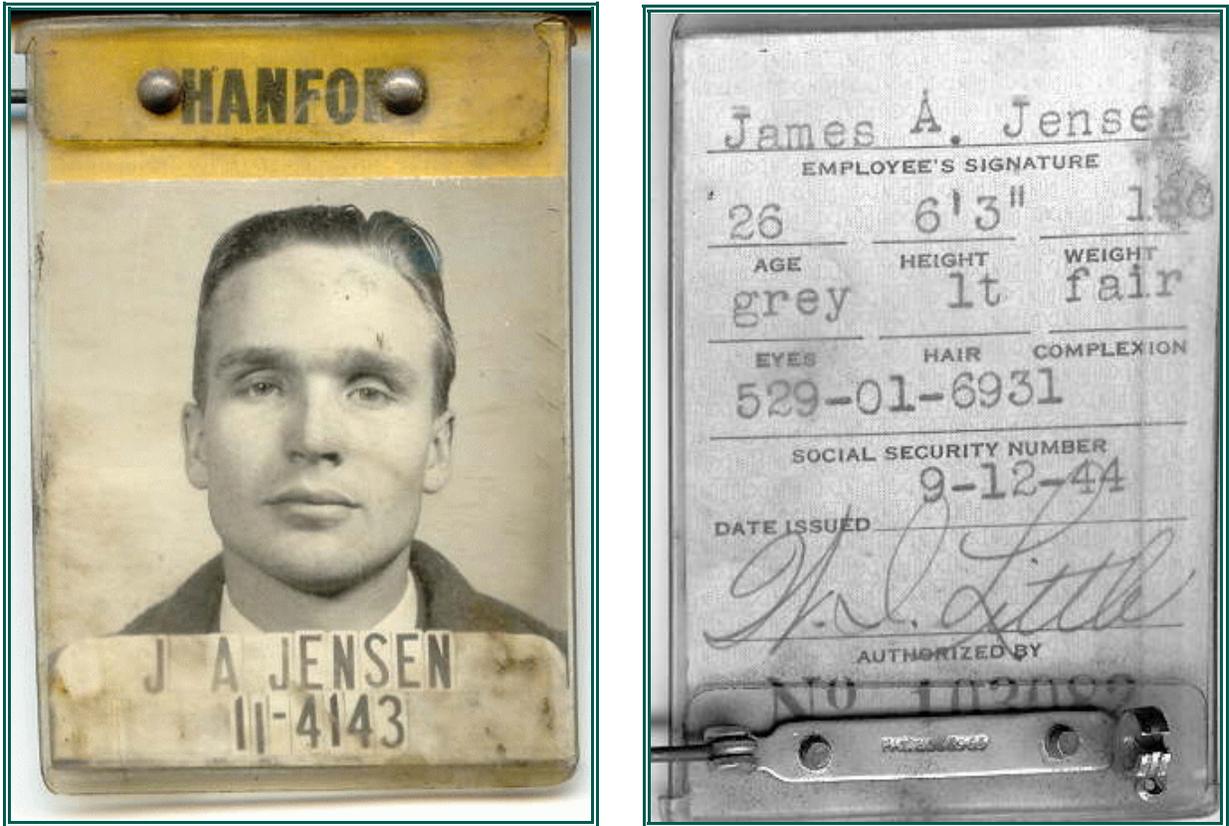
Journeyman Machinist

As far as I have been able to discover, mom's memory fading badly, dad went to work at the Remington Arms Plant on Redwood Road as soon as he had become a journeyman machinist.

In case the notion of "journeyman" isn't familiar, there are three levels of skills to being a practitioner of a trade wherein men worked with tools and their hands. The levels were created and named in the medieval guilds when young men would be apprenticed as cheap labor in return for being taught the craft of the guild that they were apprenticed to. Then they were granted papers that certified their abilities and allowed them to practice the trade. The first level is the apprentice, the second is the journeyman and the third is the master craftsman. An apprentice could not work alone but the other two levels could. The journeyman was qualified to do anything required in his trade and only differed from the master in minor ways.



After we moved, we stayed at grandpa Merrill's farm. Dad must have



worked in the area but I don't know what he did or where he did it. His trade was the likely thing he would have done. After a month or two, dad went to Hanford, Washington, as you can see in the above security badge.

