Volume Ratios in Patterns vs. Mass Ratios of prominent Hyperons and some other particles

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In previous papers, we addressed the proton and less massive major particles by correlating their mass ratios with volume ratios in simplest sphere patterns. Now we include particles of greater mass than the proton, the Hyperons, and compare those mass ratios to ratios in patterns slightly more advanced than previously. This approach is most effective for the most prominent particles; but also has some aspects useful for addressing some less-prominent particles.

1. Introduction:

By first glancing at the drawings in this paper, our general approach will likely become apparent: We start by making one or more identical small volume spheres, each representing one reference volume unit. Next draw three or more medium-size spheres around that, maintaining some major symmetry. And next, we make one or more larger spheres around those. Finally, we compare the ratios of the large to small volume spheres, and we discover that that ratio almost equals the mass ratio of a major particle to the electron. (Sometimes we average together two major volumetric pattern ratios to create a third ratio for comparisons.)

My treatment of Hyperons, using methods similar to that used for less massive particles, was more challenging for several reasons. Generally, the Hyperon groups are more complicated. For example, the mass difference between the lightest and heaviest common Sigma Hyperon is about 17 electron masses vs. only 8 for much lighter Kaons. In treating heavier particles, there arises more patterns to consider, and thus more pattern ratios coming somewhat close to matching the mass ratio. Thus, questions of interpretation and uniqueness arise.

For example, let us consider the positions associated with the 'Platonic' cube: There are 8 corners and 6 surfaces, and also a mid-point on each of those 6 surfaces. Using those symmetries, we can create 8 large spheres close-packed around 6 small spheres, **or** 6 large spheres close-packed around 8 small spheres!

The term, 'particle Resonance energy', or its equivalent mass, roughly means this: Consider particle scattering experiments, and if one of the particles is, say, the heaviest Sigma Hyperon and the other is, say, any other lighter particle. Empirically, when one particle is traveling toward the other at high velocity, it is found that when their total energy (or mass equivalent) is near a special value, scattering occurs much more often. And when their total energy is somewhat above or below that value, much less scattering occurs. So that special pro-scattering energy value that that Sigma Hyperon so often contributes to -- is termed a 'Sigma Hyperon Resonance Energy'.

2. Drawings, ratios and close correspondences:

Next we present rather basic sphere patterns -- many related to Platonic forms [1]. And the resulting sphere volume ratio vs. the major particle mass ratio that exists [2]. More comment on that later, but now I want to stress this about Fig. 1: It contains so many remarkable symmetries and 'different roads leading to the same outcome', that it alone would justify a paper, in my opinion. And had it failed to closely correspond to a major particle or resonance energy, I might have cancelled this undertaking and paper. That said, I think that Fig. 2 and Fig. 3 also illustrate very remarkable comparisons and outcomes.

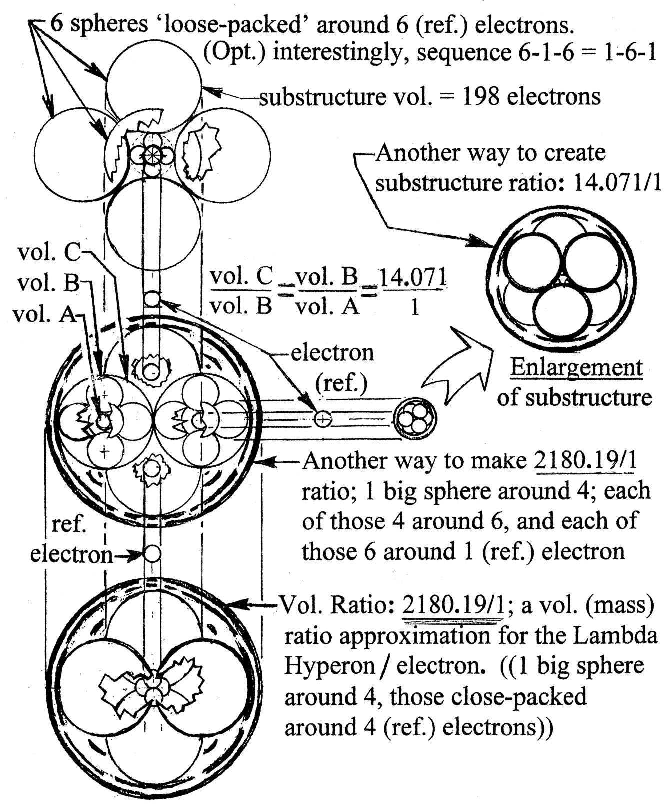


Fig. 1; the Lambda Hyperon with mass of 2183.34 electrons. Ways to approximate it and its sub-structures.

