

Nevada Test Site Oral History Project
University of Nevada, Las Vegas

Interview with
Benjamin C. Diven

April 12, 2005
Los Alamos, New Mexico

Interview Conducted By
Mary Palevsky

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[00:00:00] Begin Track 2, Disc 1.

Mary Palevsky: *Dr. Diven, thank you for speaking with me again.*

Ben Diven: And so now you find that the machine's working all right?

I do indeed.

All right, you were asking me some things about the [Operation] Castle series that took place in 1954. Now, my involvement on Castle began about a year before the shots, maybe a little more, when I was asked to join a group of people in the director's office, headed by Marshall Holloway, who was to be in charge of the development of thermonuclear weapons. And I worked for a little while with Bob Shreffler on one of the devices. And then it was decided to start—well, let's see. They decided they would try to try out with three different types of bomb, one of which would certainly work but was a little bit awkward. Of the other two, one of them was very likely to work; the next one not so certain. But sure you would have one. And [Dwight D.] Eisenhower, the president, had said that they had to develop a stockpile weapon in the very shortest possible time; that they should set up an emergency capability where they may not have been as thoroughly engineered as you might want, but anyway would be ready to use.

All right, so those three bombs were being prepared that way at the time I joined DIRX, the name of this organization. And the three devices being considered, one of them was headed by—I guess you could maybe say ramrodded—our project leader or whatever, was Jay Wechsler. Another was Harold Agnew. And a third one was Bob Shreffler. Now, I had joined Shreffler to help him. And then they decided to add another device that would be much more advanced, would not be part of the emergency capability, but it would be a test of a much smaller

and more handier bomb to use. And this device was started a little bit late; but anyway, I was given the job of shepherding that thing.

That, then, went on to be fired as the Bravo shot on Castle. Now, the device went about more or less double the expected yield. A little bit more than the maximum credible yield. When they have a shot to fire, you want to know two things. First, you want to know what they think the yield will be. And then they also want to know what's the greatest yield it could possibly be, because that's what you'll use to protect people.

So this thing went a little bit more than even maximum credible yield. That's because the Physics Division missed an important reaction. And these devices that I was interested in, as well as Shreff and Agnew, were to be fueled with a lithium compound. Lithium, when you get a neutron in it, captures the neutron and makes the tritium [T]; and tritium and deuterium [D] make a perfect fuel, the most easily ignitable thermonuclear fuel. So this was a cheap way to get tritium. You make it in the bomb and it's going to—.

OK. All right. Where was I? Why did it go more yield than it should? Well, this [00:05:00] device wasn't pure lithium six [Li6] which is the only isotope that contributes by way of the end—well, by capturing a neutron and then splitting up into tritium and whatever is left, a helium isotope. So it had more Li7 in it than Li6. And the reaction that was missed was a high-energy neutron striking Li7 and then escape but leave the Li8 nucleus that's made when you add a neutron to Li7. That nucleus is very excited, and it splits into tritium and some helium compound. OK, that was missed, and so this was turning this useless Li7 into tritium, which is just what you want. All right, so Li7 was a better fuel than we thought it was. And so along with other factors it doubled the yield. Li6 is still a better fuel than Li7.

Well, now the question was about fallout. OK, after the bomb went off, well, there was just lots more fallout than anybody expected. A couple of years earlier, I guess actually less than two years earlier, they had fired the first real thermonuclear device, called Mike. It went not quite as much yield as Bravo shot, but it was a good big ten megatons [MT] or something like that. So this was expected to be in the same range. They didn't find any significant fallout on Mike. There was fallout but not lots. They couldn't account for most of it. So it was generally thought that, well, it had just carried all of this great amount of dirt and other things up clear above the troposphere, the lower atmosphere, and into the stratosphere, and that it was such fine particles that it just hung there and gradually spread around the world and didn't put much down anywhere.

