

## World Briefing

### AFRICA

#### Zimbabwe: Arrests in Government Crackdown

The government intensified its crackdown on critics and opponents. Davison Maruziva, editor of the independent newspaper *The Standard*, was jailed for printing an opinion article by a prominent opposition politician. The police also arrested Lovemore Matombo, president of Zimbabwe's Congress of Trade Unions, and Wellington Chibebe, its secretary general. They were charged with inciting others to overthrow the government, an official from the group said.

CELIA W. DUGGER

#### Somalia: Militiamen Kill U.N. Aid Worker

A truck driver working for the United Nations World Food Program was killed while delivering food in central Somalia, the United Nations said. The driver's convoy was stopped by militiamen who demanded money at an illegal roadblock north of Galkayo. An argument broke out, and a bandit opened fire, officials said.

JEFFREY GETTLEMAN

### ASIA

#### Olympic Torch Reaches Summit of Everest

A team of climbers carried the Olympic torch up the north face of Mount Everest to the summit. Overseas groups opposed to Chinese rule in Tibet quickly denounced the event, saying China was simply using it to bolster claims of sovereignty over what should be an independent country. Mount Everest lies on the border of Nepal and the Tibet Autonomous Region. The torch that climbers carried was a side torch; the main torch for the Summer Games in Beijing is making its way through the southern Chinese province of Guangdong.

EDWARD WONG

### EUROPE

#### Italy: Starving the Pigeons of St. Mark's Square



Offering birdseed to the pigeons in St. Mark's Square, left, in Venice has been a tradition for eons. But after years of debate, the city has banned people

# In Lake, Signs of Slow Shift From Savannah to Sahara

By KENNETH CHANG

Six thousand years ago, northern Africa was a place of trees, grasslands, lakes and people. Today, it is the Sahara — a desolate area larger than Australia.

Lake Yoa, in northeastern Chad, has remained a lake through the millennia and is still a lake today, surrounded by hot desert. Although little rain falls, Lake Yoa's water is replenished from an underground aquifer.

By analyzing thousands of layers of sediment in a core, which is a column of sediment drilled from the lake bottom, a team of scientists has reconstructed the region's climate as the savannah changed to the Sahara.

In Friday's issue of the journal *Science*, the researchers, led by Stefan Kröpelin, a geologist with the Institute of Prehistoric Archaeology at the University of Cologne in Germany, report that the climate transition occurred gradually. In particular, the changing types of pollen that fell on the water and drifted to the bottom tell a story of how the terrain shifted from trees to shrubs to grasses to sand — “where today you don't find a single piece of grass,” Dr. Kröpelin said.

The findings run counter to a prevailing view that the change happened abruptly, within a few centuries, about 5,500 years ago,



S. KRÖPELIN/UNIVERSITY OF COLOGNE

Scientists drilled a column of sediment from the bottom of Lake Yoa, in northeastern Chad, to study the history of the Sahara.

marking the end of the “African Humid Period” when monsoon rains poured down on the region. That view arises from ocean sediment cores drilled off the coast, to the west of Mauritania. In 2000, analysis of the cores by researchers led by Peter B. deMenocal of Columbia University's Lamont-Doherty Earth Observatory showed a sudden rise in the dust blown off Africa at that time.

Dr. Kröpelin did not dispute the ocean core data but said it had been “overinterpreted.”

Data about what was happening on land is sparse, because blowing sands do not preserve a clear geological record the way lake sediments do. But at Lake Yoa, ancient water from underground aquifers that filled during the humid period, which began 14,800 years ago, is still flowing into the 80-foot-deep lake. It is enough to offset the six meters of water lost to evaporation every year, Dr. Kröpelin said. Only a few millimeters of rain fall a year.

Dr. Kröpelin said he hoped to

return to Lake Yoa next year to drill a core that could trace the climate history back 12,000 years.

Dr. deMenocal praised Dr. Kröpelin's research. “I think it's a very good body of work,” he said. “It's really the only thing of its kind from the arid interior.” But he said he wondered whether the pollen might have come mostly from the area immediately by the lake and not the larger Sahara.

Jonathan A. Holmes, director of the Environmental Change Research Center at University College London, said both sets of research had been carefully done, and the challenge would be to put together a more complex history of the area's climate.

“I don't think either record is somehow wrong,” said Dr. Holmes, who wrote a commentary accompanying the article in *Science*. “I think what they are representing are slightly different things.”

Dr. Holmes said one possibility was that the offshore dust might reflect a drop in water levels around Lake Chad, revealing more dust-producing soil.

However fast the drying occurred, it pushed people out of north-central Africa, Dr. deMenocal said, and that climatically forced migration might have led to the rise of the pharaohs and Egyptian civilization.