

## ***Bring Back Geography!***

By Jerome E. Dobson

*Quiz after quiz has shown that kids today don't know where any place is.* How often have you heard this lament about "geographic ignorance" or "geographic illiteracy," as it is commonly called?

Now, take that complaint and turn it around. What does it say about geography? It says geography means knowing where places are. That's what geographers call "place-name geography." It's vital, but it's the least of what we expect budding geographers to learn.

Geography is more than you think. Geography is to space what history is to time. It is a spatial way of thinking, a science with distinctive methods and tools, a body of knowledge about places, and a set of information technologies that have been around for centuries. Geography is about understanding people and places and how real-world places function in a viscerally organic sense. It's about understanding spatial distributions and interpreting what they mean. It's about using technology to study, in the words of the late professor J. Rowland Illick, "why people do what they do where they do it." Geography is a dimensional science and humanity based on spatial logic in which locations, flows, and spatial associations are considered to be primary evidence of earth processes, both physical and cultural. Its hallmarks are spatial analysis, place-based research (e.g., regional studies, area studies, urban studies), and scientific integration.

The familiar litany also implies that geography is just for kids, something you learn in elementary school or high school if you're lucky, and use for the rest of your life without any need for new learning. Does geography really matter for grownups? Of course it does. Geographic knowledge, understanding, and skills matter, for instance, in formulating foreign policy, designing and using GIS, and just about everything else in society that involves locations, movements, and flows.

### **An Excellent Invention**

Geography was founded at least 2,500 years ago and advanced by Greek, Roman, and Chinese scholars throughout the Classical Age. Prior to the Renaissance, geography and astronomy—interrelated, spatially oriented disciplines—were preeminent sciences. For a thousand years, geography was recognized and valued. "How excellent inventions are geography, arithmetic, astrology, and the rest!" wrote Saint Augustine in *The City of God* in the early 5th century.

Then came the Great Interruption of the Middle Ages, and geography became a fantasy. For a thousand years, its real body of knowledge was preserved by Irish monks and advanced by Arab and Persian scholars. Its rediscovery by European scholars was central to the enlightenment of the Renaissance. It thrived from c. 1450 to 1948 based on exploration, from c. 1600 to 1900 based on the information needs of westward expansion,

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\* <http://www.esri.com/news/arcnews/spring07/articles/bring-back-geography-1of2.html>

and from c. 1915 to 1947 based on geopolitics. Its accomplishments include the following:

- The first proposal of continental drift was published by geographer Abraham Ortelius in 1596. Its most famous champion, Alfred Wegener, was a climatologist (climatology is a subspecialty of geography).
- Biogeographer Alfred Russell Wallace codiscovered evolution in 1859. By today's rules of precedence, he would be considered the principal discoverer because he published first, but Charles Darwin's friends made sure his paper was read ahead of Wallace's at a meeting of the Royal Society.
- President Woodrow Wilson's geographer Isaiah Bowman was the author of America's globalization policy, which proclaimed that America could lead the world through political and economic means rather than military conquest. Bowman went on to become president Franklin D. Roosevelt's geographer, as well, and one of the top six architects of the United Nations.
- Geographer Carl Sauer led the way toward new understanding of the ancient Americas and the vast populations they once contained. His first inklings were published in the 1930s; geographer Bill Denevan discovered massive supporting evidence in 1961; geographers widely accepted their findings by the 1970s; and science journalist Charles Mann's 1491 announced those findings to the public, to great acclaim, in 2005.
- Geographer Roger Tomlinson is universally recognized as the father of GIS in the early 1960s. Duane Marble and other geographers were instrumental in laying the groundwork for GIS and have been heavily involved ever since. Geographer John K. Wright of the American Geographical Society published the earliest known expression of points, lines, and areas—concepts now central to GIS—and pioneered quantitative techniques, such as dasymetric interpolation, that serve vital GIS functions today.

### **The Purge of Geography**

Soon after World War II, however, geography was purged in the United States, and the impact continues today. From 1948 to 1988, the discipline was expunged at the University of Chicago, Columbia, Harvard, the University of Michigan, Northwestern, Stanford, Yale, and other esteemed American universities, oddly even during periods when universities were expanding faster than at any other time before or since. In truth, nobody knows why geography was targeted on such a broad scale. For decades, there have been no geography departments in the Ivy League, except Dartmouth's undergraduate department. Of the top 20 private universities in the United States, only two currently have geography departments, though 15 of the top 20 public universities do. The purge was an American phenomenon. In the United Kingdom to this day, Oxford and Cambridge universities continue to have strong academic programs offering doctoral degrees in geography.

