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The Political Ontology of Catastrophe: Inventing the Vulnerable Society, 1953-1958

Stephen J. Collier
The New School, New York

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Based on a talk presented to the workshop "Governing Emergency" University of Durham, UK, December 9-10, 2010

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ABSTRACT

This paper explores "system vulnerability thinking" as a specific response to the exigencies of thermonuclear war in the 1950s. It is one part of a collaborative project with Andrew Lakoff on the government of catastrophe in the post-World War II United States. The project focuses on the forms of expertise, the knowledge practices, and the governmental institutions that have been invented to anticipate and manage potential catastrophes, from natural disasters, to pandemic disease, to terrorism, to energy crises. In this project we have identified the reconfiguration of US government in the early years of the Cold War as a crucial moment in which the government of catastrophe in the post-World War II US took shape.

Stephen J. Collier
Graduate Program in International Affairs
The New School
colliers@newschool.edu
www.gpia.info

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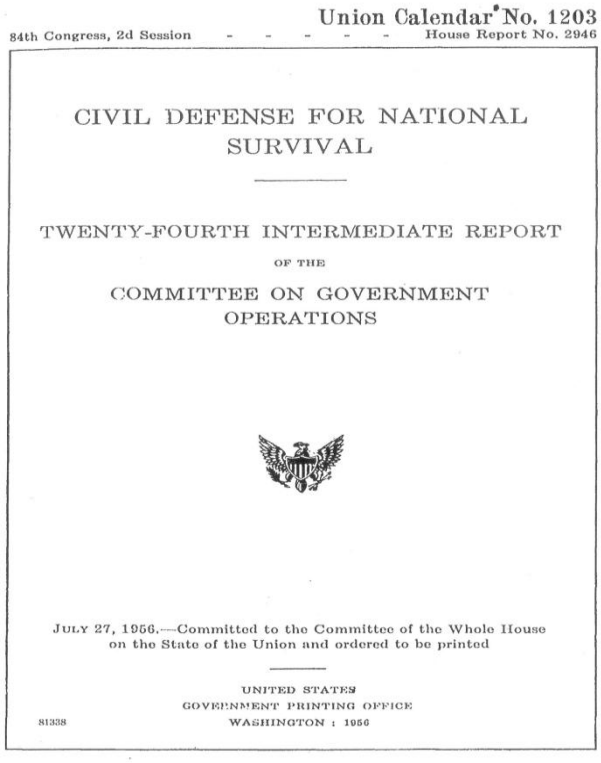
1. *The Indispensible Means to National Survival*

In July 1956, the Committee on Government Operations of the US House of Representatives released a report called *Civil Defense for National Survival*. The report's forward began by acknowledging a reality that was only beginning to come into focus for those preoccupied with national security in the mid-1950s: that in an "atomic-hydrogen age" the "catastrophe of nuclear war could destroy civilization." The report's concerns were framed by recent techno-scientific developments. In 1953 the Soviet Union detonated its first fusion bomb. Its first true hydrogen bomb followed in 1955. U.S. tests in the early 1950s showed that these new weapons not only delivered vastly greater explosive power but would also spread deadly radiation over thousands of square miles, killing tens of millions of people and potentially rendering areas of the country completely uninhabitable. By 1956, war strategists anticipated another momentous development – the deployment of intercontinental ballistic missiles. One year before the launch of Sputnik triggered a scramble to advance missile technology, defense experts already understood that ICBMs would transform nuclear strategy by vastly reducing warning times and rendering interception of enemy attack impossible. Enormous destruction following a first strike by the Soviet Union became a virtual certainty.[1]

Civil Defense for National Survival was the result of massive hearings chaired by Chester Holifield, a democratic congressman from California who was known as "Mr. Atomic Energy" for his work on nuclear weapons in the 1950s.[2] Testimony at the hearings was given by a remarkable range of technical experts, policymakers, and government officials involved with

national preparedness in this period. "The testimony of these objective and informed witnesses," argued the Committee's report, led to a "compelling conclusion." Military "forces of offense and defense" could not "guarantee that an aggressor will turn aside a mad impulse to strike"; nor could they "wholly prevent the exposure of [the American] people to death and destruction if such an attack comes." "Confronted with these hard facts of the contemporary world," it was essential to strengthen the United States' "capacity to substantially withstand attack, our national resiliency." Such measures – elements of what was coming to be called "non-military defense" – were the "indispensible means to national survival."[3]



Union Calendar No. 1203

84th Congress, 2d Session — House Report No. 2946

CIVIL DEFENSE FOR NATIONAL SURVIVAL

TWENTY-FOURTH INTERMEDIATE REPORT

OF THE

COMMITTEE ON GOVERNMENT OPERATIONS

JULY 27, 1956.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

UNITED STATES
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81338 WASHINGTON : 1956

Figure 1: "Civil Defense for National Survival"

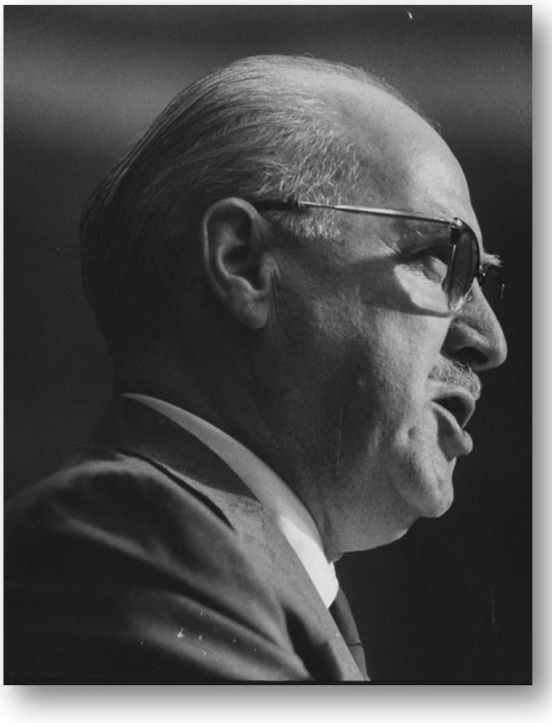

Figure 2: Congressman Chester Holifield

The Holifield hearings were an extraordinary forum for political and technical reflection on military strategy in a thermonuclear age. They were also – perhaps somewhat unexpectedly –

the occasion for intense discussion and elaboration of a new way of understanding domestic life. In the 1950s government officials and defense strategists concerned with nuclear strategy turned a new kind of attention to the industrial facilities, infrastructures, and resource flows that together comprised and constituted the strength of the US economy. They analyzed these diverse elements as *systems* whose complex inter-workings and interconnections were also sources of *vulnerability*, since failures in one system could cascade throughout the economy. Thus, the problem of national survival was linked to a new figure of collective life marked by its susceptibility to catastrophic disruption.

