

vocating. Hence Community Technology was conceived. Hess describes himself as "project coordinator"—the group is run on a nonhierarchical basis—but he is also resident guru, anchorman, and chief enthusiast. His purpose is serious, but his conversation always urbane and amusing. He has a knack of discussing abstractions in crisp metaphors. Ask an average political scientist to explain how Republican and Communist conceptions of capitalism differ from each other and from the present-day reality, and you will be lucky to get an answer in less than ten paragraphs. Hess's formulation: "Republicans think capitalism is the shop on the corner. Communists think it is the factory. But really it's the telephone company."

Hess's objection to the modern industrial estate is that it is shaped by the dictates of "capitalist bookkeeping," which reward profit at the expense of all other criteria. "All capitalist eco-

nomics is founded on the fact that production is secondary. Profits are primary. The assumption that capitalist bookkeeping and the world of nature are reflections of one another is absolutely crazy. The world of nature suggests that fossil chemicals can be

*[The scientific] method arose in the great challenging of ideology embodied in church and then state. It has been debased to the defense and enlargement of institutions, corporation and state. Its reconstruction would restore it as simply a method of human thought, rather than human domination. . . .*

formed into almost permanent plastics; capitalism says it is preferable to burn oil."

Hess blames capitalist bookkeeping for the disutility of large organizations, for their growth to beyond a size at which they can either be controlled by the people they most affect, or can

even make efficient use of their means of production. "Corporations are lousy users of technology, and they are using up all our resources." Asked what should replace them, Hess prescribes "small, knowledge-intensive production groups. In a neighborhood like this it would be much more effective to grow food closer to where it is eaten, with no profligate waste of packaging and transport. Political wisdom says big, science and technology say small."

Community self-help is a tradition with deep roots in American history. An urban setting may prove difficult ground on which to resurrect it, but the tide of the times may be moving in favor of many of the things that Hess is trying to do. "It's like asking if there is going to be a flood, and building something that will float with it," Hess remarks. "People say you are a damn fool wasting your time. Maybe. But that is a small investment."

—NICHOLAS WADE

## Abortion and Manslaughter: A Boston Doctor Goes on Trial

*Boston, Massachusetts.* The manslaughter trial of Kenneth C. Edelin of Boston City Hospital (BCH), in progress now in Suffolk County Superior Court here, promises to be a lengthy and complex affair. The trial began on 6 January and is expected to last a month or more. Its outcome may affect the practice of abortion throughout the country, as well as the definition of when a fetus legally becomes a person.

On 3 October 1973, Edelin performed an abortion by hysterotomy, described to the jury as a miniature cesarian, on a 17-year-old girl. The abortion was perfectly legal. The patient survived; the fetus did not (*Science*, 25 October 1974). When all the evidence—and opinion—in the case is in, the jury will have to decide whether that fetus, whose disputed gestational age was somewhere between 18 and 24 weeks, was viable at the time of the abortion.

According to Assistant District Attorney Newman A. Flanagan, chief prosecutor in the case, the fetus was,

indeed, old enough to be viable—capable of sustaining life outside of its mother's uterus. In his opening statement to the jury, Flanagan declared that he would prove that Edelin suffocated the fetus, to which he refers as "baby boy," by deliberately preventing it from getting oxygen. Through the testimony of witnesses for the prosecution, Flanagan hopes to convince the jury that what Edelin did during the course of the hysterotomy was not consistent with medical practice but was, rather, manslaughter.

The defense will argue that there could be no manslaughter because the fetus never lived and, therefore, could not have been killed. Defense attorney William P. Homans, Jr., disputes Flanagan's contention that the fetus could have been as old as 24 weeks and, later in the trial, will present evidence, based on pathological examination of its lungs, that it never breathed.

The first few days of the trial were spent in jury selection. Six of the 13

men and 3 women, who were chosen from a field of 69 persons questioned, said they have no opinion about abortion. Three jurors said they definitely favor abortion; one is adamantly opposed, although he admits that he does not know much about it. The other jurors said their feelings about abortion depended upon the circumstances under which it was performed.

The first witness for the prosecution was Mildred Jefferson, a general surgeon on the staff of Boston University Medical Center and an ardent opponent of abortion. Flanagan called her as an "expert" witness to establish the meaning of certain terms, such as abortion, for the jury. She defined abortion as the ending of pregnancy of up to "20 weeks" of gestation and admitted under questioning by Homans that, "from time to time," she also defines abortion as "an interruption of pregnancy to prevent the birth of a living child."

During Jefferson's testimony, and subsequently, there was considerable emphasis on the connotative language of witnesses and attorneys. Where Jefferson used words like "womb," "child," "offspring," and "mother," Homans insisted on words such as "uterus," "fetus," "products of conception," and "patient."

Homans tried to show the jury that Jefferson was not really an expert witness because she had had no personal

experience in obstetrics and gynecology since 1970 and very little before then.