On September 12, 1944, I was 2 and a half years old, just a little kid. My dad went to work on the reactor core at Hanford Washington as part of Project Manhattan. With the "sneak attack" on the US on 12-7-41, the U.S. was galvanized into action. The Japanese attempted in that audacious, well-planned action to disable the US long enough to keep it from interfering with its own plans to take over parts of Asia and the Pacific. The problem was that Japan could not foresee that the US government and people would respond as it did. A nerve in the body politic was struck. Yankee ingenuity and Yankee outrage at the Japanese sneakiness in the west and German preying on US shipping in the east produced a more



sustained, coordinated national response than had been seen before and which has not happened since. Today we are a nation of splintered single-interest groups with nothing to compromise and no motivation to compromise and work cooperatively, but in those simple days it was different. The US was invincible when the sleeping beast was aroused. It possessed the greatest supply of natural resources in the world and a people with the maverick streak that sets the country apart. The ultimate effect of the US response was the defeat of the major Axis players, Japan and Germany. The US didn't do it all alone, but without US involvement, the European allies would have been over-whelmed.

Manhattan Project

After the US entered into WW II, a race developed between the US and Germany to be the first to develop and use the atom bomb. Those who have spent their entire lives under the shield of multi-headed weapons of enormous mass destruction fail to comprehend how extraordinarily powerful these weapons are compared to conventional explosives. It was precisely this difference that compelled each nation to frantically attempt to develop "The Bomb" first.

The enterprise was termed the "Manhattan Engineering District" for a variety of reasons and spread across the country, involving hundreds of thousands of people. Oppenheimer and General Groves were the towering figures that enabled the US to be first. Once Roosevelt was persuaded that The Bomb was in fact feasible back around 1939, and that it was the most likely way to end the way and to minimize the enormous casualties that would result from a land assault on Japan, he committed enormous resources on this project. The project consisted of two inter-linked sets of activities, relying on each other for success.

You must not forget that The Bomb was viewed as a way to minimize the extraordinary number of deaths that were likely if the US had actually assaulted the island of Japan from the ocean with hundreds of thousands of men in uniform. If you can remember that, you may be able to understand something about why the government did in fact seem to turn its back on what was suspected to be monstrous radiation poisoning. The Japanese nation was trained and prepared to stand even with bamboo spears on the beaches to defend the nation from a naval assault. The number of casualties on both sides would have been extraordinary. In



this setting, The Bomb seemed a faster, more humane -if such a word can be applied to war which is obscene- way to bring a close to the war.

Robert Oppenheimer The Theory Man

One branch of the Manhattan Project was the theory-to-reality bunch, primarily a group of scientists scattered across the country. They had to develop the mechanism that could reliably initiate an fission reaction of a mass of radioactive substance. This most difficult process was under the command of the brilliant, brittle Robert J. Oppenheimer. The largest sub-groups of this scientific bunch worked at the University of Chicago -achieving fission under the football stadium at one point, the Livermore Lab in California, with the largest contingent being housed with Oppenheimer in a town built for the purpose in the New Mexican desert.



Figure 5 Robert J. Oppenheimer
<http://www.fas.org/nuke/hew/Usa/Med/Med.html>



Leslie Groves The Practical Man

The other branch of this astonishing program was dedicated to the actual harvesting of the right radioactive substance for the bomb. A molecule at a time. This branch was overseen by General Groves. Which uranium isotope was the optimal one wasn't even known when the project got underway. With a confidence that wild-eyed Americans possess, they launched themselves simultaneously into the exploration of unproven theories, confident that solutions would be found. They were. Ultimately, U-238 -plutonium- was selected as the preferred isotope.

An enormous construction program was undertaken to create the sophisticated systems needed to isolate sufficient quantities of this rare, difficult to collect molecule. The major centers were constructed at Oak Ridge, Tennessee and Hanford, Washington. "In January, 1943 Groves acquired the Hanford Engineer Works, 780 square miles of land on the Columbia River in Washington for plutonium production reactors and separation plants."

