Biosecurity

Towards an anthropology of the contemporary

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Fig. 1. A decontamination team disrobes a mock patient for scrubdown during an emergency response drill at Parkland Hospital in Dallas, Texas.

We have been working for a number of years now on developing methods, concepts, and means of identifying appropriate objects for an anthropology of the contemporary. Recently, we have chosen to focus collectively on one significant domain of enquiry, 'biosecurity' – the genealogies, imaginaries and emergent articulations of biological weapons and biodefence. Security issues are widely identified as significant. The challenge for critical scholars is to move beyond platitudes and to identify with more precision domains which merit sustained investigation.

As an initial framing, we here focus on how biosecurity has been 'problematized'. 'Problematization' is a technical term that suggests a particular way of analysing an event or situation. As Michel Foucault has written, 'a problematization does not mean the representation of a pre-existent object nor the creation through discourse of an object that did not exist. It is the ensemble of discursive and non-discursive practices that make something enter into the play of true and false and constitute it as an object of thought (whether in the form of moral reflection, scientific knowledge, political analysis, etc.)' (1994: 670). The reason that problematizations are problematic, writes Foucault, is that something prior 'must have happened to introduce uncertainty, a loss of familiarity; that loss, that uncertainty is the result of difficulties in our previous way of understanding, acting, relating' (1994: 598).

The mode of enquiry into problematizations proposed by Foucault is not that of a first-order observer who seeks, as Rabinow puts it, 'to proceed directly toward intervention and repair of the situation's discordancy' (2003:18). Rather, it is that of a second-order observer whose task is to achieve a 'modal change from seeing a situation not only as a given but equally as a question', to understand how, in a given situation, there are 'multiple constraints at work[…] but multiple responses as well' (ibid.: 18-19). Thus, to investigate bioterrorism and biosecurity as a site of problematization is to ask questions such as: What kind of 'uncertainty' or 'loss of familiarity' has been introduced by the threat of bioterrorism, and in what domains? What ways of understanding, acting and relating are disrupted? What forms of political analysis, moral reflection and techno-scientific practice are being mobilized by actors (scientists, policy-makers, planners) in shaping – and operating in relationship to – something called biosecurity?

The problem of biosecurity today

Our approach to the contemporary problem of biosecurity in the United States is framed by two developments: the break-up of the Soviet Union and the birth of genomics. While the historical coincidence of these events is arbitrary, subsequent developments have linked aspects of them in quite specific ways. On the one hand, the collapse of the Soviet Union led to the disintegration of safeguards on the activities of the world's top biological weapons scientists, the largest stockpiles of virulent biological agents, and the most advanced expertise in the use of these agents as weapons. The end of the Cold War also meant a shift in the focus of security planners from superpower confrontation to polymorphous new threats which are yet to be fully defined. On the other hand, developments over the past 20 years in genetic manipulation and, more recently, in genomics, have made the production of biological weapons less technically challenging and less capital-intensive.

Advances in genomics and the break-up of the Soviet Union have generated a range of grand statements about the state of the present and predictions for the future. This commentary has often been characterized by a rush to epochal proclamation, prompting a harried practical response. Experts in the field of Soviet studies utterly failed to predict the timing of the collapse of the Soviet Union. Nonetheless, the event was followed by a massive outpouring of scholarly and expert analysis that claimed to understand its world-historical significance and to make the future of post-Soviet states available for modelling, planning and intervention. Similarly, the beginning of the Human Genome Project was accompanied by an explosion of prophetic tomes confident in their ability to reveal its meaning and scope; these claims were articulated both in the newly prestigious field of bioethics and in science journalism. A decade and a half later, it is safe to say that very little of the literature on either the Soviet Union or the genome project has in fact proved to be prophetic. Perhaps the lesson is that what is needed is less prophecy and more close study of practices and problems as they emerge.

A similar pattern of epochal proclamation with respect to the 'terrorist threat' can be identified after 9/11. The attacks acted as a catalyst on many levels. Above all there was a strongly felt sense of urgency to cast pre-existing elements into new formations of security, geo-politics and epochal significance. Such fashioning, not surprisingly, was most easily accomplished in the discursive realm. With extraordinary rapidity, commentators have produced powerful and comprehensive ideological figurations of the present and future.

