What Great Powers Make It

International Order and the Logic of Cooperation in Cyberspace

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In many scientific problems, the difficulty is to state the question rightly; once that is done, it may almost answer itself.

—Jacob Bronowski

Public goods are commonly referred to as the collective benefits provided by governments to the larger society.[1] In international politics, a general assumption about public goods is that the more states partake of a good, the greater the benefit for all. Historically speaking, achieving international cooperation on such issues has been relatively easy—the costs of cooperating are fairly low and interests harmonious. The evolution of the global postal and telecommunications systems is illustrative. Initially, postal services and telecommunications networks posed challenges to cooperation because no international standards or procedures existed to coordinate state policies or actions. Over time, the Universal Postal Union and the International Telegraph Union were created, improving communications for citizens worldwide. The World Wide Web is another good example; more consumption has yielded greater demand for faster, more reliable, worldwide communication networks.

One might expect cooperation to easily emerge within cyberspace, yet the pessimism surrounding that idea is profound; one scours the literature to find analyses that do not stress the enormity of the difficulties, vulnerabilities, and dangers governments face as they enter the cyber age. Indeed, some cyber pessimists have referred to the idea of devising a comprehensive treaty on cyberspace as a "pipe dream."[2] Homeland Security Secretary Janet Napolitano noted that efforts for "a comprehensive international framework" to govern cyber behaviors are still at "a

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nascent stage."[3] No doubt, cyberspace poses problems for international cooperation—some could even prove to be severe—but do the problems it poses differ substantially from those governments have faced in the past? That is an important question worth examining.

The central claim advanced here is: as cyberspace continues to evolve, the great powers will *inevitably* use their collective powers to transform it into a legitimate, durable, and relatively peaceful realm of activity bound by established standards and procedures in which they and others can operate and thrive. Since this is an unconventional claim, it is important to elaborate the argument by examining the pessimists' claims and the logic of cooperation. Next, international order and the role of the great powers are discussed, before offering a framework for the coming cyber regime and the policy implications that stem from it. In short, mine is an optimistic argument that pivots on one central, albeit overlooked idea: Cyberspace is, and will be, what the great powers make it.[4]

The Pessimists' Claims

Cyber pessimism stems from Hobbesian logic—a logic that suggests we are living in a world where state interests compete, conflict abounds, and the war of "all against all" is always a possibility. Reflecting on this, cyber experts Richard Clarke and Robert Knake write, "Cyber war is real; it happens at the speed of light; it is global; it skips the battlefield; and, it has already begun."[5] In equally stark terms, David Lonsdale asserts, "Potentially the biggest change to the existing character of warfare, and therefore also the most substantial challenge to the nature of war, is provided by Strategic Information Warfare."[6] Along these lines, Antoine Bousquet concludes that, "network-centric warfare may yet come to be retrospectively viewed as merely the birth pangs of a truly future chaoplexic regime in the scientific way of warfare."[7] Not all of these influential authors are equally dire, but when thinking and writing about cyberspace, pessimism is the order of the day.[8] This is especially true in areas where the question is not so much about war as it is about the prospects of cooperating to prevent it.

Reflecting upon the likelihood of achieving meaningful international cooperation on cyberspace, Adam Segal and Matthew Waxman caution that "the idea of ultimately negotiating a worldwide, comprehensive cybersecurity treaty is a pipe dream." In their view, differences in ideologies

and priorities will keep the great powers from reaching meaningful agreements: "With the United States and European democracies at one end and China and Russia at another, states disagree sharply over such issues as whether international laws of war and self-defense should apply to cyber attacks, the right to block information from citizens, and the roles that private or quasi-private actors should play in Internet governance."[9]

These are problems of considerable proportion, yet there seems to be a bit of schizophrenia here. On the one hand, cyber—in the form of information and networks—is already changing the nature of war and, perhaps, international politics. On the other hand, cooperation to mediate the effects of those possibilities remains "a pipe dream." What accounts for this duality? Nearly every version of cyber pessimism seems to express the "feeling of being swept into the future by irresistible forces." Karl Popper wrote about something similar in his critique of historicism. As he put it, modern historicists believe "that their own brand of historicism is the latest and boldest achievement of the human mind, an achievement so staggeringly novel that only a few people are sufficiently advanced to grasp it."[10] One gets the idea that cyber pessimism turns on the notion that "we" (cyber pessimists) are onto something "staggeringly novel;" something we alone understand. The trick to unraveling this puzzle is to conceptualize the "extraordinary" problem of cyberspace in the ordinary language of international politics. Thus, to state this rightly, the pessimists' claims must be reconciled: Cyberspace does indeed pose challenges to international order, but those challenges do not make cooperation unlikely; on the contrary, they make cooperation inevitable.[11] Understanding the logic of cooperation is the first step in understanding why.

