

Question B53: Antisubmarine Tactics (British vs American);  
The Instance Up On The Clyde

We nearly lost both world wars by reason of the submarine. The public didn't understand this at all. There's no use going over the situation in the First War, but in the Second one we nearly lost to submarine warfare because we were slow in getting innovations into effect. We did not lose the war on this account simply because the Germans were slower than we.

The first point I think should be this. When NDRC was formed, it was done very simply. We got the order from the White House setting the thing up under provisions of the First War in regard to the Council of National Defense. Five of us met together. I was the chairman and we proceeded to divide the job up at once with Conant taking all the chemical affairs and so on, and Compton taking over radar and communications similarly and so on. Frank Jewett was in on one aspect of communications also. Having divided up in this way, each man then went ahead and formed his sections on various subjects. One of the sections was, very naturally, on anti-submarine warfare.

Each section, or the member of NDRC on behalf of it, talked to the corresponding groups in the Armed Services to get leads as to what lines of investigation might prove fruitful. But when we approached the Navy on antisubmarine warfare, we were flatly told that the Navy didn't need and

- 1) WWI and WWII
- 2) FORMATION OF NDRC  
(Repeat)
- 3) THE NAVY RESISTS  
ANTISUBMARINE  
WARFARE HELP

didn't want any help in this regard; that they had the whole matter in hand. [X-REF BACK TO P. 471] (They thought they had it in hand because they had sonar and they believed that was a complete answer.)

So, they didn't need any help. Now the Admiral who was head of Navy Ordnance at the time and who had this thing under his thumb turned out to be quite a chap in this regard -- Admiral Bowen [BOWEN IS CORRECT]. When we really got into antisubmarine warfare affairs, we were certainly not welcomed and it was a long, long time before we established any reasonable relationships. The fact that we finally did so was due to two men; primarily Tim Shea of the Bell Labs, who was quite an individual in many ways and who was a good smooth operator, and his second-in-command, Keith Glennan [NAME IS CORRECT] who became the president of Case after the war, a member of the Atomic Energy Commission and so on. Eventually they managed to work out a relationship that was some good.

But the Navy resisted. The extent of the Navy resistance can be shown, I think, by this. Admiral Bowen was at one time making a speech before the Newcomen Society in Washington. He drank too much before he spoke and he attacked me personally during the speech. The Navy heard about this and I guess told him that wouldn't do, but they didn't get really rough about it. But that was the atmosphere and it

- 1) WWII
- 2) NAVY RESISTS HELP ON ANTISUBMARINE WARFARE (Cont'd)
- 3) TIM SHEA & KEITH GLENNAN GET THROUGH TO THE NAVY
- 4) ADMIRAL BOWEN ATTACKS BUSH

was solved only after we really began to produce things that counted.

Right at the height of submarine power, before the tide had turned, I went over to Britain to confer on it. I certainly had conferences: Archambault set them up morning, afternoon, and evening. I'd be with groups of British admirals on one subject in the morning and another one in the afternoon and so forth. Fortunately I'd boned up a little before I went so that I didn't seem completely out of line.

It was a time when things looked pretty black. One of the sessions I had was one that I've mentioned already, [X-REF BACK TO PP. 428-429, 452D and AHEAD TO PP. 817-818] a full-dress session of the British Cabinet Committee on Antisubmarine Warfare held in the Cabinet Room at 10 Downing Street and presided over by the Prime Minister. Undoubtedly the fact that I was at that conference was the reason that British Navy was so completely collaborative in discussing matters.

Now all sorts of things happened on this trip, but the show up on the Clyde is probably one of the most interesting ones of the bunch. The British had a number of anti-submarine stations along the Clyde and one over in Northern Ireland at Londonderry. Incidentally, let me pause on that one.

I flew over there with Admiral Holland who was the officer who had been in command of the Ark Royal when the

- 1) WWII
- 2) BUSH CONFERS IN LONDON ON ANTI-SUBMARINE WARFARE
- 3) ADMIRAL HOLLAND

Germans reported that it was sunk. In fact, the Germans reported the Ark Royal sunk several times, but it continued on its way. On the airplane riding over, Admiral Holland was reading the book called The Ship by C. S. Forester. I asked him how it was and he said he thought it was one of Forester's best. When I was down at the airport something like a week later ready to take off for the United States, here came the Admiral's aide with a copy of that book. It's one of my treasured possessions naturally. I also had a grand session with him down at White's where we had dinner together. I remember going from there to Claridge's rather late at night through the blackout. There was a chap there who was also going to Claridge's and who volunteered to guide me, which he did. I couldn't figure out how he knew where he was going. It was absolutely dark as far as I could see; I couldn't recognize a thing. But he went without any hesitancy and we arrived at Claridge's safely. I found out later that he was the man who introduced Russian Ballet into the United States, name again gone from my memory. [EH to VB: S. HUOK?!] [VB to EH: PROBABLY.

All this is preliminary to talking about the Clyde. I went up on to the Clyde on a British craft which had been a yacht belonging to Mountbatten before the war. Archambault went with me and a British chap who was in charge of their antisubmarine laboratories. We moved from one station to another on the boat and lived aboard, of course. It was a very convenient way to do it. [X-REF BACK TO P. 468] When

- 1) WWII
- 2) IN LONDON ON ANTI-SUBMARINE WARFARE
- 3) ADMIRAL HOLLAND GIVES VB A BOOK
- 4) GETTING TO CLARIDGE'S IN THE BLACKOUT (LED BY S. HUOK?)