One group of observers has diagnosed the post-9/11 situation as another in a series of fateful clashes of civilizations. They see the contemporary threat as analogous to that presented by Nazism in World War II and the Soviet Union during the Cold War. For these observers, the pressing task is to respond with moral clarity and decisive action.[1] In contrast, for another group of observers such visions of moral clarity and military resolve are part of the problem to be diagnosed. For them, the concept of 'empire' now occupies the space once taken by discussions of globalization: it is a blanket term with a negative normative value that covers a vast range of practical transformations. Some observers in this latter group warn of imperial overstretch and decline, comparable to that experienced by other great world empires.[2] Others seek to debunk claims of moral clarity by pointing to the interests they serve – whether large corporations, US military aims, or broader and more diffuse forms of hegemony.[3] In the case of the first group, the current threat is taken to be self-evident; the only question is whether there is a will to respond. In the case of the second, the response itself is subjected to critical diagnosis.

These epochal visions point to problems of fundamental importance: the vices or virtues of US unilateralism, the significance of the disintegration of the Cold War security order, the proper way to understand and respond to new security threats. In shaping an anthropology of the contemporary, however, we are careful not to take too much for granted about the technological, political and ethical stakes of this emerging space.[4] It is undoubtedly true that, in the wake of the 2001 attacks, relations between security structures, scientific research, capitalism and the state are being reconfigured. But just as the attacks themselves were not inevitable, the possible directions of contemporary shifts in security are not predictable; they are constrained but multiple. Therefore, rather than casting contemporary changes in terms of their epochal significance, we suggest a more specific focus on how security has been problematized.

An analytic approach based on the frame of problematization would see 'threat' – the risk of future harm that security measures seek to mitigate – neither as a 'pre-existent object' nor as the creation, through discourse, of 'an object that did not exist'. Rather, it asks how it is that the problem of 'security' enters into the 'play of true and false', and how it is being constituted as an object of thought and practice. The specific and contingent dimensions of an emergent response can usefully be thought of in terms of the formation of an 'apparatus'. An apparatus – another Foucauldian term – is 'an articulation of technologies aimed at first specifying[…] targets and then controlling (distributing and regulating) them' (Rabinow 2003). Its elements are 'resolutely heterogeneous', including 'discourses, institutions, architectural arrangements, philosophic, moral, and philanthropic propositions'. 'The apparatus itself', Foucault writes, 'is the network that can be established between these elements' (quoted in Rabinow 2003: 51). This network is 'strategic' in the sense that it orients these diverse elements through a certain normativity and toward a certain end. In this sense, apparatuses may be understood as 'specific responses to particular dimensions of larger problematizations' (Rabinow 2003: 55). In the field of biosecurity, these responses are only beginning to be considered by experts and policy-makers. This process deserves observation, analysis and reflection. Here, perhaps, is where the analytic tools of second-order observation may be of use, first of all for understanding more precisely new forms as they emerge.

Danger and risk

A useful starting point is Niklas Luhmann's (1993) distinction between danger and risk, which he developed in the context of broader European debates on the appropriate response to uncertain environmental threats. Both terms – danger and risk – indicate a condition of uncertainty about the likelihood of future harm. The difference lies in what such harm will be attributed to. If we treat possible harm as danger, Luhmann argues, we consider it to have been caused externally – we attribute it to sources beyond our control. If we treat possible harm as risk, in contrast, we attribute it to a decision we have made. As Luhmann suggests, it is modern society's inclination to treat uncertain threats in the latter fashion – as risks.[5]

What does it mean to understand possible future harm – whether from environmental destruction, terrorist attack, a meteorite strike or industrial accident – as attributable to a decision we have made? Many threats – some forms of environmental destruction, for example – would seem to be easily traced to human activities (cutting down forests, driving cars). Others – a meteorite strike, say – seem obviously beyond our control. Here it is crucial that in writing of our present decisions, Luhmann has in mind not only actions that directly lead to harm but also action which might be taken to avoid harm. Thus, to treat potential

