

THE EDITORS' BLOG

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Emotions Recalled in the Sea of Tranquility

Posted by George Musser, Sept. 5, 2007

Last night I saw a preview of *In the Shadow of the Moon*, the new feature-length documentary about the Apollo moon landings. I admit it: I'm a space buff. But I think the movie will appeal even to people who aren't. Its innovation is to explore the emotions of the astronauts, recalled after nearly four decades of reflection.

What emerges defies the stereotype of laconic test-pilot jocks. Here was a group of men, chosen for grace under pressure, who were profoundly moved by their experiences. You feel they could be your own grandfathers, with all their warmth and idiosyncrasies. The filmmaker, David Sington, captures them with a simple style of documentary filmmaking, a perfect antidote to the age of irony: no computer graphics, no opinionated or golly-gee-whiz narration—just the astronauts, in their own words, and the NASA footage, unadorned.

Today I sat in on a series of roundtable interviews with Buzz Aldrin (*Apollo 11*), Alan Bean (*12*), Edgar Mitchell (*14*) and Charlie Duke (*16*). What a pleasure to meet people who are humbled by their celebrity and can never quite get over the fact that anyone cares what they did. Mitchell said he welcomed the opportunity the film gave him to rethink what the events meant to him: "I was too busy at the time to think about how I felt." Aldrin says that dealing with emotions will be one of the great challenges of the space program as it plans to set up long-term bases on the moon and eventually Mars: "The compatibility of people together may be our most serious obstacle to success."

To be sure, the film had its weak points. It neglects the engineers and other behind-the-scenes guys who made the mission possible. The close-up shots of the astronauts' faces are charming at first, but by the umpteenth time I found them a little tiresome. There's also an awkward beat when John Young claims Gus Grissom said he was afraid to complain about poor wiring in the *Apollo 1* capsule, for fear the agency would

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Georgia (who chaired the Senate Committee on Armed Services) have all recently argued for the elimination of such weapons. As arms-control experts note, if the U.S. thinks it needs new nuclear weapons, then it is easy for other countries to believe that they are in need of them, too.

Antiproliferation efforts have succeeded frequently. In the 1980s South Africa built six nuclear bombs, then dismantled them and joined the nonprolif-

eration treaty. Thirteen other nations have terminated active nuclear weapons programs. Even the cantankerous Libyan leader Mu'ammar Muhammad al-Gadhafi announced in 2003 that his country would end its program. A high-profile cut in the U.S. arsenal could recapture some of the moral high ground that antiproliferation efforts thrive on, without eroding the nation's ability to assuredly destroy any country that would attack it. ■

Sustainable Developments

Climate Change and the Law

Even the Bush administration has started to recognize U.S. legal obligations to fight global warming

BY JEFFREY D. SACHS



Global negotiations on stabilizing greenhouse gas emissions in the period after 2012 will commence in Bali in December. The main emitters—including

Brazil, Canada, China, the European Union, India, Mexico, South Africa and the U.S.—have recently affirmed their commitment to reach a "comprehensive agreement" in these negotiations. They have also promised to contribute their "fair share" to stabilize greenhouse gases to prevent "dangerous anthropogenic interference with the climate system."

Of course, one of the biggest obstacles, if not the very biggest, to such an international agreement has been the U.S. itself. The U.S. not only has failed to ratify the Kyoto Protocol—the international framework to limit emissions up to the year 2012—but also has failed to put

forward any meaningful stabilization strategy in its place. One of the most shocking aspects of the U.S. failure has been the country's disregard for both international and domestic law. Yet this lawlessness looks set to change.

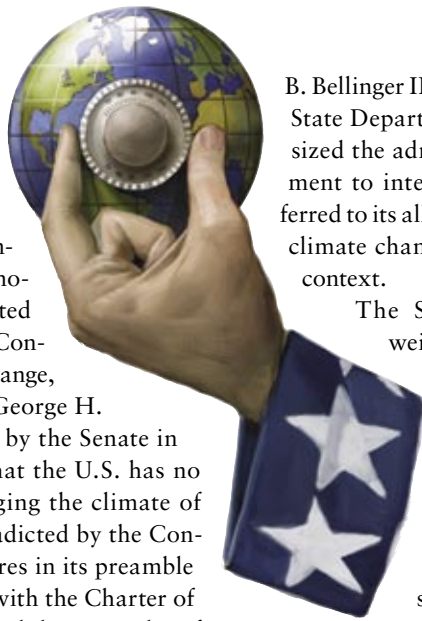
In recent years the unilateralist foreign policy of the U.S. government has shamelessly ignored or contravened countless aspects of international law, ranging from the Geneva convention to multilateral environmental treaties to

which the U.S. is a signatory.