Well, that's not what happened. Their model of what Mike produced was simply wrong. They hadn't sampled the ocean all around the Mike shot. They sampled nearby islands. They just didn't pay enough attention. And indeed, it fell out in the ocean, all around. So this [Bravo] cloud went up into the stratosphere, and as you go up in altitude, the temperature decreases, gets very cold the higher you go, but after a while, you get to the point where the sun is putting so much energy into the upper atmosphere, it begins to get hotter the higher you go. All right, so you have a ball of fire going way up, hits the stratosphere where suddenly there's no longer any temperature inversion; it starts getting hotter the higher you go. So this ball of fire rises in the stratosphere until it's now no hotter than what's around it and it just spreads out. It spread out. Now, the original column that went up was only about fifteen miles across, but once it hit the tropopause, the boundary between those two layers, then it spread out and spread out to be eighty or a hundred miles across. Now, the wind predictions had been quite accurate. The cloud went just where it was predicted to go, but the fallout pattern was totally different. As we stood on

[00:10:00] board a ship thirty miles away, we watched this cloud coming, hit the stratosphere, and then spread out, and pretty soon we're looking straight up at it. And pretty soon, the loudspeakers ordered everybody you get below the decks, and they started the wash-down system to spray the ship with seawater and wash that stuff off while we got out of there.

It was just a complete misunderstand about how this was going to work. Unfortunately, they didn't do a careful enough monitoring job on Mike. They didn't see any reason to. There was no radiation falling unexpectedly. And it seemed to be behaving about like what they expected. Well, this was very different, not because it was a bigger yield, but because this fallout pattern went—well, they knew that the high-up winds were going to carry any radiation up above the tropopause. The center of that would be going a little bit, as I remember, it was north, at any rate, not over these populated islands, and that they would not get any significant dose, and so they were not evacuated. Turned out they did get significant doses, and then they were evacuated but a day or two after the event. Well, that was unfortunate. Nobody got a life-threatening dose. The greatest, largest doses were probably less than 200 R. You need to get 1,000 R or something like that to be lethal. But still, it was significant. There were physical, notable changes like hair falling out and some things like this like people get when they have radiation treatments. Nobody, as far as I know, ever had any definite ill effects. Once you recover, you seem to be pretty well recovered. But still, it was scandalous in that even though the people planning the shot and in charge of carrying it out, they thought they were being extra cautious because of having such little experience with such big devices, and they were using the most popular model for where this stuff might—what would happen to it, but it was just the wrong model. And so these people did get doses of radiation and then that caused great uproar internationally.

And then there was the Japanese fishing boat, a very strange thing, all kinds of different stories about what it was doing there. It's well known that where that boat was was not an area where commercial fishing is done. In fact they at least got home, had used up most of their bait, but they had used more bait than they caught fish. So it just was not a place to be fishing. Well, it should've been an exclusion zone. I don't know that it was. Certainly Rongelap and, oh, Rongerik and Rongelap, I think they were, those islands anyway, most of them weren't in an exclusion zone. And so this ship was unfortunately where it was too bad it was there. And I strongly suspect that it was just a spy ship, just my guess, that they were just there monitoring the shot. And then they got back to Japan and they had very strange kinds of treatment. And these people, of course, presumably didn't wash the ship down, they didn't get [00:15:00] themselves cleaned up, nobody knew that they had been there until they got back to Japan. And one or maybe more, I don't know, had died presumably from radiation exposure. But anyway, the whole thing is very murky and I have no idea what the facts are there. I think we know very well what the facts were for the native population in the Marshall Islands.

Well, I guess that's about all of my story about that.

I have a couple of questions. Some people have said to me, and I just don't understand how it works, have questioned what the benefit is of washing down, say, the ship with the sea water.

Hasn't the sea water also been irradiated or whatever? Is that a good question or—?

Well, this stuff that falls down, the sea water will have that in it, too, but I assume it will stay mostly on the surface for a while before it gradually settles down in the water. If you just have a cloud of dust fall on the surface of the water, it kind of stays on the surface a while, and your intake hose is going to be down in the water, so you'd be washing away the stuff that's on the ship with something that has much less radiation.

OK. And I'm not quite sure I understand, and this could very well be my—how was it that Mike appeared—Mike did have less fallout, is that right, or appeared to have less fallout?

