

Briefings

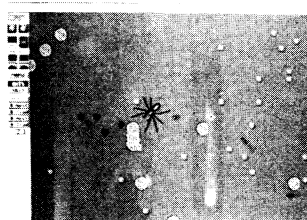
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Brain Food in Computer Games

So you say Americans today are intellectually lazy and bored stiff by science? Don't tell the folks at Maxis Software: Non-scientists all, they are betting their corporate future on the premise that intellectual challenges—properly presented—are not only fun but profitable.

In 1989, the California-based computer game publisher zoomed past the legions of jet fighter simulators and arcade-style shoot-'em-ups and hit the top of the best-seller charts with *Sim City*, a game that lets players plan the growth of a strikingly realistic simulated city—while trying to avoid such urban pitfalls as crime, pollution, traffic congestion, and tax revolts. That was followed last year by another best-seller called *Sim Earth*, created with the advice of Gaia guru James Lovelock. In this game players are invited to guide the evolution of the biosphere on a simulated planet—while juggling such factors as continental drift rate and greenhouse warming to keep the climate in tolerable balance.

This year's offering, scheduled for release in early fall, will



Sim Ant on screen.

be *Sim Ant*, based largely on the work of Harvard biologist E. O. Wilson. "The goal is to give the player an electronic ant farm," says Maxis' chief designer Will Wright. "We want to teach people about the incredible complexity of ants," he says, "and that they aren't just trivial creatures." Players are invited to become members of a black ant colony, where they can dig

tunnels, tend to the queen and the larvae, scavenge for food, lay pheromone trails, flee a predatory spider, and fight off invasions by the rival red ants—not to mention cope with disasters such as a passing lawnmower or a heavy-footed kid.

While not a scientist himself, Wright finds no shortage of scientific inspiration for future games. In fact, even as he and his team are putting the finishing touches on *Sim Ant*, they have started work on their next project. Called *Bio Sim*, it will enable players to design their own creatures, put them into a simulated ecosystem with dozens or hundreds of other species, and guide the evolution of such mechanisms as symbiosis, food chains, and social groupings.

UK OKs RU-486

RU-486—the so-called abortion pill—has been approved for use in Britain. But its manufacturer, France's Roussel-Uclaf, is keeping a tight hold on supplies to prevent a black market from developing.

The drug, called Mifegyne, will be supplied only on written request from a named hospital purchaser. The request must list the physicians who will be prescribing it, all of whom must first attend a training seminar. Furthermore, every pack will contain a track-back code enabling the company to trace it to the purchaser and prescriber. "The only thing we will not be able to find out is the name of the woman who received the drug," says Roussel spokesman Tony Eaton.

RU-486 blocks the action of progesterone and, used in combination with prostaglandins, is more than 95% effective if administered within the first 9 weeks of pregnancy. In France, the only country where the drug has been used, it has been given to 80,000 women over 3 years, with no major side-effects. The pill has been approved in China but is still not marketed.

Protests from British anti-

Who Are the Animal Rightsers?

Researchers who have been subjected to angry letters from animal activists know that the vast majority seem to come from women. Now, a Wesleyan University psychologist has provided a further glimpse into the demography of a movement that has haunted many scientists.



Women in the lead. At last year's demonstration in D.C.

Claiming that until now there has been "no empirical research" to determine just who the activists are and what they believe, Scott Plous last year deployed his research team, armed with questionnaires, at an animal rights rally in Washington, D.C. The team got answers from 456 participants, 402 of whom described themselves as "animal rights activists" and 54 of whom served as a nonactivist control group. Virtually all the activists were white and 80% were female.

But the activists were by no means monolithic in their views. Although 85% opposed the use of animals in research, many did not name that as their number one priority. Indeed, nearly half named other goals, primarily the elimination of animal use for food or clothing.

Further, females and males displayed considerable differences in views. The former were substantially more critical of animal researchers, and were more approving of laboratory break-ins (which were opposed by 24% of the males but only 14% of the females).

Seventy-eight percent—versus 31% of the nonactivists—said they value human and nonhuman life equally. Nonetheless, 53% admitted to eating meat, buying leather products, or both. Concludes Plous, who published his findings in the May issue of *Psychological Science*: "It would be a mistake to portray animal rights activists as homogeneous."

abortion factions have so far been muted—an unlikely prospect in the United States if the current ban on the pill is lifted.

SSC Fundraiser Resigns

J. Fred Bucy, former Texas Instruments chief and the man who has been heading the fundraising effort to pay for the Superconducting Super Collider (SSC) in Texas, has resigned. According to press reports, he has complained that the lack of foreign financial contributions has placed the project almost "beyond salvation."

Bucy, until 2 weeks ago chair of the Texas National Research Laboratory Commission, has

long been critical of the Department of Energy's (DOE) efforts to solicit \$1.7 billion in foreign contributions. That money is intended to supplement some \$5.6 billion in federal funds and \$1 billion from the state of Texas.

Bucy could not be reached for comment, but a commission spokesperson said Bucy's resignation was unrelated to his views of DOE. Rather, the spokesperson said, Bucy felt he could be "more influential" as a private citizen in bringing in foreign partners. Indeed, there were other signs that DOE was concerned about the possibility of adverse publicity arising from the resignation. Just days afterward, DOE announced that it had "formally invited"

the Soviet Union to join the SSC—the first step toward a formal diplomatic agreement that would cement a Soviet contribution.

