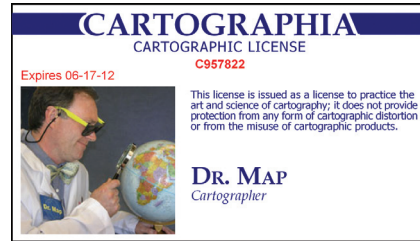


Ask Dr. Map!



Dear Dr. Map,

Q: Who is the most cartographically literate U.S. politician?

A: Many politicians in the U.S. have advanced education in Geography, but for national politics, I'd have to state that Senator Al Franken of Minnesota takes the cake (or at least the magic marker). As a party trick, Senator Franken draws an outline map of the 50 United States from memory, often while simultaneously cracking jokes or answering thorny questions. The senator performed the act in 2009 at the Minnesota State Fair, and the speeded-up cartographic feat is available for viewing on YouTube at: <http://www.youtube.com/watch?v=h0-FYyuvRk>. The Senator starts with Minnesota, then draws the Mid-West and the East, before finishing the Western states and, lastly, Alaska and Hawaii. The maps are auctioned off to

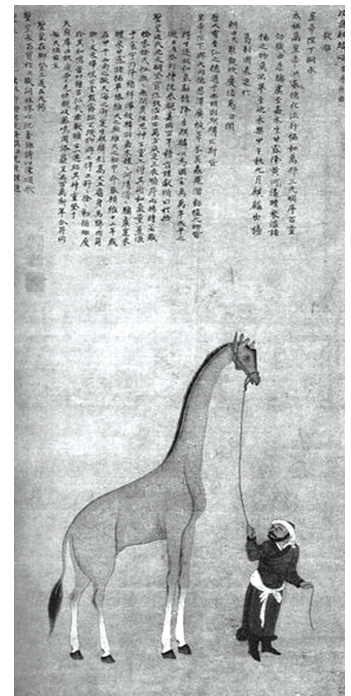


raise money for his political campaigns. He claims that each one includes one or more errors, to make them more valuable! Franken notes that he memorized the map using a wooden puzzle which he had as a child, after losing a bar bet to recall all fifty states by name, which he attempted alphabetically and came up one short. He notes that his early maps did not include Alaska and Hawaii, because the pre-statehood puzzle did not include them (Alaska and Hawaii became states on 3 January 1959 and 21 August 1959, respectively), but added them to his drawings after receiving a scathing letter from Alaska's senator. He

admits to drawing the Big Island of Hawaii, then adding a few circles for the other islands. Regardless of errors and how he does it, this is a pretty amazing cartographic feat.

Q: Who was Zheng He?

A: The short answer is that Zheng He was China's Marco Polo and Christopher Columbus rolled into one, but on a much grander scale! Born to Muslim immigrants in Yunnan Province, China, in 1371, he was later taken to the imperial Chinese capital to serve as a court eunuch. For helping to defeat the Yuan Dynasty, and by assisting various emperors to gain power, he was given command of the Chinese navy. In 1402, after emperor Cheng Zu ascended the throne, he dispatched Zheng He and Wang Jinghong to lead a giant fleet to explore Southeast Asia



and beyond during seven voyages from 1405 to 1433. His flagships were giant treasure ships: 126.73 m (416 ft) long and 51.84 m (170 ft) wide, the size of a football field! The 1405 expedition consisted of 27,800 men and a fleet of 62 treasure ships supported by approximately 190 smaller ships. Places explored include the Ryukyu Islands, the Philippine Islands and Maluku Sea to the Mozambican Channel, and the coastal areas of South Africa. The fleet voyaged into the Indian Ocean 87 years before Columbus left for the East, bringing Chinese goods around the world, and returning new curiosities (including a giraffe and a zebra) to China. The writings of those who went on the expeditions played a similar role to the writings of Marco Polo in the

West. Zheng He died in 1435 at the age of 65, and his tomb is in Nanjing. The idea of expeditions became politically incorrect, and the official records were probably destroyed, along with his fleet. A single stone stele (the Tongfan Deed or “deed of foreign connection and exchange”) in Tianfeigong, Taicang, was the final permanent record of the expeditions, but even that was initially lost, and then rediscovered. The influence of Zheng He’s expeditions on ancient maps was strong; much of the discovery of the renaissance would not have been possible without them.



Q: What is the world’s smallest map?



A: The world’s latest smallest map is a Wagner I projection (Dr. Map thinks, it’s a little hard to tell, the design is credited to Wim Bogaerts) map of the world made by the

Photonics Research Group of Ghent University-IMEC. Its scale is one to one trillion. The equator’s 40,000 kilometer circumference is reduced to 40 micrometers, or half the width of a human hair. The map is embedded in a silicon photonics test chip and used a 30-step etching process. The chip is a demonstration, which has optical circuits on microscopic strips of silicon, showing what optical electronics is capable of. See the map (as it appears through a scanning electron microscope) at: <http://photonics.intec.ugent.be/publications/MediaCoverage/2009-12-17/>. Might be a little too small for navigational use. Know of one smaller? Send Dr. Map an e-mail.

Dr. Map has a PhD and cartographic license. Send questions to Dr. Map at askdmap@cox.net or visit him on the web at <http://www.dmap.info>.

The Marine Corps’ ExFOB

—by Brian Villiard

Marine Corps Commandant Gen. James T. Conway and other Marine and Navy leaders toured technical demonstrations by nearly 30 commercial vendors at the first Experimental Forward Operating Base at Marine Corps Base Quantico on March 12th. Conway has been the catalyst for the Corps’ current work in energy conservation.

The ExFOB is an inter-service collaborative effort. The Marine Corps Warfighting Laboratory is working closely with the Marine Corps Combat Development Command, the Office of Naval Research, Marine Corps Systems Command, the Marine Corps Expeditionary Energy Office, and Marine Corps Base Quantico. The lab’s commanding general, Brig. Gen. Robert F. Hedelund, is heading the experiment.

Created by the Warfighting Lab, ExFOB is a four-phase experiment which tests methods to reduce the logistic needs of combat units. Aside from its ecological and cost benefits, Conway’s directive to reduce consumption, like the Secretary of the Navy’s “green” initiatives, can extend a Marine unit’s sustainability. Reducing resupply needs also keeps Marines safer. Fewer trucks on the road decrease

Marines’ exposure to the improvised explosive device and other dangers.

Phase One of the experiment simulated the energy and water demands of a Marine unit at forward operating bases similar to those in Afghanistan. This initial phase determined the baseline requirements of company-size and smaller FOBs.

The current phase evaluates existing commercial technologies to produce water on site to meet the Marines’ needs and increase power generation efficiency to sustain the base. Commercial, off-the-shelf technologies have the potential to increase the efficiency of Marine Corps forward-deployed forces, sustaining them over longer periods.

During Phase Three, a Marine unit preparing to deploy to Afghanistan will use the renewable technology and energy-saving techniques learned during the earlier phases. Phase Four will facilitate future science and technology efforts by gathering data on experimental systems.

The Marine Corps Warfighting Laboratory conducts concept-based experiments and integrates operational concepts with how the Corps operates and fights. Experiments coupled with other research improve the expeditionary war-fighting capabilities of the Marine Corps today and far into the future.

