

NON-TWELVE SCALES

FOR DX7 IID

NOVOSONICS

THE LIBERATION OF MUSIC

I have experienced, firsthand, most people- including musicians- don't believe that there can be pleasing music outside of the contemporary traditional western twelve tone equal tempered chromatic scale (12et). A look at the global scene shows that playing 12et and listening to 12et is a minority pursuit.

Africa enjoys its 5et scale embellished with tunings that deviate from theory. Indonesia and the South Pacific use a 7et scale which is also enlarged with additional variant tunings. South American folk music appears to be a seven note just tuning. Chinese folk music is particularly bizzare with each instrument having a unique heptatonic (7 note) tuning. The Middle East has its unique 17 note tuning. And, the 22 note sutras of India are familiar to most. Rumour has it that Russian folk music is a 22 note out of the quateritone (24et) scale. The Japanese may have adopted a variety of scales with five or seven notes out of 12et long before Europeans had stopped burning witches, yet their traditional scales still co-exist with 12et. Only recently was it reported that Australian aborigine uses a logarithmic scale, which means fewer bass notes and more treble notes. Probably the most efficient scale, in terms of human perception, that is in use- and from what is claimed to be the most primitive people on earth. By a simple show of hands, it appears, that manufacturers, music professors, and Madison Ave. have all done their share to deny the free world, freedom of choice in music.

WHAT IS A MICROTONE ?

This is probably going to be impossible to resolve. Some authorities claim anything smaller than a semitone, others proclaim anything smaller than quatertones, and still others, anything that doesn't fit into the 12et theory grab-bag. One will be led to believe that dog barks, rainstorms, pitchbends by guitarists and keyboardists, tone humoring by wind and string players, mistunings, and pitch drifts are microtones. (Not to mention experiments in random frequencies by the constipated who would replace human emotion with tables of random numbers).

Rather than confuse the situation further by coining new words, I will offer some general catagories which are not mutually exclusive. Some scales can belong in several catagories.

ANCIENT- includes enharmonic tetrachords and just intonation scales which were generated by drilling holes in reeds by equal divisions along the overall length. Pythagorean math and divisions of string lengths came later (monochords).

MEANTONE- early Europeans adopted tunings with ten to sixteen notes that altered just intervals and allowed modulations to the relative minor and dominant. Unlike the Greeks who drilled more wholes in different reeds. European villages rented organs and clavichords from a builder on a yearly lease. That is a long wait to change a key. Performances on restored instruments are quite a treat and adaptations for 12et instruments are usually quite putrid in comparison.

ETHNIC- currently in use are 5 & 7et and variant tunings. Chinese and Japanese pentatonic co-exist with 12et. Middle Eastern 17 and 22 note tunings with variations are in use.

EQUAL TEMPERAMENTS- can be divided into categories: a) multiples of the number 6 & 8. Share intervals with 12 tone but introduce new possibilities. (16-18-24-30-32-36-42-48-54-60-72-96-144)
b) multiples of the numbers 5 & 7. Introduce microtonal effects along with increased melodic and harmonic resources, yet retain their essential flavors. (14-15-20-21-25-28-35)
c) harmonic- equal divisions of the octave by numbers often in the prime series (17-19-22-31-34-41-43-46-49-50-53-55-77-87-99-118)
d) inharmonic scales with tangy different sounds (13-23-26-27-33)

Instruments and compositions for most of these equal division scales do exist or did exist in the past century or two. Some were popular in various geographical regions for a period of time. But piano manufacturers were able to make factory standards the basis of music and art.

JUST INTONATION- is based upon a relative system of measuring the frequency of an interval to the tonic. Thus a pure fifth is described $3/2$ (simplified 660hz/440hz), the standard tempered fifth 1:7.41624166.... However, the sound isn't all that different, a mere 1/50th of a semitone. Probably, the most popular of the new scales, and possibly the hardest system to understand or utilize. Untill a calculator that adds fractions and gives results in the simplest form comes along, calculating chord modulations will dampen the enthusiasm of even the most diehard fanatic.

OTHER- Stockhausen, log scales, mel scale avoid the octave, and have been used and appear melodic. The harmonic series and subharmonic series can be mentioned here. Animal language (to the extent that it is physical) whale songs and bird chirps can be mentioned here since they show definite pitches and time periods.

NOISE- 1900's Italian music of the Proles and Thermin. Polymorphic forms and extreme pitch modulations. New ideas are yet to be born. And freedom is infinite.

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