Crossing the River

Back in the days when Bob Rae was premier of Ontario, the Ministry of Education decided to have a weekend conference on mathematical education in the schools. I got together with a chap in the Ministry who was organizing it and who happened to have been a mathematics teacher in his past life. We decided that it would be a good idea to distribute to the delegates a list of interesting mathematical problems to illustrate some of the things that might appeal to students.

One of these was the Problem of the Jealous Husbands: *Three couples, husbands and their wives, out walking come to a river that they wish to cross. The only means available was a boat that could carry no more than two people. So evidently they might be ferried across by twos, with one person returning the boat to pick up the next pair. However, there is a hitch. No wife must be left in the presence of another man unless her own husband is present. How can the crossing be achieved?*

The problems were sent off to the printers and all were printed off exactly as we proposed them with the exception of this one. Apparently, some politically correct person in the bowels of the bureaucracy felt that the problem was flawed. The setting was changed to have three mothers and daughters, with no daughter being left alone with another mother unless her own mother was present. It is not clear that this was an improvement.

However, when you go back to one of the sources of this problem, a Latin document entitled *Propositiones ad acuendos juvenes (Problems for sharpening youths)* by Alcuin of York, an eighth century Christian scholar at the court of Charlemagne, you get another rendition. Here we have three men each with a sister, with no sister being left with another brother unless her own brother is present, "lest she be defiled." It is to Alcuin that we owe another river crossing problem that some readers may be familiar with: *A man has a wolf, a goat and a cabbage, and has to cross a river in a boat that can accommodate at most two of these possessions. He must not leave the wolf alone with the goat, or the goat alone with the cabbage, but it is ok to leave the wolf and cabbage together. How does he do it?*

The wolf, goat and cabbage problem is easier and you might want to sharpen your eye-teeth on it first. However, the problem of the husbands and wives will yield to a systematic approach. Be careful not to miss all the possibilities open to you under the rules.