

THE ELEANOR ROOSEVELT PROGRAM

May 25th, 1951

Description: In the opening segment, ER and Elliott Roosevelt discuss partisan rivalries in both the United States the United Kingdom. In the interview segment, ER discusses advances in military technology with Sir Robert Watson-Watt, a British scientist and developer of radar defense equipment.

Participants: ER, Elliott Roosevelt, Sir Robert Watson-Watt, British scientist who developed radar for defense.

[ER:] How do you do? This is Eleanor Roosevelt speaking to you from Europe where I'm attending the meeting of the United Nations Human Rights Commission.

[Elliott Roosevelt:] Early in 1935, before the world had ever heard of radar, Sir Robert Watson-Watt, a British scientist was writing his air ministry about the possibility of radio location, or spotting objects at various distances by radio. What radar means in both peace and war will be told by Sir Robert Watson-Watt himself a little later on in his recorded interview with Mrs. Roosevelt. Now, I think our announcer has something of interest to say to you and then mother and I will talk about two men who have recently created great debates within their governments, MacArthur in the United States and Aneurin Bevin in Great Britain.

[Break 1:00-1:08]

[Elliott Roosevelt:] Mother, now that uh we've had our trip from Geneva over to London and back, I would like to ask you a question because uh I am very much interested by that fact that two of the Western nations are now enjoying a very great crisis in their history. In the United States we have the battle that is going forward between those people who espouse the beliefs of General MacArthur and those who espouse the beliefs of President Truman. And in England we have an equally deep-seated argument going forward between the left-wing of the Labour Party as led by Mr. Bevin and uh the Prime Minister Mr. Attlee and actually, I suppose that uh Mr. Attlee represents practically the same attitude on foreign affairs and preparedness for war that Mr. Churchill and his Conservative Party does. What would you say is the points of similarity between these crises and, ah, what do you think the underlying causes of the—of these uh rifts that exist that go straight through the entire population of both England and America today? (2:31)

[ER:] Well, you see different kinds of similarities of course and different kinds of rifts, but um I should say that it was not exactly identical; it was simply that there was great unrest in both countries. In both countries, everybody wants peace but in both countries certain portions of the people have realized, um, and believe that the only way to have peace in a world where there is one great power that is arming and very strong or ready, is to be strong too, because the philosophy of the USSR is a philosophy of world conquest. Now, you can't honestly say of course that you can fight ideas just by armaments, you have to do both. You have to uh fight ideas with ideas, but where there are armaments you also have to have armaments. And uh I, in-in getting those armaments uh you have to pay for them. They're the only things that produce nothing that are just wasted, therefore uh the people have to sacrifice in order to have them. Now, in Great Britain um the rift came over the giving up of certain social services in the health program, but it went deeper than that. It immediately was said um, "We don't believe ever in asking the people to pay for a certain part of their health services um that is giving up the whole idea that underlies our social changes that we've brought about and we do not think that it's necessary to do this in order to arm, we

consider, in a very extravagant manner,” and um at the bottom of that lies the hope of course that um there will be a peaceful world and that um those people who want to go on with their social experiments can go on without a break.

Um, now, in our country it's a little bit different. Uh we want a peaceful world just as much and uh many, many people, um, for—want to finish the war in Korea and can't understand that uh you can't finish a war when your uh enemy refuses to even talk about having peace. So when General MacArthur uh says, “we're fighting war in a way that I, the general in command”, and by the way, it's interesting that he's never mentioned the fact that he's the general in command for the United Nations. I've been reading reams of his uh, speeches and reports on what he said and I haven't found a single time the mention by him of the fact that he was the commander for the United Nations and that this isn't a United States war in which you can just go ahead and do what the United States wants to do, but it's a United Nations war, entered into jointly by all of us to stop aggression and in stopping aggression to protect us all from aggression, not just Korea, poor little Korea uh is the peg again, like a dentures on which we—on which the people want to pay for—on which the whole thing hung, but the deep thing is that we had to stop aggression and this time, straight out communist aggression, not by the USSR, but certainly instigated by the USSR. (7:04)

[Elliott Roosevelt:] And completely supplied by the USSR.