No, Mike probably had very closely the same. It's true that the Bravo device was almost on the ground, whereas Mike would've been, the center of it might've been ten or fifteen feet above the ground. That makes a slight difference, not enough to explain what happened. I assume that the fallout from Mike was just about what it was on Bravo. Now, of course, for Mike, I wasn't there. I assume that nobody was staying on the islands, or at least most of the ships would—people would've been on ships and out of there, I think. And they knew there would be lots of fallout right in the center, and so that's why they—at least, that's why on Castle, on Bravo shot, everybody left the islands except for a firing crew. And they had to be rescued by—pulled off by helicopter. But that wasn't so surprising. We knew that the islands would get a lot of radiation. The cloud trajectory would be such that the fallout that fell from the fireball as it was rising and spreading, and remember I said it was probably fifteen miles—I guess they assumed fifteen miles across, and maybe it wasn't that big, but under that would be a whole lot of radiation. And farther out, on the edge but maybe still on the same atoll, the radiation would be expected to be less, but still too much to take a chance of people being there. So when they went back in after Mike, they found that things were about like they had thought, that there had been radiation there but it wasn't too hot. Well, they knew on Bravo that the winds would blow—first, the low-level air would be moving coming back towards the shot site. The wind was blowing in such a way that the cloud would be going up in one direction, but then it would get blown back again. And so you were going to get a good dusting on that atoll. And they just thought that the main amount [00:20:00] of fallout was going to come from a fairly small diameter source and the rest of it would be dispersed in the ocean. Instead, the source was very much larger in diameter than

expected. The winds went about like—not the very most favorable winds, but they were acceptable if their model had been right. And again, remember I wasn't involved with any of those kinds of decisions.

Sure, I know. When you're looking at it, and you worked on the device itself and the science of the device itself, and you've seen other atmospheric shots, I'm assuming, at this point?

Only Trinity.

That's right, only Trinity. And of course, this is a thermonuclear weapon; you expect it to be larger. Do you, in your mind's eye expect it to be a certain size, or what are you thinking as this thing is getting bigger and bigger, I guess I'm asking?

Well, I didn't realize it would have that big a diameter. And of course, it was a thousand times bigger in yield than the Trinity. And it was sitting on the ground, not a hundred feet above ground. They guess that it took—how much stuff did that thing put up in the air? [Sound of papers rustling] Yeah, they guessed about ten million tons of debris, just from the size of the crater and such things. Now, that's an awful lot of stuff.

Yeah. I can't conceive of it and I don't suppose anyone—

Whereas at Trinity, for instance, the fireball would've hit the ground and it depressed it a little bit, and it also certainly sucked up some dust, but the crater it left was just a little dimple in the desert.

Right. I've seen it.

It didn't leave a great big huge cavity. So an awful lot of stuff went up there.

Yes. And the other question that comes up through the development not only of this kind of science but any kind of science, of course, is that you don't know what you don't know. So when you said that this particular reaction with the Li7 was—

Inelastic scattering of a neutron on Li7.

Right. Was missed—this is maybe not a good question to ask you, but in retrospect, is it one of those misses that you're bound to miss because you haven't taken the science far enough, or could it have been caught? I guess that's the question in your analysis.

Let me put it this way. Once there was obviously some unknown reaction going on, it was very quickly discovered. It had just been missed. It doesn't mean it was easy to find, just that the people who were measuring those reactions didn't measure that one.

So in the experiment itself, then, this was a real big experiment, but it becomes clear that something else is happening that you weren't predicting, and they immediately understood or you immediately understood what had been missed.

Yes. There were some other reactions of Li7. I don't know if they had taken into account or not. It was getting the tritium with the first neutron—a neutron that hit it, and then you still had that neutron, and you had the tritium in addition.

I think I read [that] you – I didn't bring it – there's a book I was reading that's really not on the subject of Bravo. It's about the end of the Cold War, Thomas Reed, this retired Air Force general, and he has a little—he says your name and says that you invented that device at—
I had what?

That you were the inventor of or the creator of whatever made Bravo go. Is that accurate?

No, that's not the least bit accurate.

