# Temperament, depression make volatile mix

Stir major depression into an emotionally unstable, self-absorbed personality and you have a recipe for a serious psychiatric disorder that clinicians often misdiagnose, a new study finds.

The disorder, one of two recognized forms of manic depression, often sends individuals careening from 1 to 2 weeks of severe lethargy, withdrawal, and melancholy to several days of elevated or irritable mood, constant activity, and risky decision making. Psychiatrists call this condition bipolar II.

In contrast, bipolar I includes more severe, often incapacitating periods of mania that include hallucinations or delusions.

For people who display a curious excess of emotional turmoil, physical energy, and self-reflection (signaled by frequent daydreaming), the onset of depression usually triggers a switch to bipolar II within 5 years, assert psychiatrist Hagop S. Akiskal of the University of California School of Medicine in San Diego and his colleagues.

"The emotional storms of these patients might represent attempts for self-cure from depressive inertia, [sadness], and self-absorption," Akiskal's team writes in the February ARCHIVES OF GENERAL PSYCHIATRY.

Whatever mental processes underlie bipolar II, it proves difficult to identify, the researchers say. Clinicians often diagnose this condition as borderline personality disorder, which is marked by unstable romantic relationships, manipulativeness, and impulsive acts, but not depression (SN: 3/5/94, p.152).

However, people suffering from this version of manic depression show the greatest improvement, at least in the short run, when given a certain type of antidepressant medication, Akiskal's team notes. These drugs, which block the action of the chemical messenger monoamine oxidase, differ substantially from the standard class of antidepressants, as well as from newer forms, such as fluoxetine (Prozac).

The scientists studied 559 moderately to severely depressed individuals who first sought treatment nearly 20 years ago at one of five university psychiatric centers. After their depression subsided, participants completed personality scales containing 436 items. Experimenters evaluated the volunteers' condition once or twice a year for the next 11 years.

Personality characteristics of 48 people who during that time converted from major depression to bipolar II were compared with those of 22 who developed full-blown manic depression and with the remainder, who displayed only bouts of depression.

Bipolar II converters cited a personality profile that departed strikingly from those of the other two groups, the investigators contend. It revolved around an unstable temperament that featured sharp ups and downs in emotion, relentless pursuit of activities and work, and intense self-absorption fueling a penchant for daydreaming.

"This study should alert clinicians to monitor closely patients with both depression and personality traits that create mood instability," holds Robert M.A. Hirschfeld, director of psychiatry and behavioral sciences at the University of Texas Medical Branch in Galveston. "We should be cautious about using [standard] antidepressants in these cases."

The new report is part of a larger, federally funded project to study different aspects of depression that Hirschfeld formerly directed.

"Given current financial constraints, there may not be another longitudinal project like this for some time," the Texas psychiatrist contends. "That makes its results even more significant."

*— B. Bower*

# New beat detected in the ice age rhythm

If today's weather seems wacky, try to imagine conditions during the last ice age. A new study suggests that flotillas of icebergs flooded the North Atlantic Ocean every 2,000 years or so as temperatures repeatedly see-sawed from glacial to balmy and back again.

Such findings deepen the mystery of the massive climate shifts that made the last ice age such an unstable time. They also cause experts to wonder whether the modern climate can stage its own temperature flip-flops.

In 1988, German oceanographer Hartmut Heinrich discovered hints of massive iceberg armadas that sailed across the North Atlantic every 7,000 to 10,000 years during the last ice age. During these so-called Heinrich events, the melting icebergs dropped a trail of pulverized rock that accumulated in layers on the deep ocean floor (SN: 7/30/94, p.74).

When they looked in detail at records of sea sediments, Gerard C. Bond and Rusty Lotti of the Lamont-Doherty Earth Observatory in Palisades, N.Y., discovered evidence of subtle debris layers sandwiched in between the Heinrich events. Large numbers of icebergs must have plunged into the ocean at the relatively frequent interval of every 2,000 to 3,000 years. Then, after two or three such cycles, even greater floods of icebergs deluged the North Atlantic in the Heinrich events.

Bond and Lotti described their work in the Feb. 17 SCIENCE and in Atlanta last week at the annual meeting of the American Association for the Advancement of Science.

The layers differ in composition, according to Bond and Lotti. Heinrich event layers contain mostly white grains from carbonate rocks that have been traced to Canada's Hudson Strait. For that reason, scientists believe Heinrich events occurred when the giant Laurentide ice sheet on North America surged into the Hudson Strait, causing a record number of bergs to calve into the ocean there.

The intervening layers, however, contain predominantly black basalt and red hematite particles. Bond and Lotti match the basalt with rocks on Iceland, whereas the hematite debris bears the fingerprint of rocks from the Gulf of St. Lawrence. The researchers conclude that such layers record times of increased discharge from an ice sheet on Iceland and from a lobe of the Laurentide ice sheet that emptied into the Gulf of St. Lawrence.

The newfound layers provide a long-sought link between climate records in the ocean and those drawn from the Greenland ice cap. The ice cap holds evidence of climate swings every few millennia, but oceanographers had not previously found signs of similar climate oscillations in the North Atlantic. The sediment layers Bond and Lotti describe, however, line up with the cold spans recorded in Greenland.

"This makes me feel better," says glaciologist Richard B. Alley of Pennsylvania State University in University Park. "It worried me that we had this huge signal in the ice core that simply wasn't showing up in the ocean at all."

The findings also alter ideas about what caused the iceberg discharges. Some researchers had proposed that the waxing and waning of the Laurentide ice sheet controlled the timing of the Heinrich events. But this glacial model cannot explain how separate ice sheets could produce the layers between Heinrich deposits, Bond and Lotti say.

They suggest that variable currents in the North Atlantic may cause temperatures to swing every 2,000 years or so. "It may be a cycle that runs all the time, in which case it is going on today, but its amplitude is small," Bond says.

That possibility has got scientists prospecting for previously undetected climate shifts in the most recent part of the geologic record. "I don't think any one of us believes the Holocene [the last 10,000 years] is quite as boring as you've been led to believe," Alley says.

*— R. Monastersky*