The Lambda Hyperon's relatively long half-life is 2.6×10^{-10} sec.

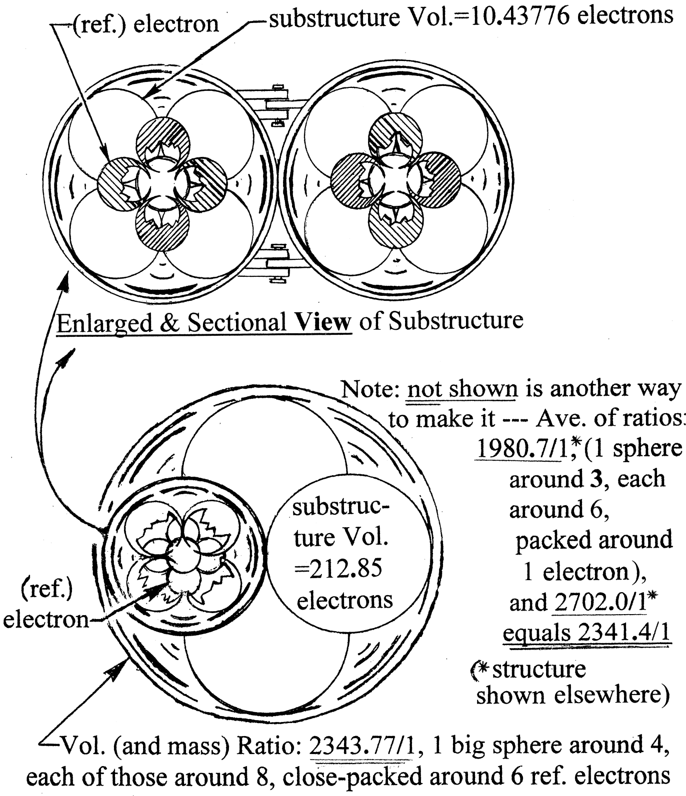


Fig. 2; Heaviest and longest-life Sigma Hyperon -- Equal to 2343.35 electron masses

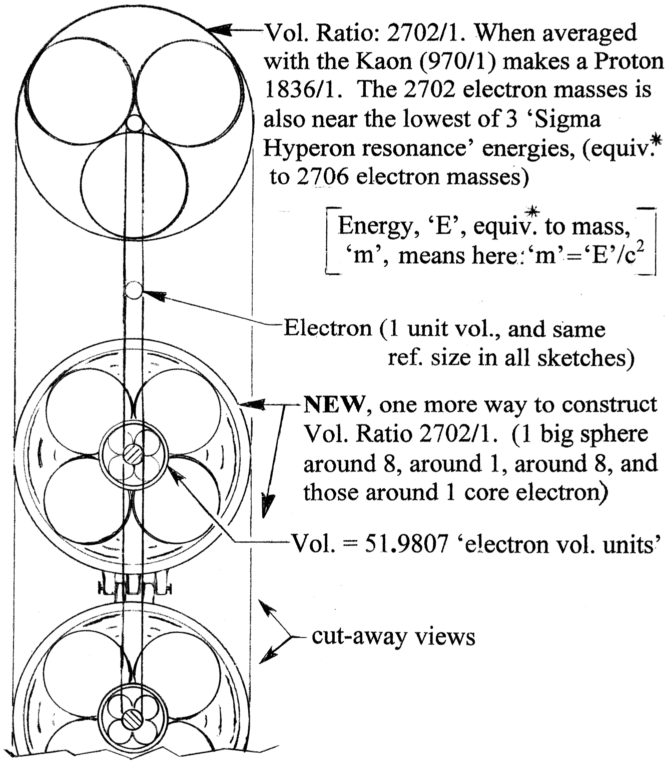


Fig. 3; One more of many existing ways to construct Vol. Ratio (i.e., mass ratio): 2702/1. Also associated with proton construction and a 'Sigma Hyperon Resonance'.

