From Darwin's Finches *by David Lack (Cambridge University Press, 1947).*

Male-female pairs representing three of 13 species of "Darwin's finches" found in the Galápagos Islands. The birds are said to have inspired Darwin's theory of evolution—but he never even mentioned them in his Origin of the Species.

and behaviors. Thus, the finches never made it into *Origin.*

Whence the legend? By the middle of the 20th century, it was clear to scientists that the finches presented a "textbook example" of Darwin's theories. Darwin's elaborate reconstructions of specimen locations—which later scholars took to be field notes—falsely implied that Darwin himself had recognized this from the start.

Why Dieting Doesn't Work

"Do Diets Really Work?" by William Bennett and Joel Gurrin, in *Science 82* (Mar. 1982), P.O. Box 10790, Des Moines, Iowa 50340.

It often seems as if almost every adult in weight-conscious America is on a diet. According to Bennett and Gurin, director of the writing program at MIT and managing editor of *American Health*, respectively, such self-control may all be in vain.

Overeating, the authors argue, is not the chief cause of corpulence. Research conducted at fast-food outlets shows that the fat and the skinny eat about the same amounts. Genetic predisposition is the chief determinant of body weight. Each individual, the authors say, has a natural "setpoint"—a kind of fat thermostat—that keeps body weight near a fixed level. Glycerol and other substances released by adipose cells signal how much fat the cells contain: When the substances reach a low level, the brain responds by slowing body metabolism to conserve energy. Too high a level triggers the opposite reaction.

Setpoint theory helps to explain why dieters often gain back weight they have lost. In a 1944 experiment, 36 volunteers placed on an austere 1,750-calorie diet lost a quarter of their weight within six months. They

were apathetic and lethargic even when allowed to eat again, returning to normal only when they regained their former weights. A 1964 experiment showed the effects of *overeating*: The subjects found it hard to gain weight and maintained their new corpulence only by consuming an extra 2,000 calories per day, far more than was theoretically necessary. Evidence suggests that a metabolic speed-up is triggered after two weeks of overeating or by a cumulative 20,000-calorie surplus.

The body also regulates eating. In an experiment run by University of Pennsylvania psychologist Theresa Spiegel, volunteers subsisted on a milkshake-style beverage dispensed from a reservoir they could not see. They soon began drinking just enough to get about 3,000 calories daily—the normal amount. Then, the calorie content was secretly cut in half. After two days, the volunteers adjusted by roughly doubling their intake, keeping their calorie counts steady.

If setpoint theory is correct, neither conscious decisions nor deep psychological forces have much to do with an individual's weight. The only way to slim down is to tamper with the setpoint, and that, the authors say, can only be done by smoking, taking amphetamines or other diet drugs, or increasing physical exercise.

Keeping Secrets

"Secrecy and Openness in Science: Ethical Considerations" by Sissela Bok, in *Science, Technology, & Human Values* (Winter 1982), 70 Memorial Dr., Cambridge, Mass. 02139.

Modern scientists have traditionally viewed anything less than complete openness about research methods and results with suspicion. Now their attitude is changing, writes Bok, a Harvard Medical School lecturer. The burgeoning scientist population, increased specialization, competition for funding, and the rising importance of science in both corporate strategies and national security may actually work against the speedy advancement and diffusion of scientific knowledge.

Most scientists recognize the drawbacks of secrecy: "It fosters needless duplication of efforts, postpones the discovery of errors, and leaves the mediocre without criticism and peer review." On the other hand, the drive to be ahead of other scientists with a discovery can fuel innovation. And researchers are so specialized now that they cannot "shift gears" easily if they discover another scientist on the trail. In the 1960s, biochemist James Watson and biologist Francis Crick selectively released information about their work on the structure of DNA to keep competitors off their scent. By the same token, word that an experiment is going poorly can lead to a researcher's loss of financial support.

Corporations increasingly require secrecy when they contract with university scientists. Without denying all grounds for "trade secrecy," Bok points out the dangers: concealment of promising lines of research that may benefit society and the cover-up of product deficiencies.

But the most fractious issue facing scientists today may be the U.S.