This paper explores "system vulnerability thinking" as a specific response to the exigencies of thermonuclear war in the 1950s. It is one part of a collaborative project with Andrew Lakoff on the government of catastrophe in the post-World War II United States. The project focuses on the forms of expertise, the knowledge practices, and the governmental institutions that have been invented to anticipate and manage potential catastrophes, from natural disasters, to pandemic disease, to terrorism, to energy crises. In this project we have identified the reconfiguration of US government in the early years of the Cold War as a crucial moment in which the government of catastrophe in the post-World War II US took shape. This is so in part because the organizations involved in managing catastrophes today – the Federal Emergency Management Agency, and the Department of Homeland Security in which it is housed, for example – have predecessors in the early Cold War. But it is also, and for present purposes more importantly, because forms of knowledge and expert practices invented in response to nuclear war remain central to the way that catastrophic risk is taken up as a political problem today.[4] They helped to shape what might be called the "political ontology" of catastrophe in the contemporary United States.

2. From Civil Defense to National Preparedness

The dawn of the thermonuclear age was not, of course, the first time that military strategists and policymakers concerned themselves with the United States' susceptibility to military attack. It is true that the vast oceans separating the mainland United States from European and Asian powers had previously offered a sense of continental security. And the US did not experience extensive aerial bombardment during World War II, as did the other major combatants. But the wartime experience in other countries – combined with anticipation of a Cold War with the Soviet Union – made civil defense seem an urgent necessity in the war's aftermath. A series of studies on US civil defense that began with the US Strategic Bombing Survey culminated in a report by the National Security Resources Board that provided the conceptual framework for a 1950 act that established the Federal Civil Defense Administration.[5] It is helpful to briefly consider the approach to civil defense developed in the early 1950s, for it differed markedly from the concern with systems vulnerability that would arise a few years later, and will therefore serve to throw the latter into sharp relief.

Civil defense planning of the early 1950s began from the assumption that the most pressing threat to the United States was from bomber-delivered atomic weapons, whose major impact would be caused by the blast and ensuing fires. The "emergency imaginary" focused on the level of the city: on patterns of damage to buildings and utilities, on relief for the injured and management of the dead, and on the restoration of urban services.

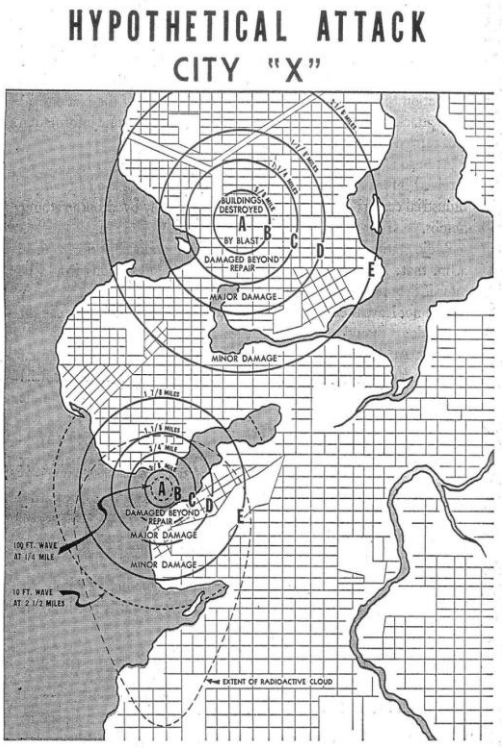

Figure 3: "Hypothetical Attack; City X"

In this context civil defense planners developed procedures of "urban vulnerability mapping" to assess the probable extent of damage to cities, and to anticipate needs for emergency response. Vulnerability mapping relied on rudimentary catastrophe models in which transparent overlays were used to superimpose diagrams indicating the distribution of blast damage over a map of a city.[6] Combined with information about the physical vulnerability of particular structures such mapping procedures allowed planners to assess likely patterns of damage. This focus on the urban scale had important implications for the governmental organization of civil defense. Primary responsibility for emergency management was assigned to local governments, which would be aided, as needed, by other local, state, and federal entities.[7] The "national civil defense pattern" was, thus, a pattern of support for *local* emergency response.

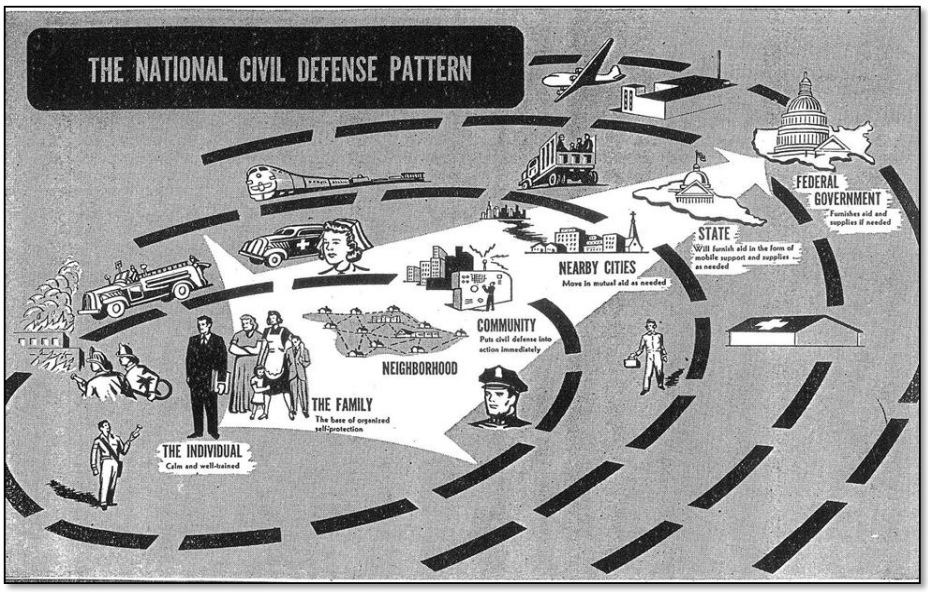

Figure 4: "The National Civil Defense Pattern"

A notable feature of this paradigm of civil defense was the way it enlisted the population of the United States in preparedness activities. Injured or displaced individuals were the primary objects of concern in civil defense planning, which focused, as the Holifield report later observed, on "rescue operations and welfare services to stricken populations."[8] At the same time, planners of the early 1950s saw an active public as crucial to civil defense preparedness. Millions of Americans participated in the Ground Observer Corps by positioning themselves on rooftops or hills and scanning the skies for low-flying Soviet bombers that evaded US radar. Large-scale exercises such as "Operation Alert," which ran from 1954 to 1961, aimed to enlist the population in preparation for nuclear war, and to allow planners to understand how the public would respond to a war emergency.

