

and private ventures, and the lack of any moral imperative frequently felt in the United States to maintain, at least in principle, a sharp dividing line between the two. Furthermore, as with the Celltech/MRC deal, negotiations have often been conducted discreetly out of the public eye.

Either way, there has been little of the public controversy over the restructuring of traditional relationships between the research community and the rest of society that has accompanied similar moves in the United States.

The situation has not been without its critics. Edward Yoxen, lecturer in the University of Manchester's department of liberal studies in science, points out in a recent study *The Gene Business* that many significant policy changes, such as the dispensation on access to MRC research awarded to Celltech, have taken place with little open discussion, even

“The academic excellence in places like the MRC should be treated as a national resource and the government should be providing evenhanded access to it,” says Chris Keightley.

though the basic discoveries on which the new technologies are based were financed largely from public funds. “There has been virtually no public debate on this type of issue,” says Yoxen.

Few concerns were expressed, for example, over the government's recent decision to drop the “public interest” members from its main regulatory watchdog, the Genetic Manipulation Advisory Group, when this body was recently reformulated as the Advisory Committee on Genetic Manipulation, and its day-to-day responsibilities for registering and monitoring experiments passed to the Health and Safety Executive.

The lack of such debate, however, has certainly not hampered the gradual dismantling of barriers to open cooperation between the academic and the commercial communities, a process openly encouraged by the government. The SERC's Biotechnology Directorate, for example, has recently established what is described as a “protein engineering club,” in which major companies such as

Glaxo and Unilever will help sponsor research in various academic institutions into ways of producing proteins to order in large quantities.

Similarly, several university institutions are using government money, both from the research councils and the Department of Trade and Industry, to help set up commercial operations. The University of Leicester, for example, has recently obtained backing from five major corporations to establish a center for research into yeast genetics. And the Imperial College of Science and Technology in London has established a company known as Imperial Biotechnology to exploit its research facilities in fermentation techniques.

Keen that the nation should reap a profit from its past and present scientific investments, the government is increasingly engaging in as much industrial planning as it feels it can get away with behind its free-enterprise, non-investment image. Responding to demands from companies such as Imperial Chemical Industries, as well as officials within the SERC, for some form of “national biotechnology program” to cover the spectrum of possible initiatives from tax incentives to information networks, the Department of Trade and Industry has recently set up a special advisory committee made up primarily of senior industrialists to look at areas where an extra push might be useful.

Taken in isolation, none of these moves is itself seen as a guarantee of success. But behind them lie two additional factors that help account for the current bullishness of Britain's biotechnologists. One, as Nicholson of the Cabinet Office puts it, is that “there is more optimism in the business sector than there was 6 or 9 months ago; we certainly started pulling out of the recession faster than either Germany or France.”

The other is the gradual emergence of a new spirit of entrepreneurialism among British academics. “In the past, most academics had no idea about how to start up in business; but all that is now changing,” says Keightley of IQ(Bio), a Cambridge biochemist who was about to emigrate to the United States when Acorn offered him the opportunity of helping start up the new company.

Similarly, Celltech points out proudly that it has managed to persuade one of the top teams of MRC scientists, headed by immunologist William Hunter of Edinburgh University, to join the company's new venture with Boots. “We have a fabulous opportunity here in Britain,” says Keightley. “We are now learning how to capitalize on it.”—DAVID DICKSON

Meselson Meets a Shower of Yellow Rain from Bees

Matthew Meselson, the Harvard biochemist waging a one-man challenge to the U.S. State Department's version of Yellow Rain warfare, went into the jungles of Thailand last month to test his thesis. He returned at the end of March with a new evidence, declaring the trip a greater success than he had anticipated.

Along with two bee experts who joined him in looking for natural forms of Yellow Rain, Meselson was caught in a 5-minute shower of bee droppings, which he thinks may be the real source of Yellow Rain samples being analyzed by U.S. military labs. Meselson and Thomas Seeley, a biologist at Yale University, last year developed a theory that Yellow Rain spots regarded as chemical weapon deposits were actually the feces of the wild Southeast Asian honey bee, *Apis dorsata* (*Science*, 24 June 1983, p. 1356). The theory was based on the knowledge that honey bees periodically make “cleansing flights” away from the hive, that their droppings contain pollen, and that most of the government's samples of Yellow Rain collected from the environment contain pollen.

Meselson noticed that the government's data on Yellow Rain were gathered in Southeast Asia between February and May. Using funds recently awarded him by the John D. and Catherine T. MacArthur Foundation, he went to Thailand in the middle of this ripe evidentiary season hoping to find proof that Southeast Asian honey bees do produce yellow, pollen-laden rain.

Meselson and Seeley reported at a press conference at Harvard on 28 March that they have proof that *A. dorsata* performs “massive defecation flights which can cover a swath thousands of square meters in area with 100 or more spots of yellowish feces per square meter.” They found and studied ten swaths in Thailand and were caught in a bee feces shower that left “about a dozen spots . . . on each member of our three-man team.” Meselson says this occurred near a tree in which they had spotted *A. dorsata* nests, but the bees were so far above the ground that he could not see or hear them.