I joined the craft, I walked down the gangway and the skipper of the craft was waiting for me at the foot of the gangway. He and his executive officer, they being the only two officers aboard, of course, came to salute. I very carefully saluted the British Ensign and then turned around and returned their salute doing so even though I was in civilian clothes. Whereupon this chap said, "Captain Teacher, Royal Naval Reserves." [Reserve ?] And I said, "Why I only know of one Teacher in the British Isles. Before the War he used to make a beverage called Teacher's Highland Cream. Could you by any chance be related to him?" And he said, "I, sir, am that Teacher." Well, needless to say we did pretty well on our food aboard.

I had a bathroom with a pink bathtub in it. I don't know whether this was Mountbatten's taste in colors, but at any rate that's what I had. Archambault and all the rest of them kidded me continuously about my pink bathroom for the rest of the war. I'd wake up in the morning and in would come a parade of British Naval personnel bringing me tea and drawing the bath. So I lived in luxury for a few days and appreciated the chance to see how top Britishers lived even during the way.

There were many incidents. One of them I think is the most interesting one indeed. This was just before some of the best American and British antisubmarine weapons came into full use and it was quite a bit before the Germans introduced their schnorkel. Now if the thing had occurred

- 1) WWII -- LONDON
- 2) THE INSTANCE  
ON THE CLYDE

in reverse order, that is, if the Germans had gotten their schnorkels in very early, the situation might have been very grim indeed.

The best jobs that we were doing were done by reason of some of the operation research groups particularly the British one which studied the tactics and studied the history of all submarine attacks and out of these made analyses as to what worked and what didn't. Without the addition of personnel or anything else, they increased the number of kills merely by a bit of rather simple analysis of how to go about it.

The hunter-killer groups were introduced at that time by the British and as you know this was one of the principal things that finally stopped the submarine. The hunter-killer groups were made up of small carriers with some smaller ships and occasionally a destroyer or something of the sort. As a group they hunted out the submarines. They did not protect the convoys, but just went on their own to where submarines were likely to gather and hunted them down. This was combined with a very fine job of direction-finding on the submarine signals which located where the submarines were generally gathered. It was introduced by the British long before we did because of Admiral King's stubbornness and you'll find all of this, of course, in the Life of Stimson by Bundy. [JK to EH: WANT THIS?][EH to JK: HAVE IT.]

- 1) WWII
- 2) ANITSUBMARINE WEAPONS (Cont'd)
- 3) BRITISH HUNTER-KILLER GROUPS

Incidentally let's say in passing that we kept DFFing on the submarines throughout the war. Down in our Navy Department and also in the British, of course, there was always a map that showed the position of the German submarines. Why did the Germans keep up their communication with their submarines when this enabled us by DFFing to pretty well follow their movements? The answer of course is that they did not dare to leave their submarines out of control. That is, they were not sure enough of them so that they could turn them loose on their own. They had to be ordered from Berlin. This again is an indication of the difference between the German way of fighting the war and ours.

But one thing that I was very much interested in, of course, was the hunter-killer group. Now the two new weapons that were just coming into use were first: the British antisubmarine rockets; and second, the target-seeking torpedo developed in the United States and developed by our section on antisubmarine warfare.

To take up the rocket first. [X-REF FORWARD TO P. 754] This was a three-inch rocket that fired a solid iron or steel shell, non-explosive, but it was so shaped and so on that when it hit the water, it took a long course under the water at an almost constant submergence. Hence, if fired at a submarine that was just on the surface or just barely submerged, it was very likely to make a kill because it went for a long distance under water while it was still

- 1) WWII
- 2) DFFing GERMAN SUBS
- 3) BRITISH ANTISUB  
ROCKETS

deadly. If it hit a submarine, it went in one side and out the other. Since it made considerable gaps and these were likely to be inaccessible, it was pretty hard for the Germans to save their craft without immediately surfacing which of course subjected them to all sorts of things. It was a beautiful weapon and it was used in the Bay of Biscay quite effectively at a time when it was very tough to get at the German submarines moving in and out.

A target-seeking torpedo of the Americans was an equally interesting affair. This gadget was a torpedo weighing a few hundred pounds that could be dropped from an aircraft and which had on it some sonic gear so that it listened and when it heard a submarine it steered itself toward it.

Let me digress to tell the story of its first tests. It was tested down at New London against a tame submarine, an American one. The skipper of that submarine was a very skeptical cuss who was also very annoyed at having to hang around New London and make tests when he wanted to be out in the active war. So he was very far from cooperative. I wasn't down there. [EH NOTES: ? ] [VB to EH: NO. JUST REMEMBER THAT WE HAD A HUNDRED SIMULTANEOUS PROGRAMS.] He went to sea and he submerged and a plane came over and dropped the Mark II Mine -- of that's what we called it. The torpedo smelled a submarine or rather listened to it and turned around and rammed it.

