Name _____ Class _____ Date _____

Chapter 8

READING 1

SECTION 1

Civilizations in the Americas

Maya Technology

The Maya, centered in the Yucatán Peninsula of modern-day Mexico, created a civilization with vast technological developments. Astronomy, mathematics, and architecture were only a few of the areas in which the Maya made significant advances. The excerpt below describes many of these advances. As you read the selection, consider how technology is defined in relation to different cultures.

During Mesoamerica's Classic period (A.D. 200–900), the center of Maya civilization was the Petén jungle, the green heart of the Maya world. More than a dozen great cities flourished there, each the capital of a small kingdom; in the very middle of the forest stood the greatest of them all, Tikal. This city, whose overgrown ruins cover twenty-three square miles (ancient Rome, though more densely populated, only covered eight), was inhabited for two millennia [2,000 years] and held perhaps 100,000 people at its height. The urban core contains 3,000 buildings, gripped by tall trees alive with birds and monkeys. Five pyramids with ornate stone temples on their summits still rise 200 feet into the air, and when you climb these ancient skyscrapers they lift you above the forest canopy and you stand as if upon an island in the greenery and mist. One of these, prosaically [commonly] called Temple IV, was the tallest structure in the Americas until the Washington Capitol dome was built—eleven centuries later.

Maya achievements in art, writing, architecture, astronomy, and mathematics rivaled those of ancient Egypt or Classical Europe. Mathematicians invented the concept of zero and place-system numerals—discoveries that eluded Greece and Rome—and with these intellectual tools the Maya designed a calendar that could measure time precisely over millions, even billions, of years (they often juggled with immense spans of time for astrological reasons). This enabled them to reckon the solar year more exactly than the Julian calendar used by Europe until 1582; they refined the length of an average lunar month to within twenty-four seconds of the figure determined by atomic clocks, and their extraordinary calculation for the synodical period [movement in relation to other planets] of Venus was out by a mere fourteen seconds per year.

Such triumphs are all the more remarkable when one considers that the Classic Maya were technically in the Stone Age. They had little or no bronze, certainly no iron, and made no practical use of the wheel, though they knew its principle. To Europeans, who think civilization and hard technology are much the same thing, this poses a paradox [contradiction]. The teleological [by natural design] march of stone, bronze, and iron means little in the Americas. It may be a useful yardstick for calibrating [measuring] Europe's past, but it's useless for taking measure of the Maya—worse than useless, because, like all flawed premises, it blocks true understanding.

The problem lies in our definition of technology. If we think of it merely as gadgetry, the Maya were far behind. If we think of it as the totality of systems devised by a civilization—not only their tools but their social structure, their use of intellect, their familiarity with plants and animals, weather and the environment, their ability to pass down knowledge and put it to work—then we can see how they overcame a lack of hardware. Their astronomical discoveries, for example, were made without telescopes of any kind, but they had the mathematical theory, the record keeping, and the perseverance to refine naked-eye sightings in the crucible [melting pot] of time.

Name _____ Class _____ Date _____

1. How does the author compare Maya culture to ancient Egyptian, Greek, and Roman cultures?

2. What paradox does the author describe in this excerpt?

3. How does this excerpt suggest that we should define technology?