Coming of Age for Mental Health

Behavioral scientists have long complained that they don't get any respect at NIH. But they may not be able to claim exclusion from the nation's citadel of health research for long.

Arrangements are moving apace to incorporate all three institutes of the Alcohol, Drug Abuse and Mental Health Administration (ADAMHA) into NIH (see *Science*, 14 June, p. 1484). Psychiatrist Frederick Goodwin, ADAMHA's director and a prime mover behind the reorganization, has been named head of the National Institute of Mental Health (NIMH) by Health and Human Services Secretary Louis Sullivan.

And there's yet more reason for behavioral scientists to celebrate: The number of top-level (nonphysician) behavioral scientists at NIH is now going from zero to two. On 1 July,

demographer Wendy Baldwin, formerly director of the Center for Population Research at the National Institute on Child Health and Human Development, was named deputy director of that institute. (The post was vacated by current Surgeon General Antonia Novello.) And psychologist Alan Leshner, who had been expected to become NIMH director before the current upheaval, will be Goodwin's deputy at NIMH.

Congress is expected to sanctify the reorganization plans this year by formally incorporating the research portions of NIMH, the National Institute on Alcohol Abuse and Alcoholism, and the National Institute on Drug Abuse into NIH. Their services programs will stay behind in what remains of ADAMHA, which is to be clumsily renamed ADAMHSA.

Superchicken

Move over, Frank Perdue. The pharmaceutical behemoth Merck & Co. has been genetically engineering chickens. Corporate researchers won't reveal details but a European patent

Investment in the Ivory Tower Infrastructure—three snapshots of expenditures for academic research equipment during the '80s.*

	1982-83	1985-86	1989-90
	(current dollars in millions)		
Engineering	96	174	253
Biological sciences	132	194	246
Physics/astronomy	52	91	102
Chemistry	39	81	84
Environmental sciences	33	55	55
Agricultural sciences	28	34	46
Computer science	20	49	45
Total	400	678	831

Keeping up? When it comes to research equipment, universities, like Lewis Carroll's *Red Queen*, feel they are running to stay in place. But that's not the message sent to the National Science Foundation (NSF) by research administrators at 79 universities and medical schools. According to an NSF survey, huge recent expenditures—an 11% increase in real (inflation-adjusted) dollars over the past 3 years—may be paying off. In 1989-90, 50% of a representative sample of research administrators reported that equipment had improved over the past few years, and only 17% saw a decline. They still see a crying need for big-ticket items, though. Sixty-two percent of respondents said they lacked equipment for important experiments. Biologists are best off with only 46% reporting a paucity of equipment.

*For items costing \$500+. Data are weighted to represent institutions that collectively account for more than 90% of academic R&D expenditures. From NSF report, "Academic Research Equipment and Equipment Needs in Selected Science and Engineering Fields: 1989-90."

disclosure describes the use of retroviral vectors to insert the bovine growth hormone (bGH) gene into fresh, fertile eggs. The result, insiders say, could be

highly feed-efficient Macro-Chickens. We're talking about your basic Thanksgiving-type turkey of a chicken.

Merck isn't alone in its pursuit of advanced animal husbandry—nor is the chicken the only quarry. Researchers around the globe are busily trying to use bGH genes—similar to other animals' growth hormone genes—to get more out of pigs, sheep, and cattle. But the work has proved tricky. "You can get too much of a good thing," cautions Iowa State University animal scientist Curtis Youngs.

Youngs is not talking about porcine or bovine elephantiasis, though. When early efforts with pigs resulted in the production of too much hormone, arthritis and other problems appeared. "There is a fine line of how big you want an animal," says Youngs.

The perils of tinkering with livestock breeding are not confined to genetic engineering. Conventional selective breeding of turkeys has already produced birds so broad-breasted they can barely waddle.

Skullduggery

Just in time for the 200th anniversary of Mozart's death, a group of French researchers claims to have positively identified the skull of the great composer. The commonly held view has been that Mozart's body was lost in a communal grave, but a skull suspected to be his has been reposing in Salzburg's Mozarteum since 1901. Now anthropologist Pierre-François Peuch and colleagues at the University of Provence have concluded that the relic is genuine.

As described in the March/April issue of *Archeology* magazine, the team conducted a thorough study of the artifact, including a reconstruction of the head in clay. The resulting model, say the researchers, conforms to historical information and matches contemporary portraits of the composer. For

example, the skull, when superimposed on the portraits, fits in all proportions and in details of the facial features. Furthermore, the wear on the teeth indicates the skull was that of a person who died between 25 and 40—Mozart died at 35. And marks on some of the teeth may have been made by toothpicks, which, the authors say, Mozart was known to have used frequently.

One big surprise from the study is that the composer may not have died from rheumatic fever as was believed, but from chronic bleeding between brain and skull. The researchers identified a fracture on the left temple (the result, they say, of a fall), which may have caused the headaches, weakness, and fainting spells Mozart suffered from.

Mozarteum officials remain unconvinced by Peuch's study. They say that an assessment by their anthropologists and forensic scientists will be published in the near future.

Portrait of Wolfgang Amadeus Mozart