- 1) WWII
- 2) BRITISH ANTISUB  
ROCKETS
- 3) AMERICAN TARGET-  
SEEKING TORPEDOES
- 4) TARGET-SEEKING  
TORPEDO TESTED  
AT NEW LONDON

Even without a warhead a torpedo weighing several hundred pounds, moving at twelve knots and hitting the side of a submarine made quite a dent and also made quite a racket inside. The torpedo bounced off but it did not disable itself. So that after it floated around for a minute, it said to itself, "why, there's that doggone submarine" and it turned around and rammed it again. In fact, it rammed the submarine seven times before it ran out of juice. After the test they had to dry dock the submarine to be sure that the dents had not injured its hull to the extent where it would be dangerous.

Well, I got up on the Clyde and I finally got to the station of the Admiral in charge of the British hunter-killer groups. From that station the British Navy was working out tactics and controlling the groups and so on. I went in to see the Admiral. I was received politely but also very coldly. I'm sure that part of this was due to the fact that the British were a mile ahead of us on this particular thing and knew it. They thought that we were stubborn -- and we were.

He was polite enough and asked what I came about and we started to talk. First I gave him congratulations on the fine job the British had done in developing the anti-submarine rocket and the fine things that it was doing in the Bay of Biscay. He listened very coldly. Then I said to him that I hoped that the American Mark II Mine would prove to be equally interesting to them although of course it was not nearly as far along; it was just beginning to get

- 1) WWII
- 2) TARGET-SEEKING  
TORPEDO TESTED  
AT NEW LONDON  
(Continued)
- 3) BACK TO THE CLYDE

developed in any quantity and I hoped they'd find some use for it. He said, "Yes, yes," but wasn't particularly interested.

Then I said, "Our tests so far have been excellent; seven sightings out of Newfoundland using them; we have a couple of kills. Of course I have all the skepticism you have in regard to proof of kills, but apparently these were genuine and two out of seven sightings is not bad." Well, he looked at me and said, "Now wait a minute. Will you say that again?" So I repeated it all and he called for his executive officer, bellowing out for his aide. In came his executive officer and he said to me, "Sir, will you mind repeating that a third time for the benefit of my executive officer?" I did and when I got through he roared, "Why in hell haven't I been told about this?"

To make a long story short, at seven-thirty that night the Admiral, his executive officer and a couple of his other officers and I were leaning over drafting boards and discussing whether this weapon should be carried on the first plane to take off or the second one and some other things like that. Arguing about whether the speed of the device was high enough and whether it could be increased, and in fact whether it made sense to increase it at the expense of range and so on -- the whole bag of technical tricks. You would have thought that we'd been working together for years. There was certainly no fridity left.

- 1) WWII
- 2) MEETING WITH THE  
BRITISH ADMIRAL  
ON THE CLYDE

At about seven-thirty, as I remember it, I said to the Admiral, "You know sir, I promised the skipper of the Sister Anne that I'd be aboard for dinner. I think I ought at least to get a message to him because I know he's starting out from here just before dinner to get to an anchorage or someplace or other before morning." He said to me, "If you'll give me another half hour, I'll make sure that you're aboard the Sister Anne for dinner." "Very good sir," says I and we went ahead on our discussion.

A half an hour or something like that later, I came out of his office and here was a car waiting. I stepped into it and it went down on the dock and I went down the gangplank to a P.T. Boat. As soon as I touched the deck the gangplank went up. The engines roared and we went up the Clyde at fifty knots and needless to say overtook the Sister Anne very shortly. I stepped aboard and we went down to dinner.

So that was one of the most fascinating episodes in the war. As a matter of fact, from then on the rockets and the torpedos did great execution among the U-boats.

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One more thing I might very briefly tell about the test of the British rocket that they put on for me over land, in hilly country as a matter of fact. [X-REF BACK TO P. 750] A submarine was marked out in white on the ground and they were training some of their pilots to use the rockets. I stood a little way from that target. A plane would come

- 1) WWII
- 2) MEETING WITH THE  
BRITISH ADMIRAL  
ON THE CLYDE  
(Continued)
- 3) BRITISH ANTISUB  
ROCKET TEST

along just skimming the tree tops when perhaps a quarter of a mile from the target, it would zoom up and then dive, shoot its rockets, pull out, and skim around the rest of the trees. It was an exceedingly hazardous thing for a pilot to do, of course, at that speed. But it was a thing that had to be done if that rocket was to be launched correctly at the right angle and at the right position in regard to the sighted submarine.

This was all on a very cold, drizzly British morning. After the exhibition we went over to the hangar and had mess with the officers who were doing this thing and some discussion about what was the best way to use it. So this is a pretty long story in regard to the antisubmarine warfare matter. [EH to VB: AS A MATTER OF FACT, NOT LONG ENOUGH. FASCINATING.]

[VB to EH: Why don't we ask Archambault if he has any record of my British visit, or knows where there is one. I don't think the antisub matter has ever been written up. Tim Shea is also still about. So is Keith Glennan.

[Did I tell about the cocktail party that Arch arranged?

[Also we could ask Ellis Johnson to answer some questions.

[We want to be careful however that we don't ask chaps to do a lot of work and then not use any of it.]

