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the Earth's crust and upper mantle but common in meteors, indicating an extraterrestrial source, the authors argue. Finds at sites as distant as Italy and New Zealand confirm that the phenomenon was worldwide. Moreover, the concentration of iridium in a narrow stratum suggests that the substance was deposited suddenly, not gradually by the countless meteors and meteorites that regularly bombard the earth.

The authors estimate that the meteor was roughly 6.2 miles in diameter and created roughly 1,000 times more atmospheric dust than the Indonesian volcano Krakatoa, which spewed about 11 cubic miles of material into the air in 1883. Krakatoa caused brilliant sunsets worldwide for two years; the meteor may have turned day into night for several years.

The fossil record supports theories of a killing global dust cover. Microscopic plants on which the ocean food chain is based were virtually wiped out at the end of the Cretaceous period, dooming higher life forms such as marine reptiles. Land plants stopped growing but later regenerated from seeds and spores. The large animals that lived on them, however, starved. Smaller animals, including early mammals, survived by eating insects and decaying vegetation.

If a meteor caused the Cretaceous extinction, where did it strike? Only three craters large enough (60 miles or more in diameter) to have been created by such an object are known—in Siberia, Ontario, and South Africa. But the first is too young and the others too old to qualify. There is a two-thirds probability that the meteor fell into the sea. The meteor's estimated diameter was twice the typical ocean depth; its impact could well have scattered pulverized rock into the atmosphere.

The Age of Anemia

"Female Longevity and Diet in the Middle Ages" by Vern Bullough and Cameron Campbell, in *Speculum* (Spring 1980), Medieval Academy, 1430 Massachusetts Ave., Cambridge, Mass. 02138.

Up until the 12th century, European men lived longer than women. Indeed, local censuses taken in 8th- and 9th-century France and Italy show that men outnumbered women by as much as 12 percent, even though at least 6 percent more female babies were born.

Many at the time accepted Aristotle's explanation—that the male is a "warmer creature than the female." The authors, historians at California State University, Northridge, blame the iron-poor diet of the early Middle Ages.

Early medieval peasants ate mainly rye, wheat, or barley bread, and a kind of "pot luck" broth. Their light protein and iron intakes were only occasionally supplemented by cheese, wine, meat, greens, and beans. Because of menstruation, women and girls past puberty require between 1 and 2 milligrams of iron per day in their diet—twice as much as men. During pregnancy, iron needs rise to between 3 and 7.5 milligrams per day—much more than the 0.25 to 0.75 milligrams per day

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Blood loss from childbirth brought severe anemia and, often, death to women in medieval times.



Staatliche Kunstsammlungen, Dresden.

that the early medieval diet provided.

Bullough and Campbell contend that most early medieval women were anemic by age 23. Though anemia rarely causes death, it cuts the blood's oxygen carrying capacity, increasing the chances of fatality from pneumonia, bronchitis, and heart problems. It also heightens the impact of even moderate blood loss during childbirth, which the authors rate as the leading cause of anemia-related death among early medieval women.

Iron intake for men and women increased by the 10th century throughout Europe. Development of the three-field crop rotation system, an advance over the earlier two-field method, enabled peasants to plant protein-rich legumes in the spring. Food animals such as the rabbit spread north from Spain, while fish and pork became staples; more meat meant more iron.

Women benefitted most from these changes. Fifteenth-century surveys show women outnumbering men by 9 to 20 percent. Aristotle's theory needed a new twist. Thinkers such as Albertus Magnus (c. 1200–80) concluded that women overcame men's natural advantage in longevity thanks to the "purifying effects" of menstruation, women's lighter work load, and the smaller amounts of physical energy they expended during sexual intercourse.

Superbubble in the Sky

"Stalking the Cygnus Superbubble" by Webster Cash and Philip Charles, in *Sky and Telescope* (June 1980), Sky Publishing Co., 49 Bay State Rd., Cambridge, Mass. 02238.

Ten years ago, the gases between the stars were thought to be relatively cool—with dense clouds at -300°F floating in a bath of more dilute gases warmed to $18,000^{\circ}\text{F}$ by cosmic rays. But astronomers have