MEDICAL CARE OF NUCLEAR BOMBING CASUALTIES

4 April 1958

CONTENTS

Page

INTRODUCTION--Rear Admiral S. R. Clark, USN, Deputy Commandant, Industrial College of the Armed Forces 1

SPEAKER--Major General James P. Cooney, USA, Deputy Army Surgeon General 1

GENERAL DISCUSSION 14

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Major General James P. Cooney, USA, Deputy Army Surgeon General, was born in Parnell, Iowa, 17 March 1903. He received his B. S. degree, and his medical degree from the University of Iowa. In August 1927 he entered the Army Medical Reserve Corps. In 1929 he graduated from the Army Medical School and the Army Medical Field Service School. At the beginning of World War II he was chief radiologist at the Gorgas General Hospital, CZ, and on his return to the ZI he served at the England General Hospital until March 1945 when he was assigned to the European Theater of Operation. In October 1945 he was sent to Sweden to study its medical and hospitalization methods. In 1946 he was assigned to the Manhattan Engineering District training for the Bikini tests where he served as a representative of the Army Surgeon General and participated in numerous radiological surveys, then on a special mission to Japan to study A-bomb survivors at Hiroshima and Nagasaki. On his return from Japan he served at the Manhattan Engineering District, the Armed Forces Special Weapons Project; Special Projects Division of the Office of the Surgeon General; was radiological safety officer at Eniwetok tests, Chief of Radiological Branch, Division of Military Application, U. S. Atomic Energy Commission; special assistant to the Commanding General, Walter Reed Army Medical Center and Commandant, Medical Field Service School, Brooke Army Medical Center. In May 1953 he assumed his present position. He is a member of many medical societies. This is his second lecture at the College.

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ADMIRAL CLARK: In previous lectures this year we have heard a number of speakers outline our general plans for civil defense. Though they have covered many facets of the problems involved, time has not permitted them to explore any one of them very deeply. However, I am sure you recall that each one of these speakers mentioned the vital importance of casualty care following a nuclear attack; and we therefore felt it appropriate to explore further this phase of the problem as being one of the most basic ones of the whole process.

Our speaker this morning is perhaps the top American authority in this field. Besides becoming eminent as a radiologist early in his career, he has spent many, many years and many, many assignments connected with atomic weapon development and defense under atomic attack. He has participated in a good many tests; and as a member of a special mission went to Japan to study the effects of the first A-bombs at Hiroshima and Nagasaki. Currently Major General Cooney is Deputy Surgeon General of the Army. His talk is entitled "Medical Care of Nuclear Bombing Casualties."

General Cooney, it is a great pleasure to welcome you back to the College and to present you to this year's class.

GENERAL COONEY: Thank you very much, Admiral, for your kind introduction.

Members of the Staff and Faculty, and student body: It is indeed a pleasure and also a great honor for me to be asked to come back and address your group. I always consider it as one of the most pleasant things that happen to me during the year.

I have no prepared speech made for you this morning. I'm not going to read anything. I would just like to have a little informal discussion.

I told someone not long ago that I was going to say a few words. He reminded me that a few words are always dangerous; that words in themselves are quite inadequate in expressing an idea. He told me the story of the Episcopal minister who moved into the Irish section of Boston. After he had been there a month or so, he was walking down the street

with his Roman collar on and there were two little Irish boys tossing a baseball back and forth. One of them turned around and said, "Hello, Father." The other boy said: "He ain't no father. He's got two kids."

Again I want to say how much I appreciate this opportunity because, after all, we medical people, especially the medical people in the service, exist only to help you. This is the excuse for our existence. Therefore I think it's very important that you know what we're thinking of, what we're doing. If you do this, I'm sure that you will be in a better position to help us.

I don't believe there's going to be another war. I just don't feel so at all. As a matter of fact, I don't feel there's going to be a war any more than I did on the morning of 6 December 1941, or in June of 1950. I missed twice in a row. I presume that the statisticians would tell you that that's significant. So even though I don't think so, I don't think so because I hope that there will not be. But I do think that if there is a war, we all will have a tremendous problem.

I think it might be interesting if you and I would look back during the period of our lifetime and consider man, man per se, man who is going to fight a war, see if he has improved any insofar as his ability as a man is concerned, and then look at the weapons that he uses and see whether or not they have improved.