[ER:] Completely supplied by the USSR. Now General MacArthur began to announce uh political um decisions which he made about the war in answer to letters, in speeches which he uh sent home, and so forth. Um the question of whether he could be allowed to do that was a purely constitutional question. It never should have created so much excitement. Uh it had happened before in Lincoln's day under our constitution, a commander in the field must fight his battles, but he does not make policy—

[Elliott Roosevelt:] I'm interested by your reference to ah—in Lincoln's day ah was a—a commander in the field removed—[ER: McClellan!—]by President Lincoln? Well, that's what I wanted to have you explain.

[ER:] Why of course, McClellan then ran against him for president.

[Elliott Roosevelt:] There is a historical uh-uh-uh, time when exactly this same thing happened and in that instance, ah, the opposition party to President Lincoln, the forerunner to our present day Democratic Party, nominated General McClellan to run against President Lincoln, is that right?

[ER:] Yes, but of course the circumstances are very different, but never the less, it's-it's similar in that way. Now, it was perfectly natural, I think, that um the people who had made a very great hero of General MacArthur and he was a hero and a great general and he was deserving of all the honor that the people could give him on his return from the war and he had not come home sooner and he was deserving of all the reception that people gave him. But it should not cloud the fact that his removal was not a question of cruelty or being unkind, it was a purely constitutional question that the people of the United States settled years ago: they wanted their policy decisions in the hands of the civilian heads, not in the hands of military chiefs—[Elliott Roosevelt: Well—]and that's at the base of that. Now, there's one other thing I'd like to say and that is that it seems not to have been thoroughly well understood that while General MacArthur says what he wants to do is to bring the war to a close, he wants to bring it to a close by widening the area, by helping Chiang Kai-Shek to take the war to the mainland of China which would be a tremendous operation with our ships and by bombing in Manchuria which might not bring in Russia. General MacArthur didn't think that going across the 38th Parallel and up to the Yalu would bring in the Chinese Communists, but it did. Now, if we bomb in Manchuria there is just a faint chance that it might bring in the Russians and we'd begin—

[Elliott Roosevelt:] Well now wait a minute, why is it so faint? Uh is not the-the Soviet Union bound by a pact that they have recently signed with Mao in Moscow that they will come to the defense of the Chinese communist government at any time the Chinese government is attacked upon its own territory? (11:02)

[ER:] Yes, that's perfectly and it's true that we've kept up the fiction that the um troops fighting in North Korea uh were volunteers. For that very reason that if uh the Chinese communists had actually been under attack we would have had—they would have been able at least to demand from Russia uh-uh that she come in, and—from the Soviets, that they come in and support the Chinese communists.

[Elliott Roosevelt:] Well now, we've gotten a little far afield from the original question, but I see our time is running out and I just wanted to close by asking you one question and that is: do you not feel that while the-the crisis was brought about in Great Britain by a man on the very far left of government circles and in the United States by a military head who stands, politically speaking, in the very far right hand corner of the field ah that while they have those varying points of view that have brought about a crisis that it has been brought about and is existing because of a deep-seated dissatisfaction on the part of the British people and the American people as to the goal, what we—where we're going, why we're going there, and a clarification is desired on the part of all of our people as to just what we do want to accomplish in stamping out and winning this battle against communism in the world? (12:41)

[ER:] Yes Elliott, that's true. But I asked two members of parliament in England what their foreign policy was and they said it was a prayer and I think that that probably is exactly what would have to be said for us because none of us know the circumstances surrounding what the next steps we take have to be and it wouldn't make a bit of difference whether the Conservative party was in power in England or whether the Republican party was in power at home, it would still be a prayer for all of us that we stay at peace.