[00:25:00] *I'll send it to you in the mail. You can decide whether you want to respond.*

Let me describe my job a little bit. Now, I said Marshall Holloway was in charge of getting these bombs developed. He's the reason that [Edward] Teller left in a huff, of course. Then, in principle, Holloway's group would get all of their design information from Carson Mark. Now,

if you once ask who invented that device, I'd say the theoreticians who calculated something that they thought would work. The theoreticians were Conrad Longmire and also, to some extent at least, Marshall Rosenbluth. Well, Carson Mark was their boss, and he had a wonderful ability to seem to be able to sense what might be important and what wasn't. But if you also think about getting these devices built, if I remember right, it was only about sixteen months from the time the Mike was fired, which then we now know how we can make one bomb. It had to be weaponized in that sixteen months. Now, this was Jay Wechsler's bomb and he had to get—and, oh, it was an unbelievably complicated thing to manufacture. It's very simple to calculate, but very, very difficult to make. And that was sixteen months. Now, I came into what was going to be the Bravo shot much later than that and still had to get a bomb ready; I don't think there could've been a year from the time they said, well, the theoreticians thought they could design something and it could be made to work in less than a year, to get this thing built. Well, that's a pretty hard job because in the first place, they say they think they know, in general, how to do it, but they don't have enough detailed calculations, say, how big what should be and how much of this kind of fuel and a whole lot of details. So those have to come in later. First, they have to tell you, well, the outside dimensions. It's like, well, first make a bomb case, and then everything has to fit in it. OK, that gives them their room to work. And then they have to design specific dimensions and run calculations, see if that said that worked and so on until finally you have to—well, my job then was to go to Carson Mark and browbeat him for information that would fit the production schedule, and he'd say, here's the outside dimension. OK, what's the next thing in there? How thick is it? What's it made of? And they would have an idea, well, it's going to be some material or other and a thickness, like, oh, he would wave arms and say about like this, and so on. And then you had to tie down exactly what is it so somebody can make it. And

so I would find a time when Carson Mark was hiding and find where he was hiding and demand we have to have it now—

Why would he be hiding?

Because everyone is demanding these numbers right down. Anything to get one more calculation; so we said if we could get just one more from him, and you have to say no, we're running out of time.

OK, so I didn't invent anything, but I had to gather the information, transmit it to the [00:30:00] people who were building things, and see that it got built, and once built, that it was assembled and supervised the assembly. And after it was assembled, Holloway insisted that somebody be with that bomb until it was fired. So I slept under that bomb. And Harold Agnew would relieve me so I could go to lunches. But somebody was there.

This is now you're out in the—you're here with the bomb, and when you're also in the Pacific with the bomb.

No, not until we go to the Pacific. That's where suddenly it has to be available for the experimenters who are going to measure what happens. Well, these are very enthusiastic people and they're all in a hurry and they want to get their experiment all set up, and you can't tell what these guys are going to do. It's a different matter if the bomb is on a hundred-foot tower, like at Trinity. I suspect that there was somebody involved with building the bomb who was always there when anybody was on the tower; but it's easy to say now, we're all going back and go to sleep for tonight, and the military police [MPs] wouldn't let anybody go up. But once you get that bomb out there and it's all assembled, sitting in its place, and these experimenters have to set up their stuff, and they're going to be working day and night to get this done. And I woke up one night, hearing a drill motor going, and somebody was drilling a hole in the case to mount some sample. So of course, you have to kick them out of there. Well, that's about as trivial a job as you

can imagine, but they had to get their work done, too, and it was just impractical to tell the MPs who could be allowed in.

Right. Now, at this point, is the device on the island? Is it on a barge or where is it now?

No, this device was fired on land. What they did was pick, well, a very shallow place on the reef, dredge up sand and fill it in and make a tiny little island.

I'm asking because one of the guys I interviewed was a Marine on the [USS] Curtiss, I guess, which was the AEC [Atomic Energy Commission] flagship, I think, for Bravo, and he's talking—

No, the [USS] *Estes* was the command ship. I was on the *Curtiss*. The important people were on the *Estes*. So Holloway would be on the *Estes* and Al Graves and admirals and generals and so on.

And you were on the Curtiss.

I was on the *Curtiss*. Yes—I don't know, was he an enlisted man?

He was a Marine—I'm trying to remember. He was a guard, basically. He said to me, and I don't know that this is true, but the Marines were brought in for security purposes. This was a Navy ship and he was on some sort of security detail, and it looked like he was the orderly for whoever was the commander of that ship. But he was there when the bomb went off.

