

3-4-5 Oxford Army - good length of its efforts -
we might not have had it if it were not for the fact that we had to build more equipment - & we gradually made people uncomfortable

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Interview with Alice Stewart

4/5/90

By way of introduction, during the long, dark years since the advent of nuclear power, most of the world's medical, scientific and nuclear establishment has been reluctant to stop the growth and progress afforded by the ability to split the atom. While the grass roots environmental and worker health and safety movements have lobbied hard against the persistent threats to all life forms on this planet, they have received a minimal amount of attention until accidents such as Three Mile Island and Chernobyl made international headlines declaring with finality the ultimate threat of nuclear power. However, during the intervening years from the bombing of Japan to the more recent insults, some few voices have persisted within the scientific and medical communities. One of the most potent voices belongs to Alice Stewart, a British physician and epidemiologist whose insight, scientific rigueur and determination have led to an extraordinary amount of evidence detailing the hazards of nuclear power. Alice is the recipient of numerous international awards for breaking the cultural straightjacket on public consciousness. She is author of numerous articles, and well-respected internationally as an authority. We are delighted to have Alice Stewart with us in the K Boo studio. Welcome Alice.

Good morning.

Alice, it's good to have you here.

Alice, on your last visit you gave our listeners a brief biographical sketch because our listenership is always growing, many of our listeners missed that show. Could you briefly give us an overview of your life and your work and how you happened to become involved in social medicine, particularly with populations at risk.

I started life as a practicing physician and this was before the war. And during the war I had an opportunity to carry out several surveys and developed an interest in this approach to medical problems and moved over to a newly formed Department of Epidemiology. It was in fact the first university Department of Epidemiology in Britain in Oxford University where I was. I went over without any qualifications because there were no formal qualifications at that time. At the time of my transfer there was a certain amount of enthusiasm for the subject because it seemed to confront sensibly a lot of the problems raised by the war. But at soon as the war was over, the interest in the subject evaporated rapidly and we found ourselves in great difficulty for getting funding.

I'd been studying the spread of tuberculosis in factories and then I suddenly realized there were no further funds and I was trying to think up a project which would bring in more funds. We'd come to the end of the project. And it was at that point that I thought of going to the mothers of children who recently died of leukemia and other forms of cancer to find out if they had any special knowledge of what had happened before birth to these children that might throw some light on the fact that there was rapidly increasing frequency of leukemia particularly in children. And that led to the discovery that both my case groups -- the mothers of children who died of leukemia, the mothers of children who died of other forms of cancer -- each mother was compared with a live child, the same age, sex and region. And when we came to add up how often the dead children had been x-rayed before birth compared with the live, it was over twice as often.

And this was uncovered in the early 1950's?

It was in the early 1950's, roundabout as you said, about the time that we were beginning to learn about delayed effects of the A bomb radiation in Japan. So it was a bit of a shock for everybody because of course a single diagnostic x-ray was a very, very small dose of radiation and by definition it was a not

repeated dose. It said a very brief exposure to radiation before birth can increase the risk of a cancer death. So naturally enough it had to be very firmly checked. We were lucky because the finding attracted so much attention that we actually succeeded in tracing over 80% of all the children who died in Britain in a three year period. And then because we thought that doctors would stop x-raying children just on the suspicion of this, we thought that we'd better add the next (these are children who recently died) we'd add the next year of death, because there was probably ten years to go before we would of fully observed the effects of people x-raying without realizing it was dangerous. So we set up a network of monitoring for Britain. And that was a full time job and kept me close to the data collection end of our story. And when it came to the time when we thought that perhaps we had got all the cases, we had discovered that doctors had not stopped x-raying children and that contrary opinions were coming up saying that we were wrong in ever thinking that there was this risk.

So we'd better keep on monitoring... →

So the survey went on and on, but it gradually got people accustomed to new findings for the childhood survey and stood out and made people increasingly uncomfortable with the view that there is no cancer effect at low dose.

So I think the survey, by sticking to the problem and making sure that all the available data were collected while there was an opportunity, did do a good service because during that time there were many people who disbelieved what we had found. But at the end of it, we had the strength of our data and it was too strong for people to be able to contradict it.

It seems that there are a couple of problems that are buried in this kind of analysis. One is that there is something called dose-related disease process. That is, that a certain amount of dosage of radiation will lead to disease therefore a lower amount in a linear fashion, a lower amount will lead to less. We have since found that that's not accurate. Maybe you could talk about that.