[Elliott Roosevelt:] Well, on that note we now go on to our announcer.

(Break 13:20- 13:30)

[ER:] With the stepped up Pre-Armament Program being stressed throughout the world despite the fact that such rearmament is with the objective of preventing war rather than provoking it, where there are armaments, there must also be defense against armaments. One of the most important of these is radar, and I am honored to have with me in London today, the pioneer of British radar. It gives me great pleasure to introduce to you Sir Robert Watson-Watt.

[Sir Robert Watson-Watt:] Mrs. Roosevelt, it's a very great honor to be with you in this program—[ER: well I—] kind of an Anglo—renewal of Anglo-American cooperations, which have been very dear to me.

[ER:] I'm very happy to have you, Sir Robert, I know that you've been in the United States and it's very nice to have you and have this talk with you today. I'd like to begin by asking you how uh the British development of radar was initiated?

[Sir Robert Watson-Watt:] Well, so far as I know, it began with a rather odd kind of question put to me, an eminency said to me, "What do you think about a death-ray for, ah, destroying aircraft or for incapacitating the crew?" I said I didn't think much of it, I thought it wasn't a very good bet. But I said, "If you would like us to locate aircraft for you eh we can do that, I think. Also, it won't be easy." Well, they naturally said, "Well, go ahead and tell us what—how you think you can do it." And uh I wrote a document which, I suppose is one of the minor sheets of history, a memorandum in February 1935, which eh convinced myself at least, that we could locate aircraft quite a long way off. [ER: That's interesting. The—the fundame—one of the fundamental things in it was, in fact, borrowed or stolen if you like, from

America; my friends Brighton [unclear] in America, in the Canadian Institution had done some radio work that was absolutely of the first importance to our radar application. (15:48)

[ER:] That's very interesting. When did its use first become practical and how effective was it?

[Sir Robert Watson-Watt:] We convinced ourselves by a comparatively short series of trials. It took us about two years to be sure that our first optimistic promises were likely to be kept and one of the historical bits was that, in the fall of 1937, the Air Staff, having seen some not very satisfactory demonstrations of what we were getting ready, thought they were good enough to redesign the whole of eh the air defense of Great Britain on the assumption that our promises were really well founded. So, you may say that scientific planning for this bit of air defense began in 1935 and military planning came to a crucial point in 1937.

[ER:] Ah, in—in '37?

[Sir Robert Watson-Watt:] In '37, we did an air exercise then which eh really looked very—

[ER:] Well that was when actual radar defense started? In '37? [unclear]

[Sir Robert Watson-Watt:] I think that it would be fair to say that it was really a going concern then and eh within the succeeding year, we put it onto a really businesslike footing. When uh Mr. Chamberlain was going to and from Germany in September 1938, we already had four radar stations on the Thames—around the Thames estuary ensuring that London wouldn't be taken by surprise by an air raid. So, at that particular time, September 1938, London was given—was already in possession of its first radar defense and that system of four stations went on a continuous watch in September '38 and the watch wasn't interrupted until after VE-Day. (17:58)

[ER:] It was given up—eh, it has been given up more or less?

[Sir Robert Watson-Watt:] Well, eh, I couldn't say of my own knowledge how much of it is going now, but there was a period at least, after VE-Day and before VJ-Day, that—in which we felt we could eh put the stations on what we call a “care and maintenance basis”.

[ER:] Well now during the war, of course, you must have enormously um increased all this, in fact, I suppose you feel that the Battle of Britain would have been lost had it not been for radar well then there must have been also um more than—you must have done more for other parts of the country.