Figure 5: "Ground Observer Corps"

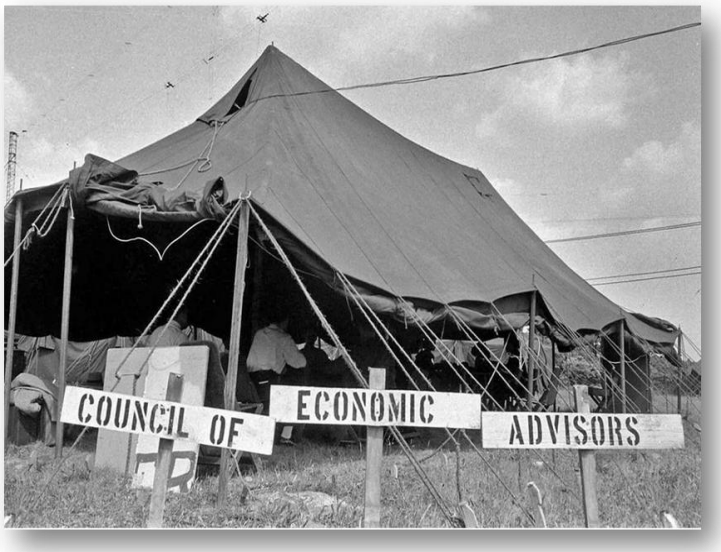

Figure 6: "Council of Economic Advisors"

As the historian Dee Garrison has shown, this early approach to civil defense was publicly derided, particularly as ever more powerful weapons made measures taken by private individuals seem futile. Today we know this period of civil defense planning mostly through sardonic references to "duck and cover."[9] Less often noted is the fact that by the mid-1950s an equally forceful criticism of this form of civil defense was developing within the community of technical experts and policymakers concerned with military strategy in a nuclear age. These experts derided the narrow and local concerns of civil defense planners in planning for a catastrophe that, they contended, would be national in scope. The Holifield Committee report exemplified this criticism. "The 1950 civil defense legislation," it argued, "was outmoded upon its enactment five years after atomic bombs were dropped on Japanese cities, and five more years of weapons advances have made it obsolete."[10]

For some, the project of domestic preparedness had *itself* become obsolete – a senseless expenditure of resources to solve an unmanageable problem, or a dangerously provocative signal to the Soviet leadership that the US was preparing to fight and win a nuclear war.[11] But for the experts and officials who testified at the Holifield hearings, it was more essential than ever to strengthen US civil defense – or some dramatically re-imagined approach to domestic preparedness that bore little resemblance to what the Holifield report derisively called the "tin hat and sand bucket" approach of early 1950s civil defense. On the one hand, they argued, domestic preparedness was crucial for deterrence, to demonstrate that the United States would not be wiped out by a surprise Soviet attack. On the other hand, if deterrence measures failed, domestic preparedness planning was essential to ensure that the US polity and economy could continue to function after a nuclear war. In short, strategists of the mid-1950s came to see some form of non-military defense as fundamental to the most basic *strategic* question: national survival.

The "vital strategic role" planners of the mid-1950s imagined for civil defense required a substantial reconceptualization.[12] If previously civil defense focused on cities, on urban vulnerability and on the local provision of emergency services, then now the scale and scope of domestic preparedness planning expanded dramatically. As a major review of civil defense called *Project East River* concluded in 1955, "The most important consequence of the rapid progress in making much more powerful and cheaper nuclear weapons and the…increasingly serious problem of radioactive fall-out is that the potential disaster area will be larger than any city boundary and will frequently overlap several state boundaries."[13] It was thus necessary to "scale up" civil defense efforts by focusing preparedness planning on metropolitan regions or even on the nation as a whole. Civil defense's field of concern would also have to be much

broader. As the Holifield report argued, with the advent of thermonuclear weapons, civil defense organizations had to "learn how to recover from the terrific impact of a nuclear assault, not only to tend the sick and wounded and keep life going, but to maintain essential production, and work toward full restoration of the economy."[14]

3. From Mobilization to Vulnerability

Thus defined, the scope of non-military defense dramatically exceeded the scope of emergency management or of civil defense as previously conceived. As the Holifield report put it, domestic preparedness had to attend to "the whole complex of nonmilitary activities necessary to prepare or 'mobilize' the economy against possible war, to survive and emerge from the ashes of attack, to maintain the continuity of government and essential production, to proceed toward partial recovery and then toward full resumption of peacetime pursuits."[15] To understand this expanded conception we have to consider another development whose centrality to this story may be surprising: the history of war mobilization planning during and after World War II. Mobilization planning seems an obscure field, associated with arcane problems of stockpiling or managing shortages of materials such as steel, manganese, or copper. It is relevant to our concerns because during World War II mobilization planners invented a new way of analyzing the national economy as a complex of interdependent systems. And this new understanding of the economy became central to thinking about non-military defense and national survival in the 1950s.[16]

During World War II, the most important institutional locales for US mobilization planning were the War Production Board and the munitions boards in the departments of the Army and Navy.[17] The essence of the wartime mobilization problem was that certain critical

inputs for war production were scarce. Planners had, therefore, to determine priorities among different uses of these materials in the civilian and military sectors of the economy.[18]

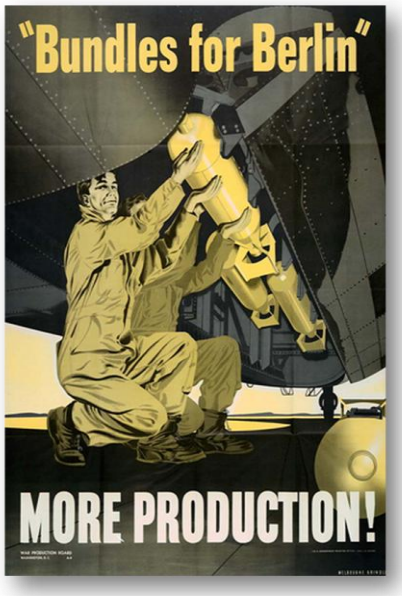

Figure 7: "Bundles for Berlin"

These practical challenges led war production planners to invent new ways of grasping the national economy as a whole and through the complex interrelationships among its parts. Adapting Leontief's input-output techniques, they modeled the economy as a collection of discrete activities, related through complex webs of material flow.[19] Such analyses showed how a certain allocation of basic inputs – such as steel or copper – would affect critical outputs – such as tanks, planes, or trucks.[20] Mobilization was thus conceived as an optimization problem: how to rationalize the allocation of resources to achieve the ends of war?[21]

After World War II, the operational tasks of mobilization planning were initially reduced in the major *de*-mobilization that followed the peace.[22] But they soon returned. The Korean War and a new program for military buildup to meet the challenges of the Cold War required a massive rearmament drive.[23] Planners again faced shortages of critical materials and production

bottlenecks. In response, Congress passed the 1950 Defense Production Act, which, among other things, gave the president power to use price and production controls for intervention in the US economy during national emergencies. Responsibility for administering provisions of the Act was assigned to the Office of Defense Mobilization (ODM), a newly created agency that in the early 1950s became one of the most powerful organizations in the US government.