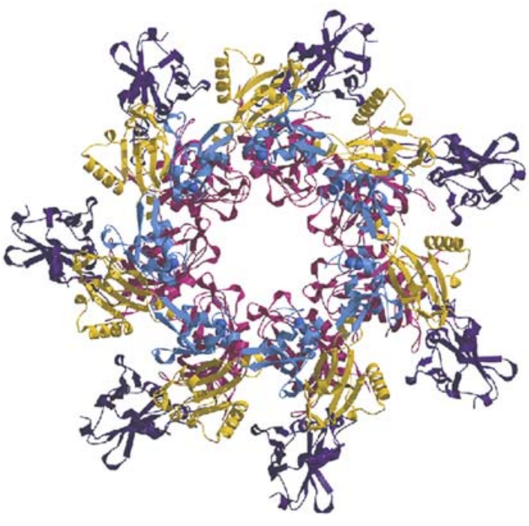

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Fig. 3. The heptamer structure formed by protein antigens of the anthrax virus.

1. For example, this argument has been articulated on the right by David Frum and Richard Perle (2003), and on the left by Paul Berman (2003).
2. See Johnson 2000.
3. See Chomsky 2003, 2001, and Hardt and Negri 2004.
4. For a similar argument about the future and security see Collier and Ong 2004.
5. The concept of risk emerged in the context of insurance for commercial navigation in the 16th century. What is distinctively modern about risk – as opposed to other ways of dealing with anticipated future loss – is its relation to calculation. As Ian Hacking writes, 'risk is the calculating concept that modulates between fear and harm' (2003: 27).
6. This point has recently been emphasized by Cass Sunstein (2004).
7. For a discussion of 'the virtual' see Deleuze 1994, especially pp. 208-214.
8. Obviously this particular problematization of biosecurity is distinctive to the US. It would be extremely valuable to have comparative enquiries conducted in other national and transnational contexts.
9. See Miller et al. 2002.
10. See GAO 2003.
11. For a summary of efforts within the US and UK scientific communities, see Rappert 2003.

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Fig. 3. Room 211.

future loss as a matter of risk means, first of all, that we weigh this future loss against the cost of possible actions we can take in the present to avert it or mitigate its effects, or against the cost of curtailing present actions that might lead to it.[6] In short, to treat future loss as risk is to *technologize* the threat, and, thus, to make our present actions responsible for it.

Luhmann's discussion suggests that we focus on the process through which a threat of loss is made part of a calculation about our present actions and institutions. However, the case of biosecurity raises an interesting problem, one that is simultaneously practical and – for both first- and second-order observers – conceptual. Current frameworks for assessing the risk of future loss from a biological weapons attack, and for estimating the likely costs and benefits of present action, are far from stabilized. Today, security planners know little about the likely scenarios for an attack. For instance, where does the threat come from? Security experts and politicians are convinced that the technical means for biological weapons attacks are readily available, and know that various groups have shown the interest and the capability to organize terror attacks. However, links between proliferators of biological weapons and terrorists have not been demonstrated, and the handful of biological weapons attacks executed in the US have been associated with domestic groups rather than foreign terrorists. Not all experts agree about the likeliest disease agents or mechanisms of delivery. Even where consensus does exist, there is currently limited capacity to respond to known agents, and still less to respond to unknown agents. And experts can only guess at what future directions of research are most likely to improve our ability to mount a biological defence.

In short, there are tremendous uncertainties involved in gauging the threat of biological weapons attack and in preparing a response. To what extent, then, can the threat be successfully technologized? So far, no coherent response has emerged. Rather, at this initial phase experts and officials seem to be mobilizing and grouping already available responses. Thus, experts can take action to communicate disease events better among public agencies, to identify outbreaks more quickly, to vaccinate first-responders, to find biomedical solutions for specific disease agents, or to investigate likely patterns of groups suspected of posing bioterrorist threats. But they have no reliable means of evaluating the adequacy of these measures. These are simply the currently available reactions and the currently available sites through which actors respond to new, as yet not fully articulated threats. Certain actors in these sites may have a vision of a stable grouping of elements oriented to definite ends – that is, a vision of a future biosecurity apparatus. Others may find local opportunities in the potential threat: a chance to strengthen the public health infrastructure, to fund research into infectious agents, to intensify intelligence-gathering capacities, to reform immigration law. In any case, the visions that motivate these actors are diverse; the possible outcomes are multiple. Today a 'biosecurity apparatus' is best understood as virtual rather than actual.[7]