[Dr. Diven's note: This was probably an enlisted man in the Marines. It would have been an honor to be a guard on this voyage. Note the skipper's comments. Marines were guards on the water and Army on the land. The Marine captain of the guard and I shared a room on the LST.]

Well, I was just trying to wonder. Taking the bomb over from Enewetak, where we assembled it, to Bikini, where it was fired, it was carried on an LST [Landing Ship, Tank].

Yes, he talked about that.

And it was just one truck on a huge LST that could take lots and lots of tanks. And it was guarded by Marines, of course. And I was trying to think. I just can't remember the guy's name. I knew the captain of the guard, of course, because I had to be the one who would let anybody go near the bomb.

I have to go listen to that again, but he was in that—it was a very select and an honor to be chosen for that duty, it was my understanding. He was a young guy.

Yes. The captain of the LST that transported the bomb over, he and his LST had been hauling cement and gasoline and all kinds of construction equipment from Enewetak to Bikini. A dirty, **[00:35:00]** miserable job. And the Navy had to decide what LST was going to get this job. Well, this fellow had had his deck covered on one of his trips with fifty-gallon drums of gasoline and I don't know what in the hold. Anyway, the lashings broke and the gasoline drums started rolling around. And he did everything right to get it under control. He didn't make a mistake in what you do first and what you do second. He did everything perfectly. So he got the job. And so he had had this somewhat miserable job. He was a Navy lieutenant, not really a real high-ranking officer.

So he had the job of taking the bomb over. Of course, we did a trial run with a mock-up and things like that. But then on the real journey, they treated it as though it was a wartime operation. There were two destroyers criss-crossing in front of us. There were ships all around us, searching for submarines and doing whatever the Navy does. And he said, You know, this is the first time in my life that I have been in charge of a ship that was the most important one in the fleet, and everybody is required to get out of my way, and I go on my course and they protect me, but they don't dare bump into me. They stay away from me. He was very, very happy.

I can imagine. Now I'm going to have to go back and listen to what this Marine guy said to me. I should know this, but where was the device actually transported—which ship was it transported on?

Oh, an LST.

It was an LST the whole way from—?

Oh, no, not quite, not quite.

No, I mean from here.

OK, we assembled this thing—this is it. No, no, that's not it. This is it. OK. Now, we assembled it in our assembly building on Parry Island. Most of the assembly was done in Albuquerque as far as getting all the thermonuclear fuel and all that.

That's what I mean.

And then it was shipped to Enewetak. There, we put in the primary. I didn't have hardly anything to do with that. This was a primary well-tested and the GMX had it and they put it in. Then in that assembly building, where you had a crane and such things, it was put onto this semi truck and trailer and covered up so you couldn't quite see what it is, and then it was driven onto the LST, which had been pulled up to the beach on Parry Island. You know, they just have a big ramp that drops down and you drive down through the sand and up onto the ship. And then it went to Bikini. All right, this here is a little island that has been dredged up and just made this big. And then it goes across little spots of sand above the water to another island that you can hardly see in the picture. And then these will be line-of-sight pipes that go all the way from here to there.

Oh, I see, yes.

All right, so just a little island, big enough to hold a two-story building. You can see how big the [00:40:00] people are. [Looking at photographs] Here are some more things getting constructed. Now, here the bomb is going to be off on this little speck, and then this will be a bunker where these line-of-sight pipes come in.

Those are the pipes coming all the way down. Oh, my goodness.

Yes. So there's a causeway built [B.Diven 2005 1, 2].

Right. Oh, that's a better picture of it. Now, do you know if these photos are things I can get copies of, or do you know if these are still considered classified or—?

These are unclassified. You can see these numbers.

I'm noting them.

You recognize Harold Agnew?

Oh, gosh, yes. How long ago. Just look at that beard.

And then Marshall Holloway, and Wally Leland. [B.Diven 2005 3]

OK, now, I don't see numbers on these, so I'm just going to note that we've got an Agnew and a Holloway and a Leland. OK. Distribution—

Same people. Here's a very poor picture of Al Graves. [B.Dvien 2005 4]

Oh, that's Al Graves. OK, wait, that's a U.S. Air Force LML photo. Let me just note what that number is: 22478. That's 2/20/54. USAF LML photo of Al Graves. Great.