[Sir Robert Watson-Watt:] Yes, we had a tremendous race against time eh it was part of my job to sell the necessity of radar and even in 1935, I was saying to my political and military friends, “Every week that passes is one percent of the time that we have a right to count on.” And after we got this eh first little defense round the estuary; we spread along the coasts, up to the east coast of Scotland to cover the big naval base of Versailles, down the English coast, round the south coast of Portsmouth to protect our other big naval base and, um, gradually, as the, as the war progressed, we spread this coastal chain right round the-the United Kingdom. But that of course was only a little bit of the whole enterprise. Having got these ground stations going, we started to put radar stations in the air, but we'll-we'll leave that for the moment and go on to what you were saying about the Battle of Britain and so-so. (19:43)

[ER:] Well um I wonder um if radar, and the use and the—was also um if you could use it in, um, watching for U-boat warfare and the conduct of U-boat warfare.

[Sir Robert Watson-Watt:] That, yes, that—that precisely brings in the radar station in the aircraft, but first, I think I didn't answer your question about the Battle of Britain. I believe, it's—no one can form a final judgment on a thing like that, but I genuinely believe that without the radar chain, this island would have been successfully invaded. I believe that the—the fighter force, which as you know had the comparatively small numbers of aircraft then, couldn't have maintained the—what they called the standing patrol method of being ready for attack. And it was only because radar allowed them to sit on the ground and knowing that they could get into position quickly that allowed us to conserve our fighter aircraft and to defeat the daytime attacks. Well, then, on the U-boat side, we found eh quite early in the pre-war period, I think at about the middle of 1938, we sort of stumbled in as amateurs into a naval exercise and we discovered the eh one fleet by radar, with a single installation, the only one of its kind in the world and that led us on to fitting radar into the reconnaissance aircraft which looked for U-boats in the Bay of Biscay in particular and then in the wider Atlantic.

And, there were, I think it may fairly be said, three phases of the Battle of the Atlantic, the anti-U-boat battle there, and I would say that each of these phases, in turn, was won—couldn't have been won without a particular radar set and a different set in each of the three battles. We knew uh pretty well what the enemy ought to do in all, but to defeat our eh first radar efforts against the U-boat, he was a bit slow in doing it, but he did it, but by the time he was ready to defeat Mark-I, if we can put it that way, we had a Mark-II, which gave us another lease of life and we ended—effectively we ended the Atlantic battle with a Mark-III equipment. We called these things ASV, Air-borne equipment for Surface Vessel detection. And ah radar, of course, couldn't have won any battle by itself, but on the other hand the battle couldn't have been won without these radar sets in the air and the corresponding things in the—in the naval vessels. (22:42)

[ER:] Um it's most interesting and um I wonder if it won't really change um all war in the future because as radar gets very much better uh developed you really will be able to have a constant knowledge of what is approaching your country, won't you?

[Sir Robert Watson-Watt:] Yes, it isn't difficult to get an almost complete watch on the things that are near your shores. The trouble is, how far off can you detect. [ER: Can you—] And as they get faster and faster in their speeds of course you want to get farther and farther away in your actual first detection and there's—there's quite a stiff radar job to be done in stretching out our invisible frontiers by using better radar sets.

[ER:] I uh think I should tell you an amusing little story. I got into a taxi cab in New York one day and the taxi cab driver turned around and he said, "I had a young officer in here the other day, Mrs. Roosevelt, and he said we needn't worry about the bombs from anywhere else, atomic bombs or anything, because you could perfectly protect the country by radar. What is radar?" [ER and Sir Robert Watson-Watt laugh]. I was just—[indistinct over laughter]—miserable because I could no more explain radar to my taxi cab friend, but I began to tell him that I didn't think we could be quite so sure of protection as all that as yet, though I couldn't quite explain what radar was, but I-I had great amusement out of it because evidently the young officer just told him that this was the answer to all future protection.

[Sir Robert Watson-Watt:] Well, it tells you what may be going to hit you, but it doesn't stop it hitting you unless something else happens.

[ER:] Well, not for one second or two seconds we must stop this interview and then—and we will come right back.

(Break from 24:51 to 24:57)

[ER:] We're resuming our talk uh in London with Sir Robert Watson-Watt, and I would ask you, Sir Robert, uh many of us grieved over the loss of the British submarine, Affray, which is seen such an inexplicable um accident, and uh I wonder if radar has been able to discover anything about it?

