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Where do I start ?

During the last decade there has been some discussion of Alternative Tunings for musical instruments. Most of this is based on theory and very little in the articles on just intonation or non-twelve-tone temperaments tells the reader anything about How To. Different advocates of new scales offer only one alternative to the 12-tone equal temperament standard on keyboard and fretted instruments; and the newcomer to this field is left in unsettled confusion.

Often the proponents of this or that scale criticize one another, or try to dissuade you from using anything but their Favorite.

Having built and modified instruments to hear these new scales, and having been impelled to examine as many new tunings as possible for the last 50 years and more, since out of wounded pride I did not want to sound identical to everybody else, — I mean, why compose at all, if everything or practically everything in the ordinary twelve-tone system has been tried by thousands of others before me, I guarantee that I was in the same predicament you may be in now: Where is one to begin? In the uncharted territory of Non-12, are there any road-maps or blazed trails?

Without further ado: Start with the 19-tone equal temperament. This offers contrast to our ordinary 12. Two ways to enter 19 now are: using refretted guitars and using those synthesizers which are capable of remapping the keyboard to have three octaves and a fraction of 19-tone instead of the standard five octaves of twelve-tone. Why nineteen? Mainly because ordinary musical notation and ordinary chord-symbols can still be used. While C-sharp and D-flat are now different notes, one-third-tone apart, instead of being two names for the same pitch, most conventional music will work in 19. Sometimes 19 is an improvement over 12; sometimes it makes it less inviting, but the overall score is favorable and you can still use printed music familiar to you to test the new mood of 19 and the new way it makes chords and melodies tend.

For a few persons this may not be the way to go because some persons find the personality or mood of 19 not their cup of tea. They might begin with the twenty-two-tone system. Now in that case, it cannot be readily written down in familiar standard notation, but there are many standard pieces of music that sound well in 22. Those who want to begin with 19 should try 22 after about two or three months' experience with 19—this gives variety and above all, *Contrast*. Contrasting moods, contrasting tendencies of harmony and voice-leading, contrast of the relative effects of chords and intervals. That is something which cannot be predicted in advance or mathematically, because you have not heard the difference until you can play an instrument in these new scales.

Why don't I say to begin with quartertones? The 24-tone system would be a good thing to try after and only after you have had some experience with 19 and 22; but if you go from 12 to 24 directly, you have never left 12! 2 x 12 = 24 and there is no easy way with familiar intervals to modulate from a key or chord in twelve-tone to one a quartertone higher or lower. You can only do that via unfamiliar intervals. On the contrary, in both 19 and 22 you can go to any key or degrees of those scales via familiar modulations using fifths or thirds or major-to-minor or vice-versa.

Another reason not to start with 24 (quartertones) is that 12 and 24 contain symmetrical, repeating patterns, whereas those of 19 and 22 do not repeat, but go through all the tones of the system before they return you to the starting-point. Think for a moment: the diminished-seventh chord and the augmented-fifth chord and the whole-tone scale in 12 and 24 have become clichés through overuse so there is little more to say with them. Such chords and the whole-tone scale in 19 and 22 do not repeat at the octave, and therefore afford exciting variety and get us out of a rut that has worn very deep, lo these many years.

The ordinary 12-tone scale is biassed toward a certain type of melody while it does not afford very smooth harmony. Instrument-design has often incorporated various expedients to cover up 12-tone's restlessness. But you will not really understand this 12-tone bias until you can get outside of it and hear something different which does not contain twelve the way that 24-tone does contain 12.

You will find that harmonic progressions in 19 and 22 will want to go in a different direction, and that resolutions will want to be accomplished differently, and that you had no idea what new moods lay in store for you so long as you remained twelve-bound.

Before going to some other new scales we have to mention Just Intonation. If we don't, the Just Intonation Only partisans will make quite a fuss! It is amazing how they, who revere smooth restful placid harmony which can be achieved in just intonation if you have enough pitches, can be so nasty-mean in their polemics against all other systems or ideas of tuning, past or present. A just scale is biassed toward harmony, and usually is created and selected to make major and minor thirds and sixths sound better, without giving up any brilliance in the fourths and fifths. What has held just intonation back till very recently has been the requirement for many more pitches in each octave and their accurate tuning and retaining such tuning long enough on ordinary instruments. This, thanks to advances in electronics and computers, is no longer the prohibitively expensive troublesome thing it used to be.