Lately, geography is enjoying a resurgence due to the phenomenal success of GIS and the need for better understanding of foreign lands and peoples in this age of globalization and geopolitical turmoil. Peers in other disciplines now respect, and some are adopting, our

hallmarks—spatial analysis, place-based research, and scientific integration. What this resurgence means is that existing geography departments are adding faculty and new graduate degrees. Unfortunately, however, only four new undergraduate degree programs have been added in the past 10 years, and only one new department is being discussed at present in a serious way. As incredible as it may seem, the purge continues, and there will be a net loss this year as Southern Oregon University closes its geography department.

The panoply of disciplines must evolve, of course, and obsolete ones should disappear. Geography, however, was cut down in its heyday, just as it was shortly after Saint Augustine's effusive compliment. This not-so-great interruption from 1948 to the present is disturbingly reminiscent of the great one in the Middle Ages. I, for one, take enormous pride in how my discipline handled its fate. For half a century, geography's body of knowledge and pool of expertise have been preserved and advanced by American scholars in state universities and a few private universities and by foreign scholars. These geographers in exile have, in effect, "preserved the scrolls" as Irish monks did in the Middle Ages. Better yet, they continued to advance the field and contribute to science and society in impressive fashion. Their collective impact is far greater today than one would expect based on their diminished numbers and institutional base.

Meanwhile, geographic education has been nearly eliminated from K–12 curricula in the United States. In elementary school, it has been lost in a mishmash called "social studies" that neglects physical geography and spatial thinking. Each semester, I ask my students in a large introductory class how many of them have ever had a geography course before at any level, and less than 10 percent raise their hands. Advanced Placement (AP) enrollments in geography are rising in high school, but the absolute number remains small (21,000 in 2006). Most matriculating students do not even know it is possible to earn a college degree in geography. The No Child Left Behind program provides funds to improve the teaching of all the essential subjects identified—except geography. Congress said geography is essential and then provided not a single dollar for it.

The situation in government reflects what happened in academia. In ancient China, the Chou emperor had his geographer-royal. Louis XV had his geographer. The Continental Congress appointed its official geographer. President Wilson had his geographer (Bowman). President Roosevelt had his geographer (also Bowman). Since World War II, however, no U.S. president has had a geographer. Again, the deficiency is a distinctly American phenomenon. In the United Kingdom, Prince William, heir to the throne, is himself a geographer, having graduated from St. Andrews University in 2005 with a master's degree in geography.

In the first half of the 20th century, geopolitics was a major focus of academic research, especially by geographers, and its influence on real-world politics was enormous. In the second half of the century, geopolitics gave way to political science and international affairs. Now, 9 of the top 15 schools of international affairs in the United States reside in universities without geography departments. The late Bill Wood, geographer of the United States, compiled a list illustrating that point and shared it with me shortly before he died. He was deeply concerned by the lack of geographic knowledge among graduates

in international affairs and a similar lack of political understanding among geographers. He wanted to hire people with a broad understanding of geopolitics—both geography and politics—at the U. S. Department of State and could not find them in the labor pool.

As one indication that geopolitics matters, consider geographer Bowman's warning in 1949, "we can lose our shirt in the swamps and canyons of the hinterlands" of Southeast Asia. Two decades later, the United States went to war in Vietnam fully committed to George F. Kennan's doctrine of containment, but Bowman's "scroll" was lost, and his warning never entered the debate.

During my 26-year career at Oak Ridge National Laboratory and 6 years at the University of Kansas, I have participated in scores of meetings among insiders who provide decision support to foreign policy makers and military strategists. For about 2 years, I've sensed an historic opening for the restoration of geography. Many insiders now openly admit that geographic understanding is sorely missing from their deliberations, though only a few know to call it geography. As I listen to their concerns, I sense a striking similarity to the situation that Woodrow Wilson faced in World War I and Franklin D. Roosevelt in World War II. Yet those wars ended in victories viewed today as intelligence triumphs. They found a solution in their day, and current leaders would be wise to ask what it was.

Wilson's plight is especially instructive. On the eve of World War I, he knew the United States was poised to become a world power. The Great War and subsequent peace would be his nation's debut on the global stage. He relished the role of leading man, but who would play his supporting cast? For 140 years, America had practiced isolationism. No one in government—not even the officers and analysts of the Department of State or Military Intelligence—was ready to analyze foreign intelligence or face sophisticated European negotiators. Wilson, scholar that he was, recognized his problem as being geographic and called on the American Geographical Society (AGS) for help.