[Sir Robert Watson-Watt:] Well, of course I shouldn't have any direct knowledge of that particular event, that very regrettable thing. But eh I think what I can say is say that although we felt radar could do an awful lot of things and do them well, there was one complete defeat for us in the radar world. Radar, as you know, involves sending out radio waves and allowing them to be reflected from some material object, say a surfaced submarine and interpreting the information they bring back. Well, it's one the comparatively bad blows that we had, we knew about it before we started radar, that radio waves don't at all easily penetrate water. They won't go under the surface of the sea water by more than a comparatively few feet, unless they are very long radio waves indeed. When we were eh developing radio communications, you may remember that we used to have enormous, tall towers in our trans-Atlantic signaling stations. That was because we wanted to use very long wavelengths indeed to get across the Atlantic. Well, these long waves will go through the sea—the sea water, and you can communicate with submerged submarines by using those waves. But very unfortunately, long waves won't bring back intelligible radar information and so the first defense of the submarine that we were hunting in the anti-U-boat war was to submerge, and we lost him completely by radar and they—there doesn't seem very much hope of getting away from that difficulty, it's just one of the laws of nature that one can fight against, but can't defeat. (27:23)

[ER:] Well, somehow in the end you always do seem to find ways, so we'll hope that you will in this too. But before we went on the air, you mentioned the Oboe and Rebecca /Eureka, what are these?

[Sir Robert Watson-Watt:] Hm, well these were two; I think two of our most picturesque devices. It was, of course, very important for us to do real precision bombing on the armament establishments in the—Essen was one of our special—very special targets. And the intensity of the defenses there made it important that we should get the bombs dropped very precisely despite the heavy fire against us. Well some of my colleagues devised an extremely pretty scheme, which we called Oboe for no particular reason, it's eh it used notes that—that sounded like the notes of an oboe, but what happened was this: there were two people sitting in tiny little vehicles, one somewhere on the—on the tip of the Kent coast, just at the mouth of the Thames, one up in East Anglia, they send out radar signals which automatically affected an instrument in the bomber, the instrument sent back a coded radar information, nobody had to intervene in the business at all, you could see it all happening automatically. And that radar information was so precise that the two men in England knew with an accuracy of better than 100 yards where their particular bomber was 250 miles away over Essen. It really was a very elegant device. Then Rebecca/Eureka, it wasn't so, perhaps so elegant, if I go on using that scientists' word, but it was extremely valuable. Eureka was a very light radar-responding device, which had such good manners that it spoke only when it was spoken to. Rebecca came along in a troop carrying aircraft, dropping airborne agents or messages or materials and Rebecca was seeking out this beacon ah—Rebecca was a short for Recognition and Beacon work. It eh sent out radar pulses which said to Eureka, "Where are you? Where are you?" Eureka replied, "I am here," and the airborne materials then could be dropped over the Eureka beacon, which had been put there by ah an agent already behind the enemy lines. So it was, Rebecca/Eureka was a very powerful means of helping resistance movements in particular. (30:11)

[ER:] Oh yes, it must have been a wonderful thing for the resistance movement. That's very interesting and in a way almost um an adventurous kind of a story. (ER and Sir Robert Watson-Watts chuckle)

[Sir Robert Watson-Watt:] It certainly was.

[ER:] Well now, have Great Britain and the United States cooperated in the development of radar or are they working on different systems?

[Sir Robert Watson-Watt:] Now, I can be almost lyrical about this. Let me say that I believe that in the whole of our tremendous cooperation in eh the 1940 to '45 period, there was nothing that compared with the intimacy and the productivity of the cooperation between our American scientific colleagues and ourselves in radar. It was the most heartwarming thing that you could think of. We didn't always agree with one another's ideas as to—as to what could be done, but eh there was—it was quite impossible to sort out what was the British contribution and what was the American contribution. It was just one job and it was magnificently done. (31:19)

[ER:] I wish that existed on a broader scale. I think that that just now that spirit would be helpful in a great many things. (ER chuckles)

[Sir Robert Watson-Watt:] I don't know whether—I think it probably exists in radar still and I'm sure it exists in the other fields that I don't know, but I-I should be very happy to think that we were as close together on radar now as we were in 1943.