I think if we go back, we will agree that man is manufactured in very much the same way. He has about the same lead time. True, he's perhaps a little taller. Maybe his teeth are in a bit better condition. He is still subject to the same diseases and the same trauma. I think statisticians will say that any improvements he has made are not significant.

Certainly this is not true with our weapons. We used to hear about the French 75 in World War I. We went into World War II with the 90-millimeter and the burp gun. Then came the fission bomb and now the fusion bomb. So here we have man subject to the same injuries and diseases on this line, and the weapons go way up here.

If we get into another war, we are going to be subjected to mass casualties. I don't know what that means, but a tremendous number of people will be injured simultaneously and instantaneously.

I like to think back. During the Korean War I was stationed in Yokahama, Japan, and we received a call one day toward the end of the war. They were making some plans and they wanted to know how much equipment, how many facilities, and so forth we would need to take care of 100,000 casualties in a city. As it so happened, it was a pretty easy assignment because at that time we had just about 100,000 casualties in Korea and we had on hand the amount of equipment used--dressings, drugs, etc.--and the number of doctors required. It was quite astonishing. We sent this information to them, but they came back and asked us to be realistic. We were being realistic. But remember, this was over a period of two or three years, and this same thing might happen instantaneously and simultaneously.

I don't imagine that 105,000 people would be very many people to be injured here in Washington. I think we would all agree from what we are told that this certainly could happen. And I think there will certainly be multiple hits. There won't be just one or two. I presume that there will be multiple hits. It poses quite a problem. It becomes apparent to all of us that there's going to be a tremendous disparity between the number of people injured, the number of problems that we have to take care of, and the number of medical personnel to take care of them, certainly to take care of the situation in the way we know it today.

What is the answer? Shall we call off war? I think it might be of interest to you to know that last October I had the pleasure of attending the International Congress of Military Medicine and Pharmacy in Beigrade. Toward the end of the conference some doctors from Yugoslavia, Czechoslovakia, and Poland presented a resolution, which they wanted the committee to adopt, stating that there would not be any more war; that it was just impossible for the medical people to take care of the medical problem.

We reminded them, of course, that this was outside of our realm; that we were doctors of medicine; that we were not to go into the diplomatic or political fields. We were told by our chief of staff and secretary to draw up plans to take care of these people; that if we would go back to our country and if I were to tell the Chief of Staff of the Army that we as medical service could not do this, he would throw us out, of course, and he should. He would get someone else. We had quite a hassle on that, but it was very interesting the way it was lined up.

We do have what we think is a workable solution. Just how good it will be remains to be seen. I hope that we never have to test it.

Our solution is: (1) more training in self-aid, (2) more training in buddy aid, (3) more training of paramedical personnel, (4) storage of supplies and adequate facilities, and (5) a plan.

I think it is quite remarkable what an individual can do for himself and for his buddy. I think we have all been a bit spoiled in that when something happens to us, we are taken to the hospital and they immediately start working on us. I don't believe we realize just how resistant an individual is. An individual can live a long time with severe traumatic injury providing his vital centers are not injured. I'm sure that we will not be able to care for all these people as we do now in an emergency when we have just a few injured. I am sure that we will be surprised at the large number of people who will live.

I have often been amazed at seeing an individual who has a large traumatic wound which has hemorrhaged a whole lot and we find him three, four, five, six hours later. Maybe he's been in an automobile accident in an isolated area. But nature is pretty good to us oftentimes. Hemorrhage occurs, the blood pressure goes down, clotting takes place; and if the vessel isn't too large, it often becomes occluded. This very often is the case.

We are also giving consideration nowadays to doing more rapid surgery. When I was a student in medical school many years ago, rapid surgery was quite the rage. We used to read about a doctor taking out an appendix in 2 minutes and 34 seconds and somebody else in 1 minute and 37 seconds. They were doing buttonhole incisions, and it was quite the go.

Now, that isn't good surgery, of course. But I am sure that we are spoiled now. We take too much time. We have too many people to help us. We have all these fine anesthesias. I'm sure that we could shorten our time. And even though it isn't as good surgery, I'm sure that in case of emergency we could save many lives by more rapid surgery. We are working on this. We are having various universities study for us how we can accomplish such things.

