DISCUSSION

DR. CALNE: Tom, I would like to congratulate you on the tremendous amount of work that you presented here. I think that the conclusions that you have come to about biliary drainage will be very interesting to compare with the results you get with the long Roux loop and what we get with the T tube. One potential advantage of the T tube is that you can do a cholangiogram every day if you want to, and you can be sure at any rate whether there is a major blockage. I think there is one aspect of liver transplant that perhaps deserves a little bit of emphasis, and that is the diagnosis of rejection. This can be exceedingly difficult even by biopsy. The changes that can occur in the liver are relatively limited, and to give a dogmatic opinion that the changes are of rejection, infection, drug toxicity, or ischemia can be difficult. At our last liver transplantation we had a rather interesting experience, which you probably have observed also, of a long ischemic period. The liver was removed some 60 miles away and brought to our hospital, and the behavior of it at operation looked fine. The patient became progressively more and more jaundiced, and the bilirubin went up to 40. There was no evidence of rejection on the migration of white cells test, which we think is quite a useful test. The T-tube cholangiogram showed that the ducts were quite normal. We didn't increase immunosuppression. We just sat tight and the bilirubin came down spontaneously to normal, and the patient is out of the hospital now. I think that previously we would have panicked and given huge doses of immunosuppression and probably killed the patient with infection. It emphasizes some of the discussion that was held this morning about not giving extensive amounts of immunosuppressive agents. The other patient we have living now more than a year is not on any steroids at all, and just on 120 mg of Imuran a day. I think that this experience in patients with livers on lower doses of immunosuppression than kidneys goes along very well with the observations that you described of crossing the ABO barriers and crossing cross-match barriers, and fits in with our own thoughts very closely, both experimentally and clinically; if indeed we can use any kind of donor on ABO grounds for liver transplantation it would make the procurement of donors and the actual treatment of patients very much easier and be a great important logistic advance.

DR. A. G. BIRTCH: (Springfield) I, like Dr. Calne, would like to compliment Tom on a beautiful presentation. I would have just two comments. One, actually the first liver transplant that we did at the Brigham was indeed ABO-incompatible. It was B to A, and we did indeed find anti-B antibody; and that liver as you recall was one that had suffered significant ischemic damage. We were never able to put together whether the findings at day 10 or 11 when the patient succumbed were due to the ischemic injury, which we assumed, or had anything to do with the anti-B titer that was present. I still don't know. If I understand your 3 patients correctly, none of them were long-term survivors. I wondered if there was anything in the long-term course of those patients that made you think that crossing that barrier had anything to do with their not becoming long-term survivors. Second, I would just like to reminisce a bit myself. As you remember, Tom, in Dr. Moore's original technique he used the Roux-en-Y in the dog for many years, feeling at that time that it had to be better than the duodenostomy. One of the things that we did later in trying to trim the operation down to size was to

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DR. STARZL: I agree with you about confronting Dr. Moore's opinion, and I try assiduously to avoid that. As to the Boston case, the blood type direction was B to A, a detail I know because you and Dr. Moore made the facts available to me. I have had the occasion recently to go back and look at what you gave me when it was fresh in your mind. That liver developed multiple intrahepatic abscesses as the most important postmortem finding, something that I think would not necessarily be related to the confrontation of the blood type. For a long time I thought it would be unlikely that we should do such red-blood-type breaches anymore, but I obviously changed my mind to some extent. The time of death of one of those ABO failures was about 40 days. That was the patient who had a hepato-renal syndrome that reversed, but the brain lesion didn't go away. We were left with a vegetable whose systemic support was eventually discontinued. The second case was a child with biliary atresia who had a perfect result and who died some 7 months later from the kind of complication that apparently killed Roy Calne's long-surviving patient last week, and which killed one of our longest survivors, namely septicemia. The third combination was an AB to A death that occurred about 2 months or so postoperatively, and followed an attempt to correct a biliary duct obstruction. I think these cases had no evidence of antibody damage. As to the 3 with cytotoxins, only case 3 might have had antibody damage. In that liver there are findings that could be explained by immunologic or ischemic damage. I am fascinated by Calne's case with the high-titer cytotoxins, and although one might become incontinent at the moment of revascularization I think I might try confronting a cytotoxic cross-match again if I really had to do it.

DR. WOLF: Just two more general questions. One, what is your current feeling on transplanting for malignant disease? And secondly, how about your current immunosuppression for these patients?

DR. STARZL: I think the patient with malignant disease is a bad risk, but it's obviously a matter of judgment as a clinician when you are confronted with a case; in spite of all kinds of resolutions about not wanting to do more tumor cases you end up treating the patient. Not long ago I had such a patient with a duct-cell carcinoma. I was skiing in Aspen at about the time the patient arrived, and when a donor became available I did him because there was a donor and because it obviously was his only chance. As a matter of fact, I have thought for a long time that this kind of neoplasm might be a good indication because the tumor itself is so small. At the time of the liver replacement in the case I just mentioned, I never had a positive tissue diagnosis until the case was all finished. Even then the pathologist had to go on a detective hunt to find the tumor. It was very small and partly necrotic. The cases that we have had difficulty with have been the hepatomas that were already big. Even then we know that it is possible to effect a cure. Roy's case has demonstrated this. We have a child at 4 years, 4 months who obviously represents a cure of a hepatoma, and there are some others around. A few. So I think that under properly defined circumstances it would be reasonable to do a few of these, and so I don't have a closed mind about it.