[END ADD]

- 1) WWII
- 2) BRITISH ANTISUB  
ROCKET TEST (Contd)
- 3) WORK NOTES ON  
BRITISH VISIT

There was the other side to this show and that was our own submarine activities in the Far East. There's a terrible story about that because we carried torpedos in our submarines, and skippers got into positions at [of ?] great risk and fired them against a Japanese ship and the torpedos wouldn't go off. I know about this pretty much because one of our chaps was out in Hawaii working with a group there. The Navy Command out in the Pacific modified the firing mechanism of the rockets they received from the United States. [X-REF BACK TO P. 475] This chap, Ellis Johnson, who later became the head of the Operations Research Group of the Army after the war, helped to design the modifications and helped to put them into use. [EH to JK: NOTE ELLIS JOHNSON NAME IN YOUR RESOURCE FILE.] This was heresy in the Navy, of course, but the new firing mechanisms worked whereas the old ones didn't. There was a great hullabaloo between the Navy Command Submarine Warfare in the Pacific and the Bureau of Ordnance in the Navy because the field was not supposed to modify the equipment supplied by Ordnance and so on. But they did it and I guess they did it in spite of orders. They were undoubtedly finally sustained no doubt. [EH to VB: WANT STILL MORE STORY!]

The reason was complicated technically but the real reason was this: in the Navy torpedos had become one of these isolated things presided over by chaps who'd been doing it for a generation and so tucked into their vested interests that no one else could interfere with them. They'd done things

- 1) WWII
- 2) TORPEDO FIRING MECHANISMS MODIFIED IN FAR EAST IN THE FIELD
- 3) ELLIS JOHNSON

their way for years and they continued to do so. When conditions changed and torpedo speeds went up and so on, they didn't change with them until they finally got caught with the old-time mechanisms and the new-time torpedos together -- and failure under critical conditions.

I think the Navy is far more likely to be slow on innovations than the Army or the Air Force certainly simply for the reason that the Navy for many years, for generations in fact, had been far ahead of the Army in utilizing techniques and modern methods. Since it had become accustomed to being superior, it had acquired a certain smugness and a certain exclusiveness on its stuff. Certainly in the last war we had this illustrated in regard to submarine warfare on both aspects of it. The British had some of the same but I don't think they had the disease as badly as we did.

[ONE "FOGGY" SENTENCE CUT HERE.]

Before the end of the war, the situation had entirely changed. King finally set up an antisubmarine warfare division (called the Tenth Fleet) reporting directly to him, independent of the Bureau of Ordnance, in charge of a highly competent officer whose name I again forget,

[EH NOTES: EDIT. RES. POINT.] [AM to EH: REAR ADMIRAL

FRANCIS S. LOW ?] and collaboration with that individual was excellent. There were no holds barred. We were brought, or our section was, into the intimate aspects of it. This story was exactly as it should have been at the beginning of the war, but wasn't.

- 1) WWII
- 2) U.S. NAVY AT START OF WAR WAS SMUG & BACKWARD & EXCLUSIVE
- 3) THE TENTH FLEET

Question B54: General Moses & The Trouble-making Britisher;  
General Henry & Army New Developments Division

[JK NOTES: CHECK BACK TO SEE WHAT WE HAVE ON THIS.]

1) WWII

[EH NOTES: PIKE ]

2) GENERAL WALDRON

3) WORK NOTES

Well, I have treated both parts of this question and I think sufficiently. But it reminds me of another thing, namely, General Waldron who went with me to France at the time I was taking up the proximity fuze matter. I don't know whether I've told that story sufficiently. If I haven't, I certainly ought to enlarge on it. He was the man who carried the artillery into Buna; he took a piece of shrapnel in his shoulder doing it. [X-REF BACK TO PP. 168 & 444]

He and I went to Paris together after he'd got restored to active duty and that was after he'd spent six months in the hospital. But I think I've told that too, so I won't say it twice. [X-REF BACK TO ]

Of course I judge you think it's a good idea for me to tell a story twice once in a while and then you can check up and see whether I am consistent in my stories even though both versions may be highly inaccurate. But I won't do it in this case unless you prod me. [EH to VB: IT'S VERY INTERESTING THAT YOUR VERSIONS ARE HIGHLY CONSISTENT; ONLY DIFFERENCE: SOME ARE RICHER IN DETAILS.]

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Question B55: The Lost Reports; Stimson & the Smoke Generator;  
Radar; Tony MacAuliffe and Jake Devers

Everytime I went to see the President I took a report with me and I also tried to come away with it. Usually this report had in it a summary on one page, and if I got an "OK-FDR" on that page I was all set.

[VB ADDS: A few short paragraphs with an OK-FDR on it was a powerful tool. It was as good as a set of formal orders. Probably it was misused, but I suspect I was one of the very few who ever got such papers.] [END ADD]

I remember one time that Mr. Stimson and I went to see the President and we had a particularly important report about the Atomic Energy Program. A single page can contain some rather far-reaching authorizations. As we talked about it the President said, "All right, I'll read the report and call you in." I said, "Well, Mr. President, wouldn't you care to glance at it right now when I'm here to answer your questions?" After a couple of attempts like that, Stimson said, "Mr. President, this young chap is trying to get you to sign that last page and get away with this report," or words to that effect. The President grinned and said, "All right." He looked it over and signed the thing and I came away with the report.