The other piece that seems to be buried in this is that background radiation, by your own analysis, was reduced to safe enough levels over millions of years of evolution on this planet and that in a sense with atmospheric testing, with blasting of such things as Galileo and the risk of plutonium in space, with radiation from nuclear facilities, we are dramatically increasing the amount of background radiation which in and of itself poses a threat. Could you address for me those two issues -- the one

about how we use linearity to look at doses and the other options which are available and also the issue of background radiation?

The Oxford Survey as it was called, wasn't able to do anything about linearity of dose because nobody had recorded the doses of these photographs. But what it was, it was obvious that we were dealing with a very small dose. We were dealing with a dose which lay below the lowest dose category of the other studies that were doing linearity effects, notably among the A bomb survivors. So we were sort of adding a point to other people's curves and saying the effect has not disappeared at the near zero level. And interesting enough that we were able to do so much without having any of that symmetry. It's telling you that sometimes that people have exaggerated the importance of knowing exactly what dose has to be observed. If you've got a situation which is very low dose, you hardly need to divide it, it's still there. But of course I agree that the higher the dose, the more the effect.

But what we did find, which I think is very important is how old are you when you receive this dose. Now we only had the range between conception and birth, but we were able to show that x-rays taken in the first three months of conception life, the first three months of fetal life I should say, are ten to twenty

times as dangerous as ones that are taken shortly before birth.
So that was telling us that any effect of background radiation would almost certainly be greater than any measured effect of these x-rays because by and large the doctors only took x-rays shortly before birth just to guide them for the delivery.

And sure enough, the survey has gone on long enough to be able to make a contribution to what is the effect of background. Now I can't tell you whether this effect would be greater or less than say before we had weapons tests, but what I can tell you is that there is an effect of background radiation in utero exposure to radiation, that the effect per unit dose is greater than the x-ray effect and that therefore one of the things to be naturally afraid of is any increase in background radiation is going to have a very strong effect on the new births in any community, so much so that I think that if you want good evidence of what Chernobyl has done, what you want to do is identify the population that was under three months of fetal age at that time and try and collect that population and find out what happened to it. It's never been done.

And your concern about background radiation at the present time as indicated in some of the literature that has been prepared for me, is that in a sense we're dealing with something very

dangerous. The nuclear waste problem may already at this point be insolvable. Is that your assessment? Give us some sense of how we can proceed with thinking about this dilemma?

Well I think that the danger that you've got to envisage (and recent work has strengthened this impression) is do you wish to add to the population load of two things that we know we have already go to bear. One is the population load of cancers and the other is the population load of birth defects. If background radiation is very largely responsible for both loads at the present moment, which is what our work is pointing more and more strongly in that direction, then it becomes very important not to add to this background radiation. It now casts a great query over the whole nuclear industry. Have we allowed for this danger? Because it would be very bad to wake up and find that we had made life such on this planet that say we had three times as many defective children born every year. So I think what we're saying is put a brake on this industry and do everything we can in our power to reduce it and get alternative sources of energy. I think that's my message. It doesn't say to get into panic stations at the moment, but it says let the experts from now on pressurize much more strongly for alternative sources of energy.

One of the other questions that come to mind is the genetic pool in a sense can only take a fixed load of insults and I'm talking about the larger gene pool on the planet. Then it begins to dip and we see problems coming up in successive generations. Some of the reports about the long term effects of ionizing radiation are that the children of those of us who are having children right now, their grandchildren will begin to show up the teratogenic, mutagenic, carcinogenic effects. Is this your understanding of the literature? Tell us what we can anticipate here.

It looks as though you can be damaged as an embryo. It looks as though you can be damaged as a fresh sperm or a chosen egg for getting a child, and it looks as though by implication, that you can get damaged germ plasm of an adult. The latter is the dangerous one that might by intermarriage of people with similar damage, begin to force into the gene pool a whole number of people who are latent sufferers from defects, probably mental defects. That will be the strongest.

Central nervous system is the first to be affected?

It seems to be in human beings that this is a very sensitive end of our development.

So what I think ought to be avoided at all costs, is to be seeding the gene pool with these latent dangers that have only got to meet two couples with the same defect to meet to produce gross defect. It's very important not to increase this number because depending on how many defective genes there are in the population also depends on the probability of two people meeting. And as long as these defects are rare, the probability of meeting is fairly rare. But if it went up above a certain level, I think that's what you're saying is a critical level. And I think that should be avoided at all costs and therefore be anticipated now. The scenario worked out about what may be the route we're on at the moment in order to bring pressure to change direction now.

