Bulletin

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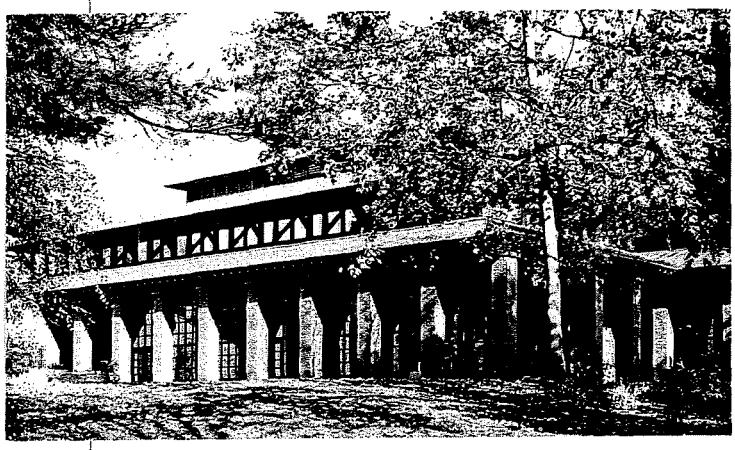

Matthew Meselson: Because people are thinking about bioterrorism now, it is appropriate to recognize that there are three different levels at which the problem should be addressed. The first is prevention—prevention of any hostile use of disease, whether bioterrorism or biological warfare. Should prevention fail, the next level is protection, shielding people from exposure. Failing prevention and protection, one should seek the capability to treat those who are exposed.

Treatment can be effective in some cases but by no means in all. We haven't eliminated the common cold, cancer, or AIDS, despite all the work that has been devoted to finding cures for those afflictions. And, depending on the situation, even knowing who to treat can become a serious problem.

Protection against airborne pathogens can be achieved by air filtration. Relatively simple modification of existing air circulation systems in many buildings, if done properly, is capable of filtering out not only pathogens but also other fine particles in the air we breathe that cause respiratory illness. But we can't filter the air everywhere. Air filtration can provide only partial protection.

Prevention, the most generic of the three categories of measures against deliberate attack with infectious agents, may be attempted by denying pathogens and certain dual-use equipment to those likely to use them for hostile purposes. Reducing the accessibility of particularly dangerous pathogenic microorganisms can be a useful measure, especially against their acquisition by individuals or unofficial groups. But clinical isolates from diseased humans or animals represent a source of dangerous pathogens that cannot be shut off. And any modern state can acquire the capability to produce biological weapons if it is determined to do so.

The most general level at which to attempt prevention is that of intent. For weapons that are relatively inexpensive to develop and produce, intent is a particularly important limiting factor. If nobody intended to use or even develop biological weapons, the problem would not exist. One of the factors influencing intent is the widespread norm against using disease and poison for hostile purposes. One can find it in the *Iliad,* in Islamic and Vedic law, and in modern law. There is a natural distinction between those weapons which resemble the human arm (whether a blow or a bomb, a hurled stone or a missile) and the ancient scourge of poison and disease. The only treaties in force that prohibit entire classes of weapons are those that prohibit hostile uses of poison and disease: the Geneva Protocol of 1925, the Biological Weapons Convention of 1972, and the Chemical Weapons Convention of 1993. The Biological Weapons Convention was made possible because of an immensely important thing done by President Richard Nixon in 1969—the categorical US renunciation of biological weapons. Without his initiative, the United States might still have an offensive biological weapons program. That would have acted to legitimize such weapons and would have blocked US attempts to prevent their proliferation. In renouncing biological weapons, President Nixon used language that emphasized the threat of such weapons to human beings everywhere and to future generations, saying: "Mankind already holds in its hands too many of the seeds of its own destruction."

Here at the American Academy and at Harvard and in the United Kingdom, at the University of Sussex and Cambridge University, a group of us have asked if we can find an additional tool to deal with the problem of averting the hostile use of disease and poison. There are, of course, many tools, and one shouldn't expect any one of them to do the entire job. But the tool that we have been wondering about is international criminal law—the kind of law that endows national courts with "universal jurisdiction"—jurisdiction over individuals present in their territory who have committed certain designated crimes, regardless of the nationality of the offender or the place where the crime was committed. For example, there is a treaty creating universal jurisdiction over individuals who commit the crime of airline hijacking. Regardless of where a plane is hijacked, or the nationality of the hijacker, that person can be tried if found in any country that is a party to the treaty. Similar treaties exist for several other crimes, including airline sabotage, crimes against internationally protected persons, hostage taking, theft of nuclear materials, and torture. You all know the case of the former president of Chile, Augusto Pinochet. He is not a subject of the United Kingdom. No one accused him of crimes committed anywhere under UK jurisdiction. Yet, under the 1984 Torture Convention, the highest court in the United Kingdom affirmed its jurisdiction to extradite Pinochet to Spain for trial there. It is not relevant that, for compassionate health reasons, he was released and allowed to return to Chile.

With the advice of an international group of legal authorities, we have drafted a treaty [copies of which were distributed to the audience] that would define as a criminal offender anyone who knowingly directs, or knowingly renders substantial aid to, the stockpiling, production, use, or threat of use of biological or chemical weapons. Of course, there could be individuals undeterred by such law; law does not eliminate crime. But it does mean that any individual contemplating the prohibited activity, whether a private person or a state official, would have to take account of the possibility of trial and possible imprisonment if found in any country that supports the envisaged treaty. Even if such an individual remains in a state that supports his illegal activity or is otherwise unlikely to take action, there is the possibility of indictment in absentia as an international criminal. People who violate international criminal laws are called *hostes humani generis*—enemies of all humankind.

At the most general level, the problem is to prevent hostile exploitation of biotechnology. The record of other technologies is troubling. Essentially every technology humans have developed—stonework, metallurgy, internal combustion, electronics, etc.—has been used not only for peaceful purposes but also, energetically, for hostile ones. We are now at the threshold of an immense new technology that will eventually show us how to manipulate all the life processes, including cognition, development, reproduction, and heredity. So it is important for us as a species—not just as any particular nation—to take measures to ensure that this history is not repeated with biotechnology.