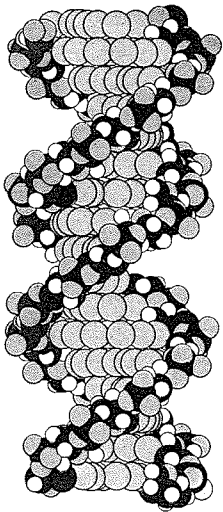


GENOME. By Jerry E. Bishop and Michael Waldholz. Simon & Schuster. 352 pp. \$22.95

"It is difficult, even hazardous, to attempt to describe a scientific breakthrough while it is still in progress." And, with that reservation, *Wall Street Journal* reporters Bishop and Waldholz begin describing "the most astonishing scientific adventure of our time" as they call the Human Genome Project—an immense



15-year, \$3 billion effort to map the estimated 100,000–250,000 genes that make up the human body.

The Human Genome Project may lead to one of the greatest medical breakthroughs in history: the ability to determine people's susceptibility to various ailments, from Huntington's chorea and cystic fibrosis to schizophrenia, just by testing their genes. Theoretically, the potential exists for curing a range of maladies in the womb, and already researchers in a budding field known as gene therapy are injecting healthy genes into cells known to have genetic flaws, to test whether the healthy genes will take hold and multiply. "At the very least," the authors write, "finding these aberrant genes permits those who have inherited them to avoid dangerous environments. . . . The alcoholism-prone individual can be warned to avoid alcohol." Likewise, those prone to heart disease will

know to monitor their diets.

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Ever since Gregor Mendel's experiments with pea plants in the 1860s, we have known that traits such as size and coloring can be passed from one generation to the next. For the discovery of genetic material that passes on such traits, James Watson along with Francis Crick won the Nobel Prize in 1953. They showed that DNA, a long twisting ladder with each "rung" composed of a pair of base molecules, was the key genetic material and that it could be found in virtually every living cell. Forty years later, the same James Watson is directing the Human Genome Project and its almost inconceivable task of identifying the three billion chemical subunits of human DNA. Such identification may, in turn, give clues to a person's metabolic propensity to disease.

There is a potentially dark side to the Human Genome Project. Last year, the American Council on Life Insurance said of genetic testing, "Profound ethical questions will be posed concerning the practice of medicine, procreation, employment, privacy, individual versus societal rights, confidentiality, 'the right to know,' and 'the right not to know.'" Already insurance companies are considering genetic testing of applicants for cystic fibrosis. In the future, it is conceivable that companies will demand genetic reports of prospective employees, politicians of their opponents, and even that parents, knowing their prospective children's genetic makeup, might choose which ones to have. But for good or bad (or for good *and* bad), so the authors conclude, "the technique of gene identification or 'mapping,' cannot be stopped any more than the technology of the automobile, the machine gun, or the atomic bomb was stopped."