ODM's expansive authority to intervene in economic affairs was hotly contested. Conservative resistance led to amendments to the Defense Production Act in 1953 that stripped the agency of significant powers.[24] And the immediate operational problems of coordinating production for a hot war faded with the end of the Korean conflict. But the problem of mobilization – and the knowledge forms, analytical techniques, and organizational structures associated with it – did not disappear. For one, a substantial Cold War military buildup was still underway. The 1946 Critical Materials and Stockpile Act had established targets for mobilization and stockpile planning based on a five-year war emergency with World War II levels of military production and expenditure. Since much military production had been diverted to the Korean War effort in the period 1950-1953, a substantial part of the rearmament and stockpile goals remained unfulfilled.[25]

But of greater relevance here is another development that involved a wholesale reconfiguration of the mobilization problem. In World War II and the Korean War, mobilization planning had focused either on wartime production or, during peacetime, on ensuring that the United States maintained a "mobilization base." In either case, mobilization plans were based on a war emergency that required high levels of military production over many years. But with the prospect of missile-delivered thermonuclear weapons on the horizon, the emphasis began to shift: from *mobilization* of a military-industrial complex for a long war to a concern with the

vulnerability of the US economy to massive, sudden disruption in the event of a Soviet first strike. In this context the tools, concepts, and practices invented for the purposes of mobilization planning were not abandoned. Rather, they redirected to new ends, as the organizations – and, in many cases, the individuals – who had previously been engaged in mobilization planning turned their attention to the problems of system vulnerability and national survival.

A concern with economic vulnerability was hardly new to the mobilization field. During World War II mobilization planners were preoccupied with disruptions of transportation networks or industrial facilities that could cripple military production.[26] In this sense, economic vulnerability had been one important *dimension* of the mobilization problem. But in light of new weapons developments in the 1950s, many experts argued that economic vulnerability was the *entire* mobilization problem. Thermonuclear war would be over in hours or days. In its wake, military production as such would be irrelevant. The only question was whether the United States economy and polity could survive the initial blow, and whether it would be possible to organize recovery. Thus, the 1955 *Project East River* report concluded that "The principle production problem in the United States in the event of war may well be not the manufacture of military supplies and weapons but the production of those basic items needed for the rehabilitation of our entire economic structure."[27] A year later, the Holifield Committee argued in similar terms: "The major effort in what is now called mobilization should be directed to planning and organizing resources not for the long buildup during war but for coping with the sudden and smashing letdown after the attack."[28]

Thus, by the mid-1950s military and civilian war planners increasingly saw the previously distinct domains of mobilization planning and civil defense as converging on a common problem: planning for national survival following a nuclear attack by ensuring that the

critical systems upon which life in the United States depended could continue to function. This convergence was ultimately reflected in administrative arrangements when mobilization functions (previously carried out by the Office of Defense Mobilization) and civil defense functions (previously carried out by the Federal Civil Defense Administration) were combined in the Office of Civilian and Defense Mobilization in 1958.[29] It is instructive to consider the justification for the merger set forth in the *Civil Defense Reorganization Plan* of 1958, which revisited the statutory provisions for non-military defense established in key legislation of the late 1940s and early 1950s.[30] "At the time that those statutes were enacted," the *Reorganization Plan* observed, "hydrogen bombs, radiological fallout, and missile delivery were not immediate factors in defense planning. Events in these fields have greatly expanded the nature and concept of survival planning for a civil-defense emergency. Survival planning now and in the future must include planning for a possible attack which might affect vast areas of the country and require the use of all available resources, human and material, in the survival effort. Under such planning assumptions, it is vital that the inseparability of defense mobilization and civil defense be recognized."[31]

4. System Vulnerability Thinking

The remainder of this paper explores this merger of the previously distinct domains of civil defense and mobilization planning. It does not focus on administrative aspects of the merger, or on the activities of the merged agency, but on how knowledge practices from each existing area were combined in a new conception of non-military defense. We will see that defense strategists redefined the essence of the domestic preparedness problem by analyzing the

nation as a complex of *vulnerable systems* that were essential to survival and recovery following a nuclear attack.

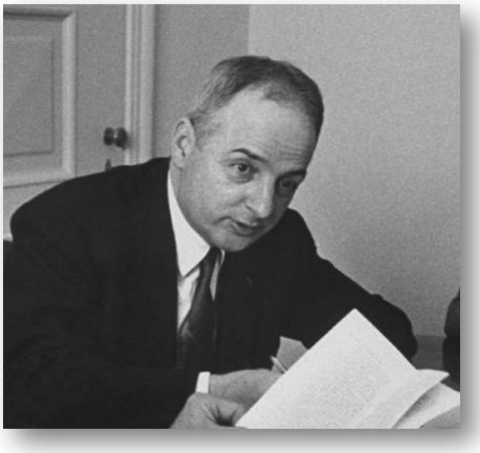

Figure 8: Arthur Fleming

The emergence of "system vulnerability thinking" as a central feature of domestic preparedness was closely connected to the broader development of systems analysis in the years following World War II.[32] The period since World War II had been one of remarkable advance in the development and application of systems analysis. In particular, the emergence of modern computing made possible the analysis of vast amounts of data that could be used to simulate war emergencies. And yet the principle domestic preparedness agency – the Federal Civil Defense Administration – continued to work with rudimentary tools and absurdly naïve assumptions about how a nuclear war would unfold. For the experts and planners who testified at the Holifield hearings – who thought that the problems of national preparedness were orders of magnitude more complex than civil defense as traditionally conceived – the lack of information essential to preparedness planning was marked. Of particular concern was the development of tools for analyzing the vulnerability of *systems* that were critical to the US economy and polity was a central priority.

Consider, for example, the testimony of Arthur Flemming, the head of the Office of Defense Mobilization. "We are concerned," he testified, "over the lack of basic information [about] those items essential to survival following a bomb attack. All of those items … must be planned for in advance, requirements determined, stockpiles built up if necessary, and vulnerability to attack lessened to the extent possible."[33] The existing knowledge base compiled for the purposes of mobilization planning provided a starting point. Drawing on information collected by the Department of Commerce, the Department of the Interior, and the Census Bureau, ODM had recorded on computer tapes a vast amount of information about the US economy and population: "the precise location, shipments and employment of approximately 20,000 manufacturing plants in target areas; the 400 largest electric power generating stations; producers of the most important military end items and the principal elements and components and subassemblies of these items; principal airfields and military supply depots; the stockpile of strategic materials; and the United States population in 25,000 locations."[34] Using a procedure akin to urban vulnerability mapping in civil defense – though now applied on a much bigger scale, and using the new technical possibilities of "electronic calculators" like the Univac computer – mobilization planners were able to assess the vulnerability of individual assets to nuclear detonations.[35]

But this approach did not address the *systemic* effects that the disruption of individual elements could produce. "So far," Flemming reported, "we have been able to estimate physical destruction to productive facilities but not the effect on actual production, because of the complex chain of suppliers and subcontractors necessary to produce the finished product." In the future, he reported, ODM planned to record on tapes "information regarding this chain of production for selected critical weapons systems and survival requirements so that we will have a

much clearer picture of our actual post attack production capability." This was a long way from the transparent overlays of urban vulnerability analyses.

