# THE GEORGETOWN PUBLIC POLICY REVIEW

VOLUME 6 NUMBER 2 SPRING 2001

# Feature Interviews

Bioterrorism is a difficult issue as an interview topic. In public policy we often discuss issues like school choice, gun control, welfare reform, and tax cuts; in short, issues that have an obvious conservative and liberal perspective. There are difficult policy questions surrounding bioterrorism even though they are not as obvious as those surrounding other issues; questions arise regarding our civil liberties and basic freedoms. Issues like bioterrorism go beyond Washington, DC to involve experts from the fields of science and international law. Interveiw Editor Siobhan Murphy and Executive Editor Christina Werth talked to scientists Joshua Lederberg, a Nobel Prize winner, and Matthew Meselson, a Harvard geneticist, about government involvement in finding vaccines and keeping track of who uses these dangerous pathogens. They interviewed Colonel "Dutch" Thomas and Marc Wolfson at FEMA to discuss the civilian-military interface and how the military works with other government agencies to deal with a possible attack on US soil. They also spoke to Peter Lejeune, an expert in the field of terrorism, and Anthony Lake, former National Security Advisor to President Clinton, about what makes bioterrorism different from other terrorist actions. We hope this set of interviews will cause you to stop and think, not in terms of left vs. right or liberal vs. conservative, but about issues and practical and effective solutions.

# Interview with Matthew Meselson, Professor of Molecular and Cellular Biology, Harvard University

*How real and immediate do you think the threat of bioterrorism is? Is the threat more from state-supported terrorist groups or from cult or anti-government groups within the US?*

First of all, if we're talking about any individual American, the threat is negligible. If we're talking about anywhere in the world where it might happen, then I think it is a serious issue. It is not appropriate for individual Americans, with all of the other things that we have to be concerned about, to worry about bioterrorism, which has never happened in the country in any serious manner. One case that is sometimes mentioned is the deliberate contamination of salad bars in Oregon, in which nobody died. Compare that with the number of Americans that are accidentally shot every year, or shot in massacres, or who die in other disasters. Of course, our main source of suffering and illness is nature itself; we are all vulnerable to disease. In the big scheme of things, even though in the media there are waves of concern about this and waves of concern about something else, in the big picture this is not something for ordinary Americans to get excited about.

After all, there is a discipline at Georgetown and all other universities called History. And when one looks at history we're talking about something that, when compared to other hazards, has been minuscule. So you have to start with that. To completely close one's eyes to history is to let one's self in for serious miscalculations.

There is another lesson from history: not just that ordinary individuals should

not be particularly concerned about this, but that if it hasn't happened, there must be reasons. We have shootings and wars and all kinds of violence all the time, but not this. The basic technology has been available in the open literature for more than half a century. So why not? Why hasn't it happened? Whatever those reasons are, that's where we should put our efforts, to reinforcing those, because they've worked. Whatever they are, they've worked. Is it a norm? Is it because it is difficult for evil-minded people to get hold of these things? Is it because it doesn't satisfy their particular political needs? Is it because military organizations have not spun off experts and materials and knowledge that could fall into private hands? Is it because countries themselves, even those who have developed biological weapons, as we had once, have never seriously contemplated using those things in their war plans? Is it because bureaucracies have built them up but not with determined support from leadership? I don't know.

There is very little scholarship here. Very few people are seriously trying to get hold of original documents from archives and making scholarly studies of these issues. Finding out what was going on inside the Soviet Union and what was really in the minds of American leaders that are now dead is very hard to do. The really important issues have to do with why hasn't it happened and how can we keep it that way? If it should happen anywhere in the world, that is a threat to us because when you have a norm, a standard of behavior almost universally observed, if it gets broken anywhere, then there is a hazard that it could spread. We're not worried about keeping it just from happening on our soil, but anywhere. So with that background, what can be done to reinforce those barriers?

*What can be done to deter these acts?*

Not just deterrence. Our vocabulary has become so impoverished when we discuss security issues, mainly since nuclear weapons were introduced. Nuclear weapons are so absolute that we introduced the word deterrence; it wasn't used much before nuclear weapons.