This is the man who had just finished constructing the massive Pentagon

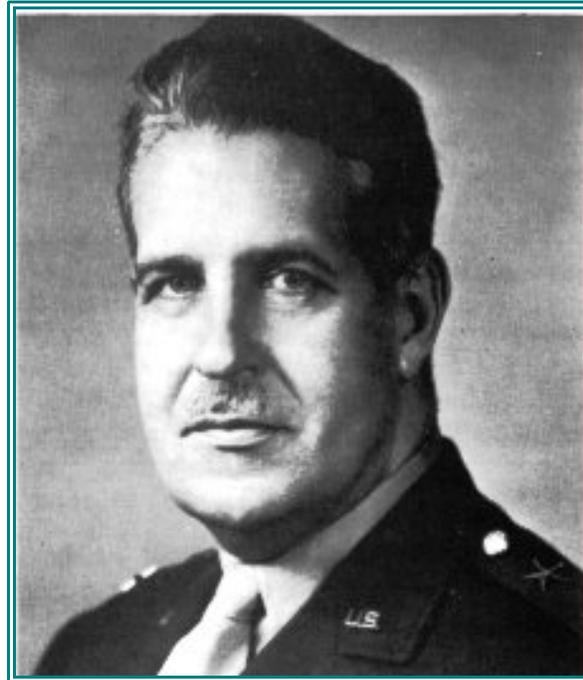


Figure 6 Col. Leslie Groves

<http://www.fas.org/nuke/hew/Usa/Med/Med.html>



Hanford, Washington

Dad entered into this national drama by taking a job as a machinist at the Hanford, Washington nuclear plant. Its primary function was the production of plutonium. He read an advertisement somewhere and was attracted by the income and the romance of working on a national program. This caused him to leave his little family and venture out to Hanford on the Columbia. This photo is the cover of the Employee's Handbook that was provided by the Richland Operations of the Department Of Energy.

As a trained machinist with maximal security clearance he was a shoo-in for working on the reactor core. At the time, no one knew what they were working on, but they gleaned bits and pieces of information and eventually pieced together the fact that they were doing just what they were doing. To educate himself, dad bought two books that are still in his library, one titled "The Cyclotron" and the other "Atomic Artillery." Today they seem rudimentary and primitive but they were state of the art books at the time, all that was available for the interested person to become acquainted with nuclear physics.

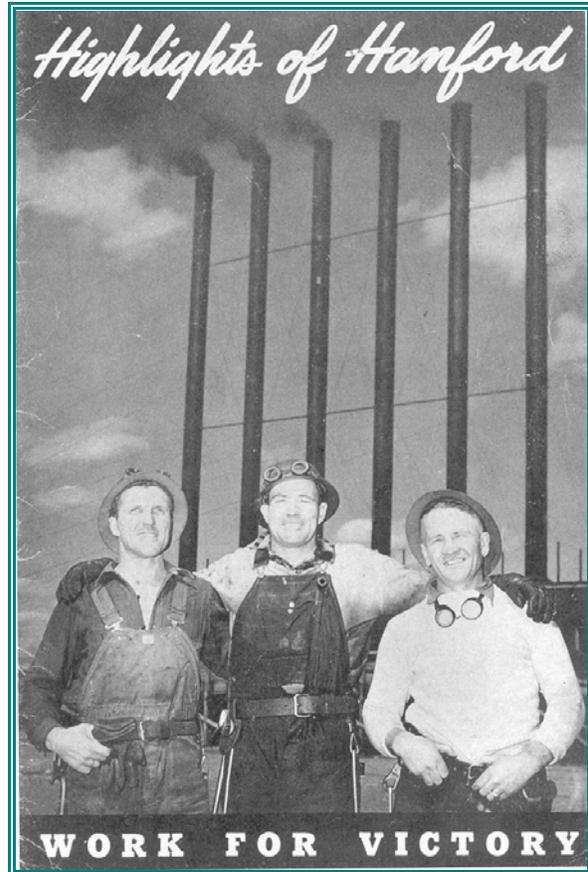


Figure 7 Cover of Employee's Handbook



The Hanford plant was located in the middle of no-where.

Intentionally. The scale of construction was enormous. During the few years it operated in high gear, as many as 45,000 men were employed on the site at one time. Some of them went with families, others without.

The tri-cities housed them, Richland, Pasco and Kennewick.