But one time I didn't succeed in doing this, and had to leave the report with him. After a few days I called up to see where the report was and to get it back. The White

- 1) WWII
- 2) "OK-FDR"
- 3) STIMSON
- 4) THE LOST REPORTS

House couldn't find it. By chance I learned that at just the same time General Marshall had put in a very important report and his had been lost in the White House too. The White House staff couldn't locate either one of them. We were both very disturbed of course, because having things like that floating around the White House wasn't a very good idea. Neither one of us thought that the care taken in the White House was any too good. [X-REF BACK TO P. 469]

At any rate a day or two later the White House called me up and said in great glee that they'd found my report. They were sending it right back to me. So up came a CPO (I think of the Navy -- at any rate one of the White House aides) with the report. He came in my office and presented it to me. I opened the first cover and lo and behold they had brought me Marshall's report.

I called in Sam Callaway, my secretary, and said, "Now, I want you to take this down." I asked the aide's name and dictated a memorandum to the effect that he had brought me a report, that I had opened the first page only and discovered that it was Marshall's report; that I had not looked further into the report than the first page, whereupon I had returned it to him and instructed him to take it back to the White House. I said to him, "If that is correct, I wish you'd sign it for me." He said it was correct so he signed it and he went back with the report. Whereupon I called up Marshall's office and said, "I've located your report," to one of Marshall's aides. "Where is it?" says

- 1) WWII
- 2) THE LOST REPORTS  
-- BUSH GETS  
MARSHALL'S

he. I said, "It's in the hands of a courier between my office and the White House on the way back to the White House." And he said, "Well, we'll be there by the time it arrives."

- 1) WWII
- 2) THE LOST REPORTS
- 3) STIMSON AND THE SMOKE GENERATOR

So they got hold of their report and somewhat later my own was found and returned to me. But that's about the way, I think, the White House staff handled a good many things.

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Henry Stimson was very much interested in all technical developments and I used to tell him about them once in a while, usually when we lunched together. One day I went in to see him about something. I'd just heard about some tests of a smoke generator and I had a photograph. The photograph was taken of a field from a place on the side of a hill; it showed two smoke generators in operation. From one of them, which was the one built by the OSRD group, a great billowing smoke cloud was flowing down and filling the whole valley. Alongside of it was a standard Army smoke generator which gave the impression that somebody had dropped a cigarette in the grass. [X-REF BACK TO P. 470]

Stimson was very delighted with the OSRD generator and said, "This is just what we need." At that time we were afraid of a Japanese attack on the Panama Canal. He said, "We'll get these all around the Canal and bury the place in smoke whenever there's any need for it." I said to him, "Now

Mr. Secretary, this is just a laboratory model that's put together out of hay-wire and pieces of glass and things. It's nowhere near even ready for production let alone being in production." But nothing would dissuade him, although I urged him to hold his horses until I began to catch up with things. When I left I was sure he was going to raise the devil.

So I got hold of my fellows and said for Pete's sake get hold of the corresponding men in the Army and get them ready for the remarks from the Secretary which were bound to come to them, so that they could say to the Secretary when he arrived, "Yes we know all about this and we're struggling to get it into production" and so forth. Now the Army group didn't feel that way at all but I think under that spur they really got going. At any rate the new type of smoke generator ultimately did get into production although whether it ever got to the Panama Canal or not I don't know.

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Ed Bowles was a member of the team at the Radiation Laboratory and was about the only engineer there. Then Stimson began to get interested in radar and asked to have someone detailed to his office who would follow up things for him and could advise him. [X-REF BACK TO P. 471] I wasn't at all enthusiastic about someone in the Secretary's office following up on such matters because I knew full well

- 1) WWII
- 2) STIMSON AND THE SMOKE GENERATOR
- 3) ED BOWLES

how thoroughly an inquiry from the Secretary could stir up strife between the military and my own sections. When he evidently was bound to do it, I recommended Bowles, and Bowles was appointed to serve in that capacity until the end of the war.

I think he became very unpopular with the Radiation Lab people and I think he probably became unpopular in other places. He wasn't any too careful, I think, about the implication that he carried the Secretary's authority. I think he was inclined to butt into things. But at least he did keep the Secretary informed as to what was being developed along the lines of radar.

One incident was this. I think it was the first three-centimeter airborne radar that was developed; it was remarkably good, you know, in the definition that it gave of the things it viewed. There was a plane testing it and Bowles told the Secretary about it and nothing would do but what the Secretary must see it. The next day a very embarrassed pilot, no doubt, took Bowles and the Secretary up in a fighter airplane of some sort or trainer, I don't know which. They flew out over the ocean and pretty soon there was a spot on the screen and the Secretary said, "What's that?" Bowles told him, "That's a ship ten miles away." They headed toward it and the spot got nearer and nearer and Bowles kept telling him what it was and how far away it was and so forth. The spot got to the center of the screen and Stimson looked over

- 1) WWII
- 2) ED BOWLES DETAILED TO STIMSON'S OFFICE
- 3) TESTING THREE cm. AIRBORNE RADAR

the side of the plane and here was a ship right dead below him. He got very excited about this. I don't think he knew that any such thing existed. Of course radar had been used in various ways before that, although not so precisely.