AGS director Bowman led The Inquiry, a massive analysis of foreign intelligence staffed by 150 scholars from geography and other disciplines. Their task was to collect and analyze the information that would be needed to establish a "scientific" peace at war's end. As part of The Inquiry, the American Geographical Society was responsible for drafting Wilson's famous Fourteen Points, one of the most reassuring and effective policy statements ever written. When Wilson and the American delegation left for France aboard the USS George Washington, Bowman sailed with them. On arrival, Bowman pulled off an amazing bureaucratic coup, and Wilson decreed that analysts from the Department of State, Military Intelligence, and Central Bureau of Statistics would report to him through Bowman. In January 1919, AGS geographers and cartographers, led by Mark Jefferson, turned out more than 300 maps per week based on geographic analysis of The Inquiry's massive data collections covering language, ethnicity, resources, historic boundaries, and other pertinent information. America's delegation became the envy of Versailles.

President Roosevelt, too, appreciated geography and even served on the Council of the American Geographical Society for more than a decade. During World War II, Bowman

was his closest advisor and one of the top six architects of the United Nations. Bowman was the only individual present from the beginning to the end of the effort to establish the United Nations, and he personally convinced Winston Churchill that one global organization would be better than three regional organizations.

During that war, one-third of all academic geographers were called to Washington, D.C., to serve in the Office of Strategic Services (OSS) and other agencies essential to the war effort. Their service, and especially Bowman's powerful role in both wars, adds to our puzzlement over why geography was purged just three years after the war ended and one year after the United Nations' charter.

Today, considering our nation's new capacity for rapid warfare, it is worth noting that the American Geographical Society's role in World War I and Bowman's role in World War II had far more to do with peace than war. Knowing the field of peace ahead of time is more important than ever.

### **Aliased Geography**

If geography did not exist, it would have to be invented. Indeed, there are four high-profile cases in which it was reinvented by authoritative bodies purportedly unaware of its existence:

- Ten years into the purge of geography, Congress passed Title VI of the National Defense Education Act (NDEA) of 1958, which authorized funding to build "area studies" programs at U.S. universities to ensure "trained expertise of sufficient quality and quantity to meet U.S. national security needs."
- Forty years into the purge, three federal agencies signed on to a proposal for a "new" scientific discipline called "earth system science." Days after the Bretherton Report appeared in the late 1980s, I read the definition in a plenary session at an international conference of geographers, and they recognized in an instant that geography had been reinvented yet again. The auditorium erupted in laughter.
- Columbia University disbanded its geography department in 1986 and nine years later established the Earth Institute "for the integrated study of Earth, the environment, and society." Geography is not listed among its "core disciplines."
- Harvard University discontinued geography in 1948, and the results showed in its curricular review of 2004. The report called for bold remedies including certain hallmarks of geography—broader knowledge of diverse sciences and a better understanding of foreign cultures, economies, and policies—without mentioning its name.

All four sound like manifestos for geography, but the word itself is assiduously avoided even where it normally would be used in common language.

In 2005, Harvard University announced that it will reintroduce GIS but not geography. The new Center for Geographic Analysis recognizes the demand for GIS throughout all disciplines without granting academic stature to its home discipline. That's much like building a word processing center without an English department, and it's a mistake the

university has made before. Harvard was one of a handful of key centers advancing GIS in the 1970s. Lacking an academic home, however, its groundbreaking GIS developments were mislabeled "computer graphics," and a grand opportunity was lost.

Years ago, I warned, "Advances in geography could position our discipline to play a major role in important issues, such as global change or the restructuring of east European economies and societies. In contrast, advances in GIS alone are likely to cast us as clerks handling data for the ecologists, political scientists, economists, and other current leaders in these topics." Harvard's previous experience with GIS and its current direction are proving my point. Only by joining the fray of science theory ourselves and occasionally "drawing blood" will we establish ourselves as a respected force in the upper echelons of science, science policy, and public policy influenced by science. Meanwhile, many conventional theories—developed in isolation by specialized disciplines with little thought for geographic relationships, spatial logic, or integration—have stood unchallenged for decades.

Harvard administrators have opened the door to a possible return of geography, but the process is slow and uncertain. Can it possibly be in anyone's interest for information technology of such power to exist, devoid of intellectual leadership, even temporarily, at the nation's most influential university? Geography is the intellectual force behind GIS and its natural academic home. Of the 80 institutional members of the University Consortium for Geographic Information Science, for instance, about 85 percent are led or co-led by geography departments.