Flemming's crucial idea – borrowed from mobilization planning but here applied to non-military defense – was that production *systems* had properties that could not be understood by looking at the simple aggregation of their parts. One had to analyze the interconnections among activities. At the Holifield hearings, a simple illustration was provided in the testimony of Walmer E. Strope, an expert in the Naval Radiological Defense Laboratory in San Francisco.[36] Strope described a hypothetical case of a dry-dock for ship repair that could withstand fifty pounds per square inch (psi) of blast pressure from a nuclear detonation but that depended on a nearby power plant that was rated to only five psi. The greater protection of the dry-dock was "useless," he reasoned, "when the power plant would be destroyed." This was the kind of assessment that Flemming had in mind as an essential guide to preparedness planning. "The weakest links, the ones that will fail first," Strope reasoned, "are the ones that should be worked on first." Strope's example was simple and "local" – referring to a simple input-output relationship between two facilities. But he argued that "weak-link" analysis could be applied "not only to the plant or installation, but to the whole target area, and ultimately to the whole nation."[37]

Over the course of the late 1950s and early 1960s planning studies that combined systems analysis with vulnerability models were conducted by various government offices (the Office of Defense Mobilization, the Naval Radiological Defense Laboratory, the Business and Defense Services Administration in the Department of Commerce) and major Cold War think tanks (the Stanford Research Institute, the National Planning Association, Rand, the Institute for Defense Analyses). And increasingly, following Strope's suggestion, these system vulnerability analyses

were “scaled up”: from individual facilities to entire production systems and infrastructures that were vital to the US economy as a whole. For example, in 1960, under a contract with the Office of Civilian and Defense Mobilization – formed from the merger of the Federal Civil Defense Administration and the Office of Defense Mobilization – the Stanford Research Institute completed a study on “The Effects of Nuclear Attack on the Petroleum Industry.”[38]

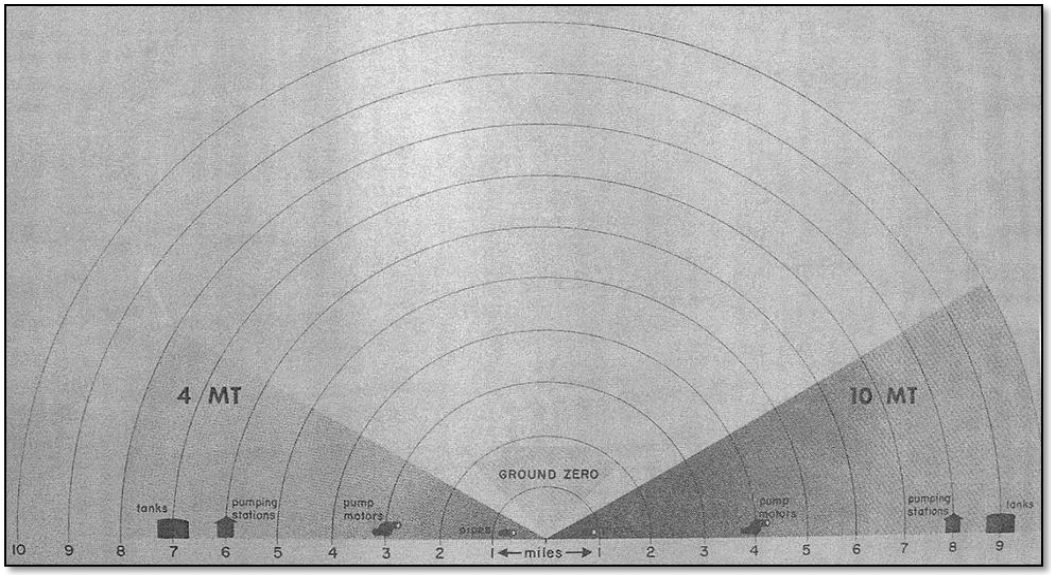

Figure 9: "Radius of Severe Damage"

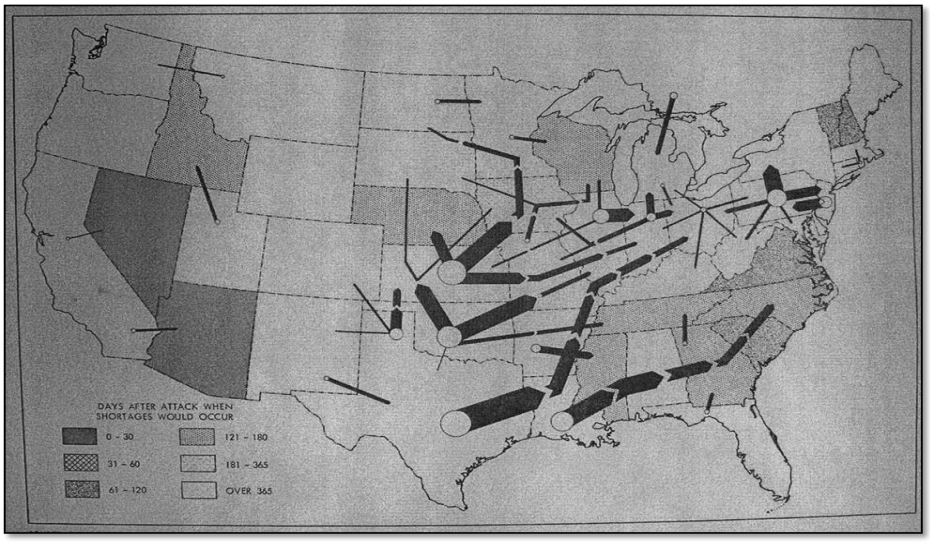

Figure 10: "Post-Attack Gasoline Shortages"

The study examined the national "petroleum pipeline system" as an "integrated network of pipes, pumps, working tanks and controls." It assessed not only the "vulnerability of the separate components of this system but also the "effect on over-all system operation caused by the loss of one or more components."[39] Based on this analysis, the report estimated the supply of oil products to different areas of the country after a nuclear attack. It also assessed the *adequacy* of these supplies by comparing them to likely post-attack demand for oil products when much industrial production would be shut down, transportation would be limited, and tens of millions of Americans would be dead. The report found that supply would likely meet demand – a reassuring finding for those concerned with oil system preparedness.[40]

One notable implication of this shift to a system vulnerability as the primary concern for domestic preparedness planners relates to its treatment of the population. We have seen that in early 1950s civil defense the population was taken up both as a collection of individuals who would be killed, injured, or displaced by the immediate effects of a nuclear attack – and, therefore, who would require emergency services – and as an active citizenry engaged in civil defense preparation.[41] But this figure of population underwent a significant modulation in the mid-1950s, as attention turned to planning for national survival. One significant development is that preparedness exercises lost their public character. As the historian Tracy Davis observes, they literally went "underground" into emergency command bunkers, and focused on key decision-makers who would be crucial to ensuring the "continuity of government" – not on the population as a whole.[42] Apparatuses of governmental decision-making thus came to be regarded as another "vulnerable system" that had to be protected.