Logic of Cooperation

In the language of international cooperation, cyberspace is a common property resource—which is to say, no one can be excluded from it. When exclusion is not an option, states have little incentive to pay for a good. Instead, they prefer to be free riders, enjoying the benefits of a good without paying for it. In such a world, overexploitation is the problem. Think of fishing on the high seas. Each fishing state seeks to obtain as much fish as it can, and yet they cannot exclude others from doing the same. Each year the fishing states rationally seek to increase

their share of the catch. As each state increases its catch, however, the fisheries are depleted, and "overexploitation" is the result. Since all fishing fleets share the costs of over fishing, each fleet contributes to the demise of all others, even if that is not their intention. This is commonly referred to as the tragedy of the commons, where individual interest inadvertently conflicts with that of the group.[12] Now let us suppose that nothing in the world changes. Sooner or later all the fish in the world worth catching would be caught, and all the fishing fleets would suffer the same fate—extinction. Since all states know this in advance and presumably want to live to fish another day, they sensibly cooperate to limit the catch.[13]

A central assumption about cyberspace is that achieving such commonsensical agreement is difficult if not impossible. In an important article entitled "Depleted Trust in the Cyber Commons," Roger Hurwitz argues that cyberspace is a common property resource where trust is overexploited. He writes, "maintaining a secure cyberspace amounts to sustaining a commons, which benefits all users, but its overexploitation by individual users results in the well-known 'tragedy of the commons' . . . the users are nations, organizations, and individuals, *whose behaviors in cyberspace are not subject to a central authority.* Their actions, which harm the well-being of other users, diminish trust and amount to overexploitation of a common resource" (emphasis added).[14] There is much to be said for Hurwitz's original argument. Reducing or eliminating the overexploitation of trust in cyberspace is critical to achieving any sort of international agreement on standards and procedures. But for those interested in cooperation in general, his conclusions are not encouraging. He writes: "conditions are not ripe for reaching and enforcing international agreements on the uses of cyberspace."[15] Apparently, even when states share a common interest in preventing overexploitation, cooperation is not guaranteed.[16]

How is it that states can cooperate in one issue area (fishing on the high seas) but not another (cyberspace)? One way to think about that question is to look at the problem from the perspective of underprovision. If all goods were provided all the time, there would be no logic for cooperation. But that is not the case. In every corner of meaningful political activity, someone or something has to play the role of provider. In the fishing example, states agree to cooperate to limit the catch; by doing so they "provide" for their collective well-being by minimizing

overexploitation. But who or what "provides" in cyberspace? For Hurwitz, the answer is apparently no one—since "behaviors in cyberspace are not subject to a central authority," the domain must provide for itself. This is made more obvious when one examines how the domain is defined by practitioners. One quotation can serve for many others. Cyberspace is "a global domain within the information environment consisting of the interdependent network of information technology infrastructures, including the Internet, telecommunications networks, computer systems, and embedded processors and controllers."[17] Note the author's emphasis upon interdependence. One must ask, interdependent to what? In this definition of cyberspace, technology infrastructures, telecommunications networks, and computer systems float freely. But is this conceptualization of the domain an accurate one? In conceptualizing cyberspace as a realm of activity that provides for itself or "floats freely," analysts have confused a condition with a cause. This is the same mistake made by others when attempting to conceptualize the "new" relationship among politics and economics.

Since the arrival of globalization, it has become customary to assume that economic orders give rise to political ones, but nothing could be further from the truth.[18] While globalization is real, economic orders do not provide for themselves or float freely; they are embedded within political structures.[19] That is to say, political structures beget economic orders, not the other way around. Following World War II, the United States along with Britain fashioned a global economic order embedded within a liberal political structure that was fundamentally different than the one devised by the Soviet Union.[20] The Anglo-American agreements "established rules for a relatively open and multi-lateral system of trade and payments, but did so in a way that would reconcile openness and trade expansion with the commitments of national governments to full employment and economic stabilization."[21] This brief illustration captures the heart and soul of international politics: order is structurally derived.[22] And if it is derived in one realm of activity, it is derived in others; thus, the contemporary political structure has begotten today's cyber disorder.

Unipolarity has placed an undue burden upon the United States to ensure an equitable distribution of public goods exists throughout the world. Thus it might be true that "conditions are not ripe for reaching and enforcing international agreements on the uses of cyberspace." But

it would be truer if we added the word *yet*. International structures do not last forever; they change and so, too, does the order of things.[23] Few things affect international structure more than the great powers. Who are the emerging great powers capable of changing the order of things? Brazil, Russia, India, and China (the BRICs) are poised to become the four most dominant economies by the year 2050. These four states encompass more than 25 percent of the world's land coverage, 40 percent of the population, and hold a combined GDP of approximately $18.5 trillion. Collectively, they comprise the world's largest entity. Hardly an alliance, they have taken steps to increase their political cooperation, mainly as a way of influencing the US position on trade accords. As the BRICs rise in power, the structure of international politics will change from unipolarity to multipolarity. Interestingly, as this shift takes place, the costs of governing the global commons will decrease, and cooperation will increase.[24] Why?

As each new power grows, its dependencies upon the global commons—sea, air, space, and cyber—will intensify. As dependencies intensify, oligopolistic behaviors will result, where the actions of one great power will have a noticeable effect on the rest. Since the great powers share in and are dependent upon the resources of the commons, the security of each great power will be tightly coupled to the security of the commons. Thus the great powers—for no other reason than survival—will inevitably cooperate and share the costs of providing security even if they might prefer not to. Importantly, it is not necessary to assume that international systems are "all Hobbesian all the time." International systems are varied and nuanced; they tend to resemble arrangements that can be classified by their dominant features: enmity, rivalry, and amity or Hobbesian, Lockean, and Kantian.[25] In simple terms, the kinds of interests states have in a Kantian system differ from those in a Hobbesian one—just like the kinds of interests the United States has with Britain (amity) differ from the ones it has with Iran (enmity). For this discussion, the most significant aspect of this line of theorizing is this: if cooperation can take hold in Hobbesian systems, it is even more likely to take hold in others. In other words, Hobbesian arrangements pose a "hard test" for cooperation, and since it is reasonable to assume that states can pass the Hobbesian test, it is reasonable to assume they can pass the Kantian and Lockean one. The central character of international systems is the result of state interaction, particularly interaction with the great powers.[26] The

great powers provide structure to international life by socializing others to the rules of the game.