There are a lot of things that don't happen because people are not inclined to do them, not because they are deterred. Deterrence means someone wants to do something, but the cost to them is made high enough so they won't do it because of the pain and suffering they would incur. That is not necessarily why people don't do it. Why don't you lie all the time? Is it because you are deterred? The language is impoverished here, so as soon as we start with the term deterrence we are denying ourselves other tools for dealing with this very special problem.

I don't think deterrence is the right way to start. I think one has to take a broader view. We look at all the technologies that our species has ever developed: metallurgy, internal combustion, nucleonics, computers, you name it. Every one of them has been exploited for peaceful purposes. But in addition, with no exception, every one of them has been vigorously exploited for hostile purposes. This is putting the problem in the big picture, not the little picture. We have coming now a huge new technology, biotechnology. If we take this broad historical view, that it has happened with every other technology, how could it not happen with this one? This is one of the biggest questions that our species has to face in the present century. Are we going to be able to change the typical pattern and not use this particular technology for hostile pur-

poses, like we have done with all the others?

Why would it be different? You could argue it wouldn't be that different. People might make some biological weapons, use them in wars; wars are bad enough anyway, it won't make that much difference. Or maybe it would kill a lot more people, but still civilization would survive; most important our humanity would survive. After all, we've gone through times when there were horrible amounts of violence, and humanity has survived somehow.

Or is biology different? There we come to a very important question. Other weapons offer ways of destroying people physically. Biotechnology is fundamentally different because yes, it can kill people, but it can do something very different, it can change them. It will be a number of decades before it becomes clearly apparent, that biotechnology will give us the ability to manipulate cognition, the brain, development, our form, our shape, and the way our bodies work. We will be able to manipulate all of the fundamental life processes, in ourselves, in animals, and plants. You can see this happening at a quick rate of change in my field: molecular biology, molecular genetics. Every few months, something is discovered that no one would have dreamt could have been done before. And this will continue. The real question is far deeper than the hype artists in the press are feeding us in order to sell more papers.

Our species has suddenly arrived at a unique point in the history of living creatures—the point at which it can change itself; that has never happened before. And it is a fantastic change and it will deepen and deepen as the decades pass. That is why we should want to make sure biotechnology is used only for humane purposes; otherwise, we are in very deep trouble because we will lose our sheet anchor, we will lose what it is to be human. If you can change it readily, and if you do it for hostile purposes, what is left after a few hundred years? That is where I am very concerned. That approach deals with the more immediate issues of averting damage or danger to a city or to a country or to an individual. But there is very little effort there. That's the sad part.

*Could you talk a little bit about your proposal of an international convention on criminalizing biological weapons and how that fits into what you are talking about here, the idea of societal norms? Or is it more on the side of deterrence?*

It isn't. It is on the side of norms of behavior. In religious doctrine and ethics, the concept of a norm of behavior has been developed deeply. It is something that politicians should pay more attention to. This idea of a convention that would criminalize biological weapons is only one tool, and I'm sure it is not the total answer.

There is a body of international law going back several hundred years, and it first applied to piracy. It's based on the thought that there are certain crimes that are a threat to everybody. No matter where a perpetrator of a crime appears, no matter where he is found, the courts of that country ought to have jurisdiction over that crime. That is different from someone commiting embezzlement in Peru and coming to the US, when there is no special extradition treaty between the US and Peru. Well, he's a free man. He isn't an American citizen; he didn't commit embezzlement in the US; he didn't steal from a US corporation abroad. If someone hauls him in front of a US court, his lawyer would say, "It is irrelevant what my client might have done in Peru. This court has no jurisdiction over deeds

committed by non-US citizens outside of the US if it did not harm US interests abroad." But not if he is a pirate because even if he is a pirate from Peru and he captures a Spanish ship and he happens to come to New York, our courts have jurisdiction over piracy no matter who does it.

There are seven treaties now in force, and the US is a party to every one of them: airline hijacking, airline sabotage, crimes of maritime navigation, harming of diplomats on official duties, theft of nuclear material, torture, and hostage taking. (You may remember the Achille Lauro, the treaty happened after the event which is often what happens. People don't get concerned with something until it happens.) Those are all in force. There is a new one but it is not in force yet because not enough countries have signed on to it yet and that is on terrorist bombing.