### **Gaffes, Laughs, and Downright Insults**

A laughable event from the past illustrates, in reverse, the state of geographic knowledge today. In 1897, the House of Representatives of the State of Indiana unanimously approved bill no. 246, which inadvertently would have changed the value of pi. Fortunately, the bill died a quiet death and never came before the Senate. The immediate agent of its defeat was Clarence A. Waldo, a professor of mathematics at Purdue University, who happened to visit the legislature; he was shown a copy of the bill and ridiculed its claims. Even if the good professor had not appeared, surely other voices would have materialized from mathematically informed government officials and staffers, journalists, educators, and the public.

Today, however, politicians and pundits can make whatever pronouncements they please about geography, no matter how absurd, and there aren't enough geographically informed people to counter their claims. Geographically smart people exist, of course, in government offices, schools, businesses, and homes across the land, but they are too few. There's no sizable constituency to carry the day. Not even journalists ask the questions that should be asked. Worst of all, geography has slipped so far beneath the public consciousness that no politician or journalist is likely to seek an informed geographic opinion, even on matters of war and peace.

There is today no greater gulf of knowledge than that which lies between the public understanding of geography and the reality of what geographers actually do. Every

geographer endures frequent reminders from people who suffer from honest misunderstanding. Some are funny, some downright insulting. For example, I once fell into conversation with a salesperson in an upscale shop in Kansas City, a sophisticated woman whose daughter attended my university. She asked what I teach. I answered, "Geography," and she said, "Oh, they don't teach that in college, do they?" I said, "Certainly. We offer B.A.s, M.A.s, Ph.D.s." Then came the cruelest cut of all: "Well, what do they call it?" she asked incredulously.

Believe it or not, some people really do think geography is just knowing your states and capitals. Some think it's just about borders. Some think it's purely physical. Others think it's purely social. Actually, cultural, social, and economic topics comprise 47 percent of declared specialties in geography; geographic information science, 21 percent; physical, 10 percent; regional, 8 percent; methodology, 5 percent; and combinations of all the above, 9 percent.

Most individual gaffes are insignificant, and we are accustomed to fending them off. Collectively, however, they doom society to the kind of misunderstanding that makes bad policy, bad business, and bad science. Some individual comments are dangerous and worth fighting. Harvard's assault, for instance, began in 1948 when president James Conant declared, "Geography is not a university subject." His institution's influence is such that his words and associated actions triggered a national purge of historic proportions.

In spite of all that's happened to prove Conant wrong, some people still don't get the message. Recently, the vice president of a highly respected liberal arts college in California publicly questioned the legitimacy of human geography as an Advanced Placement course. Many eloquent letters have been written by geographers to the college's administrators, and selected ones will be published in the American Geographical Society's publication *Ubique*.

### **Solidarity**

Restoring geography is in your best interest as a citizen of the world and especially as a GIS professional, regardless of your home discipline. We are your natural ally, whether you yourself hold a degree in geography or not. No discipline should rest easy until the one that was lost is restored. Every scholar should be clamoring for geography's return as proof that future purges will not be tolerated, and that holds true even for those who do not like geography.

What protects other disciplines from onslaughts like those that beset geography? You may imagine that public opposition would be fierce, and legions of academic peers would rise up in arms, but that did not happen in our case. You may imagine that your own discipline would not go down without a fight, but geographers accepted their fate far more graciously than they should have. Earlier this year, when I published an op-ed piece questioning how and why the nationwide purge had occurred, all but one of the public replies came from geographers, and several blamed the discipline itself. Yet every reason

they offered was characteristic of many other disciplines, none of which were punished as we were.

As passionate as I am about my discipline, my advocacy is not chauvinistic. I fully recognize that geography is not the only answer. The GIS revolution never could have happened without massive contributions by computer scientists, landscape architects, mathematicians, electrical engineers, and many others. The same is true for geography as a body of knowledge about places. Cultural anthropologists, for instance, understand as much about culture as we do, and they teach it just as well. Indeed, I support all those other disciplines as much as I do my own, but they were not purged as geography was.

My first point is that geography has an essential viewpoint and methodology that are at least as important as those of other disciplines. Geography was purged, aliased, and fragmented, and none of the fragments add up to the whole. Area studies programs, for instance, bring together specialists of all sorts who know much about each region, but they do not inherently contain the glue that holds those regions together. Their faculties do not inherently think about space and define it as geographers do. That's why, despite all the federal dollars they have received since 1958, area studies programs were not major contributors to GIS development while geographers were.

My second point is that geography has been neglected to an extent that no other discipline has faced in modern times. Not a single Ivy League university tries to get by without anthropology, biology, history, mathematics, and sociology, for example. Indeed, you will find Ph.D. programs for all of those disciplines, and usually multiple Ph.D. programs for their subspecialties, in every Ivy League university (except, in some cases, Dartmouth, which emphasizes undergraduate education). Only geography is missing.

