## SCIENCE'S COMPASS

(typing of all unidentified human remains) will not be completed until December 2001, positive identifications have already been made. International collaboration in this endeavor-the generation of internationally compatible databases-could make this effort valuable worldwide.

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# **Eurasian Air Pollution Reaches** Eastern North America

Pollutants of Eurasian origin cross the Pacific Ocean via the westerly winds and affect the west coast of North America, as Kenneth E. Wilkening, Leonard A. Barrie, and Marilyn Engle discuss in their Perspective (Science's Compass, 6 Oct., p. 65). However, neither anthropogenic pollutants nor natural dusts of trans-Pacific origin stop their transit at or near the western North American coast.

We have found that the continental dust in the Greenland Summit ice cores from 1500 to 44,000 years before the present, and probably beyond, is of Eastern Asian provenance (1). We are finding the same sources in recent (past decade) dust extracted from snow pits at the North Greenland Ice core Project site (75°N 43°W), including dust from the April 1998 outbreak shown in the

figure in Wilkening et al.'s Perspective (see the figure) (2). The fluxes of dust to Greenland have been generally about a few millligrams per square centimeter per thousand years, compared with fluxes about an order of magnitude greater upwind in the eastern North Pacific (3). Consequently, we expect that the decrease in the flux of dust and associated pollutants between western and eastern North America might be less than that factor of ~10 and therefore of significance to levels of pollution.

As Asian economic expansion increases the quantities of pollutants injected into the westerly winds, their levels in western



Satellite remote sensing images show how wind currents distribute dusts and pollutants on a global scale.

Wilkening *et al.*, will also rise, as will wilk those levels eastward and all those levels eastward and all across the continent.

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#### Response

As observations in glaciers and the atmosphere show, transport around the globe of Asian dust and pollution indeed occurs. I and others have noted the appearance of soil dust in the Arctic (1) that comes northward from mid-latitude Asian deserts, particularly between March and May. This observation is consistent with the spring peak of dust in northern glaciers and with the observations of composition of that dust which Biscaye and colleagues describe. There is a famous episode of a regional "brown snow" event in northern Canada west of Hudson Bay near Baker Lake that came from Asia northward over the north slope of Alaska into Canada without going over mountains (2). The workshop on which our Perspective was based focussed on trans-Pacific transport of air pollution. It was not our intention to imply that other long-range transport pathways do not exist (for example, Asia to the middle and upper troposphere and hence to the northern hemisphere). These other pathways are likely the more probable transport pathways to Greenland glaciers.

We do not believe that westward transport of trans-Pacific pollution stops at the western coast of North America. However, evidence suggests that when material is transported through the lower to middle troposphere (0 to 5-kilometer altitude) in the prevailing westerly winds across the North Pacific, the fraction of material impinging on that coast that is deposited when the westerlies encounter the western North American mountains or that is "cold trapped" (for example, semivolatile persistent organic pollutants) in cold, high mountain snowpacks is relatively large compared with that deposited in the flatter regions immediately upwind. This trans-Pacific transport occurs rather frequently despite all the storms in the North Pacific (3).

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# Careful Planning Created the Society for Neuroscience

The description of the origins of the Society for Neuroscience in the News Focus article "Neuroscience meeting draws crowds, gripes, lovalty" by Laura Helmuth (27 Oct., p. 698) suggests trivial beginnings for the society. Helmuth refers to how crowded the Federation of American Societies for Experimental Biology meetings in Atlantic City, New Jersey, had become in the late 1960s and says the resulting difficulties (getting a hotel room, finding someplace to eat) "[were] enough to make the neurophysiologists in the meeting decide to split off and look for someplace a little more private." But this was by no means a major factor leading to the society's founding in 1969.

At least a year of discussion and debate occurred regarding the ground swell under way for new experimental approaches to research problems in brain and behavior. Those deliberations took place at the quarterly meetings of the Committee on Brain Sciences of the National Research Council and resulted in tapping one of its members, Ralph Gerard, to assess the feasibility and, if warranted, to implement the formation of a new organization dedicated to promotion of this broad, interdisciplinary biomedical field. The outcome was articulated by Helmuth's quotations from various neuroscientists in high positions about the creation of the spectacularly successful organization.

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# The Vulnerability of Venice

The vulnerability of Venice to flooding is increasing because of changes in lagoon hydraulics, the irreversible effects of past groundwater pumping, and geologic land subsidence, as well as present and future sea level rise. As Albert Ammerman and Charles McClennen discuss in their Policy Forum "Saving Venice" (25 Aug., p. 1301), the currently favored solution to protect Venice from sea surges is a \$2 billion to \$4 billion network of mobile floodgates somewhat analogous to the much more modest Thames barrage for London. However, this solution calls for the enclosure of the entire Venetian lagoon at periods of

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