

other than 19th-century narrative conventions. Portrayals of the breakdown of marriage portended the collapse of fictional realism, observes Tanner, and led to works of extreme "physicality" (D. H. Lawrence), excessive word play (Joyce), and "mere solipsism" (Proust).

### *Science & Technology*

#### **THE PURPOSIVE BRAIN**

by Ragnar Granit  
MIT, 1980  
244 pp. \$12.50



Rat



Tree shrew



Man

From *The Purposive Brain*.

"Why" the human brain works as it does is as relevant a question as "how," to Granit, a 1967 Nobel laureate in physiology. Granit combines philosophy of science with an up-to-date technical explanation of eyesight and human motor control, and of the mastery of the two by the brain. Along the way, he reviews the debate over such issues as the purpose of a reflex and how and why the brain's right and left halves differ. (Most scientists agree that the brain's left hemisphere controls language communication; the right perceives and comprehends but cannot express itself verbally. Yet, one researcher found that an isolated right hemisphere retains the ability to compose music.) Granit carefully underlines the limitations of all scientific theories that claim to identify Nature's ends. "There is no explanation," he notes, for "the talent that made possible the creation of [Beethoven's] Ninth Symphony." Moreover, some subjectivity is inevitable, even in the laboratory. The wall of ignorance that so often blocks scientific advance, Granit emphasizes, is erected, in large part, by "the head that beats against it."

#### **THE COLDER THE BETTER**

by David Wilson  
Atheneum, 1980  
272 pp. \$9.95

Rocket fuel, the superconductive magnets that are used in atomic particle accelerators, and even some instant coffees (of the freeze-dried variety) would not exist but for cold. Wilson, a British science writer, details the erratic history of low-temperature technology. Cryobiology—the study of low temperatures' effects on biological systems—was the

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first area of research but was slow to develop. Greek physicians of classical times noted that cold could both damage and preserve living things. For centuries, the major obstacle to sustained research was a practical one—how to produce cold. Then, during the 19th century, scientists discovered the means to liquefy gases by compression; as a gas liquefies, it absorbs heat from the surrounding environment and cools it. Gas liquefaction gave us refrigeration and air conditioning, among other things. As Wilson notes, it takes about 20 to 30 years to move a new discovery from the laboratory into commerce and industry. In sight are laser beams for cooling and freeze-dried bacteria for use in medicines and fertilizers.

**THE FRUITED PLAIN:  
The Story of American  
Agriculture**  
by Walter Ebeling  
Univ. of Calif., 1980  
433 pp. \$22.50

The Great Plains are ours only by right of conquest—of Indians, droughts, wild creatures (plant “one for the squirrel, one for the crow, one for the cutworm, and one to grow”). Advancing westward, American settlers cut away the forests, depleted local soils, and then moved on. This practice culminated in the 1930s with the 150,000-square-mile Dust Bowl: Strong winds piled sand in dunes as high as 30 feet, and five-mile-high clouds of black dust were carried as far as the Atlantic coast. Ebeling enlivens an encyclopedic survey of agricultural technology and economics with historical anecdotes. It was common, for example, to call a planter with half-a-dozen slaves a “Colonel” in ante-bellum Kentucky, “where the corn is full of kernels and the colonels full of corn.” During the 20th century, advanced technology (hybridization, fertilizers, pest-management) and mechanization brought about an “agricultural miracle.” U.S. corn yields remained at 22 to 26 bushels per acre for 140 years up to the 1930s; by the late '60s, 80 bushels per acre were common. Scientists are now attempting to improve nitrogen fixation (the conversion of atmospheric nitrogen into organic compounds by plants) and to produce hardier, disease-resistant plants through genetic engineering.