This brazenness has infected the very core of policy discussions in our country. Consider

The Supreme Court struck down all the EPA's defenses for inaction.

an opinion piece by two distinguished professors of law at the University of Chicago, who argued in the *Financial Times* on August 5 that the U.S. has no obligations to control greenhouse gases and that if other countries don't like how the U.S. behaves, they might think about paying the U.S. to cut its emissions.



Stunningly, the law professors completely neglected that the U.S. is already bound to take steps to stabilize greenhouse gases in the atmosphere under the United Nations Framework Convention on Climate Change, signed by President George H. W. Bush and ratified by the Senate in 1992. Their claim that the U.S. has no duty to avoid damaging the climate of others is flatly contradicted by the Convention, which declares in its preamble that “in accordance with the Charter of the United Nations and the principles of international law.... [States have] the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or areas beyond the limits of national jurisdiction.”

Ironically, those law professors are running away from international law even faster than the Bush administration. John

B. Bellinger III, a legal adviser to the State Department, recently emphasized the administration’s commitment to international law and referred to its allegiance to a post-2012 climate change framework in that context.

The Supreme Court also weighed in recently to affirm that U.S. domestic law compels stronger federal action to mitigate climate change. Massachusetts, among a number of plaintiffs, sued the Environmental Protection Agency for its failure to regulate the emission of carbon dioxide by automobiles. The court firmly struck down all the EPA’s defenses for inaction: it noted that the EPA is obliged to regulate any deleterious pollutant emitted by motor vehicles; that carbon dioxide clearly falls within that category; that Massachusetts had standing to sue because climate change was already claim-

ing part of the state’s coastline; and that the state was vulnerable to considerably greater coastal losses this century if climate change is not mitigated. Moreover, it emphasized that mitigating U.S. auto emissions would have a meaningful effect on the pace of climate change.

The obligation to limit greenhouse gas emissions is therefore already the law of the land, and it’s high time we began respecting those laws. We should do so not only because it is important that we honor our legal commitments but because we made those commitments for reasons of our own survival and well-being. Even an administration that has dragged its feet for seven years is finally beginning to face that reality. ■

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An expanded version of this essay is available at www.SciAm.com/ontheweb

MATT COLLINS

Forum

Don't Wreck the Mars Program

Devoting all the funding to just one mission would be a mistake

BY ROBERT ZUBRIN



In the mid-1990s the U.S. embarked on a new strategy for exploring the Red Planet. In response to the 1993 failure of the Mars Observer mission—a billion-dollar, decade-in-the-making probe that mysteriously lost contact with ground controllers just before it was scheduled to go into orbit around the planet—NASA administrator Daniel Goldin decided to shift to smaller, less expensive spacecraft and create a sustained exploration campaign by sending one or two probes to Mars at every launch opportunity. (These

opportunities come every two years or so, when Earth and Mars are properly aligned.) The new strategy spread out the inherent risk of interplanetary travel and ensured that the engineering experience and scientific data acquired by one mission could be rapidly used by the next. The approach has proved a brilliant success, putting three NASA spacecraft into orbit around Mars and three rovers on the planet’s surface (Pathfinder, Spirit and Opportunity). The Phoenix Mars Lander, which left Earth in August, is expected to reach the Red Planet next May, and NASA plans to launch the Mars Science Lab in 2009.

Subsequent missions are in jeopardy, however. Alan Stern, associate administrator for NASA’s Science Mission Directorate, warned in July that at least one of the future Mars probes may have to be scrapped to free up funding for a much costlier mission, tentatively scheduled for the 2018–2020 period, that would collect samples of Martian rock and bring them to Earth. Moreover, highly placed scientists and program leaders report that the new plan may actually require the sacrifice of all other Mars spacecraft after 2009.

Putting aside the question of whether the redirected funds would actually be de-

COURTESY OF ROBERT ZUBRIN