Rules of the game refers to those "imperative principles" which require or authorize states to behave in prescribed ways. Few would deny that states share many beliefs about the "rules of the game, who its players are, what their interests are, what rational behavior is, and so on."[27] In other words, few would deny that order is maintained in an international system "not merely by a sense of common interests . . . but by rules that spell out the kind of behavior that is orderly."[28] Socialization is the process by which one learns what those behaviors are. Since it is so important here, it is important to be clear of its meaning.

Socialization refers to a relationship between at least two parties where "*A* influences *B. B*, affected by *A*'s influence, then influences *A*." As Kenneth Waltz put it, "Each is not just influencing the other; both are being influenced by the situation their interactions create." Moreover, the behavior of the pair cannot be "apprehended by taking a unilateral view of either member."[29] Each acts and reacts in accordance with the other. The "global teenager" provides an example of the socialization process that occurs throughout the world. No one tells all the teenagers in the world to dress alike, but most of them do most of the time.

Likewise, no one tells all the states in the world to behave themselves but most of them do most of the time. States are socialized to this idea by interacting with one another. In this regard, socialization is "a process of learning to conform one's behavior to societal expectations" and a "process of identity and interest formation."[30] Socialization draws members of a group into conformity with its norms. Socialization also encourages similarities in behavior.

With respect to socialization, interest formation, and encouraging similarities in behavior, critics will rightly contend, "But what about China? Their image of cyberspace appears to be incompatible with our own." That might be the case, but that line of reasoning tends to overlook a larger question: Can China learn to behave like a great power?[31] As argued below, great powers serve a moral and functional purpose. That is to say, they possess "special rights and duties," none more important than the preservation of international society itself. This, of course, demands that great powers act to sustain the elementary or primary goals of the society of states, of which cyberspace is one small, albeit important part. If, as I contend, great power is a role and China is a great

power, it stands to reason that despite differences, China can *and* will learn how adapt to the demands of "societal expectations" and behave in ways similar to those ordinary great powers of the past.[32] There is no natural reason to think that the United States and China are imprisoned in a Hobbesian relationship any more than they might be freed in a Lockean one. International systems are not predetermined. They are the result of interaction, socialization, and power.

Power is a vexing word. And while it might be hard to define, it is not hard to recognize.[33] Most scholars of international politics accept Waltz's conception. In the standard Waltzian account, power provides a means to achieve autonomy, permits a wider range of actions, increases margins of safety, and for the sake of great power gives its possessors a greater stake in the management of the system.[34]

Nothing affects the management of the international system more than security, and the literature on cyber security is voluminous.[35] Much of it pivots on differentiating cyberspace from cyber power, defining cyber security, and devising cyber security strategy and policy options.[36] In 2009, scholars warned that

> The cyber domain is undergoing extraordinary changes. . . . This evolution is apparent in the increasing numbers of participants in cyberspace and the quality of their participation, both technically and socially. . . . However trends in cyberspace also raise major challenges [arising] from malevolent actors (such as terrorists and criminals) and the many security vulnerabilities that plague cyberspace . . . to exploit these opportunities and to overcome these challenges, we must begin to assemble a balanced body of knowledge of the cyber domain.[37]

The central question emerging from this literature is: Has the security of cyberspace reached a tipping point where ensuring it is of paramount importance to the international system? Put differently, since international life appears to be so dependent upon a viable cyber network, is the maintenance of a secure cyber realm in the general interests of the great powers? Taking the pessimists' claims seriously, I answer "yes," which is why it is at least prudent to think that the great powers—the United States, the European nations, China, and Russia—will cooperate to ensure the security of cyberspace. By doing so, they will assert their role as great powers—just like the United States and Britain did following World War II—and create order where little exists. That order will not reflect all of the norms and values of the great powers, which are real and diverse; nor will it initially decipher if "international laws of war

and self-defense should apply to cyber attacks."[38] As in other areas of international cooperation, those will evolve with time. It merely needs to serve as an institutional mechanism robust enough to create, coordinate, and enforce standards and procedures within a particular domain or realm of activity as is routine in sea, air, and space.

International Order and the Role of the Great Powers

Up to this point, I have described the logic of international cooperation to illustrate why cooperation is inevitable in cyberspace. Here I want to explain why great powers have an interest in creating legitimate, durable political orders by focusing on the symbiotic relationship between great power and international order. But before doing so, it is worth examining two alternatives: domination and abandonment.