Another significant development is that the vital systems that were seen as essential to national survival *themselves* became the crucial objects of protection. This does not mean that cities or concentrations of population disappeared from preparedness planning. But they came to be understood in a new way – in terms of their *dependence* on critical systems of national scope, or as crucial *parts* of such systems. This emphasis was vividly illustrated in the Holifield hearings in the testimony of Dr. Albert Hill, an MIT physicist and a leading authority on national vulnerability to nuclear attack.[43] Holifield asked Hill about the likely scenarios for thermonuclear war and their implications for non-military defense: "Are you of the opinion that if an atomic-hydrogen war should break out, it would be a war of years, or do you think if each side went at each other with these weapons, that it would be shortened to a matter of weeks?" "I think it would be a very short war," Hill responded, "but we would be a long time getting back on our feet. We might starve a city in doing so, you see. If we isolated the transportation system to New York City, they would starve to death in a rather short period. It is things of this sort that civilian defense must concern itself with." Here urban vulnerability is understood not primarily in terms of individual structures or requirements for emergency supplies (though of course these remained concerns for civil defense planners) but in terms of the vital infrastructures upon which human life in a city depends. But as we see in another exchange between Holifield and Hill, even if life in a city had become impossible, the city itself might still be essential to the functioning of the vital systems upon which the *nation* depended. After Hill optimistically asserted that "even a large bomb on a large city would not prevent us from getting that city back in some sort of working order in not too long a time scale," Holifield asked incredulously: "Are you going to ignore the permanent contamination or semi-permanent contamination by radioactivity?" Hill responded that even if the city was uninhabitable "a certain utility" might be made of it. For

instance, "although it might be impossible for the civilian populace to live in a city, freight trains might move through it, which would repair the steel works which had gone down, or build some new ones."

5. The Vulnerable Society

What is the significance of this new way of thinking about domestic vulnerability and national survival during the early years of the Cold War? From one perspective, it might be argued that these plans for non-military defense never amounted to much. Dee Garrison refers to the history of civil defense in the United States as a "paper endeavor and a propaganda failure," a judgment that resonates with a broad consensus of scholarly opinion. Things look a bit different, however, if we shift focus from the much-derided civil defense initiatives of the early and mid-1950s to the field of non-military defense I have been describing. As Andrew Lakoff and I have shown, system vulnerability thinking has had a long subsequent career in domains ranging from energy security to natural disaster preparedness to homeland security.[44] In conclusion, therefore, it bears briefly commenting on the importance of these developments for the organizations, practices, and knowledge forms that have defined the government of emergency in the post-World War II United States.

In terms of governmental institutions, the story we have been tracing is a significant episode in the emergence of an administrative-legislative apparatus that might be called the "emergency state" in the post-World War II United States. Here "emergency state" does not refer to a "state of exception" – in other words, it does not refer to the suspension of legal constraints upon sovereign action. Instead, it is the form through which the problem of governing emergency was brought into a juridical framework and made a regular and indeed continuous task of state

planning and intervention.[45] One surprise here, perhaps, is that in the United States the political management of emergency is historically intertwined with – indeed, grew directly out of – the institutions engaged in war mobilization planning.[46] A crucial moment in this development is the flurry of legislation in 1950 that expanded the government's authority to respond to emergencies, including the Federal Civil Defense Act and the Defense Production Act.[47] The latter is particularly important as the authorizing legislation for a whole series of subsequent agencies that were central to the US emergency state, including the contemporary Federal Emergency Management Agency, which is now incorporated into the Department of Homeland Security. In terms of governmental institutions, these organizations form the core of the US emergency state.

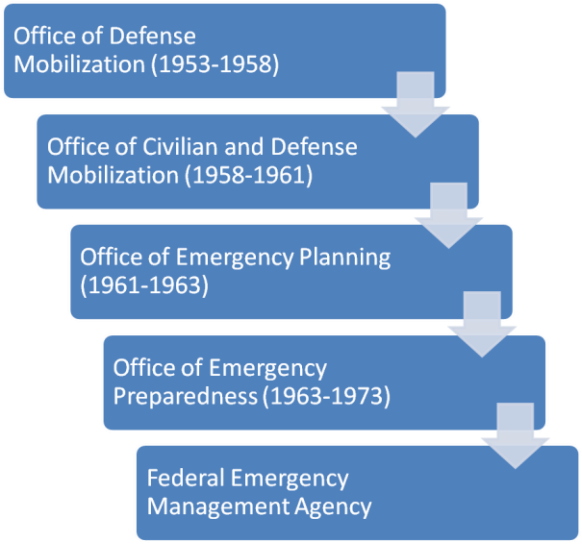

Figure 11: Organizational Diagram of Emergency Management Agencies

But one understands by "government of emergency" something more than this. It is not just a matter of political institutions but of political rationality and the kinds of things that are constituted as objects of governmental knowledge and intervention. In other words, in inquiring into the government of emergency, we are also inquiring into what can be called the political ontology of emergency. At this register of political ontology, the episode in question is a critical

chapter – consequential not only for nuclear war planning, but for a whole series of subsequent problem-domains, including natural disaster preparedness, pandemic preparedness, homeland security, and financial regulation.

Here I have in mind a claim parallel to the one that Ian Hacking advanced in his study *The Taming of Chance*.[48] Hacking's immediate material was the explosion of new kinds of knowledge about populations based on a statistical perspective, leading to what he calls an "avalanche of numbers" – a proliferation of numerical descriptions of multitudes. But Hacking was after something more than a shift in the way that things were known. New knowledge forms were enmeshed with practices and institutions that reshaped collective life. It is in this sense that we should understand Hacking's striking central claim: it was not only that society was *known* through statistics but that society *became* statistical; or, to put the point in a slightly different way, society was brought into being as an object of knowledge and intervention – and, we should add, constituted as a political problem – using statistical techniques.

The rise of system vulnerability thinking points us to a similar kind of claim. Beginning in the 1950s, we see the emergence of a new kind of knowledge about collective life. It examined the critical systems upon which the American economy and polity depend from the perspective of their vulnerability to catastrophic disruption. This new knowledge form precipitated another avalanche of numbers produced by scenarios, catastrophe models, and vulnerability assessments whose aim was to understand a vulnerable present through reference to a catastrophic future. The context of domestic preparedness for nuclear war was not the only place this kind of thinking developed.[49] But it was a crucial and particularly influential site thanks to the massive financial resources and political attention devoted to national security problems in the 1950s, the remarkable level of technical expertise focused on problems of

nuclear strategy and national survival, and the access these experts had to entirely new technologies such as the digital computer.[50] In tracing the development and diffusion of these knowledge forms we can trace a process through which society was becoming vulnerable. This is not to claim that the elements that undergirded collective life had not been vulnerable before, although it is true that as the economy was modernized, life became increasingly dependent on complex systems, and it is also true that nuclear technology opened a vast range of possibilities for disrupting this complex web. Nor does it mean that there was a break with other ways of constituting the social field; society remains statistical. But it does seem justified to claim that this new problematization of system vulnerability was a critical point of inflection in biopolitical modernity. A new figure of collective life was "carved out" – to recall Foucault's nice term – as an object of technical practice and political concern.