As a State Department spokesman said a few days later, this "does not explain why people have been made sick and have died after chemical attacks only in areas of Afghanistan, Laos, and Kampuchea where combat has taken place." Speaking privately, one official asked, "If Matt was hit with Yellow Rain, how come he's still alive and kicking in Cambridge?" He also



Constance Holden

Matthew Meselson

pointed out that Meselson has not shown how mycotoxins got into the blood of soldiers who claimed to have been exposed to chemical weapons.

Meselson collected numerous samples of moldy food and plants, which he will have analyzed at MIT by a specialist in gas chromatography-mass spectrometry. If mycotoxins of the kind found in the government's biological samples from Southeast Asia (trichothecenes) are also found in these food samples, Meselson will have established a persuasive case for viewing trichothecene poisoning as a natural phenomenon in Southeast Asia.—ELIOT MARSHALL

Pediatrician May Head ADAMHA

Despite opposition from top government health officials and intense concern of mental health and drug abuse experts, the White House appears to be on the verge of nominating a Florida pediatrician to head the Alcohol, Drug Abuse and Mental Health Administration (ADAMHA).

The candidate in question is Donald Ian MacDonald, a physician in private practice in Clearwater, Florida. MacDonald has no administrative or research experience and is best known for campaigning against adolescent drug use. He has also served as research director for Straight, Inc., a controversial treatment program for adolescent substance abusers.

MacDonald has the strong support

of parents' groups, particularly the National Federation of Parents for Drug-Free Youth, and his champion within the White House has been Carlton E. Turner, the President's special assistant for drug abuse policy. Turner, an organic chemist, has been especially concerned with the domestic eradication of cannabis.

MacDonald was on the verge of being nominated several months ago, but the procedure has been delayed in large part because of the opposition of Health and Human Services Secretary Margaret M. Heckler, who in January reportedly sent the White House a scorching letter expressing vehement opposition to the nomination. Other health officials, including assistant secretary Edward N. Brandt, have been more restrained, emphasizing the need for a nationwide search before a decision is reached.

Professional societies have attempted to advance several qualified Republicans, including Herbert Kleber of Yale University School of Medicine and Bernard Grosser of the University of Utah. But MacDonald is the only one who has been checked out by the FBI and brought to Washington to meet people.

Called by *Science*, MacDonald said he's had the impression the nomination was imminent "for months and months and months," and recent contacts with ADAMHA officials have persuaded him that word will come any day now. Among his qualifications for the job, he cites his clinical experience with children and notes that he has traveled in 26 states in the past couple of years talking to parents and other groups, so he "has a feel for what's going on." He has just produced a book, *Drugs, Drinking and Adolescents*.

MacDonald's clear priority is drug abuse prevention. He is concerned about the "disenfranchisement" of parents and the need to deal with drug abuse in the context of the family. He also thinks medical schools and societies should do a better job of educating professionals about alcoholism and drug abuse.

MacDonald would seem to embody this Administration's principal drug policy thrust, which may be summed up as: get teenagers off marijuana. How this may affect the rest of ADAMHA's research agenda remains to be seen.—CONSTANCE HOLDEN

In the Doghouse at OSHA

In Washington, official reasons for aberrant behavior abound. Former national security adviser Richard Allen said he had simply forgotten about \$10,000 in his safe, which he was supposed to have turned over to the Treasury. Edwin Meese contends his failure to disclose a \$15,000 loan was "inadvertent." But a top official at the Occupational Safety and Health Administration (OSHA) takes top prize for the Most Woeful Tale in recent memory.

Leonard Vance, director of the agency's health standards programs, has refused for several months to hand over his logbooks to a House subcommittee. Aides to George Miller (D-Calif.), chairman of a labor and energy subcommittee, wanted the books in hopes of showing that Vance had improperly met with industry representatives while the agency was setting regulations on ethylene oxide, a sterilant. Finally Vance relented and told congressional staffers to come fetch them. When they arrived recently, Vance recounted his woeful tale.

According to an aide to Miller, Vance said that over the weekend he went hunting with his dog. The animal became indisposed in the back of his pickup truck and then regurgitated on two of the four logbooks sought by the subcommittee. The books were so disgusting, Vance allegedly said, that he tossed them away at a county dump. The third book was apparently stolen from his office, he claimed. Vance did have the fourth, but it, "did not answer any of our questions," said Miller's press secretary William Blacklow. Vance is not commenting on the matter, an OSHA spokeswoman says.

Miller was said to find the story "incredible," but he's apparently not doing much to follow up on it right now. Blacklow denies the charge that Miller has lost interest in stricter regulation of ethylene oxide and insists that the legislator will doggedly pursue the matter. For now, Miller and another subcommittee chairman, Joseph Gaydos (D-Pa.), are growling at each other over jurisdiction concerning OSHA's actions on ethylene oxide. The issue may, however, become moot because the agency last week reportedly agreed to set a final rule by 15 June.—MARJORIE SUN