Figure 8 The D Reactor at Hanford

<http://www.fas.org/nuke/hew/Usa/Med/Med.html>

The scale is also revealed in the facilities to care for this number of human beings in one location. There were 8 mess halls this size. The claim was that the food was plain but



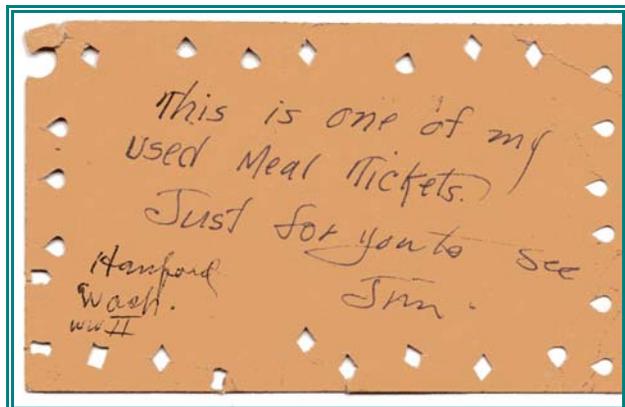
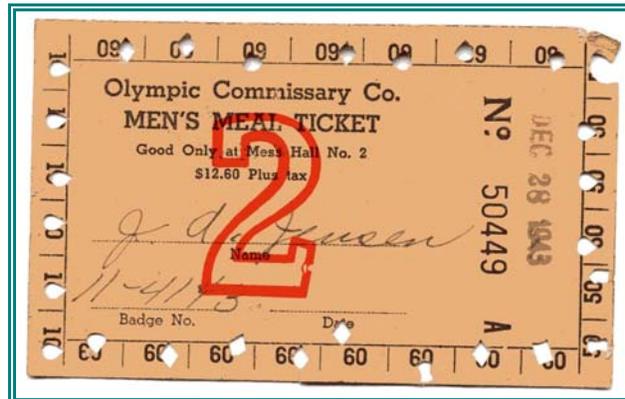
good, in sufficient quantities for anyone. Dad bought a meal ticket that was punched each time he ate so he wasn't paying for meals he didn't eat.

Dad had to join a union to be allowed to work in the plant. Two identical badges are pinned in the lid of his oak tool box. He scratched his name on the face of the badge, whether out of whim or necessity, we'll never know. But being as how he was the consummate maverick, it's not unlikely that he did it out of spite at a shop steward. Who couldn't discipline him for his subtle insubordination.

Dad sent mom one of his used meal tickets. This ticket was purchased on Dec. 28, 1943, just after Christmas. I am lost. Remington Arms shut down on Dec. 6, 1943, so how did dad get up there so fast? Apparently he didn't spend any time in Naples before he took off. In any event this is a sample of the tickets he used to eat. The large red "2" was probably the designated dining hall that he was required to eat in. There were six of them I believe.



Figure 10 1944 Union Badge - Hanford



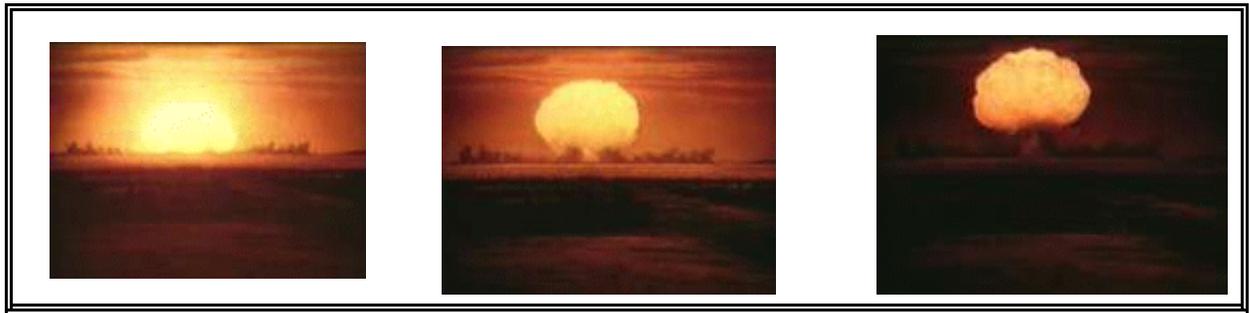


Figure 16 First shot

Figure 16 Bit later

Figure 16 Mushroom

[Photos: <http://www.fas.org/nuke/hew/Usa/Med/Med.html>]

On July 16, 1945, the first full-scale, albeit tiny compare to subsequent devices, nuclear device was detonated. Code-Named "Trinity", it was exploded in the Alamogordo Test Range, in Jornada del Muerto desert of New Mexico, a most appropriate name - "Journey of Death".