Speaking of our paramedical personnel, this poses a rather difficult problem. I would like to be able to train a corpsman to the point where he can do a tracheotomy. I would like to have him take care of all vascular bleeding. I would like to have him take care of sucking wounds of the chest. He can take care of relatively simple procedures if he knows how. But, of course, we can't train a corpsman to do this on human

beings. Medical ethics will prohibit us from doing this. So, like the kamikaze pilot, they can't become too efficient; they can't have too much practice.

However, we are doing the next best, we are using animals. It might be of interest to you to note that we have a gadget called the tracheotome, which we use on goats at our school at Fort Sam Houston, Texas. We had 100 doctors do tracheotomies, and 98 of the 100 were successful the first time they did it. Then we took 100 corpsman and we found out that 96 of the 100 had been successful. I think that was pretty good. Again the statisticians could say that the doctors were twice as good as the corpsman this time--96 and 98--but I thought they did well.

I think that training such as this, when an emergency comes along, is life saving. If we continue to train all of our people, not only medical people but other people, along this line, we can save a great many lives--just knowing when to put on a tourniquet and when not to put on a tourniquet. We were quite surprised in Korea to find out the number of people whose lives could have been saved if a tourniquet had been applied.

Of course when you put a tourniquet on a man on the battlefield, you must have made up your mind that you're willing to sacrifice that limb, because the chances are that he will get gangrene in that limb and lose it. Now, that's quite a responsible position in which to put a non-professional man. As a matter of fact, it's a tremendous decision to make for even a professional man. But it's a decision that must be made.

I mention these to you just to show you the problems that we are going to have.

When we have this tremendous number of casualties, we have to make up our mind--and we have to do this beforehand--as to whom we will care for first. Are we going to take the more seriously injured or are we going to take the less seriously injured.

This is rather difficult to sell to doctors, because we have always been trained to take the fellow who has been most seriously injured and give him care. But we talked to the Japanese doctors who had been in Hiroshima and Nagasaki where they made this mistake. I talked to several of them and repeatedly I was told the same story. "I took this individual in to the operating room. He had multiple perforations of his bowel. I spent five hours working on him. Then I finally came out and

it dawned on me that if I had been wiser, I could have tied off a few large bleeding vessels, I could have done a tracheotomy or two, keeping the airways open, I could have plugged a sucking wound in the chest, and I could have saved a lot of lives by this simple procedure; but I didn't do this. I was taking care of the complicated case, and as a result many people died."

So I think that we're going to have to steel ourselves to do this. We're going to have to take those on whom we can do emergency procedures, relatively simple, and save life. Then we're going to have to take those who can be cared for later. And the poor fellow who is so badly injured that it will take us four, five, or six hours and he only has a 2 percent chance when we get through--we're going to have to get to him when we can. We're going to have to keep him comfortable and hope that we can do so. This is a very unpleasant thing for us to look forward to, but we think it's very important.

We're going to have our best surgeons doing triage. We're going to have the best surgeon, not up in the operating room doing the operation, but down where the casualties are coming. He's the man who's going to have to make the decision that you go back to duty, that you go here, that you will do this on this man over here, and we'll do this on this man over here. It takes a man with courage and good judgment to occupy such a position. This is our plan, our so-called plan of triage.

Supplies and equipment are a tremendous problem, because we need so many supplies and supplies are so expensive. And the shelf-life of supplies is relatively short. There are very few biologicals that last over five years. Yet it is necessary for us to stockpile biological supplies and equipment. And this we are doing. People have said, "Why don't you just turn them over every year or so?" We can't very well do this, because we have to have such large numbers of them; we would put the biological people out of business if we started giving them away or selling them.

I think in our plan we must have places spotted where we can do our medicine and our surgery. We can't rely on the hospital on the base or the post, because it's going to be crowded and filled. It wouldn't make too much sense to take one sick man out and bring another sick man in. So it is very necessary that in our plan we have certain buildings spotted and allocated, and plans made to use these buildings in which to do out surgery. It won't be done in the elaborate hospitals; neither is it necessary to do it in elaborate hospitals. I am sure that those of you

who have seen surgery done in World War II and in Korea were quite amazed at the very fine surgery you can do under quite austere circumstances, under tentage, and save many, many lives.

