

ble than a "quarantine which isolates the Soviet scientific community."

"Indeed, breaks in scientific exchange would destroy the method by making such refusals irrelevant," Jeremy J. Stone of the Federation of American Scientists said. "By keeping the movements obviously based on individual and grassroots activity, a maximum of credible pressure is placed on authorities, in whatever country, to comply with human rights standards."

As evidence for the effectiveness of selective boycotting, several witnesses noted there have been fewer arrests and detentions of scientists and a higher rate of Soviet Jewish emigration in recent years.

After some equivocating, Frank Press, the President's science adviser, said that government should "facilitate" the exchanges and allow private scientists to make their own decisions. Government scientists, however, should bow to the administration's policies concerning human rights, he said. Both the administration's cancellation of his trip to Moscow and private scientists' boycotts carry "a message of concern to the Soviets," Press contended.

The major nonpolitical governmental role in the exchanges is determining which programs are scientifically profitable and should continue, Press said. Based on reports from the National Academy of Sciences on the scientific benefits of the exchanges, the government has revised its guidelines to ensure "that we are getting out of the cooperation as much as the Soviet Union is getting." The "guiding principle" he said, is to find areas "where the Soviets are doing advanced work and where we can benefit from an exchange. There are more than enough fields where the Soviets are so advanced that we can get something."

Though Press said there are few fields where the Soviets are so far ahead that there would be "an absence of mutuality," Scheuer noted such an attitude contradicts the meaning of an exchange. "I would hope we would not structure a scientific program so it is only meaningful where we are on par," he said. "That means the big payoff—where one country moves substantially ahead—will never be reached." □

## Lab fertilized baby #2

From Calcutta comes word of the birth of a second baby girl conceived in laboratory glassware. Physicians S. K. Bhattacharya, Sunit Makherjee and Subhash Mukherjee announced the egg was removed from the ovaries of a woman with blocked Fallopian tubes. Unlike the first "test tube" baby, Louise Brown, the identity of this child is being kept secret, perhaps to protect her marriage prospects in the Hindu society. □

## Three in one: A mouse with six parents

The mouse with the yellow face, black ears and white patch around the middle has three mothers and three fathers. It is the product of aggregation of three early embryos. While thousands of so-called chimeric mice have been raised in laboratories studying development, those patchwork animals have derived from just two embryos. In the Oct. 6 *SCIENCE*, Clement L. Markert and Robert M. Petters report the first "hexaparental" mice.

Coat color was the key to distinguishing which mouse pup parts came from which mouse parents. The Yale researchers combined three eight-cell embryos—one from black, one from albino white and one from yellow parents. When the embryos are placed in a triangular configuration under specific conditions, the cell clusters gradually merge and develop into a single blastocyst, a 64-cell hollow ball. The chimeric embryo can then be transferred into a foster mother.

One 3-colored, six 2-colored and three 1-colored pups resulted from 40 chimeric blastocysts placed in two females. Another experiment aggregating four embryos produced no quadruples, but another triple chimera, four double chimeras and three single-colored offspring. The patches of black, yellow and white hair demonstrate unequivocally that the triple chimeras arose from three different embryos, Markert and Petters say.

A mouse with a coat of many colors is not in the offing with this embryo-merging technique. The researchers believe that three colors is probably the limit. Most of the 64 cells in the blastocyst develop into placenta, yolk sac and other extraembryonic structures; only a few contribute to the fetus and thus to the adult mouse. The successful manufacture of triple chimeras sets a clear lower limit: At least three cells must be allocated to form the adult organism. Statistical analyses of the many



Multi-hued mouse produced in the lab.

double chimeras have suggested that the number of cells contributing is just three.

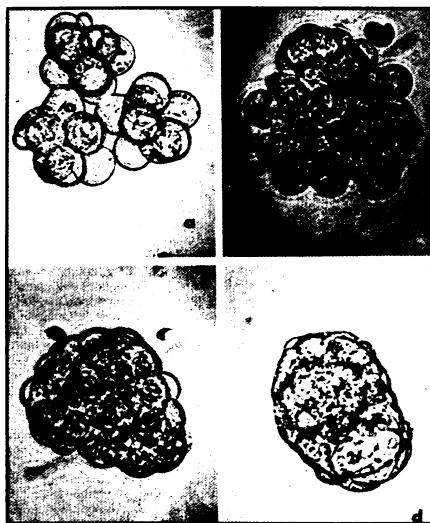
The color patterns of chimeric mice are valuable research clues to cell movement during development. Markert and Petters see evidence for extensive, imprecise movements, very different from the fixed pattern observed in insects. Triple chimeras should also provide finer resolution in revealing the developmental roots of each adult cell. □

## DES task force report

A task force review of studies of the effects of diethylstilbestrol concluded last week that, although there is a "clear link" between the hormone and vaginal or cervical cancer in daughters of exposed women, the risk is not as high as previously believed.

According to the report released by Health, Education and Welfare secretary Joseph A. Califano Jr., the task force estimates the risk to DES daughters as no more than 1.4 cases per 1,000 daughters and possibly as low as 1.4 per 10,000. In addition, the review panel found no "established" increased risk of breast or gynecologic cancer in women who took the drug during pregnancy. The reviewed studies show "no evidence... to suggest" that children of DES daughters will have birth defects and no "firm evidence" of an association with testicular cancer in DES sons. DES sons do, however, show an "excess of abnormalities" of the genital and possibly of the urinary tracts.

Califano urged women exposed to DES to avoid further use of the hormone or other estrogens and announced a "major program to alert" both physicians and exposed women, as well as their sons and daughters. The committee was appointed by the surgeon general last February and chaired by Diane J. Fink, director of the National Cancer Institute's division of cancer control and rehabilitation. □



Time lapse photography shows how, in 25 hours, three embryos aggregate.

Photos: Markert/Science