# Understanding The Progress Science Can Make

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## Keynote Address*

A FEW YEARS AGO a Nobel Prize winner said, "I hope the public will accept the progress science can make." My message this morning is a variation on that theme. I hope the public can *understand* the progress science can make.

Because, ladies and gentlemen, as you continue to detail the Earth through surveying, mapping, photogrammetry, and remote sensing, as you learn more and more about where we live, a sizeable portion of this country knows less and less about where and how we live on this world in space. I'm talking particularly about our young people.

Many of the young people in this country are virtually lost. They don't know where they are. They don't know how the world fits together. They don't know how the people and the planet relate. Survey after survey shows this. Some of the surveys are so shocking they're hard to believe, so we've commissioned the National Assessment of Educational Progress, also known as the Nation's Report Card, to test twelfth graders across the country on what they know about the world. This will give us a baseline assessment early next year.

We're not sure that adults know more about geography than their children, but we're going to find out. Today I am announcing that the National Geographic Society has commissioned a comprehensive survey by the Gallup organization to compare the geographic knowledge of our citizens with that of eighteen-year olds and up in Japan, France, England, Italy, West Germany, Sweden, and our neighbors to the north and south, Canada and Mexico. Gallup will also survey Americans' attitudes toward geography, and its connection to everday life.

This situation is very painful to face. All of you here and all of us at the Society love the lure of geography, of maps, of the Earth, and of space. For 100 years the National Geographic Society has poured its heart and energy into increasing geographic knowledge.

We have done it in a number of ways, not the least being that of producing maps, atlases, and globes, and more recently the use of remotely-sensed imagery of the world.

Now, under Chief Cartographer John Garver and his staff, we have entered the world of computer-assisted mapmaking. In 1982 we installed an off-the-shelf, turnkey electronic prepress mapping system which has given us new capabilities in color computer graphics design and production. And we are now in the process of implementing GIS Software operating on four graphics workstations connected by a local area network. This geographic information system will provide our cartographers with many more options in designing, compiling, and producing maps to include greater flexibility in map projection transformation, map scaling, and base compilation.

We are excited about the potentials of computer mapping and of its direct transfer of digital data to an interactive videodisc format for electronic maps and atlases in the future.

In October, we're coming out with a new world map produced by this technology. Ever since we began publishing world maps in 1922—and that's 66 years—(with two exceptions in 1935 and 1941) we've used the Van der Grinten Projection. In order to reduce a real exaggeration, our new map will use the Robinson Projection. And why? Because we want to provide a more realistic look at the world, a better understanding of the world.

We're also coming out with the most detailed, shaded relief, contour map of Mt. Everest that's ever been rendered. Dr. Bradford Washburn spent several years convincing China and Nepal to allow a Learjet full of sophisticated aerial survey equipment to overfly both countries and take vertical photos of 380 square miles of the Everest area. As a result, in November you will see the most accurate 1:50,000-scale map ever of the Everest region.

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And why? Because we want to contribute to improved mapping of the world and because we want our members to know more about special places!

What we've finally realized, however, is that it's simply not enough for our members to be geographically literate—our country must be also.

You here today have developed marvelous tools for assessing, monitoring, depicting, and displaying the Earth. Yet while you've been expanding perspectives of the world, many people, if they think about it at all, are viewing the world from an increasingly narrow perspective. It's like that famous *New Yorker* map of the U.S. with Manhattan taking up most of the space. Across the Hudson River is New Jersey and then the rest of the country irrelevant on the horizon.

At one time we could afford that insular thinking. Distance and vast oceans protected us. These natural protections, however, mean nothing in the age of ICBMs, satellite TV, and computerized money transfers across continents.

We're all interconnected and interrelated. A year and a half ago we were asking, "How far is Seattle from Kiev and which way does the wind blow?" Traditional geographic questions but asked in deadly earnest following Chernobyl. A professor at the Wharton School of Business said during October's Stock Market crash, "This is one financial world today."

Well, it's now one world in all kinds of ways.

And since we are tied to the other citizens of the world, we better know who those people are. How are we to compete in the future if we don't know our competition? How are we to increase our trade overseas if we don't understand the people who are to buy our products? How can we expect our people to make wise decisions about the Persian Gulf, Central America, or the trouble spots of tomorrow, if we don't know anything about these regions or their inhabitants?

This is the world in which our young people must live.

