under any circumstances for any purpose." It is possible to make a bomb with less than a kilogram of HEU, depending on the "talents and experience" of the designer, he added.

According to Taylor, 12 U.S. research reactors are authorized to store more than 4 or 5 kilograms of HEU, ranging in the highest instance to a limit of 45 kilograms. He doubted that campus burglar alarms give enough protection, since a black marketeer or terrorist might be willing to pay $100,000 to obtain a credible bomb threat. A blackmailer need only send authorities a small amount of HEU to make his threat credible. In view of this risk, Taylor said, "there is no crucial research at university reactors of which I am aware that would require weapons-grade uranium."

Leventhal reminded the commission of the importance of setting an example for users of HEU outside the United States, mentioning that the issue of "even handedness" came up last November at an international meeting on HEU held in Japan. The United States exported 23,590 kilograms of HEU to 43 nations through 1982, he said, representing an impressive potential bomb capacity.

Hirsch attacked the Harris report on several fronts, saying that its cost estimates were two times too high, that fuel conversion could take place in a matter of weeks rather than years, and that the change would not restrict research. The total cost of the conversion, Hirsch calculated, should be between $5 and $7 million, not $15 million. (Kelber agrees that the universities may have overstated their needs, adding he might do the same if he were as desperate for funds.)

It appears that the agency's staff will recommend a broad, rather than a narrow, order for conversion. Two or three special cases are likely to be exempted for a time: the reactors at Massachusetts Institute of Technology (MIT), the University of Missouri at Columbia, and the National Bureau of Standards. Directors of these reactors argue that their very high emittance machines cannot be converted to LEU at this time without great expense and considerable loss in experimental value. The Bureau of Standards says that its problem is that even if LEU fuels are developed, they will have a higher noise-to-signal ratio in the neutron spectra of interest, degrading the quality of information that can be obtained. MIT and Missouri seek a delay simply because there is no suitable fuel available at present for their reactors.

The Bureau of Standards is likely to be let off the hook altogether, partly on the rationale that it has better security than a university could afford. MIT and Missouri will probably be allowed to wait until further research on LEU fuels has been finished, perhaps until the end of the decade. But the others probably will be given some deadline for conversion, contingent on federal aid. DOE's research reactors, which are self-regulated, may not have to make any changes.—**ELIOT MARSHALL**

No Fraud Found in Swiss Study

An international commission has found "no compelling evidence" that Karl Illmensee, a researcher at the University of Geneva, fabricated data in a series of experiments he conducted in 1982. The commission was established after three of Illmensee's co-workers had questioned the veracity of some of his reported results (*Science*, 3 June 1983, p. 1023). Illmensee remains on the faculty of the university.

The work under investigation involved transplanting nuclei from cancer cells into fertilized mouse eggs whose own nuclei had been removed. Illmensee had previously gained considerable attention for similar experiments performed in collaboration with Peter Hoppe of the Jackson Laboratory, in which mouse embryo cells were transplanted into enucleated eggs from which normal mice developed. It was the first time such nuclear transplantation had been achieved successfully in mammals.

In a statement drafted in October 1982, Illmensee's co-workers challenged experiments that he carried out in July. Their chief charges were that fewer embryos were available than were reported by Illmensee, and that microsurgery equipment was apparently not used during a weekend when Illmensee claimed to have done a series of nuclear transfers. They also said they did not remember seeing Illmensee in the lab in April, when he said he did an earlier set of experiments. (The experiments have not been published, but the results were presented at a scientific meeting in September.)

Their statement was given to the Dean of the Faculty of Sciences at the University of Geneva in February 1983, but the university did not give a copy to Illmensee or take official action on it until June. It then appointed a commission consisting of three Geneva faculty members, plus Pierre Chambon of the University of Strasbourg, Richard Gardner of Oxford University, and Anne McLaren of the University of London.

The commission took evidence from Illmensee and his accusers and examined all the records. Illmensee offered explanations for the charges, and the commission concluded that the allegations were "inadequately supported and cannot therefore be taken as convincing evidence that Professor Illmensee had fabricated this series of nuclear transfer experiments."

The commission pointed out that the July experiments gave poorer results than those conducted in the three preceding months and "It is therefore unlikely . . . that the July experiments only were fabricated." But fabrication of the entire 4-month series would have been a formidable task, thus "Some members of the Commission felt that a major deliberate fabrication of this type . . . was implausible and inconsistent with the large number of random minor errors detected in the protocols." However, "Other members of the Commission took the view that a close examination of the experimental protocols did not enable them to find any compelling evidence supporting or refuting conclusively the hypothesis that some or all the experiments were fabricated."

The commission did agree, however, that Illmensee's records "contained numerous corrections, errors and discrepancies" that "throw grave doubts on the scientific validity of the conclusions." It urged that the experiments be repeated "as a collaborative project with full scientific rigor."

Although the earlier work with Hoppe was not contested by Illmensee's co-workers, the commission looked into it and found "no reason to doubt the authenticity of these experiments." A committee set up by the Jackson Laboratory reached a similar conclusion last year. The commission noted, however, that the results have not been replicated and urged Illmensee and Hoppe to repeat the experiments.—**COLIN NORMAN**