Phase two of the problem is the care of the survivors. I don't believe we have given enough thought to this. I am speaking now not of the surviving casualties, but of the survivors who have not been injured. This I think poses a tremendous problem, because it becomes a problem of public health.

We are always asked, "How about bacteriological warfare? How about biological warfare? Is it feasible?" Well, it has always been with us. It has been with us since the very beginning of war. I'm sure you all know that it defeated Napoleon on his way to Russia. Had he stopped in Poland, had he stayed there, and reorganized, and taken care of his medical problems, he might have been successful.

Until World War II we had more deaths from disease in every war that we were in than we had from battle casualties. World War II was the first war in which we had fewer deaths from disease and nonbattle injuries than we had from battle injuries.

This is only part of the problem. I said "deaths." I looked up some figures the other day and I found that in the European theater, hospital admissions during the active fighting in World War II were 63 percent from disease, 14 percent from nonbattle injuries, and 23 percent from battle injuries--63 percent as compared to 23 percent. I found out that in Korea we had 66 percent admissions for disease during the actual fighting, 17 percent for nonbattle injuries, and approximately 17 percent from battle injuries. I found that in Suez, during that short period of fighting, the British had 76 percent admissions from disease, 12 percent from nonbattle injuries, and about 12 percent from battle injuries.

I think these figures are quite interesting. The days that were lost from disease during World War II were four times greater than those lost from battle wounds. They were 72 million, as compared to 286 million admissions--four times greater from disease.

So, you see, disease has always been with us, and I am sure always will be. If we have a catastrophe today, and if we are not prepared to take care of these uninjured survivors, I'm sure that next week we'll be having another catostrophe. Here we have our own biological warfare right with us.

Our water supply may well be gone. Our refrigeration will be gone; how are we going to take care of our food? Take our insect problem. Do we have means for that? How effective are they? How effective are our biologicals? You are all aware of the fact that certain bacteria are now becoming very resistant to our antibiotics. We thought we had the answer to that question a few years ago, but we haven't. It's turning against us.

We know that lice, especially the lice in the Middle East, are becoming very resistant to DDT and other things that we thought were quite effective a few years ago. In time of catastrophe, when these things build up, the problem can be tremendous. I don't know whether you read Drew Pearson's article in this morning's paper or not, but he had a little trouble milking his cows during the last storm. He has a large number of cows. When the snow broke the electrical lines, he couldn't use his milking machines and his cows refused to be milked by human beings. As a result, in a few days his herd was almost dry. If you don't milk a cow, she refuses to give milk. It's rather interesting.

Here's a problem to which I don't believe we are giving enough attention. It's a problem that really may be greater, in my opinion, than the other problem, because with tremendous weapons such as the fusion bomb, we don't know how many people we're going to have who will still be alive in an area. I don't believe that the surgical problem is going to be quite as great as we thought.

We train individuals now to take care of themselves, and to take care of their buddies. We train paramedical personnel. We have supplies; we have facilities. How good is it?

It's just as good as the plan that you have to take care of the catastrophe, and no better than the plan. You can have all the facilities in the world, you can have all the professional talent in the world; but unless you have a plan, unless you let people know what your plan is, unless you are able to execute your plan, you don't have anything.

Why do I say this? I will give you an example from Boston a few years ago--the Cocoanut Grove disaster. Boston is probably one of the greatest medical centers in the world. They had a catastrophe there and they were unable to take care of it; 400 people and they couldn't handle them. Why? Because they didn't have any plan. Traffic became jammed up. They couldn't get the patients to the hospitals.

The communications system to the hospitals became jammed up. They couldn't get in touch with their professional people. They didn't have a sufficient number of supplies and equipment, and they couldn't get them because they had no communications. It was an utter catastrophe with about 400 patients because they didn't have any plan.

This is what disturbs me, because we must have that plan. We talk so much on our posts and various places about what we medical people are going to do; but unless we get help, we're powerless. We must have help. Everybody must know and understand this plan.

