

MIND

THE GERMS OF SCHIZOPHRENIA: Abnormal fingerprints may point to origins of mental disease

By Kathleen McAuliffe

Michael Lee first saw the signs of schizophrenia in his identical twin in their late teens. Out of the blue, Malcolm began hallucinating that he was Prince Charles, even accusing their mother of kidnapping him at birth from Queen Elizabeth. The diagnosis of Malcolm's condition brought further havoc to the family. Fearing the disease might be hereditary, Michael was tormented by the possibility that he would follow his twin's descent into madness. His mother had it even worse. "Not only did Malcolm walk around glaring at her malevolently," says Michael, now 31, "but the psychiatrist blamed her for his sickness."

Bad genes, bad parenting, and other theories have been put forward to explain the baffling symptoms of schizophrenia, a disorder debilitating some 2 million people in the United States alone. And for every schizophrenic, there is a confused and devastated family. But the Lee twins have provided an invaluable clue to solving schizophrenia's mystery. As participants in a study by Stefan Bracha, a child/adolescent psychiatrist and researcher at the University of Arkansas Medical School, they have helped shed light on the origins and possible prevention of the disease. What's more, the findings from the investigation of twins hold promise of increased understanding of other perplexing neurological syndromes.

Recently, many experts have favored a hereditary explanation of schizophrenia, citing studies showing that if an identical twin has the disease, the other has a 50 percent chance of being afflicted. But as Malcolm and Michael's case illustrates, environmental factors play a role, too. But which ones? If Bracha is right, the instigating factor is not uncaring, ma-

nipulative parents, or other family trauma. Rather, the chief suspects are prenatal insults—such as viral infections—that may damage the fetal brain, setting the stage for the development of schizophrenia later in life.

Bracha uncovered key evidence for his theory using a standard tool of police detective work—the fingerprint kit. Although iconoclastic for medicine, his approach has a rationale. Fingers, he explains, form in the fetus just as the cerebral cortex is undergoing peak development in the second trimester. Any agent harming the fetus at that stage, Bracha reasons, would also leave its damaging mark on the fingers. To test his hypothesis, he turned to identical twins in which one of the pair was healthy and the other sick. In addition to the Lee twins, 22 similar pairs volunteered for the study. Sure enough, one-third of these twins were found to have fewer ridges in their fingerprints and smaller than normal finger tips. Moreover, these subtle defects only occurred in the schizophrenic, never in the healthy twin. "The correlation between schizophrenic and abnormal fingers was highly significant," Bracha reports. "That's very suggestive of a second-trimester insult."