The black and white is also of Trinity and it captures the evilness of the bomb. A sinister jelly fish creation that was 600 feet -2 football fields- across in a tenth of a tenth of a second. This was the first test of a nuclear device. It obviously worked.

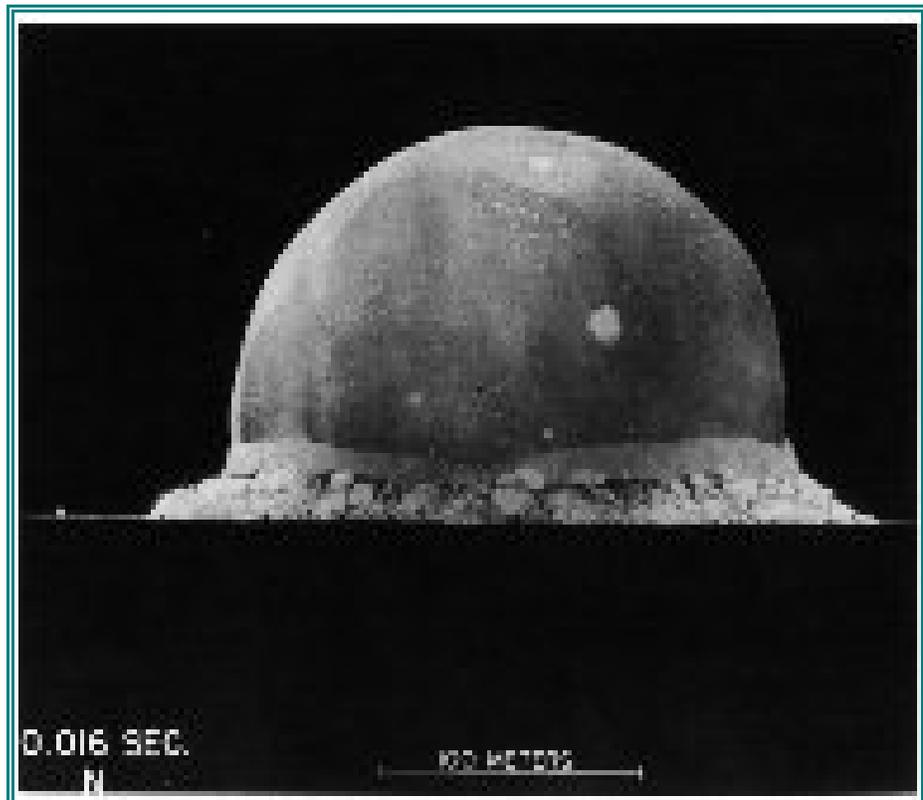


Figure 16 - 16 thousandths of a second

<http://www.fas.org/nuke/hew/Usa/Tests/Trinity.html>



Radiation Hazard

This photo, to me personally, is the most revealing photo I could imagine to gain insight into the comprehension -lack of comprehension- by the two principal creators of the atom bomb of the radiation risks that resulted from nuclear explosions. Groves and Oppie themselves are standing right at the absolute center of the first nuclear test ever done in the history of mankind next to the remains of the tower that held the tiny bomb. They "didn't get it", did they. They had both on the preceding day witnessed the horrifying explosion that is shown in the preceding photos, yet here they are now standing on the very spot where it happened.

The fact that they stand there grinning at each other and celebrating -without any protective gear- reveals poignantly and emphatically, to my simple mind at least, that the scientists and soldiers who were involved in the program

simply had no real comprehension of the devastating effects of radiation. They obviously and unarguably treated the explosion as that of any bomb made with conventional materials. These men were not stupid. If they had really understood the lethality of the by-products of the fusion reaction they had released, they



**Figure 17 Oppenheimer & Groves
at Trinity epicenter!!**



would not have even entered the area unprotected as they are here. They would not have stood on this precise spot if they had really understood that the radiation there was as devastating as it turned out to be later. Oddly enough, they actually did have some protection: the fused glass -trinitite- created from sand by the explosion did in fact shield them from a substantial portion of the radiation. Oppenheimer and Groves together stood at the epicenter of Trinity. [I suppose one might take the devil's position here and say, "See. They stood there and didn't experience radiation poisoning, proving that radiation poisoning, while real and nasty, is nonetheless over stated in some respects."]

