

# Lead Article — December 2015

## The Hourglass – WB Jonathan Paz

As all Masons (and most everyone else) know, Freemasonry is filled with symbols. We use these symbols to teach lessons of morality and virtue.

This series intends to analyze a single symbol used by Freemasonry – not for its deeper lessons or alternative teachings, but simply the symbol as it is. Perhaps you may find deeper meaning for the symbol for your life or in your journey through Freemasonry, but that's for you alone.

### The Hourglass

The Hourglass is a symbol of time. It almost seems redundant, or at least painfully obvious, to make that statement, but it provides the introduction of the subject of this article: time.

Time is a finicky subject to discuss. We all know what it is and we all can see the apparent effects of time upon our bodies and the world around us. However, some scientists and philosophers believe that it may be possible that time itself doesn't even exist! Physicists, struggling to reconcile the disparate elements of their field – between large-scale relativistic physics, discussing how gravity affects light and time; and small-scale quantum physics, where incomprehensibly small particles carry massive forces, and where gravity holds no sway without all the equations breaking down producing an infinite sum of infinities – have presented varying theories to try to create a unified theory describing the universe and how it all works. A few of them have postulated that perhaps time is the factor whose presence is causing the issue and that time itself is irrelevant. Needless to say, even within the realm of theoretical physics this idea is a bit too radical for it to be mainstream thought. All equations include time, even those describing things as innocuous as weight; however the idea has weight, and there are physicists studying the depths of the universe to discover evidence that the laws of physics may have been different in the past, thereby proving that time must exist.

The scientific and philosophical consequences of a universe where time is but a mere illusion are a bit too ethereal for me to contemplate with any cogency, so I'm going to continue with the basic understanding that time is a real concept.

The first example of the passage of time is the passage of the Sun across the sky. The earliest scientists, astrologers, attempting to discover the mysteries of the universe (as well as what it means to our lives), thought of the Earth at the center of a celestial sphere, and referred to the Sun's movement across this sphere as the ecliptic. An effect of this transit is the

movement of shadows across the Earth's surface. When the shadows are at their smallest, the Sun is at its highest in the sky. From this point, there is as much time of the Sun rising as there is of its falling. In addition, this point in time is regular and predictable.

## 24 hours in a day

The number 12 held special significance to ancient peoples. When you would count the number of full or new moons between each spring, it would almost always add up to 12. In addition, ancient traditional counting methods (still used today in parts of Asia) would use the thumb to count the bones of each finger, there being 12. The use of a duodecimal numbering system (base 12) was common throughout the ancient world, likely for these reasons. The Ancient Sumerians and Ancient Indians, therefore, divided the daytime into twelve equal portions, and logically night would be another twelve. Ancient Egyptians developed a Sundial of ten hours plus an extra two for twilight. This concept of two twelves or 24 hours spread throughout various cultures until it is used universally throughout the entire world.

## 60 minutes in an hour

This is a little harder to draw a direct line from ancient history to today, but the best explanation could still come from the Ancient Sumerians and Babylonians, who used a sexagesimal counting system (base 60), which used basic counting symbols counting from 1 to 9, then having another counting symbol from 10 to 50, allowing them to use a single "place" to count from 1 to 59 and reused the symbol for 1 as a placeholder to say 60. The concept of 60 being an important unit of counting survived through the Greeks, then the Romans. The Romans would count time by specifying the hour then the "first small part" or *pars minuta prima* of the hour, which they divided into 60 parts.

## 60 seconds in a minute

This too comes from the Romans as an extension from the minute. After *pars minuta prima* was *parte minutae secundae* or "second small part." If the first small part was a sixtieth of the whole, then a second small part would be a sixtieth of the first small part. The Romans went further into *parte minutae tertia* or "third small part," which would be a sixtieth of a second. The Polish continue to count this way (even using the word *tercja* to describe it), but we revert to a decimal division for this purpose after a second.

