

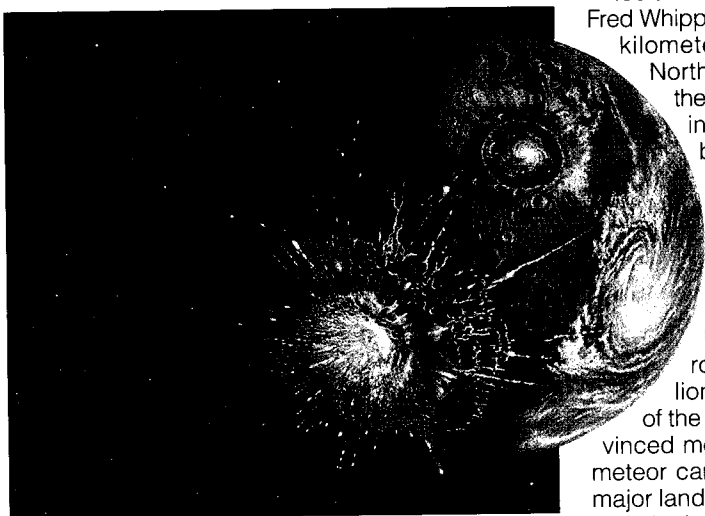
EARTH

FATAL IMPACT: Hunt for the crater that killed the dinosaurs

By Curt Wohleber

**New evidence
of meteor
strikes from
space puts**

The one thing about dinosaurs scientists agree on is that they are all dead, victims of an extinction that swept three quarters of the world's species into the evolutionary dustbin. How did it happen? The most talked-about theory in recent years blames a comet or asteroid that slammed into Earth 65 million years ago, wreaking havoc. But if the death blow came from space, it should have left a large hole in the ground.



a dent in long-held theories of the dinosaurs' demise.

Geologists are busy looking for that hole. The hunt began in 1980 when Walter and Luis Alvarez discovered a global layer of 65-million-year-old rock rich in iridium—a common ingredient of asteroids. The Alverezes believed that this "fireball layer" was actually fallout from a huge explosion set off by the catastrophic impact of a meteor. Now scientists are determined to find the point of impact itself. Last year geologists found an abundance of large quartz grains in Haiti, but that nation is just one of many vying for notoriety as the spot where the fireball hit. Here's a look at other possible hot spots:

Manson. Named after the nearby town of Manson, Iowa, not the murdering psycho cult leader, the Manson Crater is a favorite of Glen Izett of the U.S. Geological Survey. Evidence: The crater appears to consist of the same minerals found in the fireball layer. Manson is 65 million years old, placing it at the scene of the crime. Alibi: With a diameter of only 22 miles, Manson is considered too wimpy by most geologists to have done the deed.

Iceland. In 1980 astronomer Fred Whipple proposed that a ten-kilometer meteor struck the North Atlantic, puncturing the earth's crust. Swallowing a meteor that large brought on an epic case of geological indigestion, triggering massive volcanic eruptions that created the island of Iceland. Evidence: Iceland contains no rocks older than 65 million years. Alibi: Studies of the fireball layer have convinced most geologists that the meteor came down on or near a major landmass. For them, Whipple's Icelandic saga of an ocean impact won't hold water.

The Deccan Traps. Michael Rampino of New York University targets India's Deccan Traps, a million-cubic-kilometer formation of volcanic rock. The meteor, he suggests, caused the volcano to erupt, and the lava flow covered up the hole. Evidence: The great spewing of lava that created the Deccan Traps coincides with the dinosaurs' demise. Alibi: Most geologists are reluctant to blame enormous lava flows on giant rocks from space.

Kara and Ust-Kara. The Soviets entered the crater race with this pair in the chilly northern reaches of the Soviet Union, tout-

ed by M. A. Nazarov and D. D. Badjakov of Moscow's Vernadsky Institute of Geochemistry. Evidence: They're big enough. Kara is 75 kilometers across, and Ust-Kara measures 125 kilometers. Alibi: Like awkward party guests, they showed up too early. Potassium-argon readings date them at about 10 million years before the mass extinction.

Cuba. Bruce Bohor of the U.S. Geological Survey suspects that formations on the southwestern edge of Cuba could be the result of impact cratering. Evidence: Rocks and crystals in the area appear to have been battered by some titanic force. But Bohor hasn't visited the site for a closer look because access has been limited since the Bay of Pigs. Alibi: John McHone of Arizona State University did manage to visit Cuba and says that the geological anomalies "can be explained in a nonimpact manner."

Colombia Basin and Chicxulub. "We think we have found the smoking gun," said University of Arizona geologist William Boynton at last year's American Geophysical Union meeting. Boynton and his colleagues collared two additional suspects last year: a 300-kilometer undersea depression north of Colombia, and Chicxulub, a 150-kilometer crater buried beneath Mexico's Yucatán peninsula. Evidence: Chicxulub contains shocked minerals and melted rocks, common products of impact cratering. Alibi: It may be a case of mistaken identity.

Even if Boynton's group does manage to turn up hard information, they won't get the last word while others want to take credit for finding the killer crater. New suspects will no doubt surface in years to come.

As Canadian geologist Richard Grieve says, "Killing dinosaurs is an in thing." ☐