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[1] See, for example, Marshall K. Wood, "Industry Must Prepare for Nuclear Attack." *Harvard Business Review*, 1955.

[2] Holifield was actually the chair of the Military Operations Sub-committee of the Committee on Government Operations. The Sub-Committee held the hearings, the report was authored by the full Committee.

[3] *Civil Defense for National Survival*, Report of the House Committee on Government Operations, Military Operations Subcommittee. Washington, DC: United States Government Printing Office, p. v. (hereafter *CDNS*).

[4] On some of these later contexts see Andrew Lakoff, "Preparing for the Next Emergency." *Public Culture* 19, 2, 2007; Stephen J. Collier, "Enacting Catastrophe: Preparedness, Insurance, Budgetary Rationalization," *Economy and Society* 37, 2, 2008, pp. 224-250; Stephen J. Collier and Andrew Lakoff, "How Infrastructure Became a Security Problem," in Myriam Dunn and Kristian Soby Kristensen, eds., *The Politics of Securing the Homeland: Critical Infrastructure, Risk and Securitisation*. Routledge, 2008; Andrew Lakoff, "Two Regimes of Global Health." *Humanity* 1, 1, 2001, pp. 59-79.

[5] National Security Resources Board. *United States Civil Defense*. Washington. 1950. The NSRB was a planning (rather than operational) agency created by the 1947 National Security Act. NSRB inherited much of the personnel and planning practices that had previously been developed during World War II in the War Production Board. It continued to operate until 1953, when it was merged with the Office of Defense Mobilization. For details see R. Cuff, "From the Controlled Materials Plan to the Defense Materials System, 1942-1953." *Military Affairs* 51, 1, 1987, pp. 1-6.

[6] For a more detailed description of vulnerability mapping in early civil defense see Stephen J. Collier and Andrew Lakoff, "Distributed Preparedness: The Spatial Logic of Domestic Security in the United States." *Environment and*

Planning D: Society and Space 26, 2008, pp. 7-28. For a similar discussion that is concerned with the broader relationship of geographical knowledge to the Cold War see Matthew Farish, *The Contours of America's Cold War.* Minneapolis: University of Minnesota Press, 2010.

[7] On this logic of "distributed preparedness" see Collier and Lakoff, "Distributed Preparedness" and Patrick Roberts (2008) "Dispersed Federalism as a New Regional Governance for Homeland Security." *Pubilus* 38(3): 416-443.

[8] *CDNS*, 16.

[9] As Garrison points out, this tendency to make light of civil defense is shared by much scholarship on the topic: "The social and political history of civil defense is a most serious subject, yet many writers have emphasized the hilarious quality of the American civil defense program, especially in the 1950s and 1960s." Dee Garrison, *Bracing for Armageddon: Why Civil Defense Never Worked*. Oxford, Oxford University Press, 2006, p. 13.

[10] *CDNS*, p. 3.

[11] Among the prominent civil defense skeptics was President Dwight D. Eisenhower, who thought that many planners underestimated the impact of nuclear war, and overestimate the extent to which institutions like the market economy or constitutional government could survive.

[12] The phrase is from Paul C. Tompkins, the Scientific Director of the Naval Radiological Defense Laboratory, who argued in his testimony to the Holifield Committee that "The fundamental flaw in the prevailing national concept of civil defense…is the failure to provide for the vital strategic role it must play in our national security posture."[12]

[13] Project East River Review Committee, *1955 Review of the Report of Project East* River. Battle Creek, MI: Federal Civil Defense Administration, p. 5. The original East River report was completed in 1952.

[14] *CDNS*, p. 16.

[15] *CDNS*, p. 16.

[16] To understand the importance of mobilization planning, one has to keep in mind the enormous role that the military budget played in the government budget during World War II and the Korean conflict. Defense spending was 70% of total federal spending in 1953 (see Office of Management and Budget, *Historical Tables: Budget of the U.S. Government, Fiscal Year 2011*. Washington, DC: US Government Printing Office, p. 48). As such, mobilization policy was among the most important levers of government management of the economy during and then in the decade after World War II. It was also among the most important sites for battles over the nature and extent of government intervention in the economy. For analyses of the political economy of defense spending during this period see Michael J. Hogan, *A Cross of Iron: Harry S. Truman and the Origins of the National Security State, 1945-1954.* Cambridge: Cambridge University Press, 1998.

[17] The WPB was located in the recently-formed Executive Office of the President. The relationship between these two loci of mobilization planning – the Executive Office of the President and the military departments – was one of constant struggle and the WPB proved to be one of the crucial battlegrounds over the fate of the New Deal.

[18] This was referred to as the "priorities" problem during World War II and continued to be referred to in this way into the post-World War II period.

[19] In the language of a somewhat later period, they conducted systems analyses of the US economy. The connection of mobilization planning to systems analysis as it developed after World War II is direct. Important contributors to

the development of systems analysis such as George Danzig, Charles Hitch, and David Novick developed their techniques in relation to the mobilization problem in World War II, in the WPB, in the Army and Navy munitions boards, and in special units such as the Air Force's Office of Statistical Control (in which Robert McNamara also worked during World War II) that was concerned with rationalizing the air war in the Pacific. More broadly, mobilization planning was a crucial site of techno-scientific developments that had vast significance in the post-World War II United States. Contributions to the mobilization problem were made by an extraordinary range of important experts including George Danzig, Charles Hitch, Simon Kuznets, George Lincoln, David Novick, Paul Samuelson, William Truppner, and Marshall Wood.

[20] In some cases, the "outputs" were calculated with great precision, including not only the production of particular weapons or units of military equipment, but also the delivery of weapons to their targets, as in the work of Office Statistical Control on optimizing the bombing campaign against Japan.

[21] On the continuities between mobilization planning in World War II and Korea see R. Cuff, "Controlled Materials Plan."

[22] In the period 1947-1953, mobilization *planning* functions were taken over by the National Security Resources Board, which inherited many personnel – as well as planning techniques – from the War Production Board. The NSRB was abolished in a reorganization of 1953.

[23] The program for military buildup was articulated in NSC-68, the planning document that defined the US strategic approach to the emerging Cold War.

[24] The reigning-in of ODM was hastened by the actions of President Harry Truman. In response to a dispute between labor and ownership that threatened to bring US steel production to a halt, Truman invoked the powers provided for in the Defense Production Act to assume control of the US steel industry. Wilson, the head of ODM, who was suspicious of such interventions in the private economy, resigned in protest, and Truman was repudiated by the courts, which concluded that he had exceeded the authority granted to him by the DPA. For an account of this episode see Hogan, *A Cross of Iron.*

[25] The 1952 target date for the rearmament levels established in NSC-68 was not met, and the stockpiling of materials, accumulation of equipment, and expansion of the armed forced continued at a very high rate after the conclusion of the Korean conflict.