Risk selection

How do experts proceed when purely technical considerations are not enough to determine the appropriate response to a perceived threat? Here it is useful to turn to the classic work of Mary Douglas and Aaron Wildavsky (1982), who made such situations an object of sustained reflection. In a world of full and perfectly accurate information and of agreement about the most important risks, Douglas and Wildavsky note, a purely technocratic response to risk could unproblematically be made appropriate to its 'object' – that is, to the threat of possible future harm. In such a case, the problem would be technical and the solution would be 'calculation' that weighs the costs and benefits of pursuing various strategies to address a known risk (1982: 5-6). But most situations, they argue, diverge from this ideal case in at least two respects. First, there is usually inadequate information about the risk of any given threat and about the effects of possible intervention (and, we might add, inadequate technical means to respond to a clearly identified risk). Second, there is no consensus about which risks matter the most.

Douglas and Wildavsky propose to focus on how, given this uncertainty, one risk rather than another is selected as important. In particular, they focus analytic attention on the cultural milieu in which a specific risk becomes the object of widespread concern. They write: 'The choice of risks and the choice of how to live are taken together. Each form of social life has its own typical risk portfolio. Common values lead to common fears (and, by implication, to a common agreement not to fear other things)' (ibid.: 8). The task for an observer, in their view, is to analyse the cultural values and social forms that guide the selection of a specific set of risks.

In the case of biosecurity, this approach would lead to questions such as: why – culturally – has security in general become such a pre-eminent concern? Why is the threat to biosecurity in particular regarded as major by some and insignificant by others? Why is focus placed on certain specific potential scenarios of bioterrorist attack (by foreign terrorists, say) sometimes at the expense of others (by domestic terrorists)?

Such questions are obviously of central importance. However, a focus on the cultural background that informs risk selection tells us little about how an understanding of a given threat is stabilized technologically – that is, how a danger is made into a risk. Today, an apparatus to transform the perceived danger of bioterrorism into a risk is only now in formation. Consequently, understandings of the threat remain unstable. In this context, it is appropriate to ask more specifically: how is it that experts bring threat and security into a framework of technical intervention? Thus, in place of a generalized focus on cultural risk selection we propose an approach that distinguishes among the specific roles played by technical experts, political figures, moral authorities and 'big thinking' forecasters in forging a biosecurity apparatus. This approach singles out for special attention not the values that influence risk selection,

Berman, P. 2003. *Terror and liberalism*. New York: W.W. Norton.
Chomsky, N. 2001. *9/11*. New York: Seven Stories Press.
— 2003. *Hegemony or survival: America's quest for global dominance*. New York: Metropolitan Books.
Collier, S. & Ong, A. (forthcoming). Global assemblages, anthropological problems. In: Ong, A. & Collier, S. (eds.) *Global assemblages: Technology, politics, and ethics as anthropological problems*, pp. 3-21. Malden, Mass.: Blackwell.

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Fig. 4. A worker in a BSL-4 laboratory wearing protective gear. BSL-4, or biosafety level 4, is the highest level of biosafety and is used for diagnosis of high-risk agents.

Deleuze, G. 1994. *Difference and repetition*. New York: Columbia University Press.

Douglas, M. & Wildavsky, A. 1982. *Risk and culture: An essay on the selection of technical and environmental dangers*. Berkeley: University of California Press.

Foucault, M. 1994: *Dits et écrits: 1954-1988*, 4 volumes. Paris: Editions Gallimard.

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Frum, D. & Perle, R. 2003. *An end to evil*. New York: Random House.

GAO 2003. *Weapons of mass destruction: Observations on US threat reduction and nonproliferation programs in Russia*. 5 March. Available at www.nti.org

Hacking, I. 2003. Risk and dirt. In: Ericson, R. & Doyle, A. (eds) *Risk and morality*, pp.22-47. Toronto: University of Toronto Press.

Hardt, M. & Negri, A.: *Multitude: War and democracy in the age of empire*. New York: Penguin.

Johnson, C. 2000. *Blowback: The costs and consequences of American empire*. New York: Metropolitan Books.

but the practices and forms of reasoning that shape technical response.