The recent launch of the Galileo Shuttle which carried a 50 lb. Plutonium payload, it raised a lot of questions about the quality assurance issues at NASA and congressional oversight. One of the things that were released to me while in Washington, DC by a NASA insider was that quality assurance had been a problem and that in the past there had been some atmospheric detonation of Plutonium that not reported to the public. It was a very small amount, but we know that any amount of plutonium is dangerous. NASA is at the present time reviewing its plans for space exploration and the space station. The fact that we are still using radioactive fuels sources rather than developing solar cells which the jet

propulsion laboratory tells us that we can do now, raises very serious questions. If in fact this Plutonium which is at this present time going to make two fly-bys around the planet earth, if the Plutonium were to detonate, what basically could we look for?

Well I'm afraid I'm not enough of a physicist to know, but I share your anxiety about that and everything that I've done in the way of epidemiology says for goodness sake, go for the solar forces, not for the nuclear ones because of the possible dangers. There is a school of thought that is always going to say there's no danger below a certain dose. After that it'll have the linear effect you've described. I think they've fooled themselves into thinking that you can get a sort of repair at this early stage. But all the work I've done suggests that that is a fallacy. So I would agree with you. It seems as though we're playing with a particular dangerous form of fire and the sooner we stop the better.

Alice, as a physician and a mother and as a grandmother, there are women who are out in our listener audience, very concerned about these kinds of threats and what they mean to their children. What kind of advice or what recommendations would you

have for people who are really concerned about the offspring of our species?

I think they ought to make themselves thoroughly informed on this subject and realize that there has been an attempt to suppress -- belittle rather than actual suppress -- the danger that my sort of work has been pointing out. To make themselves informed on that. And then to be a political animal to use their knowledge to influence the decisions made by any population. That's the best hope I can have. Also I suggest that they get together in groups, get themselves well informed and impress their knowledge and their point of view on the people who are in the corridors of power. For instance, I just heard the other day that New York state is doing some advanced planning about radioactive waste and its effect and so they're going to call in some consultants. Well they called in a group of consultants all from more or less establishment figures and then it turned out some knowledgeable people in the state said look, we must hear the more radical point of view as well. So I get a call saying will I go to this conference? Well that's new. I think ten years ago nobody would have ever of asked me to go.

In our own region we have Trojan Decommissioning, Northwest Environmental Advocates, SANE, a variety of groups who are

concerned about the nuclear question and we've worked to get ballot measures that will make some dent in this process. You at the present time are involved in a study comparing workers from Hanford who were active during the 40's and 50's with workers at Fort Lewis in western Washington. Is that correct?

That's correct.

That data will be very influential and I'm sure that members of our listening audience who would be interested in tracking this or in some way being facilitative would be interested in the contact point. Is Rudy Nussbam of Portland State University a contact point? What can you tell us?

I can tell you that he is a contact point and I can tell you that this project is turning out to be a better field of inquiry than I thought when we started, but it's still short of funds. So here's a very simple thing -- if anybody wished to help with this research, they could actually offer literally dollars to help with the collection of important data.

It's very interesting that the soldiers who were at this Hanford camp during the 1940's who are the people that we're most anxious to trace, there are records of them, but they were deliberately

hidden in case they got into the hands of enemies. And now it's proving that although we're onto where we can find them, it's proving more costly to collect this data than we thought in the beginning. So any support for this study I think would be of general good all around because whatever the outcome of it, it's going to increase our knowledge of this area for which we are profoundly ignorant. And that is the full extent of the damage from low level radiation.

Any final comments?

And the last one is if there's anybody out there who has a say in whether or not a group like mine in Birmingham or similar groups in the country should be allowed access to all records. There shouldn't be a secrecy of records to which these people are not allowed. I would press for that point too.

Scientific data should be accessible by people who want to study that data.

That is right. That principle should be firmly established, particularly in this country.

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Alice, we're in pledge drive, that means that we're trying to raise money for community radio so that this kind of programming can go out to our listeners. Do you have any comments or words of advice to our listeners about why they should support...?

It seems obvious that here I am being invited to talk and say things and it seems to me to be a very good cause to support. I hope you will accept these pledges.

Thank you very much. The number to call is 203-0522.