LIVING AMONG THE PENTATONICS [PT. 1]
[revised 27 -3 -2025]

I have to thank Lou Harrison for steering my compass back to pentatonics and I dedicate this little paper to his great spirit as one who lived among them.

Over the years, I have relied on many different sets of elements as primordial musical building blocks. From one to two to three and to four note groups, depending on the tuning I was working in. At this point I have spent maybe an embarrassingly long time with pentatonics. I think they are basically undervalued if not misunderstood in their potential.

Less like atoms or molecules, we find with pentatonics something more like living cells emerges in their ability to sustain and perpetuate themselves musically. Not only can we find examples of a single pentatonic holding an entire composition, or an evening of compositions but whole cultures for centuries.

A few cultures have expanded their pentatonic language by common-tone modulations upward and downward adding two tones making a 7 tone scale. Thus we have three pentatonic scales forming a heptatonic. Another example might be that of Japan where the seven tone scale gives rise to a cycle of pentatonics subsets that in turn focus on some of the more atypical variations in their qualities and intervals. Indian music has used both pentatonics and heptatonics predominately for thousands of years.

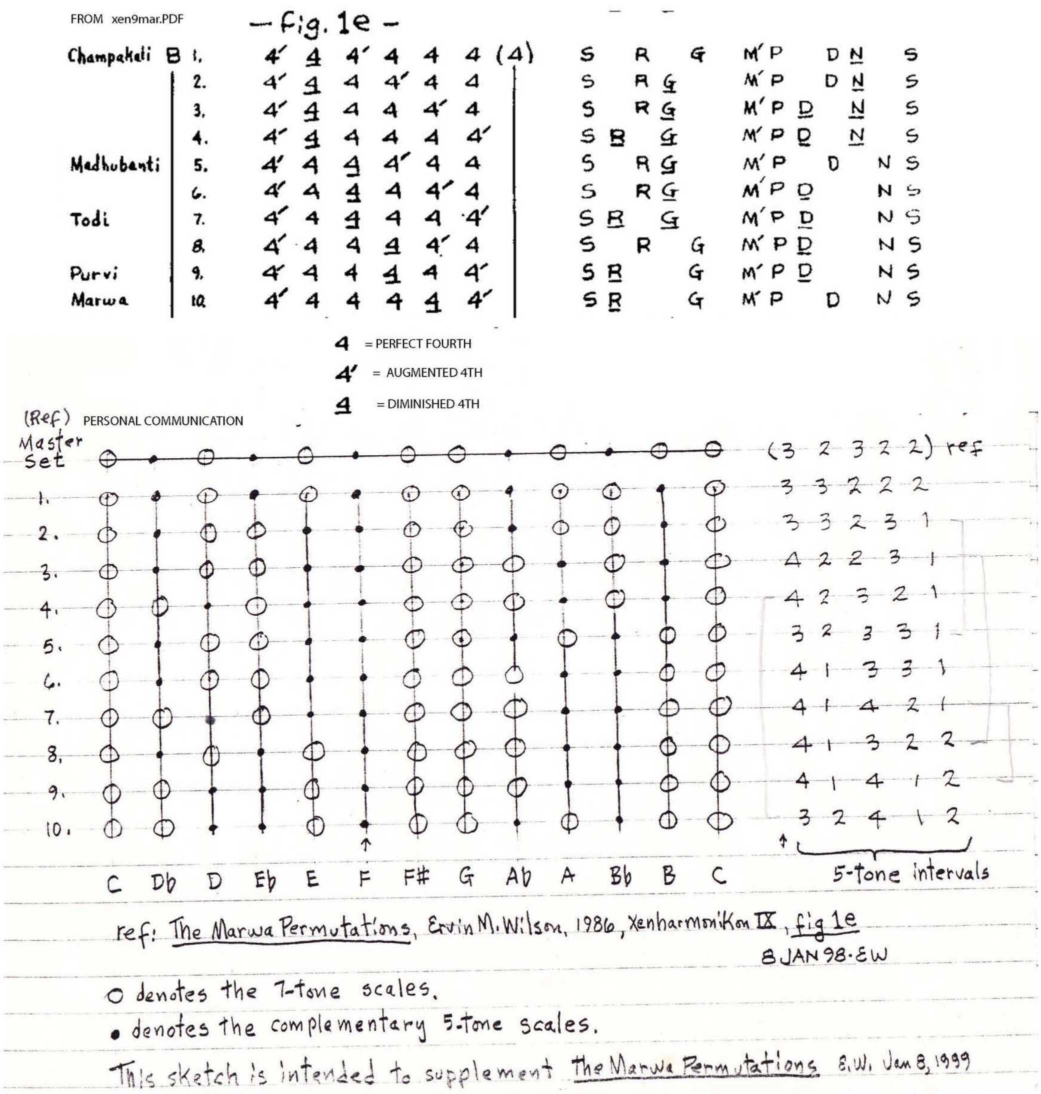
The keyboard is a point where the two forms act as complementary sets of black and white, growing out of the seven-tone scale extended to a least 6 keys. This complementary framework have been the lead I have followed. In order to be useful to those not working in different tunings than my own, I will look at these in terms of 12 tone scales which I do have my own tuned versions of but a side purpose exist here in this short paper to act as a template for other cyclic scales as an example to explore the hidden resources of different and larger scales

MEMBERS OF THE PENTATONIC TRIBES

The simplest 5 and 7 tone scales are those found by the succession of that many fourths [or fifths]. The classic C D E G A is formed by starting the series on E or on B we get the latter C D E F G A B C. Each has a disjunction, though atypical in size found between C and E in the first case and F and B in the second, formed of the same number of scale steps as the generating interval regardless making the scale cyclic. This cyclic property is what defines our more restricted meaning of “scale” while our pursuit entails the limit in variations we can go while still remaining cyclic properties.

Wilson* notes that practically all the heptatonic scales of North India are modes made of a chain of fourths that have one augmented fourth or those with 2 augmented fourths with one diminished fourths. I extract those from his article.

* Xenharmonikon 9 available here- https://www.anaphoria.com/xen9mar.pdf
This same set of scales was found at the end of his original Moments of Symmetry article.



If the classic scale (diatonic) from the previous page is designated as 0. and the numbers 1.-10. above as the designations of these new scales, we end up with 11 heptatonics and 11 pentatonics. P and H are useful after the number to designate whether it is a pentatonic or a heptatonic.

By following the method of the Japanese [and indirectly the Indonesians] and seeing what other pentatonics subsets can be derived from each heptatonic we discover a set of 19 pentatonics. 11 of these already correspond to the pentatonic complements of our set of heptatonics which we give the same corresponding number. 8 new pentatonic subsets are found which we number accordingly and we in turn take the 8 tone complements of these. Out of this set of 19 heptatonics we discover only one new pentatonic subset. The 7 tone complement of this in turn that gives us no new pentatonics subsets. Since we cannot proceed any further than these 21 pentatonics and heptatonics we are justified considering it a closed set.

A feature this set has is that the pentatonic complement formed by the white squares at the top and sharing the same number can be a constant in which two tones can be added to make the heptatonics of those numbers we find on the side.