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The Cambridge Guide to the Constellations—Michael E. Bakich. Maps illustrating the stars and the images seen in them enhance the wealth of information about each constellation outlined in this guide. With everything from the pronunciation and origin of names, to bordering constellations and directional extremes, to interesting facts and midnight culmination dates, this volume will prove useful to the amateur as well as the professional astronomer. Cambridge U Pr, 1995, 320 p., b&w photos and illus., paperback, $19.95.

Creations of Fire: Chemistry's Lively History from Alchemy to the Atomic Age — Cathy Cobb and Harold Goldwhite. Two professors of chemistry present the historical high points of the field in the context of its relationship to society. As they interweave the tale of chemistry's great accomplishments in medicine, materials, and matter, they focus primarily on the people central to its advancement: Paracelsus, who treated a rampant form of syphilis with mercury; Lavoiser, who challenged the accepted theories of Aristotle; G.N. Lewis, who confirmed the two-atom bond; and others. Plenum, 1995, 475 p., b&w photos and illus., hardcover, $28.95.

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The Neandertal Enigma: Solving the Mystery of Modern Human Origins—James Shreeve. In his wide-ranging text, Shreeve presents the prevailing theories about the evolution of Neandertals into *Homo sapiens sapiens*. Shreeve clearly leans toward the theory that Neandertals were not influenced genetically or removed militarily by Cro-Magnons. He explains many of the great debates on this issue as he travels to dig sites in Europe, the Middle East, and Africa. Morrow, 1995, 369 p., hardcover, $25.00.

Keys to Infinity—Clifford Pickover. Computer tools, games, puzzles, numbers, and mathematical relations are the means by which Pickover stimulates our creativity and curiosity about infinite things. He poses a number of scenarios and questions, then shows how scientists currently view them. Among those topics are the exceptional Leviathan number and fractal milkshakes, comprised of Ford circles. Wiley, 1995, 331 p., color plates and b&w photos and illus., hardcover, $24.95.

Voyage to the Great Attractor: Exploring Intergalactic Space—Alan Dressler. A member of a seven-person research team determined to find out whether the universe has expanded smoothly and symmetrically since its creation, Dressler relays the methodology and experiences of the group in its search. They discovered that our galaxy and its neighbors are moving toward a distant continent of matter—a so-called great attractor—whose mostly invisible mass is decorated with thousands of galaxies. Originally published in hardcover in 1994. Vin, 1995, 355 p., b&w photos and illus., paperback, $13.00.

Biomedicine

Lisa Seachrist reports from Minneapolis at a meeting of the American Society of Human Genetics

Gene defect may yield cancer prognosis

Following a routine mammogram and biopsy of a suspect area in her breast, a 55-year-old woman learns she has breast cancer. After removing the tumor, her doctor tells her the cancer was at a very early stage and has not spread, so she stands a good chance of beating the disease.

Nonetheless, the cancer quickly and aggressively reappears.

Physicians caring for breast cancer patients know this scenario only too well: Cancers can recur with a vengeance, even when all indicators give a good prognosis.

Researchers from Minnesota and California have found that breast cancer tumors with mutations in the *p53* gene recur more quickly, and prove more deadly, than tumors with normal copies of the gene. This finding could one day help "physicians identify patients who, despite lack of conventional indicators of poor prognosis, are at high risk of early recurrence and death," says study collaborator Arndt Hartmann of the Mayo Clinic and Foundation in Rochester, Minn.

Tumors with a mutated *p53* gene produce an inactive version of the p53 tumor suppressor protein. Scientists suspected that such tumors could be very aggressive. In fact, previous studies have indicated that tumors with *p53* mutations tend to resist radiation treatment and many anticancer drugs.

Hartmann and his colleagues followed 97 women with breast cancer for an average of 2 years. The researchers compared recurrence and survival rates to conventional indicators, such as the spread of tumors to lymph nodes and the absence of estrogen receptors, as well as to the presence of *p53* mutations. Mutations provided the only reliable predictor of poor prognosis.

Hartmann points out that the researchers need to confirm their findings in a much larger group of patients before *p53* mutations should be used to determine prognosis.

Early cancer linked to enzyme lack

Even among families with an inherited predisposition to breast cancer, the age at which the disease actually strikes shows surprising variability. Researchers can't explain why some women get breast cancer at age 45 and others at age 30.

An inherited defect in an enzyme that transforms some carcinogens into less toxic substances could offer a clue to these differences. A group of researchers found that women with a family history of breast cancer and with mutations in *gstt,* the gene for the enzyme glutathione-S-transferase theta, developed breast cancer significantly earlier than comparable women without the mutation.

"Our findings suggest that an inability to metabolize carcinogens may [result in] early breast cancer among women with family histories," says study collaborator Timothy R. Rebbeck, an epidemiologist at the University of Pennsylvania in Philadelphia.

Speculating that mutations in *gstt* may make women more susceptible to carcinogens, the researchers studied 185 breast cancer patients with a family history of the disease.

Among the 40 percent of women with breast cancer before age 40, those with a mutated *gstt* gene developed the disease, on average, at age 31.3; those with a normal *gstt* developed the cancer at age 34.6, the researchers found. They uncovered no association with this gene among women who had no family history of breast cancer.

Rebbeck notes that further study is needed to understand how important *gstt* mutations are in early breast cancer.