the colonies. "Now we have a piece of paper verifying the source. We didn't have the paperwork before and were not in a position to come down on the contractor."

Mayo is circumspect about where genetic contamination arose. "There's no way to trace it out," he says. An NIH document, dated 1 October 1982, summarizing these incidents is considerably less ambivalent: Mice from NIH's foundation stocks "have been shown to be homogeneous and typical for the BALB/c strain. . . . There has never been any evidence of genetic contamination involving the pedigreed colonies of [these] mice," it says, thus attributing the responsibility to the contractor, Charles River, without spelling that conclusion out.

Mayo, other NIH officials, and lab animal users elsewhere praise Charles River for its quality breeding programs, especially for its reputation for supplying healthy animals. Partly because of this reputation, Charles River not only is considered the giant of the lab animal–breeding industry in general, but also holds a lion's share of government contract work in this arena. About 18 percent of the company's business is done under federal contract, including annual contracts with NCI for $2.5 million and with the National Institute on Aging for $2 million. (There has been no problem of genetic contamination in the colonies maintained by Charles River for NIA, according to an institute official.)

Charles River has recently taken steps to preserve its reputation for quality by instituting a major new genetic monitoring program with the help of consultants, including geneticists from Texas A&M University and the University of Pittsburgh. One outgrowth of this program was a "Genetic Monitoring Bulletin" issued a year ago reporting another instance of genetic variation in BALB/c mice "sometime between May 1, 1982 and August 16, 1982. . . . The incidence of this finding is very low (approximately 5%), however, we have discontinued the colony much as we would for a microbiological contamination," says the report dated 20 August 1982. Charles River's efforts to make sophisticated genetic monitoring a routine service have been applauded widely by those who do business with the company and also by its competitors.

Nonetheless, company practices in the period before such programs were instituted are what Kahan and others are challenging. And her argument that "career and publication opportunities were lost" could strike a chord in the research community, particularly among those scientists who had to do considerable sleuthing before they realized that genetic contamination could explain difficulties they had with experiments.

It is scientists in the basic research community, and not other users of inbred animal strains, such as toxicologists or researchers in drug development programs, who have felt the main impact of genetic contamination problems. For example, a spokesman for the Food and Drug Administration (FDA) says: "Toxicology is not sophisticated enough so that a difference in strains will affect the safety of our determinations. Such differences wouldn't affect anything because experiments are internally controlled." Thus, even if a protocol called for an inbred strain, the presence of genetically impure animals would likely be distributed randomly among control and test animals.

By contrast, in experiments like those done by Kahan, difficult transplant procedures precede extended animal growth periods. Hence, all sorts of reasons why a procedure failed might be invoked and checked before genetic contamination would be considered. Other scientists who have had difficulties with genetic contamination of animals, including several representatives of pharmaceutical companies, paint more or less the same picture.

"Where Charles River is *today* is what's relevant," says vice president Foster. The company has implemented increasingly sophisticated genetic monitoring programs but, all along, has used "proper methods at relevant times," he says. Those capabilities are becoming "more and more refined."

Foster suggests that scientists bear a responsibility to notify the vendor when problems arise. "It's incumbent on both parties to work together, to provide as much information as they can," he says. Says Kahan, "They told me what they did to check genetic integrity but never told me their results."

Information promises to be a key issue in the case Kahan has brought against Charles River: How is information properly and amicably shared between animal supplier and user; how quickly can and should either party alert the other over potential problems; and by what means? By establishing monitoring programs, Charles River has lessened the likelihood of genetic contamination in the future. But establishing how problems arose in the past and whether the company is responsible for them now is a matter for the courts to decide.

—JEFFREY L. FOX

Redemption for Social Science Tomes

The social and behavioral sciences have enjoyed a modest stroke of good fortune in the form of a decision by the publishers of *American Men and Women of Science* not to cancel issuance of a new directory of U.S. social scientists.

Editor-in-chief Gary Ink says that, because of poor sales of the last couple of editions, it was decided to postpone the planned 1982 edition indefinitely. Biographies of physical and biological scientists, now occupying seven volumes, are issued every 3 years.

Ink says the decision was reconsidered following a market research survey and a meeting with the Consortium of Social Science Associations (COSSA) in Washington, which persuaded the publishers there was a strong, indeed "desperate," demand for a new edition. Ink says this was manifested despite the fact that reductions in federal social science spending have forced libraries to reduce purchases, and despite the proliferation of online information services.

He adds that help in contacting relevant buyers has been pledged by COSSA, a lobby group set up 2 years ago in reaction to the budget cuts. The plan now is to issue the two-volume set on the social and behavioral sciences in September for $150, and to update it every 5 years.