We talk to people, in Washington or in Boston, and we tell them about casualties. We tell the butcher about gamma radiation and neutrons.

He doesn't know anything about gamma radiation and neutrons and he can't understand anything about them. Why do we tell him? He will say, "What do you want me to do?" What do we want him to do? Everybody must have something to do. Somebody must control the traffic. Somebody must go down to fight fires. Somebody must go to schools to get the children. Let's not have everybody go. Somebody ought to have the job of going around and gathering up extra dressings and drugs and blankets and so forth, to bring to the schoolhouse where we're going to do the surgery.

If we have such a plan, if we practice it beforehand, it will work when a catastrophe occurs. But to have the plan on paper only and then try to work it will not prove successful. Why? Because people just do not react normally during times of stress and strain. That's been proven over and over and over again by our recent disasters.

You talk to the doctors concerned with the Texas City disaster and you find out that during the day many of them sutured wounds tightly. These were people who knew better than that. They know that you can't take a contaminated wound, such as those wounds were, and suture them up, because if you do, you will get an infection caused by certain bacteria that grow when they don't get oxygen. You will get gas-forming bacilli and so forth--the most dangerous type.

I talked to one doctor who told me that he went into one hospital at 12 o'clock at night on his way home and spent the rest of the night there going around with scissors just cutting sutures and opening up the wounds that his fellow workers had sutured during the day.

There was also an episode that happened in Worchester, Massachusetts, during the disaster there. They had a shell of a hospital completed, but it had no utilities, no lights, no heat. Yet they brought hundreds of patients into this place before dark. Dark came on and they realized that they had no means of doing work on these people. And yet there were lots of hospitals around five or ten miles distant. The doctors were just not thinking. People do not react normally under stress and strain.

Therefore, we must have a plan. We must practice it and practice it. Everyone must know about it.

We've been doing this in the last year or two. It's quite surprising. It's difficult to get people to do it. We took 1,000 soldiers at Fort Sam Houston and tagged them all as casualties and then ran them through the hospital on a time schedule. If a man had to have an amputation of the hip, we had a surgeon tell us how long it takes to do an amputation of the hip. We had the man carried to the spot where it would be done and he stayed there for the hour and a half or the two hours or whatever it was. It's quite amazing the tremendous problem that it is to take care of 1,000 patients. It can be done, but it can't be done unless everybody knows what to do. The second time we did it, it certainly worked much better than the first time.

We're going to do this once a year in all our large hospitals. We have a plan for each one of them and each one of them is going to have to execute that plan. It is done as an emergency--nobody knows when it's going to happen. The surgeon of the post blows a whistle and then it starts. It may be 4 o'clock in the morning or it may be at 1 o'clock in the afternoon. It pays dividends. I wish that we were doing it everywhere.

I want to mention something about fallout. We hear so much about it. There are so many schools of thought. I certainly am not an authority on it. I wish you would all read an article in the "American Medical Association Journal" of 22 February by Dr. James V. Neel on the genetic problem.

Certainly I think fallout is a problem. It's going to be a problem. I don't believe it's the only problem in atomic bombing or nuclear bombing by any stretch of the imagination; yet it seems to me that this is about all we are thinking about.

I see all these maps and drawings, and am told that if we get a hit here, we're going to have fallout down here. I don't know how they figure this, because they are making a lot of assumptions. They are assuming that they know how big the particles are, how high they're going, and which way the wind will blow. I don't believe we know that. At least that certainly has been my experience.

We found out in Eniwetok and Bikini and in the desert that the winds go around the clock oftentimes. They vary in velocity. The particles have to get up before they start to fall down. The wind may be blowing east at 15 knots surfacewise and may be blowing straight west at 80 knots higher up, and so it may go way up here. Eventually it will come down wind. But to just say that you can get a hit on Detroit and then figure from the surface wind as to where your fallout is going to hit, I just don't believe can be done.

Why do I mention this? Because I think it's important. I think the only way you're going to be able to detect it is with instruments. We've had so much talk now about this, and yet I was over in the 8th Army last fall and I asked to see their instruments. I found that they had instruments which would measure one roentgen per hour. That was as high as they would go.

