

The US Army War College Quarterly: Parameters

Volume 37
Number 3 *Parameters Autumn 2007*

Article 13

8-1-2007

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Recommended Citation

Parameters Editors, "From the Archives: National Security in the Information Age," *Parameters* 37, no. 3 (2007), doi:10.55540/0031-1723.2373.

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From the Archives

National Security in the Information Age

Information and communication technologies have long played a major role in national security and defense affairs. There has been a constant quest for improved technologies to overcome limitations imposed by time, distance, and location. As long ago as 1000 B.C., word of the fall of Troy traveled 500 kilometers in a single night, spread by signal fires lit by the victorious Greek forces.

During the next two millennium, information and communication technologies progressed but slowly. Nevertheless, the importance of information and communication technologies in war, defense, and national security remained evident. In 1588, as the 130-vessel Spanish Armada bore down on the English Channel, fire beacons and smoke columns passed word of the Armada's approach from Plymouth to London, a distance of some 320 kilometers, in 20 minutes. English ships put to sea and in short order defeated the Armada, wresting naval supremacy and the leadership of Europe away from Spain.

In the nineteenth century the key technologies of the first modern information revolution—the telegraph, telephone, and eventually, radio—began to appear. During the American Civil War the US military used the telegraph to direct troop movements, provide logistical support, enhance military efficiency and organization, and relay intelligence about enemy movements and actions.

During and after World War II, the technologies of the second modern information revolution (television, early generation computers, and satellites) played at least as significant a role as the technologies of the first modern information revolution. The British Ultra organization used the Bombe machine to read Germany's Enigma signals; the United States developed the Magic deciphering machine that cracked Japan's Purple code even before Pearl Harbor. Since then, television, other early generation computers, and satellites have acquired multiple military uses including routine communication, command and control, reconnaissance and surveillance, force multiplication, navigation, and meteorology.

If the Information Age is barely upon us, the same is true for the "revolution in military affairs" (RMA). There are numerous and often considerable disagreements about the specifics of what constitutes the RMA. It is sufficient to recognize that the RMA is vitally dependent upon the new and emerging information and communication technologies and the capabilities they provide. It is an information driven or enabled revolution, a revolution that involves the creation and leveraging of "Information Superiority."

Source: Excerpted from Daniel S. Papp and David S. Alberts, "National Security in the Information Age: Setting the Stage," *Information Age Anthology: National Security Implications of the Information Age* Vol. II (Washington: Department of Defense C4ISR Cooperative Research Program, 2000).