[ER:] It is—it is the way to accomplish things, I think. Some time ago, in New York, Major De Sewerski was my guest and, as you know, he believes that any war of the future, if there has to be one, will be largely a war of the air and that that is the only really important thing to think about. Do you agree with this?

[Sir Robert Watson-Watt:] Well now, scientists have got themselves into very bad order by talking about things that they don't know very much about. They know an awful lot about science, but I'm not sure that they know an awful lot about people, about politics and about strategy, so I wouldn't like to-to commit myself very heavily. I would say that I believe that airpower is the most important eh material element in our eh our defense of the West but I would certainly not agree that we could depend wholly on airpower. We should certainly lose any engagement in which we went in without adequate airpower, but I think airpower is-is the overall, indispensable cover for operations which must involve the other arms and above all the arms of the mind, in our defenses.

[ER:] Well, evidently airpower um and radar go hand-in-hand and I wonder if radar, in its present state of development, is adequate to an all-out air-war?

[Sir Robert Watson-Watt:] No, it certainly isn't. We can stretch it a good deal further than we've done up to the moment, but the economics of it are quite-quite alarming and it wants very great wisdom, the wisdom of the kind that must bring the political leader, the military planner, and the scientific and technical people around the same table, before we can be sure that we're spending our large, but not unlimited resources wisely. So, the answer, the only answer I can give, is that radar at the moment is not adequate to ensure our defense, even to ensure that warning, which is the first element in the defense. It can be carried further, but we have to be extremely wise and pretty careful in choosing the bits of radar on which we concentrate our limited financial resources, that's a bad enough limitation, but the real limitation is our brainpower resources are the really indispensable ones and we've got to husband them even more carefully than our sterling or our dollars. (34:26)

[ER:] Well, I think it's probably brainpower resources which are, always at a premium, more even than economic resources. Now, I'd like to ask you whether radar has any peacetime uses?

[Sir Robert Watson-Watt:] Oh yes, it's being used very generally in relation to air transport and to marine transport. Practically every ship of any importance now, carries on-on the bridge, a radar set which almost guarantees it against collision with other ships, with icebergs and things like that, which allows it to come into harbor in dense fog. Liverpool has a magnificent radar installation which allows the man sitting on

the dockside to see every navigational buoy and every ship in the twenty miles of channel up to Mersey. And we use radar all over the airfields in order to eh help towards defeating poor visibility in fog, and rain, and so on.

[ER:] I think it would be almost indispensable uh in winter flying, for instance, on this island because I've seen it so foggy that I didn't see how anyone could get in.

[Sir Robert Watson-Watt:] Well come now, I must come to the old defense of Great Britain. I have spent ninety minutes over LaGuardia waiting to get in the—[ER: Oh yes, it's just as bad!—I've spent, I won't tell you how long I've spent over Washington National, but it's pretty bad, we-both need it.

[ER:] that's true, that's true; I can't defend the fact that we have just as bad a time in winter, but I, um, I must say I think radar has made a tremendous—will make a tremendous difference.

[Sir Robert Watson-Watt:] It's already made a great difference to our major airports.

[ER:] I'm sorry, but we have to come to an end and I thank you so much, Sir Robert, for being with me today.

[Sir Robert Watson-Watt:] It's been a very great pleasure to be with you, Mrs. Roosevelt.

(Break 36:23-36:48)

[Elliott Roosevelt:] This is Elliott Roosevelt speaking and reminding you that you've ben listening to the Eleanor Roosevelt Program, which comes to you each Monday through Friday at this same time.

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