The “Why” Behind the Pursuit of Mathematic Knowledge

Through the ages intellectual knowledge has developed, sometimes with rapid discovery, and sometimes with only passing along known knowledge to the next generation. Mathematical knowledge has grown through history for two main reasons: the practical use and the abstract pursuit of knowledge. Babylonians, early Greeks and today’s scholars have each had the opportunity to advance mathematical knowledge. One necessary ingredient has been an advanced society able to support a leisure class. Based on remaining artifacts and writings, the reasons for mathematical study by the Babylonians and the early Greeks can be theorized. Today’s reasons are more complex but also more clear.

Modern day Iraq was once home to groups of people commonly known as the Babylonians. The Babylonians developed a high level of society structured around a hierarchy of kings and priests.¹ The ruling class accumulated wealth which allowed them to pursue activities other than just survival. Practical needs drove much of the intellectual development, particularly mathematical discovery. Many clay tablets have survived that give us some idea of what was known. Approximately 400 tablets containing mathematical information have been examined by scholars. Some of these tablets were merely inventories of livestock and goods indicating a practical reason for the use and understanding of math. The Babylonians, however, went beyond basic arithmetic. They adopted a sexigesimal number system, which allowed for more sophisticated computing, as seen on tablets with tables of squares, cubes, square roots, cube roots and reciprocals.

of numbers. The Babylonians may have also been working with generalized values. They
did not use variables as we do today, but they may have used “length” and “area” in a
similar way because some of the problems using these words do not make practical
sense.² Practical need drove most of the math discovery of the Babylonians; however, it is
intriguing to see that some of the work may have been more abstract in nature.

The early Greeks advanced the knowledge and use of mathematics tremendously,
both for practical reasons and also in an attempt to explain the mysteries of the natural
world. Through conquest and colonization, they controlled a large geographic section of
the civilized world. They traveled widely, amassed what was known in mathematics, and
built upon it. Adoption of the Phoenician alphabet was helpful to the advancement of
knowledge, and around 700 B. C. the Greek cities of Asia Minor began using coins.
Coins made it easier to accumulate wealth, which allowed a broader group of people to
pursue intellectual achievements. The Greeks moved from thinking about triangle fields
to thinking about triangles, and studying numbers in an abstract way began. The Greeks
became more philosophical and believed that by pursuing knowledge and using strict
logic, one could better understand his or her place in the world.³

Today, mathematical knowledge has become much more complex and subdivided.
Along with a wide variety of practical reasons, math is also studied for a number of
abstract reasons. Arithmetic is used in many areas of business accounting such as
accounts receivable, accounts payable, inventory, payroll and tax accounting. Statistics
are also heavily used in reporting business performance and in making predictions. Many

² Boyer, Carl B., History of Mathematics, John Wiley and Sons, 1968, p. 33
leisure activities such as sports rely on statistics and place math in the hands of many people. The fields of architecture and engineering require extensive knowledge of geometry and calculus. Aerospace engineering is an interesting example in that this field requires extensive math knowledge and also pushes the development of new math knowledge. In most math fields, advanced work is being completed. Scholars continue to seek solutions to unanswered questions. These pursuits are not necessarily based on practical application, but simply seek to prove new mathematical theory.

Over time, mathematical knowledge has been pursued for both practical and abstract reasons. The Babylonians most likely began out of practical necessity. The tablets containing more advanced problems point to a grasp of more abstract concepts as well. The business interests of the early Greeks required knowledge of math and the success of the society allowed for the pursuit of many unanswered, abstract questions. The Greeks believed that understanding numbers held the key to many of the mysteries of the world and actively worked with math to find the answers. Today, we can specialize in many different areas of mathematical knowledge. Many are based in practical uses, while others seek to push what is known. Mathematical discovery has clearly fostered the development of society and will remain central to the success of progress.
BIBLIOGRAPHY