Radically new intervals whose mathematical origin involves the prime numbers 7 and 11 can be introduced for unusual effects, and this is often called extended just intonation. This is one of the points insisted on by the late Harry Partch who built special instruments and thought he had to reject so much of customary practice and naming of notes that this caused intensive controversy. We recommend a little 'Live And Let Live' here! We can obtain a suitable just scale without all the nagging problems he had to face in the 1920s and 1930s.

You can start experimenting with just intonation once you have examined the moods of 19, 22, and 24. It has its merits, but is not the only game in town.

There has been considerable investigation and accomplishment in the 31-tone system. The thirty-one-tone equal temperament is very close to what is called meantone, and shares the calm harmonious properties of meantone. 12 out of meantone is not worth the trouble. It is no longer necessary. Insist on the full thing! Make G-sharp and A-flat different notes and enjoy the new mood.

Working with thirty-one pitch-classes has to be more complicated than 19 and so this is another reason I advise trying 19 first. Especially if you are thinking of a refretted guitar.

By the time you are this far into the field of alternative tunings, you will have heard about and read about alternative kinds of keyboards. While

some clever and workable keyboards for non-twelve have been designed, it takes considerable skill to make keyboards, and the ordinary musical-instrument technicians are seldom familiar with the idea of new keyboard layouts, well, we could nowadays make one exception, the typewriter keyboard and the way that is used on computers! Actually not too bad a model for some experimental scales.

Why haven't you seen new keyboards? Actually, it's the fault of the piano, which reached a degree of fixed design over 100 years ago and could not progress in the direction of more than twelve tones per octave due to onerous mechanical limitations and the fact that tuners trained in other than 12-tone equal temperament simply would not be available. So the manufacturers of keyboard instruments did not dare to make anything beyond the ubiquitous 12.

Now with electronics, the tuner's trained ear is no longer required to experiment with new scales, since they can be done by electronic equipment and calculations; and the tuning can be checked by new portable tuning devices. Were that not so, and had not the prohibitive costs of new tunings been brought down somewhere near financial reality, we couldn't write this article.

For the more daring individual, there are interesting melodies and moods available in such tunings as 13, 14, 15, . . . tones per octave. We should, for example, mention the dazzling brilliance of the 17-tone temperament. Then, the 7- and 5-tone temperaments having been discovered in many remote places, you might like to try 14 (2 x 7) or 15 (3 x 5) or 20 (4 x 5) and their possibilities. But it is wise in nearly all cases to begin with 19 and 22, then experience just intonation and the utterly different quartertone system, and the calm serenity of 31, before trying any others. Already recordings are becoming available for some of these new scales. Indeed I can point to my own Teen Tunes, One and Two, done on special synthesizers.

For more exploration, the set called All Systems Go, where my playing in the scales 9 through 31 except 12 was taken down with the aid of computers and then reprocessed by Brian McLaren. This turned out so well that two more sets, 32 through 41 and 41 through 53 respectively, were done this way, the set of three cassettes being known as Xenharmonic Frontier.

During the last several years I have also produced many non-12 compositions and demonstrations in many scales including just intonation and equal temperaments as far up as 60 per octave, although most of the comparison tapes and improvisations are 31 and below.

The main paint is to Start—jump into the water and get wet, overcome the harsh numbing intimidation of the know-it-all arrogant Enemies of All Musical Progress, .and prove them to be way way behind the times!

You cannot form any realistic opinion of non-twelve unless you try it and HEAR it. It won't bite and now it won't cost too much.

Now that the necessary calculations have been done and that tables and other information have been published, no need to repeat that work.

For some years now, an informal network has existed, now known as the Xenharmonic Music Alliance. Lateral: no officials, no meetings, no dues, no rules, no intimidation. The time has arrived for Practice instead of silent Theory and Postponement and Alibis and Excuses.