These are some of the people who—and I forget the names.

That's all right. So this is people working on Bravo.

Yes, these would be the people who were on the Estes, where there'd be admirals and generals and that. Stirling Colgate who was—

Oh, that's Stirling Colgate.

—at Livermore at the time.

Oh, he's coming for your symposium, right? [LANL symposium on Operation Castle, April 2005, part of LANL's Classified Heritage Series]

Yes. It's a very strange symposium because it's supposed to be about Castle, and instead of having some Los Alamos person, since they're mostly dead, I guess, and they did experiments, they have Stirling Colgate who happens to live in town.

Oh, he lives here.

He lives here.

I didn't know that.

This was Holloway's group. We were on a picnic on an adjacent island. This is an old ship that ran aground. And this is mostly DIRX people. A couple of them are American Car and Foundry.

Anyway, this is I and Shreffler.

Oh, that's you.

No, that's not me. No. Well, I'm pretty sure that is I. This is Shreffler. This is Agnew. I'm looking for Wechsler.

So you're basically in the middle there.

Here's Wechsler. And Leland again.

Yes, there's Agnew.

This one, at least, is I.

Oh, there you are, second from right in the back. [B.Diven 2005 5]

And here's Wechsler. There's Holloway. Trying to figure out why this particular group. He was in with the assembly of the primary. I don't know why.

Alan Carr [LANL archivist], I guess, mostly just pulled out a whole lot of pictures from that period and—

Oh, so you got these from Alan?

Yes.

OK, and he photographed them for you. I mean he made—it looks like color copies he made for you of them.

Yes, he made copies of them. He, I think, has them all on a disc.

Great. Then I'll just talk to him about getting that, and then your ID.

Let's see, there's I again.

[00:45:00] *Task Group 7.1. Yes.*

Oh, this is the warehouse group. That's not my picture. I don't know who that is. There's one of me. [B.Diven 2005 6]

Oh, that is you. OK, I have a number on this one. Great. D138-3. I'll get that one from Alan. And here's some color ones.

They liked to get pictures of Agnew. When he was director, this was a great big framed picture in his office. [B.Diven 2005 7]

For real. Agnew, and what is this fish? It's got teeth on it.

One he caught.

It's got some major teeth.

Yes, that's a barracuda.

It looks like a barracuda.

It is a barracuda.

Oh, my God. Agnew and barracuda. And he had that in his office when he became the director?

That was just there to let people know who's boss.

And that's you.

Yes. It's the same as that one.

Yes, that's right.

No identification, so you can't tell how to find it. [B.Diven 2005 8]

I'll just say Dr. Diven in Hawaiian shirt, and that should do it. And now these are actually photos of Bravo itself.

Right.

And Alan Carr got you these, too?

Yes.

Oh, great. Well, now I can ask him for these.

None of them are very good, as far as I'm concerned.

No, the contrast isn't very good.

And they don't give you any feeling—there's nothing to compare it to size-wise, and that's always a problem.

You know, I was—actually, you said the same thing. I visited Phil Morrison over Christmas at MIT, at home, and he had that book out called A Thousand Suns, which is photos of the bombs, and he said he liked the book, except for that was his problem: there was nothing to help you understand the scale that you were looking at. But this is an amazing picture. [B.Diven 2005 9]

That's a very nice picture, yes.

So at this point, we're not talking about the fifteen miles across, are we here, or—?

It may not have got that big yet, but yeah, that would've been the fifteen miles. But this is going to expand. So really, the fifteen miles would be this, I think.

The outside of the first cloud.

And that goes up, and then it will spread out in the stratosphere. More or less a hundred thousand feet up and it'll spread. I don't think I have anything more here. Haven't been able to get a picture of the LST, but here is one.

D312-4. [B.Diven 2005 10]

Well, this is not anything to do with the device, but this is the kind of ship—

Oh, great.

The LST is a big ship, but the lagoon at Bikini is too shallow to go anyplace except—well, that's where it's been dredged out. So the LST goes through a gap in the reef, and it would be [papers rattling] if they would be, and so, for instance, this, I think, is Parry Island, but it doesn't matter. Here goes the reef around here. There's the gap in the reef, so there'll be one over here. But one of them will have been a gap dredged so a ship can go from out in the ocean in here inside the lagoon and back to a sheltered place where it could unload.