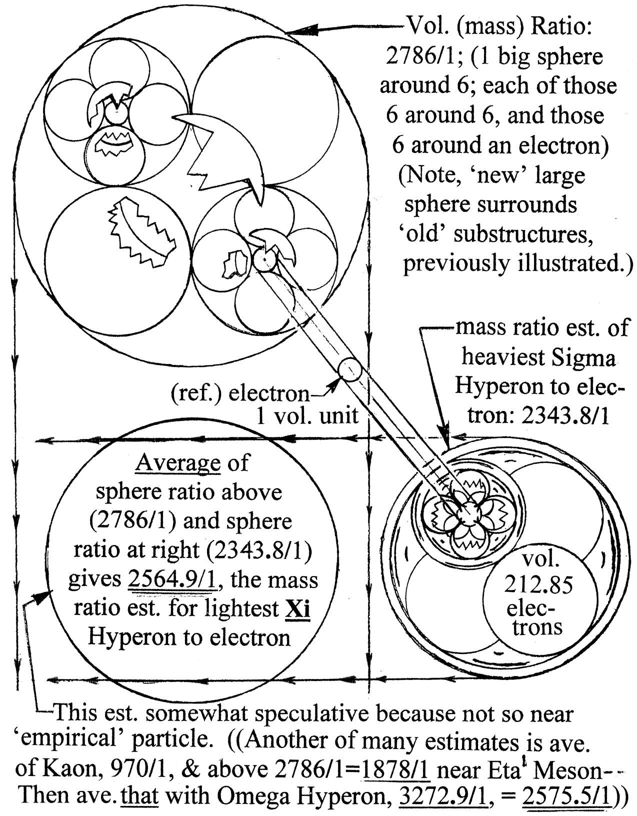


Fig. 4; Lightest **Xi** Hyperon (2573.1 electron masses)

Also see Fig. 9 giving other ways to estimate Eta Prime's mass.

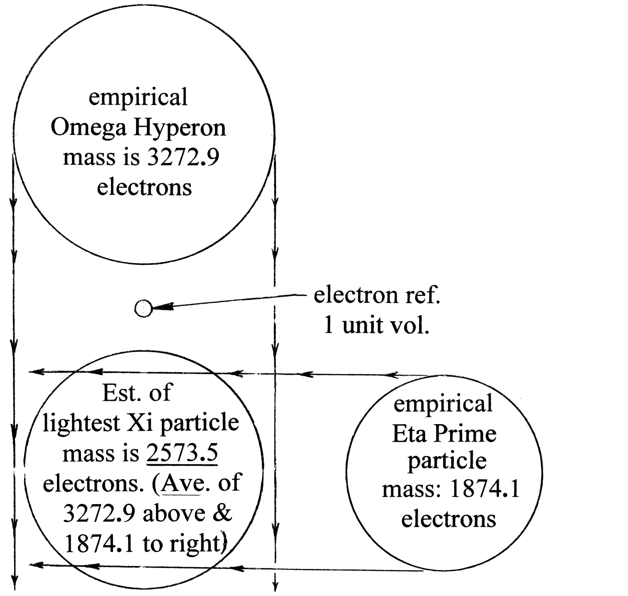
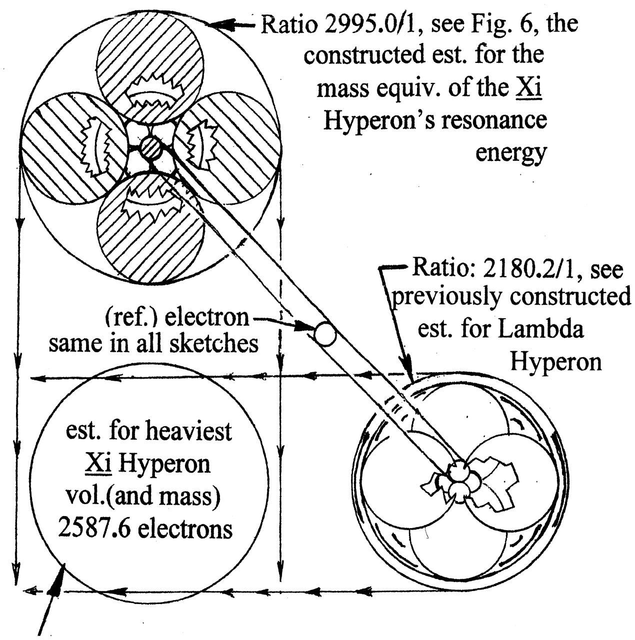


