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Photo: Dale Kuska, Naval Postgraduate School
Dr. John Arquilla, delivering his commencement address to members of the Naval Postgraduate School spring 2014 graduating class. (U.S. Navy Photo by Mass Communication Specialist 2nd Class Shawn J. Stewart)

Professor John Arquilla gave the June 20, 2014, commencement address at the Naval Postgraduate School in Monterey.

Look around. Something has gone awry. The hard-won victory over al Qaeda in Iraq - to which many of you contributed - now hangs by a thread due to a terrorist resurgence in that sad land. In Afghanistan, the Taliban are still on their feet and fighting, watching the clock run out on

The list goes on, extending to more than 30 armed conflicts under way today. Many take place in failed and failing states, exacerbating already unbearable suffering. To use the poet Charles Churchill's metaphor from his "Prophecy of Famine," it is a time when "half-starved spiders prey on half-starved flies." As for the war on terror launched over a dozen years ago, it seems to have morphed into terror's war on the world. Why is the world on fire? How did this happen? The clearest answer to these questions - but one you may not have heard expressed in these terms - is that we are in the middle of a world war. That is, taken together all this strife constitutes the first great global conflict between nations and networks. Some of these networks, though widely dispersed, act in pursuit of common goals. Others seek separate, self-interested aims - much as Germany and Japan, though nominal allies during World War II, did little by way of directly coordinated, mutually supporting actions. Networks are defined by their flat, decentralized organizational forms. As technologist David Weinberger describes them, they are comprised of "small pieces, loosely joined." Thus, in the case of terrorist, insurgent, and even trans-national criminal networks, they are supple enough to slip the heavy punches of the nations that seek to destroy them. Lacking need for central control, they can survive the loss of leaders - even of a bin Laden, as we have seen. And worse, they seem to metastasize when we take out their leaders, as such losses
simply encourage the further flattening and dispersal of their organizations, making them harder to find and fight.

Your time at the Naval Postgraduate School now comes to a close. Some of you will soon be returning to the field, some to the fleet; others to your governmental departments; our internationals to your many countries - all to confront this sea of troubles in one way or another. It is a daunting task that awaits you. I respectfully suggest that you will find that your education here has provided you with many of the tools necessary for waging, and winning, this great "netwar." For your Naval Postgraduate School education goes deeper than the stated subject matter, whatever your field. Let me offer just a few examples:

If you studied computer science, it was with the purpose of improving your effectiveness as a military or security professional - learning the uses of big data to detect and disrupt the small, hidden cells of networked enemies. Or how to defend the cyberspace-based links upon which all of our efforts, in small wars and big ones, so critically, and increasingly, depend.

If you studied finance, it was with the purpose of honing your skills so that you may help us make the most of what will no doubt be constrained fiscal resources in the coming years. A great advantage our networked adversaries have is their ability to operate for long periods on very slender budgets. The nations that oppose them suffer from cost structures that are heavy and all too fixed. One, or some of you, I hope, will develop insights that begin to mitigate this terrible disadvantage of ours. Perhaps in the course of this effort you will interact with others among your fellow graduates, as your classmates from the program in special operations and irregular warfare have been pondering the possibilities of operating against
enemy networks by building networks of our own. If the notion of organizational redesign along networked lines can be realized, war costs will plummet and coverage of global hotspots will improve. This is certainly the vision championed by Admiral William McRaven, one of the Naval Postgraduate School's most distinguished graduates. His call for a network that embraces allies around the world animates much of the current strategic discourse. In case I have convinced you that there is a straightforward way to master the great threats from terrorist, insurgent and criminal networks by building networks of our own, let me offer a reminder that competition among nations continues as well - and may feature some new wrinkles. China is rising. Russia is returning to the world stage. Both pose stiff challenges in cyberspace, and have shown an affinity for reaching out to and cultivating hacker networks. The Russians seem to have renewed their appetite for more traditional forms of covert action, too, as can be seen in their efforts in Ukraine. And both Russia and China are looking at naval affairs in highly innovative ways that challenge us to think anew about such matters as how to counter "swarm attacks," for example. Iran, too, has an interest in swarm tactics, which its light coastal forces practice; but perhaps greater concern should attach to Tehran's pioneering nation-network alliance with Hezbollah. Surely other nations will see the clear benefits of developing such relationships with networks. And so, if the fundamental dynamic of the Cold War era was an arms race to build nuclear weapons, we may see it replaced in our time by an organizational race to build networks. Clearly, there is much to ponder about our troubled world. But I want to leave you with the sense that, as fraught with peril as our time is, there is at least as much chance for progress, even for peace one day. I draw this hope from my interactions over the years with so many of you, our
wonderful students, and with faculty colleagues across campus who are pursuing big, game-changing ideas. One of the great privileges of being here us the opportunity to learn about some of the breakthrough concepts being explored here at Naval Postgraduate School: How to make military and naval operations more energy efficient; building networks of nano-satellites; creating and experimenting with dueling swarms of robots; using design thinking to envision the future Navy. And there's more. Much more. Naval Postgraduate School is the home of big ideas in military and security affairs, a place where we - faculty and students - team up to "redefine the possible."
So let me close by thanking you for coming to study with us. I know that I speak for my faculty colleagues when I say that we learn from you as much as we impart to you. This is truly the magic of Naval Postgraduate School, where top-tier faculty blend with deeply experienced military and security professionals from all the services, the Department of Defense, other agencies of government, and from allied countries around the world. In his Little Red Book, Chairman Mao stated, in the chapter on military education, "a school cannot be well run unless it is composed of the most active, upright, and alert teachers, staff, and students." At Naval Postgraduate School, we are blessed to have all three. In abundance. Thank you.

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