When he got ashore the Secretary told Marshall and Arnold about it and said with great enthusiasm that they ought to see it. Well, a suggestion from the Secretary is regarded as an order. So the next day a very disgusted Marshall and Arnold got up in this plane and watched a three centimeter radar. I don't know whether they'd seen it before, probably Arnold had, but at any rate, they took the ride and took the look. And I hope were duly impressed.

The job of keeping the enthusiasm of the Secretary within bounds was very difficult. It was genuine interest. He didn't intend to interfere with anything, but he just on account of his position couldn't help doing so when he showed really great interest.

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I think probably the name that you've lost from the end of reel 7A was that of Jake Devers and I've said a good deal about Jake. [X-REF BACK TO PP. 257, 449, 457] He was a grand chap and he was not at all conventional. I remember the time I went over on the proximity fuzes. I was down at his Army headquarters. I think it was Headquarters of the Seventh Army down somewhere toward the border of Switzerland

- 1) WWII -- STIMSON
- 2) TESTING THREE cm. AIRBORNE RADAR
- 3) JAKE DEVERS

on the Rhone. I was about to interview the ordnance officers of the various divisions and to give them the dope on the proximity fuze which they'd soon have in their hands for use.

We were having breakfast and the ordnance officers were just expected when in bounced Jake Devers into the room. Of course all the officers stood up at attention with a bang. [boing ?] I don't imagine Jake very often barged into that room during breakfast. He came over and grabbed me by the hand and said, "I know what you're over here on Van, it's great stuff and I hope it goes as well as you expect. I'd love to stay and listen to the yarn you'll be giving these fellows but I've got a bit of a fight on this morning," and he galloped out again. Now that's the kind of a fellow he was. [X-REF BACK TO PP. 445 & 450]

- 1) WWII
- 2) JAKE DEVERS  
& THE DUKW  
(Repeat)

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The thing that he did on the Dukw was this. He was training an armored division out somewhere in the Middle West. Somehow, I never knew how, some of the wild men who were developing the Dukw got one out to him. He tested it and he, I believe, wrote a report on it. Now I think he did this without orders. I don't think he was supposed to do it. Remember that at that time General Somervell was saying that the Army didn't want the Dukw, and wouldn't use it if they got it. But Jake tried the things out and got quite excited about it. That helped to break the ice and get the Dukw really moving. [X-REF BACK TO PP. 257 & 457]

The tests that Palmer Putnam put on whenever he could get a chance were likely to be something. I remember that gang made an amphibious jeep before they made the Dukw. The amphibious jeep was really something. I remember one day somewhere down south of Washington out in some woods where there was a little stream they tested the jeep. Palmer Putnam was driving it and he managed to get one of the top officers of the Service of Supply into the thing. I'm not sure but that this was Somervell himself but Palmer Putnam would know. [X-REF BACK TO P. 454] [EH NOTES: N.B. re PUTNAM]

At any rate, Put said, "This thing is good in rough country, General; let me show you." He barged over through some woods where there were some small trees, knocked them over and then came barging down the stream. There was a bank there about two or three feet high above the stream and he went over that at top speed and landed smack in the river with a great splash and proceeded to navigate around the river with his propeller and finally came ashore.

I think the General was probably scared stiff. I know that Putnam undoubtedly had done that stunt the day before, to be sure that he could get away with it. But the General didn't know this and I guess he thought he was in the hands of a crazy man. Now this was Palmer Putnam's stunt. I remember one test in the Dukw when the branch of a tree he'd knocked down swept a couple of fellows out of the truck. This sort of thing didn't bother Put to the slightest degree when he was on a rampage. His drive was what made the thing go, but it didn't make him popular with a lot of people.

- 1) WWII
- 2) PUTNAM'S DEMONSTRATION OF AMPHIBIOUS JEEP

Question B56: Monty & Planning for Exercises Against a  
Hypothetical Army with the A-Bomb

Monty didn't say "propose a topic for discussion,"  
he said, "Doctor, give us a text which we can discuss." [X-REF  
BACK TO P. 473

There isn't very much to say about the planning for  
the exercises. Monty didn't sit in on those usually; I was  
with a group of junior officers.

I remember when I started in on this thing I said  
to Al Grunther, "Look Al, I'm not too well primed on a lot  
of this stuff. These boys of yours are likely to take me for  
a ride. Tell them to go slow and be gentle, will you?" Al  
said, "Oh, I most certainly will." Which meant that he'd  
egg them on to get after me.

Those talks were very interesting in a number of  
ways. One, I couldn't have told even if I'd had a steno-  
graphic tape record of one of those conversations, by the  
method of approach to a subject, who was talking -- that is,  
whether he was a general or a captain; whether he was British  
or American unless I could tell by the accent. In other words,  
Grunther had produced there a really genuine collaborative  
system where rank was not controlling in discussions, where  
the junior did not hesitate to give his thoughts in the pre-  
sence of his senior officer. There was, as far as I could  
determine, not the least bit of jealousy between men of  
different nationalities, and this was an accomplishment of

- 1) WWII
- 2) AL GRUNTER & HIS  
JUNIOR OFFICERS
- 3) THEY BRIEF VB ON  
EXERCISES AGAINST  
HYPOTHETICAL A-BOMB

no mean order. [X-REF BACK TO PP. 472 & 504] [EH to VB:  
I'M DISORIENTED HERE AS TO TIME & PLACE...] [VB to EH: AFTER  
THE WAR AND AT ROQUENCOURT.]