General George Patton once said something that captures, at least in military terms, why it's important to know your competition. He said, "I have studied the enemy all my life. I have read the memoirs of his generals and his leaders. I have read his philosophers and listened to his music. I have studied in detail the account of every damned one of his battles. I know exactly how he will react under any given set of circumstances. And he hasn't the slightest idea of what I'm going to do. So when the time comes, I'm going to whip the hell out of him."

That military analogy is why geography is important today—so that we will understand the world in which we live and compete. Because to understand is to survive and thrive.

In recent years, the National Geographic Society began to be frightened by the findings of geographic illiteracy among our young people. Frightened, but not necessarily surprised. Geography simply isn't taught as a subject in the schools anymore.

And, really, it's no wonder it isn't taught—geography as a "place name" rote memory subject was boring. You know, Charles Kuralt once said, "Thanks to the Interstate Highway System, it is now possible to travel from coast to coast without seeing anything." And I'll add to that: You might not know where you've been or where you are except for the Interstate signs. And really, that's what geography became—a bland, monotonous blur of names and places. It wasn't intellectually stimulating to either students or teachers.

This will sound like a terrible thing for the head of the National Geographic to say, but I took one course in geography in college and begged the dean to let me drop it. He did and I never took another course in geography again.

I knew what geography could be. I grew up in a family that lived and breathed geography. Geography was the adventure of exotic locations, the mystery of ancient excavations, the thrill of an African plain bursting with wildlife. But geography is also in our own backyards. It's not always out of reach in far away places—it's alive, all around us everyday!

I want all children to feel that vitality. They need this not just to feed their imaginations, but to understand the modern, global age in which they live.

Cooperating with the Association of American Geographers, the American Geographical Society, and the National Council for Geographic Education, the National Geographic Society has set out to change the perception of geography. We've dedicated millions of dollars and some of the best creative minds in the country to a new National Geographic Education Program.

In January we also announced a foundation to which we've contributed $20 million with the expectation of contributing another $20 million in matching funds. We're taking geographic education to the grass roots. We're going to train America's teachers to teach geography to our young people in creative, absorbing ways.

We're producing innovative classroom materials. In fact, we've even brought together Apple Computer and George Lucas of hi-tech movie fame to see if we can't make geography as breathtaking and spectacular as it genuinely is.

Geography must also be made more relevant. It probably seemed most relevant to the modern public during World War II, when America's sons were dying on soil far from home. And I think one of the National Geographic's proudest moments was during that period. National Geographic maps were tacked up in kitchens, dens, in kids' bedrooms all over this nation, enabling Americans to chart the daily progress of the war.

Our maps were used extensively even by the military. For example, toward the end of the War we published in the magazine a map of "Germany and its Approaches." The Army Corps of Engineers posted enlargements of this map at road intersections along the routes of the allied advance into Germany. I guess you could say that a National Geographic map led our boys to victory.

The point is that we must get people to realize geography is just as relevant today, although in different ways, as it was in the 1940s.

The work of the ACSM and the ASPRS is not only relevant and intrinsically geographic, but it's also inherently educational—which brings me to my request of you today. I ask you to share as much of your work with us as you can. I ask you to do this as a public service to our nation and especially to our young people. Our *Atlas of North America*, which was published two years ago, is a compendium of remote sensing imagery and traditional maps. Yet I doubt that we could afford to put that book together today, because so much of the imagery that was in the public domain would now have to be purchased from commercial sources.

You may think you offer only a project or a service, but you also offer a wonderful educational tool. I ask you to join in partnership with us to advance the teaching of geography.

Much of your work is visual, and one reason geography is so suited to modern teaching is that it, too, is visual. Geography, of all disciplines, cries out for visual representation in maps and illustrations—maps where you can see the Earth's surface and the myriad patterns on it, graphs and charts that show dynamic processes at work, and photos of the land, of structures, and of people—all providing distinct views of our human habitat. I want to show you a multimedia piece that will illustrate the visual richness of geography. It's this kind of imagery that will eventually enable us to return geography to the classroom.

And let me set the stage by reading you part of a note that a 10th grader in California wrote to her teacher. She said, "I know this is a lot too late to be telling you. But I know nothing about maps. I mean absolutely nothing, not one thing. I don't know where the U.S. or L.A. is located...I don't know the difference between countries, cities, towns, or states. Can I have a little of your help please."

This presentation is for that young lady...

(voyage of discovery)