## 12 months and 365 days in a year

The Ancient Roman calendar was divided into 10 months of roughly equal size totaling 304 days. Winter was an uncounted time without month and

day. These months were:

1. Martius (March), dedicated to Mars, the god of war and agriculture, the time of planting and warfare
2. Aprilis (April), from aperire, meaning “to open”
3. Maia (May), from the Greek goddess of the same name, identified as the Roman goddess of fertility
4. Junius (June), from Juno, the Roman goddess of marriage
5. Quintillis, meaning fifth
6. Sextillis, meaning sixth
7. September, meaning seventh
8. October, meaning eighth
9. November, meaning ninth
10. December, meaning tenth

The months of Ianuarius (January), dedicated to Janus, the god of beginnings and doors, and Februarius (February), from the Roman festival of purification februa, were added by King Numa Pompilius around 713 BC and increased the length of the calendar to 355 days, the length of the lunar calendar. He also changed the first month of the civil calendar to be January. February was split in two, the first part ending on Terminalia (meaning end, referring to the end of the religious calendar) on the 23rd and the second part the remaining five days. If necessary to keep the calendar aligned with the apparent solar year, they would add an extra month, called Mensis Intercalaris, in this split.

At the time of Julius Caesar, it was known that, if you look over the course of about four years, there were 1461 days, or 365.25 days a year. Caesar reformed the calendar in 46 BC to make it a true solar calendar of 365 days plus an extra day in February every four years to keep it in line. He defined the first day of Spring, and the first day of the year, to be March 25. After Caesar's death, Mark Anthony changed the name of the fifth month to Iulius (July) in Julius Caesar's honor. Caesar's successor, Augustus, finished Caesar's calendar reforms, and in his honor renamed the sixth month to Augustus (August). During the period of reform, a few of the Julian leap days were not added, so the first day of spring was redefined to be March 21. To this day, we keep the anglicized form of these Latin names.

By the late 16th century, it was becoming painfully apparent that the actual first day of spring and the defined first day of spring were many days off. In 1582, Pope Gregory XIII, by the advice of Aloysius Lilius, to change the leap year system to the one we have today (a leap year is every year divisible by four except in years divisible by 100, where it's a leap year only if the year is divisible by 400). He also decreed that the day after Thursday, October 4, 1582, would be Friday, October 15, 1582. This was implemented in all Catholic countries, but not universally. The British Empire wouldn't adopt the Gregorian Calendar until 1752. The last country to transition from the Julian to the Gregorian Calendar was Greece in 1923.

## What is a second?

A second is now a fundamental standard of measure, or “base unit” as defined by the International System of Units (SI [from the French *Système*

International d'Unités]). Rather than take its definition from the position of the Sun, which isn't precise and changes on a daily basis because of variations of the motion of the Earth, we now assign its definition as "the duration of 9,192,631,770 periods of the radiation corresponding to the transition between the two hyperfine levels of the ground state of the cesium 133 atom." This overly complicated definition of a second can be distilled down to this explanation: the definition of a second is a positively identifiable property of the universe. This span of time will be the same on the Earth as it is in the center of the galaxy and everywhere in between.

Greenwich Mean Time (GMT) exclusively uses the definition of noon to be the zenith of the Sun as measured at the Royal Observatory at Greenwich, England. Coordinated Universal Time (UTC) exclusively uses "atomic time" to determine the time. GMT changes constantly due to the tidal slowing of the rotation of the Earth by the Moon. UTC is constant and would quickly get out of sync with the earth. Therefore, a single "leap second" is occasionally added to UTC to keep it within 0.9 seconds of GMT.

## Time Zones and Daylight Saving Time

The earth is divided into various time zones to help keep the clocks in a given region to be the same every time. Some areas also implement Daylight Saving Time, which is thought to help save energy. This is an extremely complicated subject replete with geopolitical ramifications, so I will maintain Masonic tradition by avoiding the discussion of politics and encourage you research this topic on Wikipedia. It is an enlightening and interesting subject that will no doubt inspire your curiosity.

## The End of Time

Ah, now this is a subject. Shall it be a philosophical discussion? A religious one? A scientific one? Each has its own interesting and enlightening line of discourse and exploration, each with its own lessons for us all. I shall coerce this subject as a conclusion of this article.

What does time mean for a Mason? We have our own symbols of time and lessons for their use. We have been taught these. What it means for you? That is for you alone to discover. But always remember that our time is short. Use it ever for the greater glory of God and the continual improvement of yourself, your family, your community, your nation, and the world.