Appendix: Time and Measurement

Time

Though the worlds and societies of the Galactic Alliance maintain their own measure of local time, particularly days and years in accordance with the movements of each individual planet, a standard measure of time is a clear necessity for an interstellar civilization. The *cycle* is the fundamental unit of time in the Alliance, its span being an average between a Kiros day and an Arcadian day. Ten cycles constitute a *ten-cycle*, and fifty ten-cycles (or five hundred cycles) equals one *staryear*, the largest unit of time commonly observed. For approximate comparison, a cycle is roughly 20 Earth hours, a ten-cycle is 8.3 Earth days, and a staryear is 416 Earth days.

Cycles are divided into two sets of ten *tenth-cycles*, the first set labeled the Early Ten (ET) and the later set the Late Ten (LT). (This means there are actually *twenty* tenth-cycles in a cycle, which is somewhat counterintuitive. Apparently the habit of dividing daily - or cyclical - time with a meridian is one thing that a pan-galactic society simply can't break.) Finally, each tenth-cycle is then divided into fifty *ticks*, which are themselves divided into fifty *demiticks*. As further comparison, a tenth-cycle is almost identical to an Earth hour, a tick is 1.2 minutes, and a demitick is 1.44 seconds.

This system is not without its oddities, however. Each individual inhabited planet rotates differently, with a preference to have a time system that suits that particular planet's rotation. Thus, there are two separate time keeping methods anywhere you are, many of them using a modified form of the current cycle format. When keeping time, it is important to note whether it is Galactic Standard Time, or Localized Planetary Time.

Among the Erani, there is even a significant oddity in how the years are recorded. Initially, the Galactic Staryear Standard was based on the Kiros year. However, very few planets have revolutions around their primary star as Kiros. For the sake of diplomacy, the Galactic Staryear Standard was adopted. However, the years didn't mesh, and rather than go back and retroactively apply new dates to their History, the Erani kept them, and thus the Erani history has a jump from staryear 1011 to the next recorded staryear of 1990. Some Erani jokingly refer to the gap as the “millenium where nothing happened.”

The format for noting the calendar date is done from the greatest denomination down…

3406 AW (staryear), 16th ten-cycle, 4th cycle.

In the case of cyclical time, the shorthand is often used as such…

5.34.16 ET (meaning the 5th tenth-cycle, 34th tick, 16th demitick of the Early Ten).

Measurement

Base units of other measurements were devised by Erani, who used these units since their Industrial Age. Because of its simplicity and ease of conversion between units, this system became the standard throughout the Alliance, almost completely supplanting local traditional measurements. Each form of measurement has a base unit (which is always capitalized), and suffixes are added to indicate exponential increase or decrease by a factor of ten.

Met: *1000
Mel: *100

Mem: *10
em: 1/10
el: 1/100
et: 1/1000

Noting the presence of the capital "M" in the suffix is essential - it makes the difference between multiplying or dividing the base unit.

Length: The base length is called the Tack. 1 Tack is approximately 0.85 meters. Scientific studies also make use of larger units such as the light-staryear for astronomical distances, and the Tackeg and the Tackeu (1 Tack*10^-20 and 1*10^-25 respectively) in nuclear science.

Volume: The base unit of volume is the Drup, which is about 0.85 liters.

Mass: The base unit of mass is the Humm, and is approximately 0.85 kilograms.

Temperature: The base unit of temperature is called the Cel. 0 Cel is the equivalent to the theoretical temperature of Absolute Zero, while the freezing point of water is 2 CelMel (or 200 Cel.)

Energy: The base unit of energy is the Toule, and has no relevant comparison in Earth standards.