To dominate is to use one's commanding material capabilities to literally remake the world. This is essentially what the Soviet Union did in Eastern Europe after World War II. Land power allowed Stalin to dominate as far as "his army could reach." As he remarked to Tito, "This war is not as in the past; whoever occupies a territory also imposes on it his own social system."[39] Mahan had similar thoughts regarding sea power. Those states that could control the sea could accumulate such wealth that they could dominate other states both militarily and politically. Contemporary thoughts regarding domination extend to outer space where Everett Dolman has written that "the United States should seize control [of space] . . . [and] become shepherd . . . for all who would venture there."[40]

Abandonment presupposes that great powers can "let go" of their relations with other states and live in splendid isolation. But great powers are never afforded that luxury. This is obvious when considered from the perspective of the weak. As Prime Minister Pierre Trudeau of Canada once put it, being America's neighbor was "like sleeping with an elephant. No matter how friendly or even tempered the beast . . . one is affected by every twitch and grunt."[41]

Thus, while domination and abandonment might sound good in theory, they are not choices democracies are prone to make. Democratic regimes prefer bargaining, compromise, and consensus to resolve conflict, which explains why domination and abandonment have never been preferred by the United States. But democratic theory cannot

explain why great powers with different domestic arrangements—like the United States and the former Soviet Union—chose to cooperate. For this reason, I put democracy aside and propose a functional rather than a normative argument.

It is important to stress that great powers serve a moral and functional purpose. As Martin Wight put it, great powers are powers with "general interests, whose interests are as wide as the states-system itself, which today means worldwide."[42] Arnold Toynbee formulated it this way, "A great power may be defined as a political force exerting an effect coextensive with the society in which it operates."[43] Sir Alfred Zimmern put the same idea differently, "every Foreign Minister of a great power is concerned with all the world all the time."[44] Hedley Bull clarified this further by claiming that great powers: were members of a club who were comparable in status; in the front rank of military power; and were recognized by their own leaders and peoples to have "special rights and duties."[45] From this last criterion, great power is a role.

To think of great power as a role is to think in terms of international order, which refers to a "pattern of activity that sustains the elementary or primary goals of the society of states."[46] The elementary goals of international life include the preservation of the society of states, maintaining the independence of states, peace, and those goals essential for the sustainment of international life such as the limitation of violence, the keeping of promises, and possession of property. As Bull saw it, great powers contributed to international order in two ways: they managed relations among one another, and they exploited their preponderance of power in such a way as to "impart a degree of central direction to the affairs of international society as a whole."[47] More specifically, the great powers manage relations with one another in the interests of international order by (a) preserving the general balance of power, (b) seeking to avoid or control crises in their relations with one another, and (c) seeking to limit or contain wars among one another." They exploit their preponderance of power in relation with the rest of international society by (d) "unilaterally exploiting their local preponderance, (e) agreeing to respect one another's spheres' of influence, and (f) joint action, as is implied by the idea of a great power concert or condominium."[48] Seeking to contain war and joint action are of particular importance here.

In their attempts to limit war, the great powers strive to avert it by accident or miscalculation, to reduce misunderstanding, to settle or

contain disputes through negotiation, to control competition in armaments, to prevent wars among lesser powers, or if they occur, to limit them geographically and end them quickly. One need only think of the Cold War to get the idea here—as the United States and the Soviet Union increased their power to become "super," they also strove to reduce the chances for accidental nuclear war or miscalculation by relying on negotiation through arms control.[49] When war did break out—as in the case of Korea and Vietnam—the superpowers went out of their way to ensure the wars remained limited and did not widen. Joint action is another matter.

Throughout most of the Cold War, the superpowers did little to advance the idea of a condominium or a concert of power, relying instead on alliance politics. Alliance politics were both a cause and a cure for the hegemonic wars that ripped Europe apart throughout the nineteenth and twentieth centuries. The relatively peaceful end of the Cold War, however, does serve as a historical break, different from the run of historical cases. The decision by the Soviet leaders to allow for peaceful change within Eastern Europe and the Soviet Union is indicative of the abilities of the great powers—particularly the United States—to show institutionalized restraint when dealing with other great powers. Since the United States established a postwar order that became "more deeply rooted in the wider structures of politics and society" throughout Europe, Gorbachev's reforms were less risky.[50] This same sort of restraint explains why the European Union—in the guise of a powerful Germany—continues to function in spite of economic shocks and institutional challenges. The fear of German power has been tamed by the union, and this institutionalized arrangement is thought to be preferable to what had been the pattern of great power behavior for centuries: runs at hegemony and cold wars.

By necessity then, great powers have an interest in creating order that is "legitimate and durable." A legitimate political order is one where its "members willingly participate and agree with the overall orientation of the system."[51] Once in place, these orders tend to facilitate "the further growth of intergovernmental institutions and commitments."[52] Such arrangements create deeper institutional linkages and make it difficult for alternative orders to replace existing ones. In short, legitimate political orders are "transformative" ones, making their dissolution difficult if not impossible. Moreover, there is a functional imperative for great

powers to seek institutional solutions—they allow for the conservation of power itself. To remain great, great powers have to conserve power, making the creation of agreement on the basic rules and principles of political order a necessity for survival. In essence, to remain strong great powers must make their "commanding power position more predictable and restrained."[53] This is precisely what the United States did following World War II.

In 1948, George Kennan noted: "We have about 50 percent of the world's wealth but only 6.3 percent of its population. . . . Our real task in the coming period is to devise a pattern of relationships which permit us to maintain this position of disparity without positive detriment to our national security." At war's end, the United States "found itself in a rare position. It had power and choices."[54] It chose to use its remarkable position to create an institutionalized world order that continues to facilitate or regulate nearly every aspect of international politics some 20 years after the fall of the Berlin Wall—there is no natural reason to think the great powers will not do the same in cyberspace.