An anthropology of biosecurity

Our project consists of a multi-sited anthropological enquiry that examines three dimensions of the emerging US biosecurity apparatus: (1) US government and non-government efforts to control post-Soviet weapons scientists and biological materials; (2) the work of strategic planners involved in modelling problems of biosecurity; (3) current research in the life sciences aimed at improving the ability to identify and respond to unknown pathogens that might be used in an attack. These sites address distinct problems faced by experts and policy-makers seeking to forge a biosecurity apparatus: first, the containment of known sources of agents and expertise; second, the definition of possible scenarios of attack; third, the development of technologies that will, it is hoped, improve response to attacks.

One question to emphasize through this multi-sited approach concerns the multiple ways threat and security are constituted as objects of intervention within an emerging US biosecurity apparatus.[8] As Luhmann has pointed out, from the perspective of second-order observation it is possible to ask whether all the observers in an apparatus are, in fact, observing 'the same object' (2002: 95). Luhmann notes that, whereas the first-order observer assumes a 'tight coupling of observations and reality, and implies that there is only one observer observing the "same thing" and making true or false statements, a second-order observer observing these observers would see only loose couplings and lack of complete integration' (ibid.) In other words, there may be as many 'threats' as there are domains of expertise. This implies a key task for analysis: to examine the different ways that the bioterrorism threat is constituted by various kinds of experts.

Research site 1: Break-up of the Soviet Union and market regulation of bio-warfare knowledge. In one site of research, we examine US efforts to control the activities of former Soviet weapons scientists and laboratories. After the end of World War II, the US and the Soviet Union developed largely parallel biological weapons programs. Public sources indicate that the US ceased research into the creation of weapons after signing a convention on biological weapons in 1972, while the Soviet Union initiated a massive secret programme.[9] The Soviet programme made very substantial advances in the development of biological warfare agents and in techniques for their delivery. Since the break-up of the Soviet Union in 1991, funding for most Russian weapons scientists and facilities has declined dramatically. Many of the tens of thousands of scientists with weapons-relevant expertise have 'melted away' and are unaccounted for. Efforts to control biological weapons based on bilateral or multilateral agreements among states have lost relevance. In this context, one dimension of US strategy – among both governmental and non-governmental organizations – has been to regulate the choices of scientists or individual labs more directly, encouraging scientists to engage in certain kinds of research, to share or not share information, to respect security in labs, to uphold ethical norms for research.[10] These efforts are defining new strategies for regulating biological warfare knowledge.

Two strategies in particular have been characteristic of recent programmes to control the proliferation of post-Soviet biological weapons. First, increasing support has been granted to programmes supporting 'good' commercialization of biological weapons expertise – i.e. commercial collaboration for non-weapons uses or for biological weapons defence – to stem 'bad' commercialization – the sale of agents, delivery technologies or expertise to hostile proliferators. The assumption of these efforts is that commercial structures provide a more transparent and accountable milieu for scientific work. Second, various new programmes seek to manage the ethical choices of scientists by establishing international standards and conducting 'ethical' audits of labs.[11] In observing these efforts to control the proliferation of dangerous knowledge, our aim is to follow: (1) the process whereby experts identify particular dangers and ignore others (such as the danger posed by 'rogue' US weapons scientists), (2) how a possible intervention is designed, and (3) how the adequacy of these intervention efforts is assessed.

Research site 2: Biosecurity scenarios – planning for an uncertain future. A second site of investigation focuses on the conceptual work involved in measuring preparedness and formulating possible responses to the biological weapons threat. Specifically, we examine the work of strategic planners in transforming the ill-defined threat of a biological weapons attack into a calculable risk. Preparing for the threat of such an attack has become a top priority for government, health and business planners. Since the character of the threat remains a matter of radical uncertainty, the structuring of possible responses requires the production of plausible future scenarios. An initial task for the analyst is to map the development of such scenarios: who are the experts engaged in producing them? What is the history of this field? What tools are used to craft the futures they envision?