My colleague Prof. Julian Robinson of the University of Sussex in England and I essentially took a bunch of scotch tape and scissors and took pieces of all these treaties and changed the words to fit biological and chemical weapons. We followed basically the format of treaties that are accepted and to which the US has subscribed and created a draft to make it an international crime.

What does that mean? Let's say you are the head of state, and you're wondering if you should start a biological weapons program and you ask your advisor. He will say, "You can do that, you are the boss here, but if you do that you better not travel because you don't want to find yourself in a foreign jail, and this is now subject to international jurisdiction. Furthermore, if this government should change and you are no longer head of state, the new government might put you in jail." Another thing his advisor probably wouldn't tell him is what happens when his son or daughter one day asks, "Dad, I read that you have been indicted as an international criminal. That's not true Dad, is it?" There is some dissuasion going on there; maybe there your word deterrence starts to apply.

*What kind of response and support are you getting for your proposal?*

So far as I know, everyone who has read it thinks it is a good idea. But it is different when a few university professors think it is a good idea than when a head of state, or better yet, a few heads of state say, 'This is the most important thing on our agenda. We are going to propose this in the UN and we are going to get it done.' That is where we are right now. Our problem is that the world is full of people who are interested in this problem, but they are too busy with other stuff. We are not very much aquatinted with world leaders; I teach genetics. So far none of my students has ended up being the President of France. Nevertheless, we are trying through contacts to reach leaders in several countries that are liked in the world. We are hoping, especially after I am on sabbatical, to kick into high gear and get this done.

*Let's talk a little bit about research, and that aspect of the issue. As a scientist, what do you think the government's role is in supporting this kind of research? What is the government's role in monitoring scientists to ensure that any work being done is for a good use of these biological agents instead of hostile uses?*

There is no money in most vaccines, so the private sector is reluctant to do it. There are a few vaccines where there is a profit, but leaving those out, vaccines in our country, as far as I can see, are going to have to have a lot of govern-

ment support. Only those vaccines with a large commercial market, like a vaccine for the common cold or AIDS, have a big profit potential. Let's take smallpox. We really should have a supply of the vaccine. We have some but it is not a lot; we should have more. A better vaccine or even the old vaccine is not that hard to make, and the government, I think wisely, has contracted with a company here in Cambridge to first develop the vaccine because it will be a new kind of smallpox vaccine, then produce a fairly large quantity of smallpox vaccine, and then it will be stored away. I think that is worth doing.

Could you do this for every disease, for every variant of every disease? No, you would go broke and we don't know how to make acceptable vaccines for most diseases. So it is not a general answer.

There is another factor, and that is for most infections, the vaccination has to be before you are exposed because it takes a while for the immunity to build up. You certainly cannot vaccinate all Americans against all diseases. But having certain vaccines just in case, I think that is a good idea.

A broader spectrum approach is if we understood enough about viruses so that we could develop broad range therapies. In other words, only if you are already sick, then you would do something medically about it. Prophylaxis also has the problem that everyone says, "Well maybe I was exposed." How do you qualify, where do you draw the line? At the border between Cambridge and Somerville, or farther west between Somerville and Medford, or farther still between Medford and the New Hampshire stateline? Some people are even going to worry if they are living in Maine and something were to happen in Boston. How do you deal with this kind of public concern? It is much better to have something for after you know someone has been infected, and that gets you to therapeutics instead of vaccines.

We don't have a cure for any virus disease and we've had more than 50 years of intensive research against virus diseases generously supported by the government. So more money isn't the answer. We still can't cure AIDS. There is not a single virus disease that we can cure. We can prevent some with vaccines. But cure it? No. So there is certainly a great need for research. But nobody should think that it is going to happen tomorrow, and nobody should think that it is something we haven't been doing and that raising the budget will fix it. We have been doing it, hammer and tongs. Look at the AIDS effort.

*We've talked about prevention and preparation, and the media sensationalizing the issue. How do you draw the line between preparing the public for a possible biological attack and not creating a panic? How can we keep groups from creating hoaxes to stir a panic in the population?*

There really has not been a problem with creating a panic. We have had more than 200 anthrax hoaxes. It's incredible. Now I don't think you can get an inch in a newspaper with one. In fact it may be the cry wolf problem. I'm not sure how to answer that type of question. I'm a biologist; I don't know too much about how to shape public opinion. But it does seem to me, just on the basis of the facts, that our public has been pretty sensible when they have reliable information.

