1.E3 Jöran Friberg on the purpose of Plimpton 322

We start by making the following simple but extremely important observation. With very few exceptions all Babylonian mathematical problem texts contain problems whose solutions are rational numbers or, more precisely, semiregular numbers which can be expressed by use of the Babylonian sexagesimal notation. It is evident that the authors of these Babylonian mathematical texts must have devoted a lot of work and ingenuity in *choosing* the right kind of *data* in their formulation of the problems, and in *devising problems* they knew would possess solutions of the indicated kind. For brevity, I call such problems *solvable*. For example, the problem of finding the third side of a right triangle when two of the sides are given becomes 'solvable' only if the sides of the given triangle are multiples of the sides of a primitive Pythagorean triangle with one of the shorter sides regular.

Thus it appears that the reason for the construction of the tables on the Plimpton tablet was not an interest in number-theoretical questions, but rather the need to *find data for a 'solvable' mathematical problem*. More precisely, it is my belief that the purpose of the author of Plimpton 322 was to write a *'teacher's aid' for setting up and solving problems involving right triangles*. In fact, a typical Babylonian problem text contains not only the formulation of the problem but also the details of its numerical solution for the given data. Hence the contents of the table on the (intact) Plimpton table would have given a teacher the opportunity to set up a large number of solved problems involving right triangles, with full numerical details, as well as to formulate a series of exercises for his students where only the necessary data were given, although the teacher *knew* that the problem was solvable, and where he could *check* the numerical details of the students' solutions by using the numbers in the table.