Now, if you have an instrument like that around, you'd better throw it away, because it's going to go off scale real fast. Once it goes off scale, you are lost. It happened to me over in Eniwetok. I got a call from a ship--I was in charge of the radiation section--and the Admiral said "All our counters are off scale." I said, "Well, don't pay any attention to them. They're not any good anyway." He said, "What the hell did you give them to us for?" He was perfectly right, wasn't he? What did we give them to him for? We just didn't know.

If we're going to talk about fallout, if it is a problem--and it's certainly going to be a problem--for heaven's sake let's be prepared to do something about it. Maybe there are a lot of people like me who don't believe there's going to be any war and didn't believe on 6 December 1941 there was going to be any war. I think it's a problem about which we should do something.

You can't do this overnight. You can't train people to use a radiological safety instrument overnight. And you can't train just anyone to do it. I have heard people say, "Have the high school children do it." Those are not radiological monitors. They will be meter readers and if there's

anything that can get you into difficulty, it's a meter reader. If somebody goes out and sees one of these gadgets and the little needle goes up and he turns around and starts to run, there are a lot of people who are going to follow him. This could be very, very dangerous.

I recall a visit to a certain school where a sergeant was carrying a meter around and he was looking at this needle. I said "Sergeant, what does it mean when this little needle goes way over here?" He looked at me and he said, "General, that beats the hell out of me too."

If we're going to have a situation where it's going to beat the hell out of somebody when this needle goes up, that's when we could really have a stampede. We must not do that sort of thing, because I'm sure that it is not going to be the problem that so many people think it is. I'm sure that a lot of people will disagree, but this is my own opinion.

How important has this problem been up to now? You hear so many sides to this question. Shall we continue testing or not? I was greatly disturbed last week when we received a call from the Pentagon advising that some officers did not want to have their chests X-rayed on account of the radiation hazard.

I received figures yesterday from my staff that before strontium 90 becomes a problem, it will require at least 10,000 megatons of fission, before we reach our so-called tolerence level. In other words, we feel that it's going to start doing its damage after we have that many.

Thus far we have considerably less than 100--some 55. This doesn't count the last Russian episode, but until then we had some 55 megatons of fission, and it's 10,000 megatons of fission that are required. So we have quite a long way to go before we really should start to worry about this.

Should we stop it now? Suppose we had stopped it in 1946. Dr. Neel brings this out in his paper. Suppose we had been so worried about this radiation that we stopped testing in 1946. I'm just a doctor, but it just seems to me that we wouldn't have the H-bomb now, but other people would have it.

Going back to my friends who didn't want to get X-rays taken, I had to explain to them that after you reach the age of forty, there's a certain probability that you have cancer of the lung. It's surprising the number of cases of cancer of the lung we have nowadays. Now, if you have this

cancer of the lung diagnosed early and have good and adequate surgery, your chances of a cure of that cancer of the lung are good. There are many, many thousands of people who have had cancer of the lung removed and are living today, well and happy. If you want to take the chance of leaving this cancer of the lung to grow, due to the few little milliroengtens that you are going to get from the X-ray, then I don't believe you're using very good judgment.

I think we have a parallel here in our Nation. We have a little risk from radiation. But there may well be a cancer growing and unless we continue to assume this risk and take care of it, a much more potent cancer may be developing. I think we should bear this in mind.

Along these same lines, gentlemen, I am becoming a bit depressed with our national reaction. I attended a luncheon not too long ago and a certain leader of industry got up and said there was no sense in industry planning for an all-out atomic war; that it was useless; that we shouldn't do it. "We have no plans if we have an all-out atomic war," he said. Is that a defeatist attitude? It surely is in my book; it surely is a defeatist attitude.

Not too long ago I talked to some gentlemen who are training to be our field commanders. One of the questions asked me was: "Doctor, are you people planning on carrying around a lot of morphine so that you can kill all these people who are lying around on the ground suffering?" Isn't that an amazing attitude for a fighting man to have?

I think this is bad. I think it is a defeatist attitude before you start. I still think a field commander should be going at it not with the idea that everybody is going to be killed, but that he's got the best army in the country and he can whip anything that comes before him. I think we need some more John Paul Joneses who have not yet begun to fight. I think we're talking too much about digging and running. I think it's very bad for us.