- 1) WWII
- 2) BUSH SAILS INTO AN  
AMERICAN GENERAL AT  
MONTGOMERY'S LUNCH

I did have one session that was interesting.

Toward the end of lunch one day with Monty and some senior American and British officers, we got discussing the recoil-less gun and its use against tanks and the methods of handling it. This was a rare incident: an American General spoke up, after I'd expressed an opinion and said, "Oh well, of course we could hardly expect you to really understand this thing because it's not a matter that can be understood without military experience in the field." I got mad enough to let him have it. I told him a few things about the instances where the ignorance of the military had let opportunities [ ? ILLEGIBLE] slip. I think I used the fact that the military in the First War didn't appreciate the tank and could have ended the War if they really had and the instance of the completely improper use of poison gas and a few other things. I ended up by telling him, "Now look, I'll meet you on your own grounds. I may be ignorant of military matters but I'll warrant you're fully as ignorant of science and engineering. I'll meet you on your own ground, but I'll take no brush-off from you or anybody else." I don't remember what words I used but I know I was mad enough so I sailed into him.

Then, having done so, I felt very disturbed. Fortunately it was an American officer; I wouldn't have done it

Reel 12-A  
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with a Britisher of course. But I was Monty's guest and this was his lunch. I was quite disturbed as to how the old man would take it. When the lunch broke up and the American officer had gone and some of the British, Monty came over and shook my hand and he said, "You know, we owe you a vote of thanks. You really flattened that guy and he's needed flattening for some time." Again I don't remember the exact words but that was the sense.

So Monty had a very human side to him and I can readily see how Bradley could get along with him reasonably well except for the fact that Monty, I think, was always playing a bit of a game and playing for position. I think that's illustrated pretty well in Bradley's book. [EH to JK:  
RE-REMINDER: BRADLEY'S BLAST AT MONTY IN 1964--GET]

- 1) WWII
- 2) BUSH SAILS INTO AN AMERICAN GENERAL AT MONTGOMERY'S LUNCH

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Question B57: The New Radar to Get Planes Over The Hump;  
The Man in the Wheelchair.

No, there isn't any more to this story of radar to guide the planes through the hump, I think, than the story of the chap who broke his back and this we'll have to get from Hartley Rowe or Palmer Putnam [EH to JK: NOTE] or somebody.

The set was, I think, a specially contrived affair made in the Radiation Laboratory that would be able to pick up the plane and guide it even though there were mountains on each side of it with enormous reflections and so on. There was probably something special about it in this regard but it was along the main lines of development. The story of the chap that supervised the installation from the wheelchair I think is one that would be awfully nice to dig out because I don't think it's ever been told. [EH to JK: NOTE]  
[X-REF BACK TO P. 467]

- 1) WWII
- 2) REPEAT OF GET FULL STORY OF MAN WHO DIRECTED OPERATIONS FROM WHEELCHAIR

\* \* \*

Question B58: Truman's Cabinet Meeting; Attlee Conference;  
Archambault & the German Radio Set; Al Grunther;  
Art of Retiring; Newton Richards & Appro. Comm.

I told about the famous cabinet meeting and the Attlee Conference. [X-REF BACK TO PP. 728-736] I haven't told in detail the story of Archambault, the head of my London office, now a President of Stewart Warner and the German radio set. This story was told, I think, by Silverman in an article in the Saturday Post and I think it was probably pretty well told if we could get hold of it. [JK to EH: SHALL WE GET THIS?] [EH to JK: YES] Undoubtedly if we don't find it readily in any other way, Arch will have a copy somewhere and we can get it from him. I suggest we get that and that then if you have further questions on it we can go into them or go into them with Arch. [EH NOTES: N.B.]

Conferences with Al Grunther after the war. This doesn't seem to ring any bell with me. Of course I worked with Al during the war and afterwards as well, but I don't remember any special instance after. [JK to EH: ASK AGAIN?] [EH to JK: WAIT]

\* \* \*

This one of stepping out before being pushed out. Let me take a crack at that sometime. I've talked to you about it a number of times and I'd like to sit back and philosophize about it a bit but let's omit that while I'm deep in the matter of what happened during the war because

- 1) WORK NOTES ON:
- 2) ARCHAMBAULT
- 3) GRUNTHUR
- 4) ART OF RETIRING

this is really a much broader thing than just those experiences. In fact, it's something that I hope I learned very early. [EH NOTES: N.B.] [JK NOTES: VB TALKS ABOUT THIS ON PP. 504 & 515-518]

- 1) ART OF RETIRING
- 2) NEWTON RICHARDS  
BEFORE THE  
APPROPRIATIONS  
COMMITTEE

Finally on this particular question, Newton Richards' appearances before the Appropriations Committee. [X-REF BACK TO PP. 407, 507, 518 & FORWARD TO PP. 769-770] There were many interesting things about this. I never had any trouble getting money for the medical show. In fact, I was always urging the medical people to spend more money. [X-REF BACK TO P. 507] They were limited by two things. First, they couldn't organize as easily. They were limited on medical research personnel anyway and their problems were more long range and not as specific. But I took Newton up with me to the Appropriations Committee whenever there was any reason for doing so and I usually had a very interesting time. He came in only when the medical money came up.