*How would you look at international cooperation both on a national level to fight biological terrorism and on your level, the researchers' level?*

*What can international cooperation do for the problem? Does this type of cooperation exist?*

The best type of cooperation is the normal openness that is in the scientific community. That should be encouraged by supporting the travel of young scientists especially and older ones too so they can go to one anothers' countries and get to know one another and know what each are doing. There are many biologists in the former Soviet Union, I am told, who didn't even know there was a treaty that prohibits biological weapons. Openness, travel, the web, TV, all these things help. There is no way you are going to be able to have a police type of surveillance of activities. The main approach is to encourage openness, except where there is legitimate secrecy, for example monetary, military, and police, but to be open in other areas. For example, proprietary information that is commercial information can be shared with our government. They have a very good record. The FDA does not tell other companies how to make products that have secret methods. When it is military stuff, share it with an ally. When it is police stuff, share it with police organizations in other countries, in your own country, with Interpol. If you only have one organization, only one unit, I would be afraid that it could become so ingrown, so isolated from everybody and everything else, that it could go off in its own direction. The first step is to look everywhere and encourage openness. A further step is to break down isolation even in secret work.

Regulations are more difficult. Especially if you are talking about laboratory practices of science. Scientists are skeptical about politicians. They tend to be an independent-minded lot of people, especially the ones in universities and research institutions. You can license certain things. If you want a pathogen, you used to just be able to order it, now you have to be approved. There is a certain form you have to fill out and the Center for Disease Control gets involved. It is a step that isn't too burdensome; whether it will really make a difference, I don't know. I don't think we should export pathogenic strains without knowledge of how they will be used. On the other hand, they can be isolated from nature and from sick people.

We are dealing with a problem where you really need to have good behavior based on the fact that people want to behave well. That, as my friend Joshua Lederberg said to me the other day, "The main protection we have here is the norm." If that were really to change, if the picture you imply by talking about deterrence were to really be accurate, and all types of people are itching to do this, then you would never stop it.

*If you had the ear of President Bush, what would you suggest on this issue?*

There needs to be more attention to the long-term issue about how to keep our species from going down this road.

There is right now in Geneva negotiation a protocol to provide for the Biological Weapons Convention, the same kind of system of declarations and onsite inspections and activities that we have running for the Chemical Weapons Convention, which really was the initiative of George H. W. Bush.

Now what I would say to George W. Bush is, "Your dad did something of great wisdom, and we will see this more clearly as we learn more and more how to manipulate people with chemicals." The first President Bush was the key leader in bringing in the Chemical Weapons Convention. It was when he was Vice President that he pushed this for-

ward when most of the rest of the government was skeptical, even hostile. I would say to George W., "What your dad did in the area of chemical weapons, you should now do in the area of biological weapons. And that is, in Geneva to instruct your delegates to get an agreement where we have a new international organization to which countries would make declarations on certain matters and which would have inspectors that would do checks."

And we would also have an element of international cooperation. You've already got the model; it is up there in The Hague, it is the Organization for the Prohibition of Chemical Weapons. It's a good model. Instead, what is happening so far is that the US is not taking a leadership role. It had not done enough under the Clinton administration, and we are going to lose this thing. And that is too bad. It has to happen at a high level. Most of the middle level people are not going to be able to do that. They do not have the authority; many of them do not have the broad vision either. That is what I would do, I would tell him, go talk to your dad.

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*Matthew Meselson teaches and conducts research in the Department of Molecular and Cellular Biology at Harvard University. Professor Meselson is a member of the US National Academy of Sciences, the Royal Society, the Academie des Sciences, and the Russian Academy of Sciences and has been awarded honorary degrees from Columbia University, the University of Chicago, Yale, and Princeton. He has served as a consultant on chemical and biological weapons (CBW) arms control and defense to various US government agencies and is a member of the Committee on International Security and Arms Control of the US National Academy of Sciences. He is co-director of the Harvard Sussex Program on CBW Armament and Arms Limitation and co-editor of its quarterly journal, The CBW Conventions Bulletin.*