

... Genetics

tion: Should adopted children know their genetic heritage so they know whether they have, or carry, a specific genetic disease? John R. Ball, physician, lawyer and senior policy analyst for the Office of Science and Technology Policy in Washington, replies: Although state laws are moving toward statutes that would allow adoptees to obtain genetic information while respecting the privacy of the natural parents, few state laws require genetic parents to provide genetic information about their families at the time they give up their offspring for adoption. It would be beneficial to adoptees if they knew their genetic history, Ball holds, because many genetic diseases have available methods of treatment, and because many genetic diseases can be diagnosed in the womb.

An even more difficult question arises: When should genetically defective persons receive medical treatment that will prolong their lives? A landmark court case dealt with this question, reports Charles H. Baron, professor of law at Boston College Law School. The case was brought before the Massachusetts Supreme Court in 1977 to decide whether Joseph Saikewicz, a mentally retarded patient, should receive medical treatment for his leukemia — a treatment that would extend his life by only a few months. In other words, the question was whether a short extension of life would be a curse or a blessing for a retarded person. The court ruled that it was better to withhold than to give treatment.

This case, however, has left the medical community with confusing legal guidelines over what they should do in future cases of this nature. Should they try to arrive at such decisions through the courts? Baron thinks so. Arnold S. Relman, professor of medicine at Harvard Medical School and editor of the *NEW ENGLAND JOURNAL OF MEDICINE*, strongly disagrees: "I fail to see how a judge, a total stranger, getting information from lawyers who are trained to fight each other, can really know what the patient would like under these circumstances." Relman believes that physicians should decide.

Robert A. Burt, professor at Yale University Law School, takes a compromise stance. He contends that courts and legislatures can provide general guidelines for a physician's conduct in terminating medical treatment for a retarded (or comatose) patient, but that these guidelines should be applied by courts only in after-the-fact review. In any individual case, Burt says, the physician and family members should be forced to accept the responsibility for making and acting on the treatment decision with the clear knowledge that a court might later rule that they had acted wrongfully. Why this posture? "I think the Saikewicz case showed that neither the judge nor the physicians took true responsibility for terminating Saikewicz's treatment," Burt replies. "Each

pretended that the other was taking the basic responsibility for action, and in this mutual charade Saikewicz's individual circumstances were hopelessly obscured."

Still a fourth position on the question is held by Robert M. Veatch, senior associate with the Institute of Society, Ethics and Life Sciences in Hastings-on-Hudson, N.Y.: The patients' families should make these decisions.

But probably the toughest questions at this point surround reproduction by *in vitro* fertilization and embryo transfer — what is popularly known as test-tube reproduction. There are at least three potential uses for this technique, explains Barbara F. Katz, staff attorney with the Massachusetts Department of Public Health (SN: 6/2/79, p. 358). A woman with blocked Fallopian tubes could donate an egg to be fertilized in tissue culture by her husband's sperm, and then the fertilized egg would be transferred back into her womb for development. A woman with blocked Fallopian tubes could donate an egg to be fertilized by sperm from someone other than her husband, and the fertilized egg would be transferred back into her womb for development. Or a woman who had healthy Fallopian tubes, but who did not want to carry her own baby throughout pregnancy, could donate an egg to be fertilized by her husband's sperm in culture, and then the fertilized egg would be transferred into the womb of another woman (surrogate mother) to be carried to term. Each of these uses raises legal questions, says Katz, but especially the last.

Who would be the mother of the conceptus? The egg donor? The surrogate mother? If a surrogate mother were being paid for her services and a payment was missed, would the child she was carrying become hers? What if amniocentesis detected a defect in the fetus? Would the egg donor or the surrogate mother have the right to decide on an abortion? What if the egg donor died before birth of the fetus? Would the surrogate mother then become the legal mother?

Although legal requirements for government-funded *in vitro* fertilization and embryo transfer are starting to emerge, Katz reports, the legal aspects of human *in vitro* fertilization and embryo transfer conducted without government funds have yet to be tackled.

When will the above questions receive firmer ethical and legal responses? Not next year, or the next, and maybe not even for many years to come, says Elliot L. Sagall, president of the American Society of Law and Medicine. The U.S. legal system, he contends, is one generation behind medical science. Will the legal system catch up? Will the questions ever be satisfactorily answered? If there was one thing upon which participants at the law and genetics symposium did agree, it was that discussing such questions is a first step toward resolving them. □

... Jupiter

tude traversed by Io in a Jovian rotation, which would have produced a much thicker torus. Since they were indeed seen only in a thin, magnetic equatorial band, perhaps, Pilcher offers, they are created only at magnetic latitudes near 0°, when Io is actually in the equatorial plane. It is even possible that the narrow, magnetically confined ring existed on both nights, but was masked on the second night by the substantial amount of the lower temperature emission.

To make the picture still more complicated, it could be inferred from the images (though Pilcher is reluctant to commit himself) that changes take place in the torus on time scales considerably shorter than a day. One can get the impression that the 5.3-R_J circle Pilcher matched to the April 9 photos, for example, does not fit with the same degree of precision in each case. The 5.3-R_J size, in fact, as he acknowledges, was only an approximation, adopted to suit images that actually seem to range from about 5.0 to as much as 5.5 R_J. A smaller range — about 5.7 to 5.9 R_J — may be represented by the following night's views.

The mere presence of the veils, tori and other phenomena associated with Io is bizarre enough, and the possibility that those vast effects change rapidly on a scale large enough to see from earth is more striking still. But more work remains to be done — and nothing on Io is ordinary. □

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