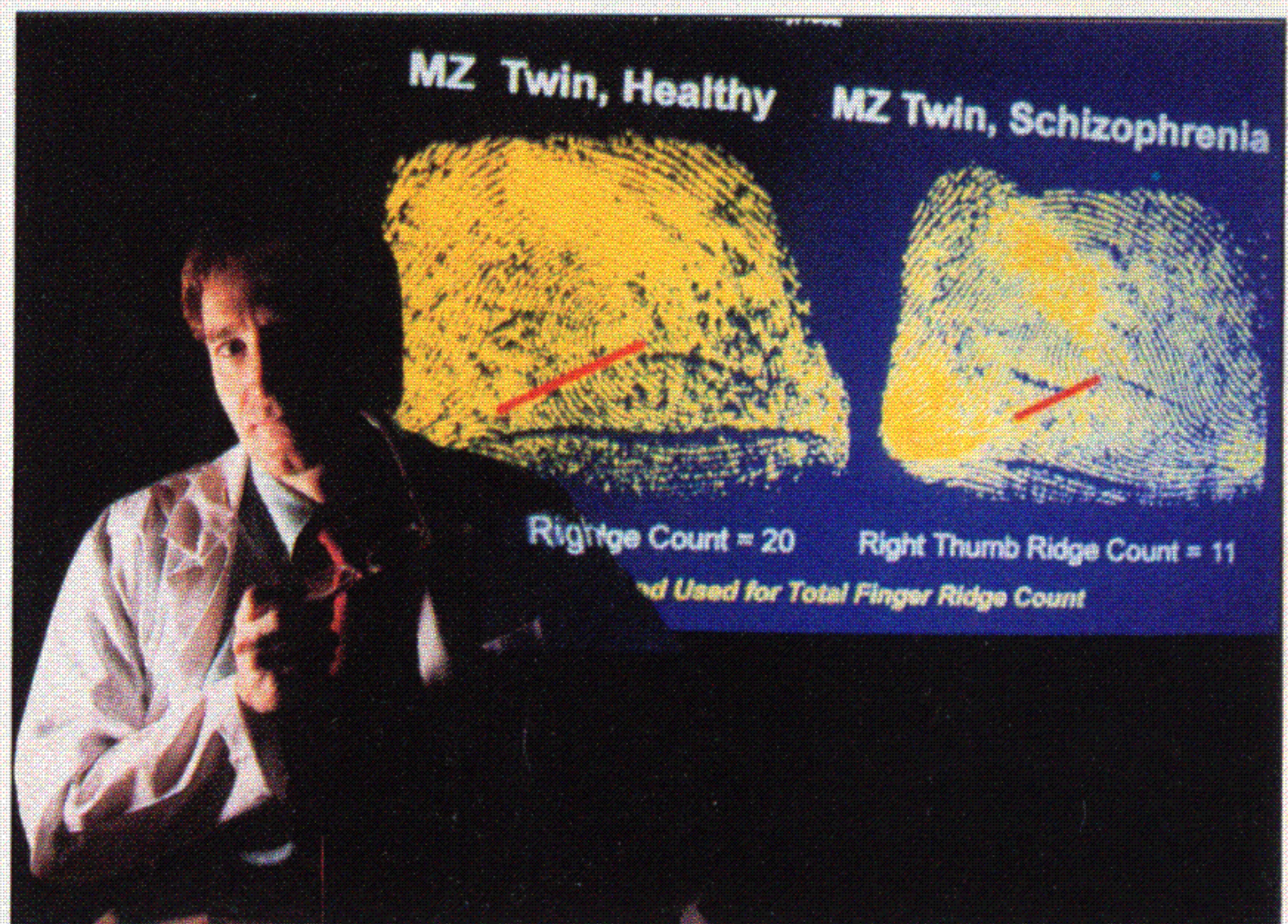
Further bolstering his theory, he notes that several Scandinavian studies have linked a particularly virulent strain of influenza A with schizophrenia in the offspring of mothers who contracted it during the second trimester. Damage to the fetal brain, Bracha thinks, might also stem from fetal exposure to alcohol or drugs, anemia in the mother, or from a twisted umbilical cord that reduces oxygen flow to one twin.

To E. Fuller Torrey, senior psychiatrist at St. Elizabeth's Hospital in Washington, DC, Bracha's theory makes sense. Many stud-

ies have shown that schizophrenics are statistically more likely to be born in the spring or late winter, Torrey observes. "That kind of seasonality implies something might be happening before or around birth." Torrey himself has long suspected a virus might be involved. "By drawing our attention to the in utero period," he adds, "Stefan Bracha deserves a lot of credit."

Bracha would like to see the government invest in more programs aimed at providing prena-

"If we could get pregnant women treated for anemia, drug abuse, and other risk factors," psychiatrist



tal care. Meanwhile, he is broadening his study to include children suffering from dyslexia and hyperactivity. Once again, he will compare the finger morphology of healthy and afflicted twins to see if prenatal insults might be contributing factors to these neurobiological disturbances. A better understanding of how these disorders arise will not necessarily translate into improved treatments. But to Michael Lee, that in no way diminishes the importance of Bracha's inquiry. "Whether he finds a cure or not," Lee points out, "we're all better off if society becomes more knowledgeable about the underlying causes of these conditions. You can deal with them much more rationally." ☞

Stefan Bracha says, "it might be possible to prevent schizophrenia in some children at risk."