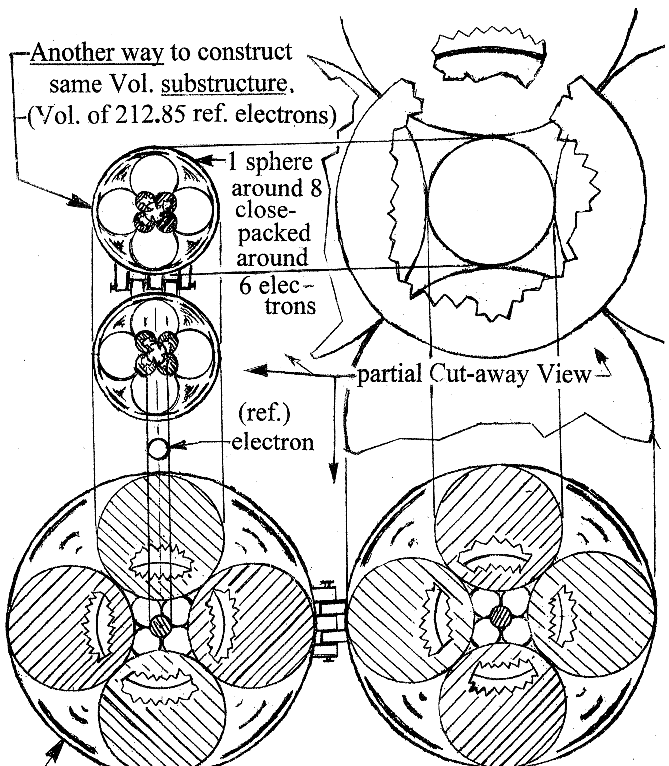
Fig. 4A; one of many ways to est. Lightest **Xi** Hyperon's empirical mass of 2573.1 electrons. But above drawing est. based on ave. of empirical masses of other particles.

Regarding Fig. 4A above, see also Fig. 9, and perhaps Fig. 9A too, for very accurate ways to estimate the mass of Eta Prime.



Main Est.= **2587.6/1**; ave. of sphere vol. to right & above it. ((An alternate est. is 1 big sphere around 6, each equal to 1 of 3 spheres (183.53 electrons each) in a proton =2582.5/1))

Fig. 5; Heaviest Xi Hyperon (2585.74 electron masses)



Vol. (and mass) Ratio: 2995.03/1, 1 big sphere around 6, close-packed around 8, and those 8 around 1 ref. electron

Fig. 6; Resonance Energies of **Xi** Hyperon particles (with mass equiv. of 2997.7 and 3003.9 electron masses)