—CONSTANCE HOLDEN

Stone Age Sites Saved from Flooding

A recent decision by the High Court of Australia has effectively halted a massive hydroelectric power project that would have flooded significant ecological and archeological resources in southwest Tasmania. The decision, by a vote of four to three, appears to resolve a long and often bitter wrangle over the separate powers of the state and federal governments (*Science*, 3 December 1982, p. 988).

The discovery in the past several

years of archeological cave sites, which date back 20,000 years and so far represent mankind's most southerly excursion during this point of the last ice age, added an important dimension to the fight over the Tasmanian wilderness region. Archeologists John Mulvaney and Rhys Jones, of the Australian National University, Canberra, have been campaigning vigorously for the federal government to intervene in the Tasmanian government's decision to go ahead with the hydroelectric scheme. Such an intervention would have far-reaching constitutional implications.

Prospects for saving the wilderness area from destruction brightened last December when the United Nations Educational, Scientific and Cultural Organization (Unesco) placed the region on the World Heritage list, which recognizes outstanding environmental and cultural resources. This prestigious and internationally highly visible designation brought significant political pressure on the federal government to extend its powers and overrule the state government, though it was clearly reluctant to do so.

The election in March of Bob Hawke s Labour Party proved to be a key development as the party's manifesto included a promise to stop the construction of the highly controversial dam, if constitutionally possible. The High Court's decision in July, which emphasizes the interests of the aboriginal people of Tasmania, gave the new government the go-ahead for fulfilling its electoral promise.

Mulvaney describes the affair as "one of the most significant constitutional cases since Federation in 1901." More specifically he says it is "the greatest environmental victory in Australian history."—**ROGER LEWIN**

Hayes Resigns as FDA Chief

Arthur Hull Hayes, Jr., is stepping down as commissioner of the Food and Drug Administration (FDA) on 2 September to become dean of New York Medical College in Valhalla. He was formerly a cardiologist at Pennsylvania State University College of Medicine at Hershey.

In his 28 months as FDA chief, Hayes directed revisions of drug approval and food safety rules, the cancellation of the patient package insert program, and a reorganization of the agency. He personally crusaded for less consumption of sodium, urging food manufacturers voluntarily to label products with their salt content.

During his tenure, the agency has had to weather criticism that it has been less than rigorous in monitoring the safety of drugs. Critics cite as evidence the problems with the anti-

Arthur Hull Hayes, Jr.

Sought to streamline drug regulations.

arthritic drug Oraflex and the anti-inflammatory medication Zomax that developed after the drugs went on the market.

Hayes has also had to weather some personal criticism. In particular, the inspector general of the Department of Health and Human Services questioned Hayes's acceptance of honoraria, amounting to some $4000, for speeches and, in a few instances, free travel and accommodations from industry. No wrongdoing was found, but a U.S. attorney criticized Hayes for not "scrupulously avoiding" the appearance of impropriety.

With the presidential election little more than a year away, it may be difficult to find a good candidate to take the job, and the Reagan Administration may thus not seek a replacement for Hayes. In departing early, Hayes follows a precedent set by his predecessors, Jere Goyan and Donald Kennedy, both of whom stayed only about 2 years in the job.

—**MARJORIE SUN**

NRC Asked to Deny Reactor Spares to India

Six public interest groups* have petitioned the Nuclear Regulatory Commission (NRC) not to approve the licenses necessary to export reactor components for India's Tarapur nuclear power plant.

The petition claims that such exports would be illegal because Indian pursuit of a nuclear weapons development program conflicts with the U.S. Nuclear Non-proliferation Act (NNPA). India is also said to be violating the NNPA by its long-term refusal to accept international safeguards inspection of Tarapur and other nuclear facilities.

The Reagan Administration has told India that it would take the steps required to make the parts available from U.S. suppliers if the Indians are unsuccessful in obtaining them abroad (*Science*, 5 August, p. 531). The Administration cites health and safety considerations as the reason for making the exception. The United States, in effect, has embargoed the export of nuclear fuel and reactor components to India since 1980 under the NNPA.

At issue are six applications to export reactor components worth over $1 million to India for the Tarapur facility. These were filed in 1980 at India's behest by the General Electric Company, which built the two Tarapur reactors, and four other U.S. companies. Processing of the applications has been blocked by lack of the Executive Branch recommendation required by the NNPA.

Commenting on behalf of the petitioning organizations, Paul Leventhal of the Nuclear Control Institute said, "The Reagan Administration is caving in to Indian demands for reactor parts, ostensibly for health and safety reasons, but actually to remove what it considers an irritant in U.S.–India relations." He said that "prolonging unsafe operations" at Tarapur would "contribute to the continuing accident and other health safety risks." The petitioners, in effect, ask the NRC for a hearing on their arguments.

—**JOHN WALSH**

*Nuclear Control Institute, Federation of American Scientists, Union of Concerned Scientists, Greenpeace, Energy Research Foundation, and Committee for a Sane Nuclear Policy (SANE).