

## **Flagship 2030—What it should mean**

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During my recent attendance of the Fall 2006 American Geophysical Union Meeting in San Francisco (10-16 December 2006), I was privileged to be invited to the Headquarters of Google in Mountain View, CA. I met there with the Google Engineering Director, the Mechanical Engineering Director, and two young systems engineers who are working on innovative technologies.

The meeting began with a lunch discussion with the two junior systems engineers and then extended throughout the afternoon with the junior people and with the more senior Directors. I was joined at the meeting by two university colleagues: One is an Associate Professor of Space Science and Aerospace Engineering at the University of Michigan, Ann Arbor, and the other is a Professor of Physics and Director of the Space Sciences Laboratory at the University of California, Berkeley. During the course of the afternoon, each person had a chance to present a portrait of his university's (and institute's) history, accomplishments, and capabilities.

From the interactions, it was clear to me that Google is a company apart: It has a most remarkable vision, ethic, and culture. The workplace is astonishing. The cafeteria where we ate (which was one of seven distinctly-themed cafeterias for the Google Headquarters) was filled with staff. The average age could not have been more than 25 years, maybe less. The food was absolutely delicious and it was entirely free: All food, drinks, and refreshments of every sort are provided freely to all employees and official visitors. The serving staff, the employees, and the management are happy and seem invigorated to be part of a company that wants only to triumph in the information age and to thereby be creative, innovative, and successful.

My colleagues from Michigan and Berkeley presented very exciting and compelling pictures of their research institutes and their educational goals. It is hard to overstate the prominence and prestige of Berkeley and Michigan as public universities: They are two of the largest, most accomplished, and highly regarded schools on the face of the Earth. It is sobering to see just how much these two schools have achieved and to see the pride they have in themselves. This pride and tradition is instilled into the students who go through the Michigan and Berkeley programs. It is reflected in the almost ineffable qualities that infuse faculty and staff and it provides an aura surrounding products and projects that come from these storied institutions.

I am proud to say that our institute, the Laboratory for Atmospheric and Space Physics, can hold its head high in any company when it comes to space and Earth sciences. I was able to describe the remarkable history of LASP and its current unparalleled record of achievement in space science, space instrumentation, and work force (student) development. LASP and CU are, quite honestly, second to none in solar, atmospheric, planetary, and space physics.

But, more broadly I believe that CU/Boulder has a long way to go to be in the ranks of UC/Berkeley or the U. of Michigan. We have to work quickly and aggressively to provide truly innovative educational and training experiences for our undergraduate and graduate students so that they can go out into the world to be leaders of our emerging society. We need to ask ourselves the question: What does Google need from our students in order that it can be the creative, exciting engine of change that it wants to be? Maybe even better as a question is: How can we prepare students who will think outside all present bounds and who will invent the new companies that will replace Google in the decades ahead?

When we think about CU/Boulder being the “flagship” university of Colorado, we can think in relatively modest terms, or we can think expansively and consider leapfrogging to whole new levels of achievement. We could be satisfied to follow somewhat meekly in the footprints of the present great public universities such as Berkeley and Michigan. Much better, in my view, is for us to think seriously about how we can “break the mold” and take steps now to become **the** pre-eminent state university with a high public purpose. By looking carefully at ourselves, we can see what structures, processes, and personnel are holding us back. We can resolve to change ourselves and remove these impediments so that we can embark on the path to true prominence.

What will the year 2030 be like? What will universities be like in that distant time? It is hard to say. But, we should be turning out students from CU/Boulder who are shaping that future and who are at the forefront of the creative wave that will define that age. Our goal should be to have CU/Boulder graduates who are infused with the same pride and sense of “specialness” that Berkeley and Michigan people have today. Let us form a flagship university—beginning today—that will have graduates who found the next Google, the next Microsoft, the next Sony. Setting our sights on such a goal and making it happen will make us truly a Flagship.