Summing up, history and common sense tell us that great powers use their influence to create international order—that is the instrumental role of great power. Since cyberspace is part of this world, there is every reason to think that the great powers will transform it by creating a legitimate cyber regime wherein members would "willingly participate and agree" with its overall orientation. Such an arrangement will not solve all the problems of cyberspace, but it will foster deeper institutional linkages among states, bring order to what is a disorderly realm of activity, and make it difficult for rival orders to replace existing ones.

Framework of a Regime Foretold

In fairness, the pessimists' logic is not completely wrong—international life is not preordained and the possibility of conflict does exist. So to suggest that cooperation in cyberspace is inevitable might sound teleological, but that is not my intent. Here I want to stress why statesmen rely on institutions to mediate the challenges of living in a Hobbesian world and provide a framework for the coming cyber regime.

Even from a Hobbesian perspective, there is order to international life, but that order is not the hierarchical one characteristic of domestic politics. International order is anarchic but not chaotic.[55] Anarchy merely refers

to the absence of rule or a lack of formal subordination and authority. That said, the consequence of anarchy can be severe—and not only for those states in Hobbesian arrangements. Because no higher authority exists to protect states from the harmful intentions of others, statesmen must pay attention to security, regardless of the type of arrangement they might find themselves in. Though demands for security are less intense for states within a Kantian arrangement than for those in a Hobbesian one, nothing trumps demands for security. Even states in a Kantian world must be concerned with the great powers that live outside it. Therefore, no matter how good their intentions, statesmen must bear in mind that in the absence of world government, states must provide for their own protection. To do so means marshaling their power or the power of friends and allies who will support and defend them. In so doing, they are not alone; regimes and institutions also exist to help statesmen meditate the challenges of living in a dangerous world.

In multipolar structures, where there are two, three, or even five great powers to contend with, regimes play an important role. They assist the great powers in coordinating, provisioning, and distributing public goods. Regimes are defined as "principles, norms, rules, and decision-making procedures around which actor expectations converge in a given issue-area."[56] Regimes can be found in nearly every corner of international political activity to include security and trade.[57] In sketching out a framework for the coming cyber regime, the arms control regime and the World Trade Organization (WTO) are illustrative.

In the late 1950s, the idea of nuclear deterrence was a concept that "could neither be taken for granted nor ruled out."[58] Over time, as scientists and strategists became aware of the vulnerability of US nuclear weapons and concerned about the fear of surprise attack, a consensus emerged around the idea that security could be enhanced through arms control. These same scientists and strategists shared an understanding of the "causes of war, the effects of technological change on the arms race, and the need for nuclear adversaries to cooperate."[59] As the group matured, they reached into the highest offices of government and turned their ideas into policies that impacted both the United States and the Soviet Union. The initial regime—comprised of concerned scientists and strategists—was "a necessary precondition" for the forging of the "superpower-led" arms control regime that followed.[60] That regime—essentially a great power condominium—exercised considerable influence

on international security policy. Key treaties that grew out of their ideas were the ABM Treaty, SALT I and II, START I–III, SORT, and New START. In short, the arms control regime made conflict resolution in the form of arms control a preferable option to nuclear war, even between two antagonistic, heavily armed rivals.

Today, the WTO, the regime that facilitates international cooperation in the area of global trade, holds similar sway.[61] Its predecessor, the General Agreement on Tariffs and Trade (GATT), served the needs of mass production well, but as technical developments led the world toward a more service-oriented economy, the Reagan administration initiated the Uruguay Round in a major effort to reduce global trade barriers. The Uruguay Round's most significant achievement was the WTO, which should be thought of as an important step toward completing the international institutional framework that began in 1944 with the Bretton Woods agreements. Accordingly, the legal authority and rule-binding capacity of the WTO is designed to play a significant role in the management of international commerce.[62]

The principles, norms, rules, and decision-making procedures governing arms control and international trade are embedded within the international system, which is another way of saying that if the arms control regime or the WTO did not exist, the great powers would have to invent them. In keeping with this line of reasoning, it is worth highlighting the evolutionary character of both regimes—they did not "spring" into existence. They evolved slowly as ideas and practices orbited within the minds and habits of concerned scientists and practitioners. Judging from the volume of literature on the subject, one might deduce that a similar community of scholars and policymakers exists that shares a common concern about cyberspace—even if its members cannot agree on what to do about it. Might this be a precondition for the emergence of a cyber regime? I believe it is. Therefore, with the arms control regime and the WTO in mind, it is not difficult to reason (with considerable certainty) how a cyber regime would "impart a degree of central direction to the affairs of international society as a whole." A cyber regime could assist in this by strengthening legal liability, reducing transaction costs, and mitigating uncertainty.

Reflecting upon the growth of legal liability in cyberspace, Gary Brown and Keira Poellett conclude, "In the absence of formal international agreements, cyber custom is beginning to develop through the

practice of states." Yet while there has been "some movement toward declarations, agreements, treaties and international norms in the area, the hopeful statements most often heard do not coincide with current state practice."[63] It is worth noting that similar concerns existed in the nineteenth century before the advent of the International Telecommunication Union (ITU). Today, the ITU is an intergovernmental organization within the United Nations that has broad authorities in the area of global communications governance.