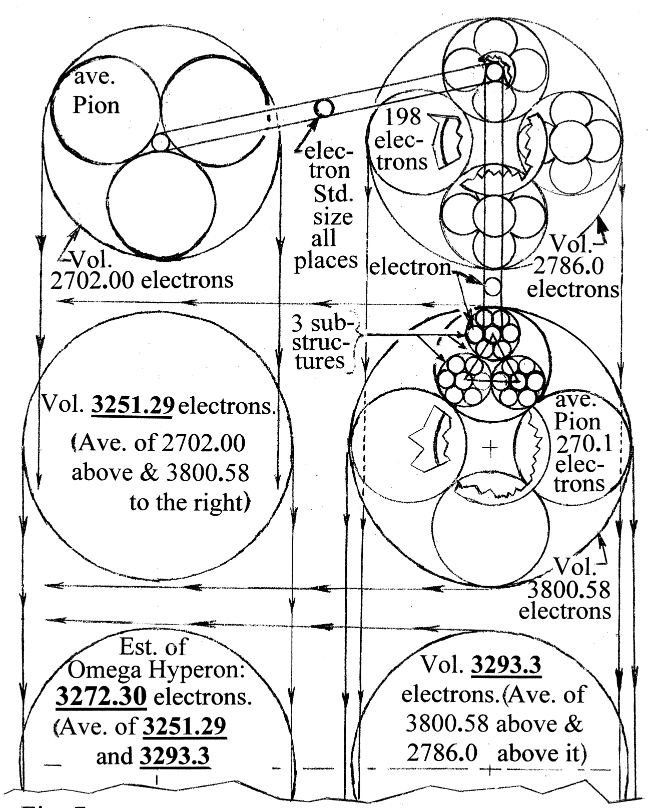
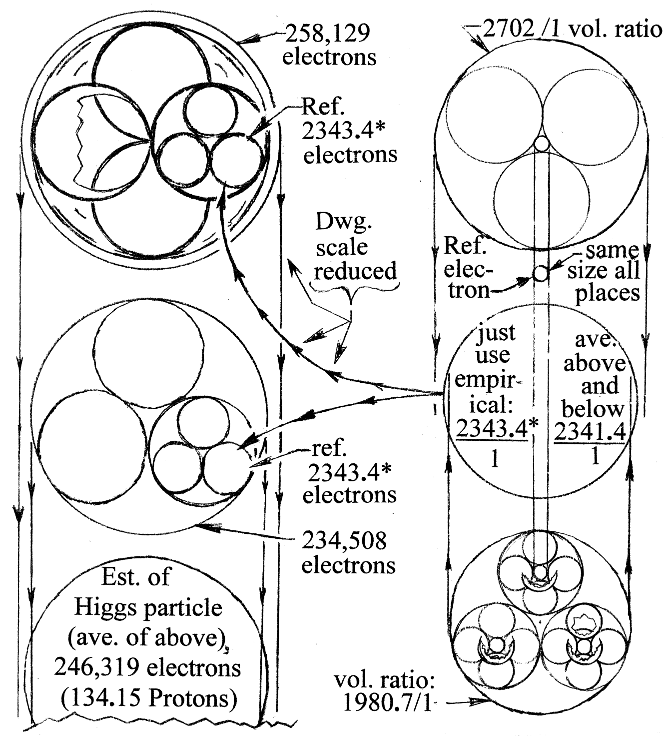


Fig. 7; Omega Hyperon, mass=3272.90 electrons. My Dwg. est. very speculative since big vol. constructible many ways.



*Note: Ave. vol. ratio for sketches at right: 2341.4/1; and in a previous dwg. was 2343.8/1. So we just use 2343.4/1, the empirical ratio for heaviest Sigma Hyperon, and build up.

Fig. 8; Higgs particle ~134 proton masses; above super-speculative since too many close possibilities for big masses

Above infers a Higgs or other particle of roughly '134 protons'.

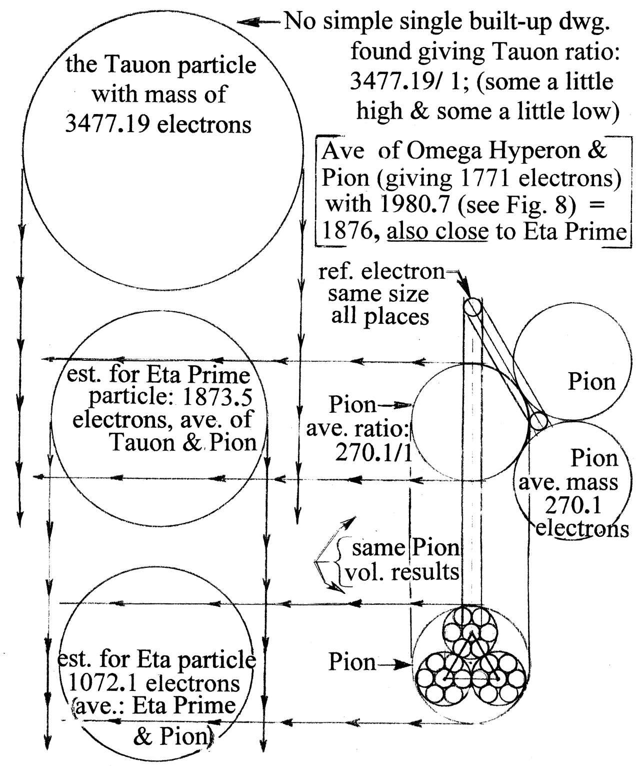
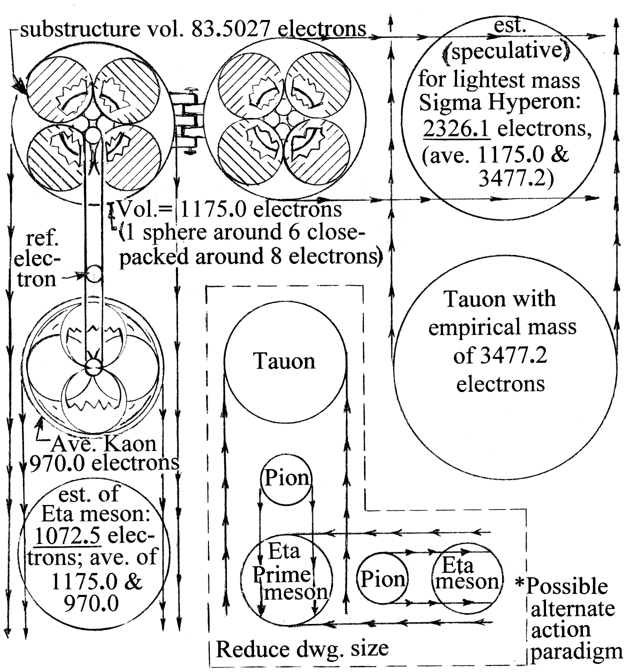