I see. And so I'm looking at D131-9 here and that's a real good—it gives a sense—

It's a nice picture, but I don't know what the island is. [B.Diven 2005 11]

Yeah, but it gives you the sense of the logistics there, at least.

And so if this were—this is obviously not the shot island because it doesn't look like that. But the LST would've come through a gap in the reef around to a beach where it could unload. And then it would unload onto one of these little things that I think is an LSM, landing shipman.

Yeah, I think it was real close to the end.

Into something like this. [see again B.Diven 2005 10]

Which is D312-4. OK.

Where they can drop down a ramp and drive on or off. Right, so then you drive your truck.

You're just taking it from wherever the big ship was on the beach, drive it around, and drive it

[00:50:00] onto that. And then you go to your little island and unload it.

Now, what are these? There was a couple of ships at the end, and I'm wondering if those were the—

Well, one was the *Estes*, at least. They keep doing the *Estes* because that was the command ship.

It doesn't say but—And see, this looks like 12. See, I think it's identified somewhere. There's the *Estes*. [B.Diven 2005 12]

I can ask Alan Carr. He should know.

I'm trying to think. That—

With the 12?

I'm kind of thinking that was the *Estes* but the name just got—I'm pretty sure that was the *Estes*.

The *Curtiss* was an old seaplane carrier that was modified to be a bomb assembly ship. You know, we didn't assemble these monsters there, but it had a crew that knew about bombs and were properly cleared and all that.

Right. Now, would dignitaries ever come on board the Curtiss? Because this fellow I talked to said he recalled when some important scientist came on the Curtiss, and I wondered if that would've happened. Because you were saying most of the dignitaries—

Well, all the DIRX peons like Agnew and Wechsler and I were all on the *Curtiss*, but I don't remember any—well, so DIRX, we were the only ones. Holloway, the boss, was on the *Estes*. As for J-Division, it would be the same thing. There were a lot of J-Division people on the *Curtiss*, but Graves and [William] Ogle, Graves was the scientific director for the whole thing, Ogle was

in charge of the Los Alamos experiments. They were on the *Estes*. But then the peons in J-Division, including group leaders and so on, would be on the *Curtiss*.

On the Curtiss. Great.

Now, if you want to say they were important people, some of them, like Agnew, did become important people.

No, he was recalling a particular dignitary that came on the ship, and I'm just trying to verify whether that would've occurred on the Curtiss if you're saying the Estes was—it was some scientific leader, and so not a peon.

We certainly had better connections to the command ship than most of the people on the *Curtiss*. We had our own little radio that Los Alamos people used, and one of our fellows was down in the bowels of the ship and he could get messages from the *Estes*. And so we always knew, before the captain of the ship knew, what we were going to do.

Interesting. So you have more photos here?

No, I don't think so. I guess that was all.

What's this here?

Oh, no, that doesn't belong in these pictures. Just my orders to go to Bikini. [B.Diven 2005 13]

Oh, interesting, though. So this is—you're boarding 1500, 8 February. So it marks you as a civilian, but you still get orders even as a civilian?

Well, you're not really getting orders. It's just a standard form that they had.

Well, that'd be neat to get a Xerox of it to put with your stuff. I don't know how we can do that.

Oh, I can copy it for you.

[00:54:56] End Track 2, Disc 1.

[End of interview]