Originally devised when telephone service was a government-run function, the ITU's Telecommunication Standardization Sector (ITU-T) issues technical and operating standards for telecommunications networks and addresses tariff questions that can affect the Internet. The worldwide telecommunication system is dependent upon the ITU-T, which might be a reason why some have speculated about the role it might play in future Internet governance. Thus for "what it does and might do" the ITU plays an important role in Internet decision making.[64]

Yet, I want to suggest that the principal significance of the ITU may not reside in formal declarations or legal status. As important as both might be, appeals to sovereignty trump claims to legal liability and property rights. From this perspective, the significance of the ITU and other international regimes can be thought of in terms of international practices—practices that might be legally unenforceable by law but work to organize relationships among states in mutually beneficial ways. International practices, like conventions, create and shore up common knowledge within a community. Deterrence, for example, might be considered a practice. There is nothing legal about it, but it has proven to be a strong contributor to stability among nuclear powers. If there is common knowledge regarding nuclear practice it is this: statesmen, socialized to the danger of nuclear war, tend to behave cautiously in the face of grave danger.[65] As in the case of deterrence, one might conclude that actors behave according to practice not because these practices are uniquely best, but because others conform to them as well.[66]

Anthropologists have been writing about the importance of practices for some time. International relations scholars are just now turning their attention to them. As Jack Donnelly posits, "binding through sharing" is a reasonable practice states pursue in some anarchic arrangements.[67] His remarkable study of forager societies illustrates the connection between "sharing" and the formulation of interests and needs. Similarly, the

evolution of cyber custom is a promising sign of international practices yet to come. Practices that work to make international life more tolerable, whether found in deterrent relationships or forager societies, take time to evolve, but there is no natural reason to think they will not take hold in cyberspace, especially in light of pending structural changes to the international system.[68]

International regimes also affect transaction costs, and not just in the mundane way of being cheaper. "International . . . regimes usually incorporate international organizations that provide forums for meetings and secretaries that can act as catalysts for agreement."[69] In as much as the principles and rules of a regime can be applied to a wide variety of issues, "establishing the rules and principles at the outset makes it unnecessary to renegotiate them each time a specific question arises."[70] Currently, there is a network of organizations that provides forums and secretaries who work to establish rules and principles governing the Internet. As a practical matter, these organizations are functionally differentiated, making Internet governance a division of labor.

In matters of jurisdiction, the Internet Corporation for Assigned Names and Numbers (ICANN) supervises the Domain Name System, allocates Internet protocol, and oversees root servers that provide access to information on the Internet. The Internet Society develops standards for operating the Internet and its overall architecture. The World Wide Web Consortium (W3C) develops standards for the World Wide Web. The ITU develops standards for telecommunications, including interface with the Internet. The Organization for Economic Cooperation and Development (OECD) develops ad hoc policies on issues of importance, while national governments perform similar functions, especially related to cyber crime, use, and regulatory issues. The Institute for Electrical and Electronics Engineers (IEEE) establishes standards for manufacturing products.[71]

Tensions exist within Internet governance.[72] Nonetheless, the system has worked reasonably well, and some scholars even give it good marks, noting its "openness, democracy, transparency, dynamism, adaptability, accountability, efficiency, and effectiveness."[73] In fairness, one might ask, "Compared to what?" As with any institutional arrangement, questions abound, but the evidence is clear—Internet governance is a reality. It is neither tidy nor robust but its practices serve to foster deeper institutional

linkages among organizations and bring some order to what is a disorderly realm of activity.

Lastly, in keeping with the institutionalized nature of Internet governance, regimes provide information to their members, thereby reducing uncertainty and the risks associated with making agreements. The information provided not only informs states of the current negotiating positions but provides "accurate knowledge of . . . future positions," according to Robert Gilpin. Since reputations are on the line in any sort of agreement, regimes enforce compliance and shore up international prestige. Prestige is the "functional equivalent of the role of authority. . . . it is linked to but distinct from the concept of power." More precisely, prestige is the "reputation for power . . . in the language of contemporary strategic theory, prestige involves the credibility of a state's power." Prestige can be thought of as the "everyday currency of international relations." Thus, prestige, like power, is fungible; it can be squandered or saved. Taken together, prestige and power also have a moral and functional basis. The lesser states tend to follow the leadership of the more powerful, in part "because they accept the legitimacy and utility of the existing order" and, in part, because they prefer the "certainty of the status quo with the uncertainty of change."[74]

As argued here, a legitimate, global cyber regime would make international life more predictable. It would work to restrict legal liability as well as reduce transaction costs and uncertainty. *Moreover, membership in such a regime would buttress a state's reputation, prestige, and power.* Like regimes that came before it, a cyber regime would facilitate the growth of intergovernmental practices, institutions, and commitments; create deeper institutional linkages among states; and make it difficult for alternative orders to replace existing ones. A strong regime might even be able to reduce the likelihood of armed conflict among states by making conflict resolution preferable to war, much like the arms control regime between the United States and the former Soviet Union. For prudential reasons, creating a cyber regime appears to be anything but a pipe dream; it is a natural response to the world around us.

Conclusions

The extraordinary puzzle of cyberspace can be made less daunting by conceptualizing it in the ordinary language of international politics. Along those lines, the ideas and arguments presented here should be

thought of as a first cut. It is worth recalling that nothing is preordained in international life and there are recurring patterns of activity that make it intelligible. First among them is this: order is structurally derived. That is to say, political structures beget order be it economic, cyber, or otherwise. To assume differently is to assume international politics are not shaped or shoved by anything, but that is not the case. International politics are shaped by the great powers. And those great powers are the "providers." They provide order to international life by socializing others to the rules of the game.