### **What Can You Do to Help?**

*Say the word*—Nowadays, there is a conspicuous reluctance to say the G word. Spatial or geospatial are more acceptable than geography or geographic. When geographers discover anything new, they are likely to be identified with the closest thematic discipline rather than geography, even if geographic methods were absolutely essential to the discovery. Geographers are routinely misidentified as geologists, though only 10 percent of them claim physical specialties that could possibly be confused with geology.

*Tell people what geography really is*—The vast majority of geographers define their discipline based on spatial perspective and methods rather than content. Tell everybody that geography is to space what history is to time. No one would seriously suggest that a university should exist without a history department. Why should any exist without geography?

*Make administrators accountable*—If your favorite university does not have a geography department, ask why. If it has one but it's combined with another discipline, ask administrators to explain the reasoning behind its placement. Together, we must send the clear message that every discipline that helps explain our world matters to every one of us. We and those who support us throughout society must draw a line that no politician or

administrator can cross without pain. Every individual who crosses that line must face accountability. The hardest part, of course, will be to set aside your own discipline's short-term interests in favor of the greater good, but solidarity is our best hope to staunch the purge of disciplines. Together, we must oppose every threat, starting with the one that has already occurred.

*Lobby for a rational legislative agenda*—Funding for geographic education, development, and research must be increased by at least two orders of magnitude, partly to solve the labor shortage in GIS and partly to educate the general public. These funds are needed to fulfill six modest principles:

1. Every elementary and high school student must have the opportunity to learn basic geography and experience GIS technology.
2. At a minimum, every freshman should reach college knowing that geography is a viable major with solid career prospects after graduation.
3. Every college student must have access to a full geographic curriculum—thematic, regional, methodological, and technological—within the set of college destinations among which he or she normally would choose.
4. Scholarships must be available to support the best and brightest students who choose to pursue undergraduate and graduate degrees in geography.
5. Research grants must be available to encourage substantially increased geographic research, including fieldwork, both foreign and domestic, by faculty and students.
6. Development grants must be available to upgrade or create geography faculties throughout the nation; to ensure topical, regional, methodological, and technological coverage; to upgrade GIS facilities; and to promote community outreach.

*Aim big*—In a rational world, Congress would urgently fund a crash educational program to rush society ahead in this vital discipline as it did for science and math in the 1950s. Instead, the powers that be in the highest realms of education, science, and science policy have done precisely the opposite for six decades. Now change is coming, but will it be enough? Will it happen fast enough? Will geographers and GIS professionals have much influence on the outcome?

### **Restoring Geography**

Actually, I don't think such a crash program is out of the question. Society may well recognize the folly of its ways and try to restore geography through remedies such as those I recommend. National leaders may suddenly recognize what's missing in foreign intelligence, foreign policy, information technology, and other vital aspects affecting national interests. Everything depends on getting our message through to the right people. Once it's there, anyone with a sound, open mind can grasp the point.

One reason for my cautious optimism is that I have seen how quickly individual leaders can modify their personal impressions of geography whenever I've had a chance to talk with them one on one at length. Over the past year, for instance, I had occasion to speak three times with General David H. Petraeus, now commander of American forces in Iraq,

and he exemplifies an excellent case in point. He holds a doctorate in international relations from Princeton University's Woodrow Wilson School of Public and International Affairs, and he's every bit as smart as you've heard. His innate sense of geography comes through in his 14 observations from soldiering in Iraq. Observation no. 9 says, "Cultural awareness is a force multiplier," and he adds, "knowledge of the cultural 'terrain' can be as important as, and sometimes even more important than, knowledge of the geographic terrain." The first time we spoke, I passionately advocated sending geographers to conduct foreign fieldwork specifically to address America's foreign policy crisis, as the American Geographical Society is now doing with its Bowman Expeditions. His immediate reaction was, "You'd better send someone who understands culture, too." Both statements imply that geography is purely physical, and he is not alone in that impression. Later, the AGS Council was privileged to meet with him for nearly two hours. At the conclusion of our visit, he said he had a new appreciation for geography as a source of such understanding and offered to clarify the wording of observation no. 9 in the future. Princeton does not teach that lesson because it does not have a geography department, but he was receptive when our message came before him.

The challenge, of course, is to deliver that same commonsense message to a critical mass of opinion makers and decision makers.

### **No More Dr. Nice Guy**

Geographers have been gracious in exile far too long, and now it's time to fight. It is high time, as well, for the overwhelming majority of GIS professionals to embrace geography and fight for its return. All we seek is parity with other disciplines and fields. Surely that's not too much to ask, and it's in the nation's interest, not just our own.

#### *About the Author*

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