

- assessing within a year of the act's enactment the personnel requirements of the accelerated program and what will be needed to overcome any foreseen shortfall in available qualified engineers.

The act also requires creation of a technical magnetic-fusion advisory board to review the national program and to report its findings to DOE at least three times a year. Including representatives of industry, universities, government laboratories and technical organizations, its job will include recommending changes to strengthen such areas as research development and cooperation between researchers. □

New Caesarean recommendations

Approximately a half-million women in the United States now deliver babies by Caesarean section, triple the rate of a decade ago. These births comprise 18 percent of all deliveries. Consequently, a number of obstetricians believe that too many Caesareans are now being performed, and a panel of them convened at the National Institutes of Health last week, under the leadership of Mortimer G. Rosen of Case Western Reserve University, to set guidelines that they hope will lower the rate of Caesareans. Here are some of their recommendations:

- Ninety-eight percent of women in the United States who have had one Caesarean now undergo another for subsequent deliveries because of the possibility that a scarred uterus may rupture during labor. Many obstetricians, however, now make a low, horizontal incision in the uterus that heals easily and rarely ruptures, and it is as safe, or safer, for a woman who has had this kind of Caesarean to deliver vaginally in subsequent pregnancies. Thus women who have had one Caesarean should be given the option of a vaginal delivery whenever possible during subsequent deliveries.

- Much of the increase in Caesareans has been for women whose labor does not progress normally, which can occur, for instance, when the labor contractions are not strengthened. But abnormal labor can often be improved by allowing a woman to move around, to sleep for brief periods, or by giving her drugs. Thus, obstetricians should try these measures before they resort to a Caesarean, unless they have reason to think the baby is in trouble.

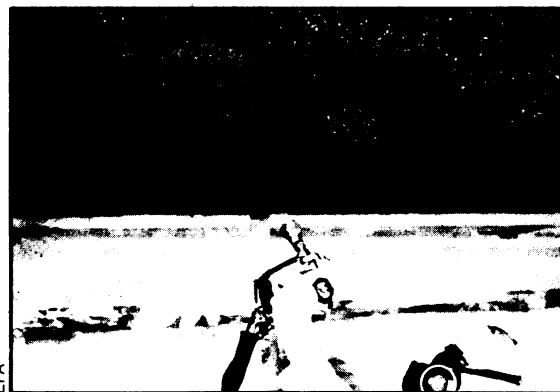
- In 1970, only 11.6 percent of breech babies (those ready to come out of the womb feet first rather than head first) were delivered by Caesarean; in 1978, 60 percent were. But vaginal delivery is safe for breech babies in certain positions, if the baby weighs less than eight pounds, if the mother's pelvis is normal, or if the obstetrician is experienced with such deliveries. □

The attack on academic asbestos

The U.S. Environmental Protection Agency is trying to kick the asbestos problem out of school. The agency recently proposed a rule that would require all public and private elementary and secondary schools in the United States to identify friable, or easily pulverized, asbestos-containing materials in school buildings.

Asbestos — a naturally occurring mineral that readily separates into fibers — has been widely used for fireproofing, thermal and acoustical insulation and decoration. Release of fibers from asbestos that can be easily crumbled is a well-documented health hazard; in fact, the link between occupational exposure to asbestos and lung disease was first reported in 1927. Since then, investigators have gathered epidemiologic and experimental data showing that exposure to asbestos via inhalation increases the risk of numerous diseases, including asbestosis — a noncancerous lung disease — and cancers of the lung and other organs (SN: 7/15/78, p. 41).

To reduce the risks of exposure to asbestos-containing materials in school buildings, the EPA-proposed rule, which may be finalized in February 1981, would require school officials to inspect buildings for friable materials and to analyze



EPA
Encapsulation of a ceiling surface.

suspect samples with Polarized Light Microscopy — a technique that identifies substances on the basis of their shape and optical properties. Larry Longanecker of EPA's Office of Pesticides and Toxic Substances predicts that friable asbestos will be discovered in about 10,000 schools affected by the proposed ruling.

This asbestos, says Longanecker, could be removed, enclosed with a barrier such as a suspended ceiling or encapsulated. Encapsulation involves use of either a penetrant — a chemical that soaks in and locks individual asbestos fibers in place — or a bridging sealant — an agent that covers the asbestos surface with a protective coating. EPA recently stamped its seal of approval on 19 encapsulators developed by various chemical firms. □

Targeting cancer drugs with antibodies

Monoclonal antibodies (mass-produced antibodies against specific cell antigens), which have become realities during the past several years, promise to revolutionize cancer treatment. At the 1980 International Symposium on Cancer, held recently in New York City, Emil Frei III of the Sidney Farber Cancer Institute in Boston reported that scientists are beginning to couple monoclonal antibodies against human cancer cell antigens to cancer drugs. Researchers hope that the antibody-drug packets will hone in on cancer cells more selectively than do the drugs alone and thus kill cancer cells while sparing normal ones. And in the August PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, investigators report what appears to be the first success toward achieving this aim. The investigators are D. Gary Gilliland and R. John Collier of the University of California at Los Angeles and Xenon Steplewski, Kenneth F. Mitchell, Tong H. Chang and Hilary Koprowski of the Wistar Institute of Anatomy and Biology in Philadelphia.

The Los Angeles and Philadelphia researchers first fused mouse melanoma cells with spleen cells from mice immunized with human colon-rectal cancer cells. The resulting hybridomas (hybrid cell lines) in turn secreted antibodies that

bound specifically to human colon-rectal cancer cells. The investigators then showed that the antibodies did not bind to other normal and malignant human cells. They attached the antibodies to diphtheria toxin or ricin toxin (potent poisons) and placed the toxin-antibody packets, as well as diphtheria toxin, ricin toxin and hybridoma antibodies, in the presence of colon-rectal cancer cells. As they hoped, the toxin-antibody packets were at least 100 times more lethal against the cancer cells than were the toxins or antibodies alone. The researchers then exposed the toxin-antibody packets to lung cancer cells, melanoma cells, human embryo cells and normal lung cells. Although the packets killed virtually 100 percent of the human colon-rectal cancer cells, they did not affect the other varieties of cells. The scientists conclude that toxins combined with monoclonal antibodies might provide a valuable treatment for cancer patients — by killing cancer cells but not normal ones.

Before such a treatment can be tested on cancer patients, however, it has to be shown effective in animals. And as Steplewski explained to SCIENCE NEWS, "We are trying to treat nude mice that have implanted human colon-rectal tumors and do *in vivo* experiments on them." □