But structures change and so, too, does the order of things. As the international system transitions from unipolarity to multipolarity, the great powers will rise in stature, and their dependencies upon the global commons—sea, air, space, and cyber—will intensify. As dependencies intensify, oligopolistic behaviors will result. Since the survival of each great power will be tightly coupled to the security of the global commons, they will inevitably agree to share the burden of security and create a legitimate and durable institutional arrangement that suits their interests as well as the interests of others. SSQ

Notes

1. Mancur Olson, *The Logic of Collective Action* (Cambridge, MA: Harvard University Press, 1971), 14.

2. Adam Segal and Matthew Waxman, Council on Foreign Relations, 27 October 2011, quoted in Roger Hurwitz, "Depleted Trust in the Cyber Commons," *Strategic Studies Quarterly* 6, no. 3 (Fall 2012): 20.

3. "Remarks by Secretary Napolitano before the Joint Meeting of the OSCE Permanent Council and OSCE Forum for Security Cooperation," Department of Homeland Security news release, 1 July 2011, quoted in Hurwitz, "Depleted Trust."

4. This is a paraphrase of Alexander Wendt in "Anarchy is What States Make It: The Social Construction of Power Politics," *International Organization* 46 (1992): 391–425.

5. Richard A. Clarke and Robert K. Knake, *Cyber War: The Next Threat to National Security and What to Do About It* (New York: HarperCollins, 2010), 30–31.

6. David J. Lonsdale, *The Nature of War in the Information Age* (London: Frank Cass, 2004), 135.

7. Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity* (New York: Columbia University Press, 2009), 234.

8. Pessimism is not the same as fatalism. In philosophy, *pessimism* refers to the belief that reality is flawed, a thought expressed by Milton and Malthus. Realists, in general, are pessimists. My use of the term here stems from the tenor and tone of some (most) of the cyber literature, which suggests that the present state of affairs will or cannot be changed anytime

soon—that there is some central defect in the order of things that prevents change. It is the lack of change that I am most interested in understanding and explaining.

9. Segal and Waxman, quoted in Hurwitz, "Depleted Trust," 20–21.

10. Karl Popper, *The Poverty of Historicism* (New York: Routledge, 2010 ed.), 148.

11. At the outset it is important to stress that mine is a systemic argument. I do not address second-image concerns in achieving cooperation, which are real and substantial. Elites who are threatened by the free flow of information will pose problems for states and international cooperation. But that is a levels-of-analysis question and another article for another time. If this makes me guilty of flying over cyberspace at 30,000 feet—as some might contend—so be it. Since this article is just a beginning, structural theory is a reasonable place to start.

12. Garrett Hardin, "Tragedy of the Commons," *Science* 162 (1968): 1243–48.

13. I do not assume that states will not defect from such arrangements, but I do assume that defectors can be identified and punished, as is common practice today.

14. Hurwitz, "Depleted Trust," 21.

15. Ibid., 41.

16. In fairness, Hurwitz is more optimistic on the matter of cooperation than most. His innovative work inspired this piece, but all of the faults herein are my own.

17. Daniel T. Kuehl, "From Cyber-space to Cyber-power: Defining the Problem," in *Cyberpower and National Security*, eds. Franklin D. Kramer, Stuart H. Starr, and Larry K. Wentz (Washington: Potomac Books, 2009), 28.

18. This theme reverberates throughout the writings of Robert Gilpin. See his *Global Political Economy: Understanding the International Economic Order* (Princeton, NJ: Princeton University Press, 2001), and *The Political Economy of International Relations* (Princeton: Princeton University Press, 1987).

19. This theme is common in neorealist writings. See Kenneth N. Waltz, *Theory of International Politics* (New York: McGraw-Hill, 1979); and John Gerard Ruggie, "Continuity and Transformation in the World Polity: Toward a Neo-Realist Synthesis," in *Neo-Realism and Its Critics*, ed. Robert Keohane (New York: Columbia University Press, 1986).

20. G. John Ikenberry, "A World Economy Restored: Expert Consensus and the Anglo-American Postwar Settlement," in *Knowledge, Power, and International Policy Coordination*, ed. Peter M. Haas (Columbia: University of South Carolina Press, 1992).

21. Ibid., 290.

22. To make this more dramatic, try this thought experiment: What type of global economic order would the Nazi's have developed had they won the war?

23. While balance of power theory tells us that change will occur, there is no known, reliable instrument that can predict with certainty when it will occur.

24. There should be no expectation that the costs of governing the global commons will be evenly divided. Even in small groups, there is the tendency for exploitation of the great by the small. See Olson, *Logic of Collective Action*, 27–30.

25. This formulation is Wendt's. See Alexander Wendt, *Social Theory of International Politics* (Cambridge, UK: Cambridge University Press, 1999); and Hedley Bull, *The Anarchical Society* (New York: Colombia University Press, 2002).

26. The other significant side of this line of theorizing is agent-structure interaction.

27. Wendt, *Social Theory of International Politics*, 190.

28. Bull, *Anarchical Society*, 52.

29. Waltz, *Theory of International Politics*, 74–75.

30. Wendt, *Social Theory of International Politics*, 170.

31. To assume that China is incapable of acting like a great power is to assume that China is extraordinarily different than all the rest. See Adam Watson, *The Evolution of International Society* (New York: Routledge, 2002), for a discussion.