I remember one time [X-REF BACK TO P. 518] when he had a list of about ten things the Committee on Medical Research was doing and when they came to that aspect of things, Representative Clarence Cannon, the chairman, let him get started telling about these. Then he said, "Doctor, you seem to have ten items there and our time is going to be a bit limited, so won't you pick out one of them to tell us about?" Whereupon Newton picked out the only one in the list that had gone wrong, where we'd gotten no results whatever. As he began to tell about it the Committee (who knew

me pretty well by that time) saw me trying to steer Newton off on to another subject. Whereupon they held him to that subject with great glee and enjoyed watching me squirm.

This, incidentally, was the piece of work which ultimately after the war resulted in cortisone. We were working on it because we'd heard that the Germans were using the stuff to help their pilots out. This later proved not to be the case, but we were trying to synthesize and we didn't succeed. [X-REF BACK TO P. 518] [EH NOTES: QUERY]

Now on that particular point I'll have to give a little thought to it and come back to it because I'm not dead sure that I've got the right instance and I'll have to think it over. So if you'll remind me I'll be sure that I've got the right situation in mind although I have very clearly in mind that Newton got going on the one poor result case. [JK NOTES: REMIND BUSH]

Another time before the Appropriations Committee Newton was getting pretty tired. It was toward the end of the war, he wasn't as young as he used to be, and one Congressman said to him, "Now Doctor, will all these things that you're working on help to lengthen the span of human existence?" "God forbid," says Newton, right smack into the record.

The next day or so, down came the record of the hearing. I looked it over quickly, and then told the fellow who had it to take it to Newton Richards but to bring it back to me. When he brought it back I found that Newton had carefully crossed out that question and answer. But I restored

- 1) WWII
- 2) NEWTON RICHARDS BEFORE APPROPRIATIONS COMM. DISCUSSING CORTISONE (Check again with VB)
- 3) NEWTON RICHARDS "GOD FORBID"

it because I thought that ought to be in the permanent records of the United States Congress, which it is -- all in printed form. I believe I called Newton's attention to it when I got the printed copy. [X-REF BACK TO P. 507]

Newton just exuded reliability and capability and everything else. The Congressmen always ate out of his hands and he could have had anything he asked for from them. It was merely because he was so obviously utterly honest, utterly devoted and utterly capable.

Newton Richards, incidentally, was the man who first worked out the process by which the human kidney operates. He is generally regarded as the grand old man of American medicine. He is not an M.D., he is a Ph.D., a physiologist. He has an M.D. but that's an honorary M.D. from the University of Louvain. [X-REF BACK TO P. 403] Fortunately or unfortunately or something, they never give honorary M.D.'s in this country. [EH to VB: HE HAS AN HONORARY M.D. FROM UNIV. OF PENNA.] They came as close to it as they can when they made me a fellow of the American College of Surgeons. When this first came up I remember saying to Newton, "Oh thunder, I don't think I'll go out to the Pacific Coast for this." He told me I was a damn young fool and I'd better get busy and get out there, which I did. I could tell many stories about Newton if we wanted to get them. He was a lovely old fellow and he still is for that matter -- still going strong. His influence was magnificent. [JK to EH:WANT MORE?] [EH to JK: YES]

- 1) WWII
- 2) NEWTON RICHARDS
- 3) "GOD FORBID"
- 4) RICHARDS'  
HONORARY M.D.'s
- 5) VB's HONORARY FROM  
AMERICAN COLLEGE  
OF SURGEONS

Question B59: Primary Rules for Organization; Merck Board

Well, I don't think I want to dictate a tract on the art of management. What those primary rules were were little things like this. When you delegate, you leave the man that you delegate to to handle his own affairs with occasional advice to him, consultation with him, but you never interfered. Nevertheless you have the responsibilities for his mistakes.

Well, on to another one -- that when one of your subordinates makes a mistake, take it up with him privately, never in the presence of anyone else. Don't let anyone else even know that you ever heard of it. When you take it up with him, take it up in the way that doesn't say, "now God help you if you make another one," but which says, "I can remember when I made a boner like that and I felt like the very devil and I don't doubt you do, but we'll both survive it."

Then the question of how the chief of an organization gets information without interfering with the organization. How does he talk to a subordinate, or should he ever talk to a subordinate without going through the chief. Little things like that; the things that everybody ought to know but very few people do know and that get more trouble into an organization than I can think of due to any other cause. [X-REF BACK TO PP. 65, 513, 537-538]

1) PRIMARY RULES FOR  
AN ORGANIZATION

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Now this brings me to the end of a pack of questions 1) WORK NOTES  
which I now have before me. And after answering B59, I haven't  
a single question left on my desk. Hence even though I have  
filled only one side of reel 12, I'll stop here and deliver  
reel 12 in its bifurcated condition over to where Patty can  
get a crack at it and I wait your further questions. With  
the fervent hope that the next batch of questions will be a  
darned sight easier to answer than this one has been.

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NO SIDE "B"

END REEL #12

EH NOTES:

END PHASE ONE -- EH QUESTIONS & TAPE-RECORDER  
ANSWERS, VB. 1964-65