For contemporary security strategists, the current situation is marked by instability and uncertainty in comparison with the Cold War, which serves as the paradigm for a security apparatus. The 'old order', as they understand it, was characterized by a fairly stable security situation in which there was a relationship of mutual adaptation between an offensive weapon and a strategy of response – for example, between nuclear missiles and satellite surveillance systems. The project of designing a viable security strategy in the present seeks, on the one hand, to bring about a new state of stability resembling that of the Cold War, and on the other, to characterize the distinctive traits of the current threat. These include, first, the enemy: the threat is not necessarily linked to the nation-state and its presumed territorial objectives. An enemy engaged in bioterrorism may not have a classically rational military objective – in fact may even have a suicidal or apocalyptic aim. For this reason, concepts central to Cold War modelling, such as containment and deterrence, appear to be of little use in the case of such an opponent. Secondly, unlike

Luhmann, N. 1993. *Risk: A sociological theory*. New York: Aldine de Gruyter.
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Miller, J., Engelberg, S. & Broad, W. 2002. *Germs: Biological weapons and America's secret war*. New York: Simon & Schuster.
Rabinow, P. 2003. *Anthropos today: Reflections on modern equipment*. Princeton: Princeton University Press.
Rappert, B. 2003. Coding ethical behaviour: The challenges of biological weapons. *Science and Engineering Ethics* 9(4): 453-470.
Sunstein, C. 2004. Your money or your life. *The New Republic Online*, 7 March. https://ssl.tnr.com/p/docsub.mhtml?i=20040315&s=sunstein031504.

nuclear arms, biological weapons are not seen as a controllable – i.e. tactical – weapon; they are therefore not amenable to Cold War-era strategic planning protocols. Given these and other uncertainties, we pose the question: how do planners forge new models and protocols in order to address the bioterrorism threat 'rationally'?

Research site 3: The Molecular Sciences Institute – technologies of detection and public health. Bioterrorism experts recognize that the rapid identification of agents used in a biological weapons attack will be crucial to limiting the resulting devastation. But there are currently no reliable systems in place for detecting an attack even by known agents such as smallpox or anthrax. Even more ominously, advances in genetic manipulation have made it more likely that novel agents can be invented. The challenge for scientists, then, is not just one of rapidly distinguishing between known pathogens – smallpox versus bubonic plague, say – but of identifying modified strains quickly, and of understanding how they have been altered.

In our third site of research, we follow in detail the work of a group of prominent molecular biologists as they seek to create technologies for such rapid identification. This research is based at the Molecular Sciences Institute, a laboratory in Berkeley, California that is engaged in cutting-edge research on modelling cell pathways. Researchers there have developed a powerful protein detection technology that they hope can be adapted to the needs of biosecurity in order to identify particular pathogens sensitively, accurately and efficiently. This setting provides a third vantage point from which to pose the question of how existing technical means are taken up in relationship to the ends of an apparatus of biosecurity.

The need for biosecurity

One objection to our approach might be that we have chosen sites that have been pre-selected by the US state, and that it is therefore based on a very specific (and perhaps biased) understanding of where the threat lies. In response, we might note that such a critique assumes the framework of first-order observation. Our aim, in contrast, is not to answer the (first-order observer's) question of whether these are the 'right' sites, whether the threat has been 'correctly' identified, or whether the anti-terror strategies developed in them are, in themselves, adequate to the threat. Rather, the interest of these sites is that they are areas of dynamic activity in an emerging apparatus where the threat of bioterrorism, and the need for biosecurity, is being defined.

Our strategy of second-order observation makes it possible to ask questions about these sites that may be difficult for first-order actors to pose. As a tool for an anthropology of the contemporary, second-order observation draws attention to the contingent choices and distinctions made by first-order observers in forging an apparatus of biosecurity. It also offers a critical understanding of how such an apparatus works – in identifying needs, in inventing ways of meeting them, and in measuring whether they have been met. Here it is useful to compare the demand for security to another biopolitical domain – health. As Foucault pointed out in his 1983 lectures on social security and health, however much the therapeutic power of medicine has increased, there has been a much more rapid 'growth in the demand for health'. The 'need for health (at least in so far as it is felt) has no internal principle of limitation,' he noted (2000: 373-374). Likewise in the case of security: there is no such thing as too much security, there is no internal principle of limitation. It is not clear where it would end. It is worth reflecting further on this incessant need: how do we know how much security to seek? At what point would we be prepared enough? And what is the process through which, socially and politically, answers to such questions are found? ●

Fig. 5. The 'plague museum' in Kazakhstan, the former Soviet Republic in which many key laboratories in the Soviet biological weapons complex were located.

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