32. A corollary to this line of reasoning is states and nuclear weapons. Despite the hysteria from some corners, most states with nuclear weapons behave remarkably similar—regardless of their internal composition, goals, or desires. As a minimum, they tend to be risk averse in acute conflict situations, especially when facing another nuclear power.

33. Joseph S. Nye Jr., *The Future of Power* (New York: Public Affairs, 2011), 5.

34. Waltz, *Theory of International Politics*, 194.

35. For a sample, see Bousquet, *Scientific Way of Warfare*; Clarke and Knake, *Cyber War*; Chris Demchak, *Wars of Disruption and Resilience: Cybered Conflict, Power, and National Security* (Athens: University of Georgia Press, 2011); James Gleick, *The Information: A History, a Theory, a Flood* (New York: Pantheon Books, 2011); Kramer, Starr, and Wentz, eds., *Cyberpower and National Security*; Martin C. Libicki, *Conquest in Cyberspace: National Security and Information Warfare* (Cambridge: Cambridge University Press, 2007); Lonsdale, *Nature of War in the Information Age*; and Evgeny Morozov, *The Net Delusion: The Dark Side of Internet Freedom* (New York: Public Affairs, 2011).

36. See Kramer et al., *Cyberpower and National Security*, for a good summary.

37. Ibid., xiii. Mark Zuckerberg's recent announcement regarding the number of active Facebook users—one billion each month—is testimony to these potentialities.

38. Hurwitz, "Depleted Trust," 21.

39. G. John Ikenberry, *After Victory: Institutions, Strategic Restraint, and the Rebuilding of Order after Major Wars* (Princeton: Princeton University Press, 2001), 50.

40. Dolman is a distinctive voice in space affairs, but even he insists dominating space is not something the United States is likely to do. For his discussion on why the United States should weaponize space, see Everett C. Dolman, *Astropolitik* (New York: Frank Cass, 2002).

41. Waltz, *Theory of International Politics*, 192

42. Martin Wight, *Power Politics* (New York: Continuum, 1978), 50.

43. A. J. Toynbee, *The World after the Peace Conference* (Oxford, UK: Oxford University Press, 1926), 4.

44. Alfred Zimmern, *Spiritual Values and World Affairs* (Oxford, UK: Clarendon Press, 1939), 32.

45. Bull, *Anarchical Society*, 196.

46. Ibid., 8.

47. Ibid., 200.

48. Ibid.

49. Ibid., 206.

50. Ikenberry, *After Victory*, 253.

51. Ibid., 52.

52. Ibid., 5.

53. Ibid., 53.

54. Ibid., 169.

55. Anarchy is generally understood to be an ordering principle, but that idea is under attack. Jack Donnelly insists neorealists' use of the term is too neat—that anarchy does all the work. His solution: abandon the idea of anarchy altogether, which sounds radical. His six elements of structure—stratification, functional differentiation, unit differentiation, norms and institutions, geotechnics, and polarity—form the backbone of his "new" structural theorizing. See

Donnelly, "The Elements of the Structures of International Systems," *International Organization* 66, Fall 2012.

56. Stephen D. Krasner, "Structural Causes and Regime Consequences: Regimes as Intervening Variables," in *International Regimes*, ed. Krasner (Ithaca, NY: Cornell University Press, 1983), 1. Also see other articles in the same work by Ernst Haas, Donald J. Puchala and Raymond F. Hopkins, Oran R. Young, Arthur A. Stein, Robert Keohane, Robert Jervis, John Gerard Ruggie, and Krasner.

57. Robert O. Keohane, *After Hegemony: Cooperation and Discord in the World Political Economy* (Princeton: Princeton University Press, 2005), 88–95.

58. Emanuel Adler, "The Emergence of Cooperation: National Epistemic Communities and the International Evolution of the Idea of Arms Control," in *Knowledge, Power, and International Policy Coordination*, 101.

59. Ibid., 102.

60. Ibid., 145.

61. Gilpin, *Global Political Economy*, 222.

62. Ibid.

63. See Gary Brown and Keira Pollett, "The Customary International Law of Cyberspace," *Strategic Studies Quarterly* 6, no. 3 (Fall 2012): 141.

64. Harold Kwalwasser, "Internet Governance," in *Cyberpower and National Security*, 510.

65. James Wood Forsyth Jr., "The Common Sense of Small Nuclear Arsenals," *Strategic Studies Quarterly* 6, no. 2 (Summer 2012): 93–111.

66. Keohane, *After Hegemony*, 88–89.

67. Donnelly, "Elements of the Structures of International Systems," 609–43.

68. On international practices, see Emanuel Adler and Vincent Pouliot, *International Practices* (Cambridge: Cambridge University Press, 2011); and Vincent Pouliot, *International Security in Practice: The Politics of NATO-Russia Diplomacy* (Cambridge: Cambridge University Press, 2010).

69. Keohane, *After Hegemony*, 90.

70. Ibid.

71. Kwalwasser, "Internet Governance," 494.

72. Some of the most focused attention is on the dominating role played by the United States. Brazil, for example, has pressed for "equal footing" regarding Internet policy issues, while Saudi Arabia has argued for a greater ITU role in "worldwide coordination of technical and policy issues related to the management of Internet domain names and addresses." See Kwalwasser, "Internet Governance," 513.

73. Ibid., 520.

74. Robert Gilpin, *War and Change in World Politics* (Cambridge: Cambridge University Press, 1981), 30.