Fig. 9; Interesting relationship between the Pion and these particles: the Tauon, the Eta Prime, and the Eta; with masses 3477.19, 1874.1, and 1072.1 electrons respectively



*Can already existing small & medium mass particles create a large one based on the large 'reaching back' to small, and averaging its mass with it as if to replicate the medium? Not the usual creation of medium by averaging big & small.

Fig. 9A; Empirical mass of Eta Meson and lightest Sigma Hyperon: 1072.1 and 2327.5 electrons, respectively.

3. More Discussion on Interpreting Drawings:

Sometimes two pattern sketches are shown or described, both having volume ratios closely corresponding to an important particle mass ratio. But even though one sketch or description may yield a slightly less accurate prediction than the other, it still may represent an ethereal structure with energy corresponding closely to the equivalent energy of that particle's rest mass ((i.e. even though the other ethereal structure (the total energy in its associated sphere) may influence that particle's outcome more.))

Sometimes a pattern ratio (or averaging of two) results in a ratio, say 'C', which is close to an important particle mass ratio, but not ideally close. But that 'C' may average with a ratio 'D' yielding a ratio 'E'. And that 'E' with yet a different mass ratio, 'F' yielding an estimated ratio landing ideally close to that 'starting' particle mass ratio – more so than that 'original' ratio 'C' hit. So estimating may involve complications, 'feedbacks', 'triggers', and other factors, too difficult to analyze well.

At least one alternate way of estimating the ratio of the Higgs particle's mass to the proton's (ref. Fig. 8) is as follows: Imagine one large sphere packed around 12, and those close-packed around 20, and those packed around one centered (proton) sphere. The resulting volume ratio, big outer to smaller centered sphere, is 133.65/1. And if that 'close-packing' sequence were '20 around 12', instead of '12 around 20', that same 133.65/1 would result. (And regarding Fig. 6, there is an analogy to that equality, regarding sequence '1-6-8-1' giving same result as '1-8-6-1'.)

4. Conclusions:

The author believes that the many major highly symmetrical pattern ratios presented and the major particles mass ratios closely corresponding to them – are not likely coincidental. Thus, this paper is an appropriate extension of the author's previous work that presented slightly simpler patterns associated with slightly more prominent particles [3]. There, he attempted to also describe an 'ether mechanism' that might help cause such relative correspondences as we see again in the present paper – a mechanism for readers to consider.

References

[1] Greg Volk's collection of calculations, pictures, and Mathematica files' sent to author in Apr., 2008 and Nov., 2009.

[2] See www.wikipedia.com data, 9-13-2012, under their topics: 'Hyperon', 'List of mesons', 'Eta meson', 'Tau (particle)', and 'Higgs boson'. (My estimates attempt to nearly match that data.)

[3] C. R. Littmann, "Sphere Volume Ratios in Tetrahedral & Triangular Patterns, and Some Implications", Proceedings of the NPA **8**, 351-353 (2011)