We have had things so good for so long that when we meet with a little adversity, we immediately become psychoneurotic. We start blaming somebody--somebody should have done this and somebody should have done that. I don't believe it's good, and this worries me a great deal, because I certainly think that we're building up a problem for ourselves.

Gentlemen, it's been awfully nice to talk to you this morning.

CAPTAIN THOMPSON: Gentlemen, General Cooney is ready for your questions.

QUESTION: Usually when a controversial issue arises, the press, at least if you look far enough, gives both sides of the question. My question, sir, is about the hazards of radiation fallout. Do you feel that the American press has given both sides of the question, or do you feel they have exaggerated the hazards?

GENERAL COONEY: I feel they have exaggerated the hazards. I don't believe they give both sides. I feel that the side they give is the most newsworthy, as they say. Somehow it seems to me that we like to frighten people. I don't believe that all the press is like that, of course, but I believe that sometimes this happens.

QUESTION: General, I wish you would clarify a point. This five-point program that you have outlined--I presume that is only for the military. Is that so?

GENERAL COONEY: Yes, sir. That is so.

QUESTION: I will follow that up with another point then. If that is so, what is being done in the like light for the civilian populace as a whole?

GENERAL COONEY: I think they are making good progress. The Federal Civil Defense people are working very closely with the American Medical Association. They have several doctors whom I know who have only recently been employed, and I'm sure they are going to come up with a very good plan.

As you know, the services have been working with Federal Civil Defense; but as to just where we are and what our responsibilities are, we don't know. This has been very much of a gray area. We would like to know, but up to this time we don't.

QUESTION: My question is over in the area of population too. I read in the paper yesterday, I believe, that Civil Defense needs something like $12 million to rework or redo some blood plasma or dried blood. How do we stand--or do you know--nationwide on this dried blood or blood plasma, which I understand is going to be very important in case of an attack? What is the total cost? Is it a large amount of money?

GENERAL COONEY: No. I don't think so. They are going to rework a lot of this dried plasma that they had. They have to do so because unfortunately some lots of the dried plasma on hand contain a virus which will cause hepatitis. We are not going to give that, of course. They are trying to find out some mechanism whereby this can be sterilized and they are running into some rather promising things. They found out that if they stored it at 60 degrees for a certain length of time, it can be used again. They are also reworking quantities and taking certain fractions out, not using the whole thing.

Now, of course, we have substitutes, like dextran and other things that I'm sure you are familiar with.

But here again I don't believe this is a problem that we'll be able to handle during an acute episode. The giving of blood is quite a technical thing. It requires that people know how to give blood. I just don't believe we're going to have enough people around and I don't believe we're going to have the blood at that time. This is something that's going to come along in the weeks later, when things are a little bit more at a standstill.

I think we can always get blood from people once the thing settles down and we have stabilized the injured. Those who are not injured are going to give blood. I think we can get along pretty well with our dextran and other blood substitutes. I think this problem will be taken care of all right. I don't think we have it solved right now, but we are making headway. I think they have learned a tremendous amount about blood in the last few years and are doing a lot of work.

Dr. Berry, the Assistant Secretary of Defense for Health and Medicine, and his group have been very much interested in this problem. They have been goading us along and I am sure we are making progress.

QUESTION: I believe I understood from the news this morning that the rains in Southern California had 27 times the radioactive contamination normally considered safe for drinking. This seems pretty high to me and just makes me wonder. How safe is safe? It makes me wonder whether this factor of 27 may be 27 times what is normally in the rain, which I think I understand is really not significant. Would you comment on that?

GENERAL COONEY: I presume this is what you are talking about (exhibiting newspaper). When I read it I assumed that they were talking

about 27 times above normal; and, of course, that is nothing to worry about. But there again you see they haven't explained this. They haven't made it clear. I'm sure that if it were 27 times above that level which would injure an individual, the health authorities of Southern California would be taking some stand on it.

But it's a bad way to state it. I certainly agree with you that it's a bad way to state it. I don't know why they have to put "27 times" in there. If they had put this in as extra activity, it wouldn't have been so bad. But in stating it this way they are doing a disservice to our country. The people can't evaluate this problem. This thing has been so built up. After all, you talk about cancer and you talk about genetic changes and the housewife can't evaluate this. I think it's very serious.