Other witnesses called by the prosecutor in the first few days of the trial were physicians and other medical personnel from BCH. They seemed to do little to advance his case. Hugh R. Holtrop, a senior BCH physician who examined the patient when she came to the hospital seeking a "termination of pregnancy," said he believed her to have been 20 to 22 weeks pregnant at the time. When pressed by Flanagan as to whether she could have been 23 weeks pregnant, Holtrop answered that it was possible but "I doubt it." Holtrop refused to go as high as 24 weeks.

Alan Silberman also testified for the prosecution. A third year medical student who had been on the obstetrics and gynecology service only 3 days when the patient was admitted to the hospital, Silberman was among those who examined her. At the top of her chart he wrote a note saying, "looks about 24 weeks." Under questioning, Silberman insisted that he had no memory of the patient whatever and that he would not stand by the 24-week estimate. He had put it down, he said, merely as a note to remind him to ask for someone else's opinion, as he had had no experience examining pregnant

women. Silberman wanted no part of any suggestion that he was an expert.

Next to take the stand was James Penza, like Holtrop, a senior obstetrician and gynecologist at BCH. Many of the questions he was asked had to do with descriptions of routine procedure in hysterotomy abortion. Flanagan is trying to show that Edelin's methods were not routine and that he took longer than is usual to remove the amniotic sac containing the fetus from the uterus. Penza refused to be pinned down, saying that, depending upon a number of circumstances, it could take anywhere from several seconds to several minutes. He also refused to admit to Flanagan that the fetus was "alive" just prior to the operation (one point Homans would like to establish is that it could have been dead as many as 24 hours prior to surgery). Penza declared that he does not speak in terms of a fetus being alive or dead but rather viable or nonviable. He admitted that it was viable, to Flanagan's satisfaction, although Penza did not say that by "viable" he meant capable of living on its own.

Next came surprising testimony from Mamie Horner, an operating room technician who had testified for the prosecution before the grand jury that indicted Edelin. She had told the grand

jury that she "vividly recalled" being present at the hysterotomy abortion. But on the witness stand at the trial, she stunned everyone by insisting that it was all a mistake, that she had not been present after all and had been confused as to which operation Flanagan was asking about before the grand jury. At that point, court recessed for Martin Luther King Day, which came as another surprise to the attorneys, who had not anticipated having a day's break in the trial.

Asked what he thought about this turn of events, Flanagan, the prosecutor, said the jury "could infer that she made a mistake, or that she's prejudiced one way or another." As for the doctors' testimony, Flanagan suggests that they may be trying to protect both Edelin and themselves. "Doctors don't like to testify against each other," he said, adding that it is also the "Pontius Pilate routine. None of them had anything to do with it."

Edelin, in all of this, says that he still does not understand what he is supposed to have done that was illegal. He reportedly remarked at a breakfast meeting at Temple Isaiah in Lexington, where he was a guest speaker recently, "I'd like to tell a funny story about the indictment but there aren't any."

—BARBARA J. CULLITON

## RESEARCH NEWS

# Leukemia: A Second Human Tumor Virus

The search for a human tumor virus has been exceptionally frustrating. Investigators working with malignant human cells have frequently observed viruslike particles in the cells; they have observed extensive homologies between DNA from human tumors and RNA from animal tumor viruses; and they have observed in human tumors antigens similar to those present in animal tumor viruses. This evidence has convinced many virologists that viruses are involved in human cancer, but the viruses themselves have remained curiously elusive.

Several investigators have announced the isolation of tumor viruses thought to be of human origin only to discover later that they were of animal origin. Others have also isolated what they thought to be human viruses but dis-

covered their animal origin before making an announcement. In the face of this frustration, some virologists had begun to argue that perhaps human tumor viruses were somehow different and might never be isolated. It was thus with a great deal of satisfaction (and some envy) that virologists last June greeted the announcement that Charles McGrath, Marvin Rich, and their associates at the Michigan Cancer Foundation had isolated a human virus that is implicated in breast cancer. The announcement in this issue (p. 350) that Robert E. Gallagher and Robert C. Gallo of the National Cancer Institute have isolated a human virus associated with acute myelocytic leukemia should be greeted with even more satisfaction (and envy), both because theirs is a somewhat different type of virus and

because their evidence of its human origin is perhaps even firmer than the evidence accumulated by McGrath and Rich.

The history of premature announcements of human tumor viruses may lead many skeptics to question the new discoveries. But there are very substantial differences between the earlier studies and the two recent ones. Some of the first viruses, for example, were isolated from long-term cultures of poorly defined tumor cells; maintenance of the cells for such long periods increases the risk of contamination. The breast virus was also isolated from a long-term culture, but the cells in that culture were characterized much more fully than in the previous studies to show that they were not contaminated. The leukemia virus was isolated from