B.Diven 2005 1



B.Diven 2005 2



B.Diven 2005 3



B.Diven 2005 4



B.Diven 2005 5



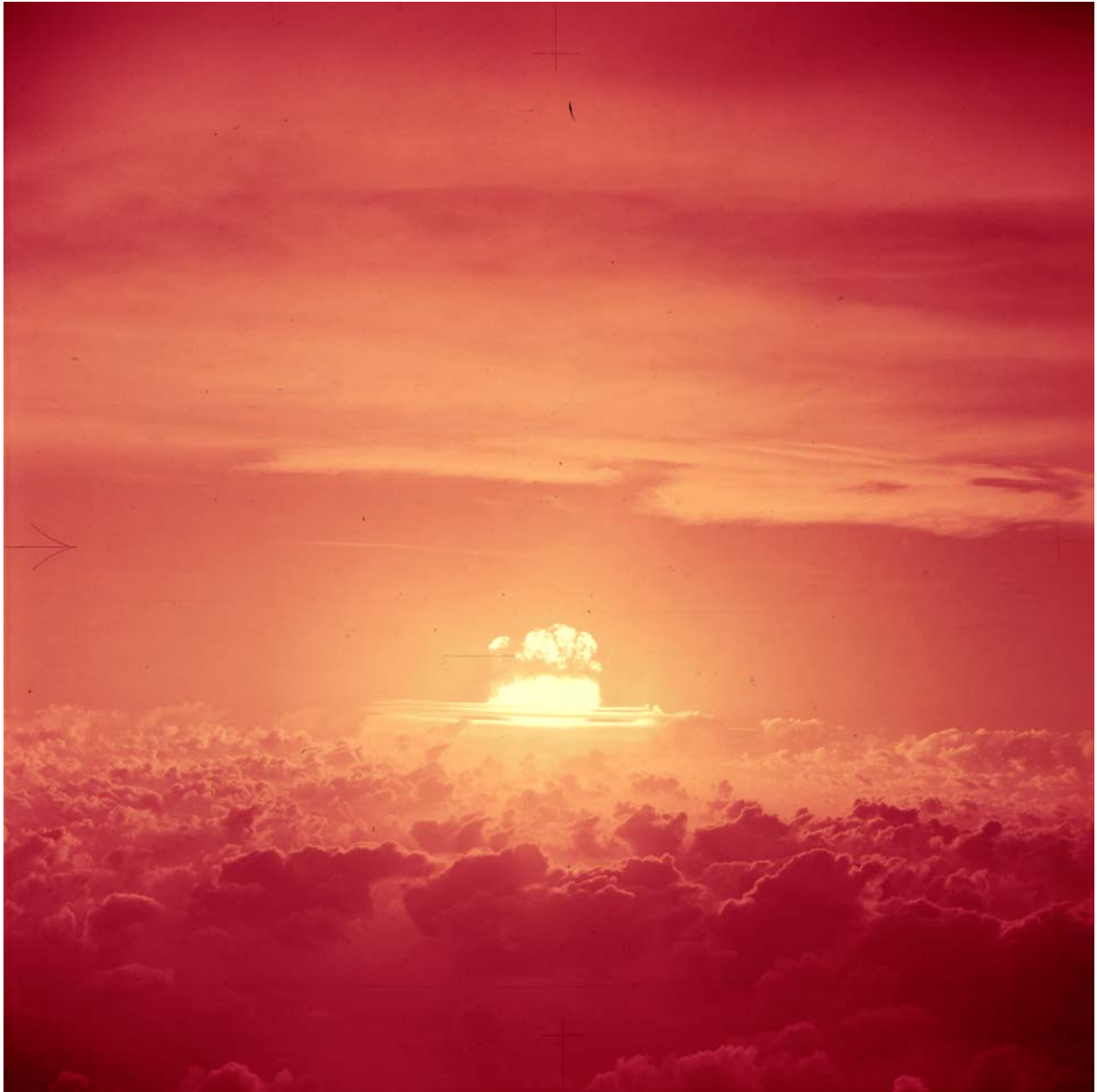
B.Diven 2005 6



B.Diven 2005 6



B.Diven 2005 8



B.Diven 2005 9



B.Diven 2005 10



B.Diven 2005 11



B.Diven 2005 12

AGO 187 (RUC), c/o Postmaster
San Francisco, California

BOARDING TIME: ¹⁵⁰⁰~~1730~~ 18 February 1954

AG 100 4

SUBJECT: BIKINI TRAVE ORDER # 27

BY: **Diven, Benjamin C.** Civ.

1. You are invited to proceed to BIKINI/~~XXXXXXXX~~ Atoll via USS LST-762.
(delete one)
2. Upon arrival, report to the Headquarters Commandant at the island of debarkation.
3. This is a ~~XXXXXXXX~~/Temporary change.
(delete one)

BY ORDER OF THE COMMANDER:

Dist:
1 - CO LST 762
2 - Mr. Diven
3 - J-3 File


WESLEY HIRON
LT., USN
Asst Adj General