QUESTION: For years now children in the public schools have been given chest X-rays. Also the civilian employees of the Government have been ordered to at least once a year have a chest X-ray. Now suddenly these have all stopped. Is this a result of public reaction, or is there some medical reason why they stopped these things?

GENERAL COONEY: It just depends upon which side the doctor happens to be on. There's no question but what radiation is injurious to human tissue. There's no question that if you give an individual enough it is going to have to have some effect on his genes. How important this is from the standpoint of taking an X-ray remains for the doctor to decide.

Ordinarily in a healthy community they are doing testing on the school children. They're doing tuberculin tests. If these children turn out to be positive, they take X-rays. This is probably a good program. I can't say that I'd fight with it in a healthy community. I certainly would fight with it in an area like New York City, where children are being raised under conditions different than they are in Alexandria, Virginia. They are undoubtedly exposed to much more tuberculosis and to various other things. The one way you find out is by your X-ray. This is the way that you're sure.

I have been an X-ray man for many years and perhaps I am biased. But it seems to me that for the very little risk that you are going to take, and considering the tremendous value that's going to come of this if this child has early tuberculosis, I would certainly be in favor of it. I'm going to have my grandson X-rayed once a year. I'm not going to worry one bit about it.

QUESTION: In our previous consideration of Federal Civil Defense we have been told that in areas of high casualties there will be an extreme shortage of medical personnel and medical supplies and that therefore a priority system will have to be established to decide who gets these treatments. The so-called nonrecoverable sick, will be at the bottom of the priority list. In the food area we find that they are also at the bottom of the priority for food. So we see a situation developing where the person who is severly injured with perhaps great radiation sickness and in agony from his injury, starved to death. In that situation will the medical profession find itself faced with a problem of euthanasia? What sort of humane action do you visualize will be possible at that time?

GENERAL COONEY: No, sir. The medical profession will never accept euthanasia, because the mind of man is so keen and the art of healing is so vast that no man, no doctor, has the right to say that we must take this patient's life. No doctor knows that this patient is going to die. Every doctor who has ever practiced medicine has been wrong so many, many times. He is sure that this patient is going to be dead in the morning and then he finds the patient much better. So we never will accept this. All we can do is do the best we can under the circumstances.

QUESTION: I read a year ago about some work being done to have some medicine tested on animals that would offset the effects of radiation quite a bit. Have you heard anything about that?

GENERAL COONEY: No, I haven't. As far as we know, there is nothing specific for it at all. There are many little things that seem to help. Incidentially, alcohol, a drink of whiskey, seems to give us a little more tolerance to the thing. But there's nothing specific.

The only effective thing we know is to get something, some mass, between the individual and the radiation, so that the ionizing energy will be absorbed.

There are lots of people working on it. I would like to see more work being done. So much work is being done, and it's gone around and around again, and we are just stymied. But I think it's a terribly important problem. They are keeping at it, of course, and will continue to keep at it. I would like to see so much work done on it that I suppose I'm like the artillerymen. They say you never can get enough shells thrown. But I think that in the problem of radiation sickness it would certainly be wonderful if we could find something specific for it.

QUESTION: Could you comment on what planning, if any, is being undertaken for selective saving of talented casualties?

GENERAL COONEY: I just don't know. I don't know how you're going to be selective other than dig a big hole in the ground and put them in there and protect them against blast and radiation. Aside from that I wouldn't know. You can do other rather trivial things, of course, that you are hopefully doing, to protect them from blast burns and so forth.

But here again if we're going to fight a war, we can't be burdened with heavy armor dragging along. We've got to get out and fight. We've got to have the attitude that I'm just as good as the other guy; I'm better than he is. I think we've got to give this to the soldiers. It's so important.

I don't think we should be telling soldiers about gamma radiation sterilizing them. I think this puts a horrible burden on the poor fellow. I think we should tell him what to do; that if he sees a flash, he should get behind something, and this, that, and the other. But as to going into details with the fellow, I don't believe it's good. It's psychologically bad for a fighting man.

CAPTAIN THOMPSON: General Cooney, on behalf of the Commandant and the entire student body, I wish to thank you for a most informative and effective lecture.

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