



Below is an adaptation of the talk given by Dr. Harvey Rubin, on September 11, 2002 at the 9/11 memorial held at Irvine Auditorium: *Academic Reflections*, at which five Penn faculty members spoke; it was moderated by President Judith Rodin. The kickoff ISTAR symposium—*Strategic Thinking: How Climate, Disease and Socio-Political Structures Become Strategic Threats*—will examine how closely these three areas are correlated, and what implications this has for America and society at-large today. It will be held October 18, 2-4:30 p.m. in Zellerbach Theatre, Annenberg Center; it is open to the public. (See Update AT PENN for speakers.)

## ISTAR: Institute for Strategic Threat Analysis and Response

*Dr. Harvey Rubin, professor of medicine, microbiology and computer science, and director of ISTAR*

In his recent book, *The Metaphysical Club*, Louis Menand argues that reaction to the great national trauma—the American Civil War, created the intellectual climate that gave rise to pragmatism, perhaps the quintessential American philosophy. It is a philosophy, struggling with the dualisms of fact and value, theory and practice, dogma and experience, that appealed to scientists like Charles Sanders Peirce and William James, to jurists like Oliver Wendell Holmes and Louis Brandeis, to theologians like Mordechai Kaplan and to educators like John Dewey.

We are one year after another profound national trauma, a trauma that has caused us, as Herman Kahn said, to think the unthinkable. It has caused us to confront our own dualisms and to consider anew, personal freedom and personal security, private sacrifice and public good, acts of war and acts of terror, comedic relief and documentary anguish.

The conflict that engages us now is massively asymmetric. It is both hot and cold; there are front lines and no front lines; there are multiple antagonists, many with shifting alliances. As in times past, it is a conflict in which the distinction between civilians and warriors is fatally obscured. As Anthony Lake, the former National Security Advisor in the Clinton Administration observed, the conflict is not only asymmetric, it is also ambiguous—we may not have definitive evidence of exact identity of our attackers. Is this just a legalism or will it interfere with appropriate and legitimate response?

After September 11 the University considered the calls for action and analysis in the context of the traditional values of institutes of higher learning. Faculty at Penn, with the strong support of our President, Provost and Deans, formed the Institute for Strategic Threat Analysis and Response—ISTAR. Broadly-based multidisciplinary teams, as well as individual faculty members and students, are already involved in the generation and evaluation of hypotheses, theories, technologies and policies that relate to strategic threats and responses to these threats. Our work is not restricted to intentional attacks—it applies to unintentional and accidental events and its scope is global.

The mission of ISTAR is to stimulate, support and generate innovative projects and programs of research, education and practice and to make its findings known to the community of scholars, to the public, to private and governmental institutions and to the media through publications, lectures and sophisticated communication technologies.

Areas of expertise represented in ISTAR include: biological agents and infectious diseases; health care delivery and public health; engineering, information and communications technologies; logistics; informatics; transportation systems; geographical information systems; strategic defense analyses; ethno-political conflicts; risk assessment, communication and management; and legal and criminal justice issues.

The concept of asymmetric conflicts began as a tool used to frame the unsettling paradox that the great power of the United States alone cannot protect us from devastating attacks by technically weaker adversaries. Today the idea has outgrown its military roots to become a potent model with which to analyze the potential for the disruption of individual lives and societies. The result of an actual or even threatened biological, chemical, nuclear or cyber attack would have catastrophic physical, psychological, financial, political and social consequences.

In this new conflict we face enormous problems: we have to think about how to design and deploy and address remote detection devices, we have to develop early recognition algorithms and treatments for debilitating and deadly diseases including psychological diseases. Preventative and protective agents for biological, chemical, radiation and nuclear exposures have to be devised, tested and produced. The recent national debate over smallpox vaccination is only the beginning. We have to create secure computer, communication and information systems. We clearly need new approaches to integrating and analyzing massive data streams. We have to learn from, and educate, diverse populations of their

role in a dynamic and uncertain world. We must do this in a constitutionally sound manner as well as in a fiscally responsible manner. These are not simple, linear problems, they are multidimensional and inter-related, and the solutions require the cooperation and collaboration among many intellectual disciplines.

If we, and other research efforts around the country, are successful in solving these problems, we will not only create a society better prepared to absorb an asymmetric attack, we will have created a society with a superior public health system, with more secure financial institutions, with a more robust legal system and with a safer and more durable infrastructure. And, perhaps, just perhaps, we may have helped create a more civil society.

Will an understanding of this highly complex situation require a fundamentally new philosophy as emerged after the Civil War or will we find a way to think through the problems using advances in the natural, legal and social sciences, by applying new and developing technologies and by engaging in creative debates like Stanley Fish's essay, "Postmodern Warfare," in the July issue of *Harper's Magazine*? There Fish analyzed the events of September 11 and the following months invoking the ideas of public versus private, religious acts versus civil acts and challenged our understanding of particular situations in the context of universal and absolute standards.

Our institutes of higher learning, our universities and colleges are the natural locus for the difficult task of phrasing and solving the problems at hand. We have the broadest base from which to assemble the multidisciplinary teams of theorists, experimentalists, practitioners and educators that will be needed for the work ahead of us. The challenge is to do all this and still maintain the integrity and values of the scholarly professions—open and free inquiry, self-governance, setting the curriculum and free expression in publications and lectures. It is already evident from recent events that many of these priorities are in danger.

In this context, we should be aware that scenarios can emerge that might have unwelcome consequences. For example, microbiologists who defected from the former Soviet Union to the West confirmed that Soviet scientists genetically modified anthrax and created a strain with altered biological properties that could make it more resistant to antibiotics and could also allow it to avoid vaccine induced protection. They were able to do this simply using information published in highly respected and readily available journals.

These issues are extremely important and the debates on the merits of each case must be carried out with integrity, insight and with full participation of the interested parties. The consequences will shape higher education for years to come.

In closing, we recall that forty years ago, in September 1962, President John Kennedy explained in a speech at Rice University, his reasons for pushing ahead with the manned space program. He said, "We set sail on this new sea because there is new knowledge to be gained, and new rights to be won, and they must be won and used for the progress of all people. . . . We chose to go to the moon in this decade, and do the other things, not because they are easy but because they are hard; because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one that we are unwilling to postpone..." It is well to keep in mind that Kennedy spoke these words in the same month in which, in order to uphold the decision of the Supreme Court to desegregate the University of Mississippi, he sent Federal troops into Oxford Mississippi to protect James Meredith. And it was only a month before the Cuban missile crisis. It was a time of great danger at home and great danger abroad.

We came through, "the best of our energies and skills" carried the day. We must believe that these energies and skills, harnessed to the American genius for responding to challenge and trauma with reason and imagination will once again, carry the day.

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