[26] This was true both for those countries that experienced massive aerial bombardment during World War and for the United States, which had to grapple with disruptions of foreign supplies of critical materials, particularly as shipping was disrupted by Nazi U-Boat attacks. And on the side of "offense" the paradigm of strategic bombing, was centrally concerned with disrupting industries that were essential for the production of military supplies. See Collier and Lakoff, "How Infrastructure Became a Security Problem."

[27] *Review of Project East River*, p. 25.

[28] *CDNS*, p. 57. The implications for mobilization planning were concisely summarized by William Stead, a consultant who conducted a study on non-military defense for the National Planning Association. The United States, he argued, had to assume that it would be dealing with a "severely damaged economy" in the wake of nuclear war. It would have to "learn how to manage that damaged economy…to continue to the essential industrial production and make preparation to do so."

[29] Given the mass of literature on civil defense it is remarkable to note how little reflection has been devoted to this development.

[30] Notably, the the National Security Act of 1947, the Defense Production Act of 1950, and the Federal Civil Defense Act of 1950

[31] *Civil Defense Reorganization Plan of 1958*, p. 326.

[32] On the history of systems analysis see Fred M. Kaplan, *The Wizards of Armageddon* (Stanford, CA: Stanford University Press, 1991) and David Jardini, "Out of the Blue Yonder: The Transfer of Systems Thinking from the Pentagon to the Great Society, 1961-1965" in Thomas Hughes and Agatha Hughes, eds. *Systems, Experts, and Computers*. Cambridge, MA: Cambridge University Press, 2003.

[33] *Seventh Annual Report of the Activities of the Joint Committee on Defense Production*. January 16, 1958. Washington: US Government Printing Office, p. 7-8.

[34] *Civil Defense for National Survival* Hearings, 1040. A crucial dimension of the DPA – and, thus, of ODM's activities – was the creation of "delegatory powers." The office bearing DPA authority could assign tasks to other agencies. The result was a structure in which a central planning office – either ODM or its successor organizations – worked with a limited staff, and relief on other agencies that had been assigned DPA "delegations." This structure led to substantial confusion about the real resources being devoted to emergency preparedness efforts, and questions were frequently raised about the relative value of such a delegatory structure as opposed to the creation of a federal department with more a more expansive budget and staff. The latter option was supported by the Holifield sub-Committee, but was not implemented until the creation of the Department of Homeland Security in the 2000s. In the 1950s, the most important agency in fulfilling DPA delegations for ODM was the Department of Commerce, specifically the Business and Defense Services Administration, which conducted large surveys that were essential inputs to survival planning.

[35] *Civil Defense for National Survival* Hearings, 1040.

[36] It is notable that where prior discussions of mobilization had focused on war production, it was increasingly recognized that many vital infrastructures were relevant for both military and civilian production. Thus, in reference to Strope's example, *Civil Defense for National Survival* noted that "[i]n principle the requirements do not differ as between civilian and military targets. Protection of the shipyard workforce and facilities in, say, Long Beach California, and protection of the resident population are part of the same problem" (*CDNS*, p. 19).

[37] *CDNS*, p. 19.

[38] The contract was with the Office of Civilian and Defense Mobilization, the successor agency to ODM.

[39] Sanford B. Thayer and Willis W. Shaner, "Effects of Nuclear Attacks on the Petroleum Industry." Stanford, California: Stanford Research Institute, 1960.

[40] The National Planning Association engaged in an even more exhaustive modeling procedure under a contract signed with OCDM. The result of this effort was a computer program called PARM (Program Analysis for Resource Management), a massive system for modeling the effects of nuclear attack by analyzing thousands of interlinked economic activities that, together, comprised the entire US economy. The head of this effort was Marshall Wood, another veteran from the mobilization effort who had worked with George Danzig in pioneering linear programming.

[41] It would be valuable to trace the genealogy of this understanding of population in the face of a war emergency. One immediate point of reference in the US case may be the Strategic Bombing Survey, a massive post-war study of the air campaign that included a section on civil defense that influenced post-World War II civil defense planning. A major finding of the study was that civil defense planning had been crucial to boosting the morale of German citizens, and was an important factor in maintaining support for the Nazi regime as conditions in Germany worsened.

[42] Along similar lines, Dee Garrison notes that "Each year, the discussion of Operation Alert by the presidential staff focused more and more on the elite shelter problems and the continuity of government until this issue all but dominated the White House's connection to civil defense" (Garrison, *Bracing for Armageddon*, pp. 76-7). What is missing from Garrison's account – and from much work on Cold War civil defense – was the very substantial reorientation of thinking about domestic preparedness in the mid-1950s that is the focus of this article.

[43] Hill was previously head of the RadLab at MIT where he was a key proponent of the SAGE air defense system. At the time of the Holifield hearings he was serving as Director of the Weapons System Evaluation Group in the Department of Defense. He would later become head of the research division of the Institute of Defense Analysis before returning to a research career at MIT.

[44] See Collier and Lakoff, "The Vulnerability of Vital Systems."

[45] In the US case, careful investigation might find that one of the remarkable features of this emerging emergency state was not its tendency to overflow the strictures of legality but the way that it was constantly beaten back by conservatives who aimed to limit its scope. Here, the connection between emergency management and mobilization planning seems particularly significant. The authorizing legislation that authorized many aspects of peacetime mobilization planning (the 1950 Defense Production Act) was focused on emergency interventions in the *economy*. As such, it was opposed by conservative opponents of large government. In this sense the politics of emergency declarations in the field under consideration is quite different from those surround extra-judicial detentions and other "emergency" acts associated with the administration of George W. Bush and the "war on terror."

[46] In fact, one would have to trace this story at least to the Reorganization Act of 1943, which, among other things, provided the authority under which Roosevelt established the emergency powers exercised through the War Production Board "In an actual or threatened emergency, the President could create and use such an office to assist him in handling the crisis. Roosevelt originally intended to have all or most emergency mobilization agencies placed in OEM [the Office of Emergency Management] and hence, under his direct authorit**y"** (Paul A.C. Koistinen, *Arsenal of World War II: The Political Economy of American Warfar, 1940-1945*. Lawrence, Kansas: University Press of Kansas, 2004.

[47] Other significant legislation includes the 1946 Stockpile Act and Public Law 85 of 1950, which established the basis for federal emergency relief payments in the event of natural disasters.

[48] See Ian Hacking, *The Taming of Chance*. Cambridge: Cambridge University Press, 1990.

[49] Another significant domain is flood protection in the United States, particularly in the practices of the Army Corps of Engineers.

[50] Mobilization agencies – both in the Executive Office of the President and in Department of Defense planning offices – were among the very first users of digital computers in the early 1950s. On the links between early developments in computing and the national security state see Paul N. Edwards, *The Closed World: Computers and the Politics of Discourse in Cold War America*. Cambridge, MA: MIT Press, 1997.