There was in fact theoretical awareness of radiation dangers but the effects had not yet been experienced. To these men, those risks were obviously more theoretical than real, so while the government did take precautions, thereby revealing awareness of "something", it did not take the precautions that some argue today it should have. This is unfair to quarter-back the situation 55 years later. There was a major war going on that had to be won and The Bomb was understood to be the avenue to victory. Again, the fact that these men, in particular Oppenheimer, actually stood on the site reveals the lack of comprehension that existed at the time of the horrors of radiation burns. The emphasis was on the explosion itself, not on radiation. It had never been done before so there was no empirical evidence to show the truth about the real dangers. That doesn't make it right that the government did so little, but it isn't really wrong that it didn't, particularly in the context of the war where men and woman were being killed in quantities greater than were killed and maimed. There is also the fact that the US did not start the war so there was not a whole lot of sympathy for what was going to happen to the nation that snuck up on us.

High Level Security and Reactor Cores

Dad had the highest security clearance one could get to work at Project Manhattan. What risk was a farm kid from central Utah going to pose, but that was how it was. Men and women left families and worked in secret not even being told what they were doing. Each day after he passed several guards, he used sealed blueprints to machine secret parts from secret alloys which were part of the reactor core. He figured that out somehow. Perhaps it was common knowledge.



The following photo shows the heart, the inner sanctum, of a reactor. There were at least four reactors in Hanford, named "B Reactor", the first to go on line 9-24-44, "D Reactor" that went critical on 9-17-44, "F Reactor" that went on line 2-45, and then "N Reactor". I don't know what the difference between the reactors was but suspect there may have been little difference, the need for more

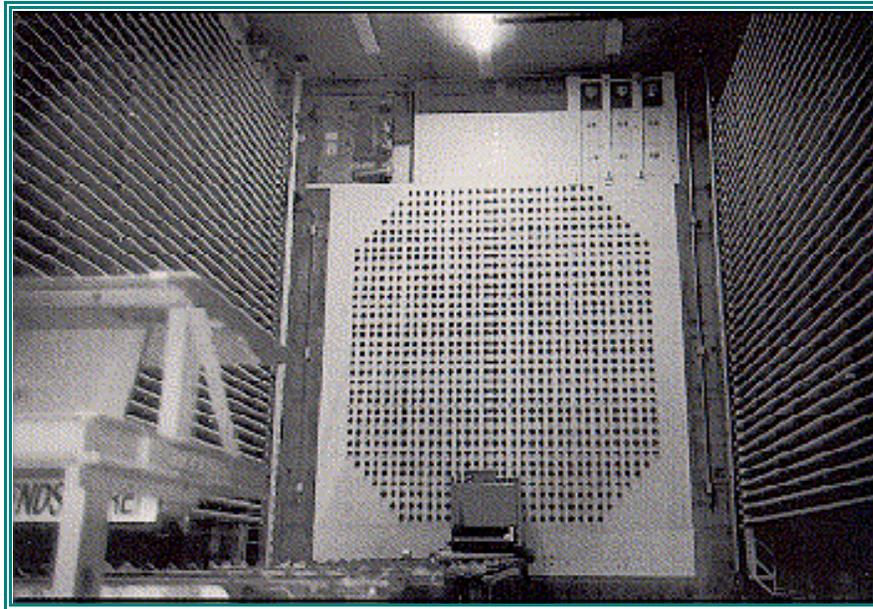


Figure 18 D Reactor

<http://www.fas.org/nuke/hew/Usa/Med/Med.html>

than one being driven by the need for additional capacity. At maximum capacity the entire plant only produced something like a pound and a half of plutonium a day.

I do not know which one dad worked on. Somehow it doesn't seem likely that he would have worked on more than one though it is possible. This is the N Reactor core which is made of graphite and measures 39 by 33 by 33 feet. Channels cut horizontally into the graphite held nuclear fuel and uranium "target" slugs which slugs were bombarded with energy which transformed some of the uranium into plutonium - U-238- the weapon-grade uranium that had been chosen as the fuel for the atom bombs. This is where dad worked, in the construction of the reactors. Of course, he didn't know it at the time with the certitude he did later, but he suspected that he was working on a nuclear device, though that was kept a secret.

When he was through working at Project Manhattan, he decided to go to



Pearl Harbor, and came home to spend about a month with us in Naples before taking off again.

