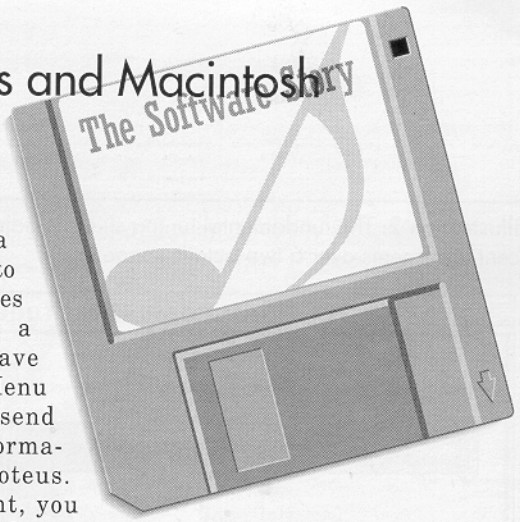
World Music Menu: Version 2.0 for Windows and Macintosh

By Norm Weinberg



THE WORLD MUSIC MENU PROGRAM DOES ONLY ONE THING, but it does it very well. It allows you to play music that is not represented by the twelve notes of the scale Western ears are most familiar with. As you know (whenever you hear players who are out of tune), there are many notes "in the cracks" of the piano keys. In essence, the twelve notes of the chromatic scale are only one of many possible tuning systems that can be used in music. And while some of these tunings many be foreign to our ears, many are quite beautiful.

In Equal Temperament—the tuning system currently in use by most of the Western world—the octave is divided into twelve equal parts. This tuning system was invented in the eighteenth century, and is the reason why we can play music in all twelve keys and have each key sound "in tune." But in nature, pitch is based upon interval ratios. For example, the octave is a 2:1 ratio—if the pitch A equals 440 vibrations per second, the octave above should be 880 vibrations per second. The perfect fifth (according to the early Greeks, who did a great deal of research on this subject) should be the ratio of 3:2. The major third is the ratio of 5:4 and the perfect fourth is the ratio of 4:3.

In 1885, Alexander Ellis invented a tuning scheme that defines the distance between each half-step as being 100 cents. If we use this system (and we do), then the distance of a major third is 400 cents, but with pure ratio tuning, the distance should be 386 cents. In other words, a piano's major third is sharper than a "pure" major third. Several other intervals that are common to our ears are actually slightly out of tune compared to their pure ratios.

Many composers have explored the flexible worlds of alternate tuning. Lou Harrison, Harry Partch and Wendy Carlos are just a few composers who have invented their own scales or written music in scales derived from other cultures. The fact is, there are several methods of dividing an octave into various parts and intervals, and Equal Temperament is only one of the possibilities. World Music Menu allows you to explore many of these alternate tuning systems.

GETTING IT TO WORK

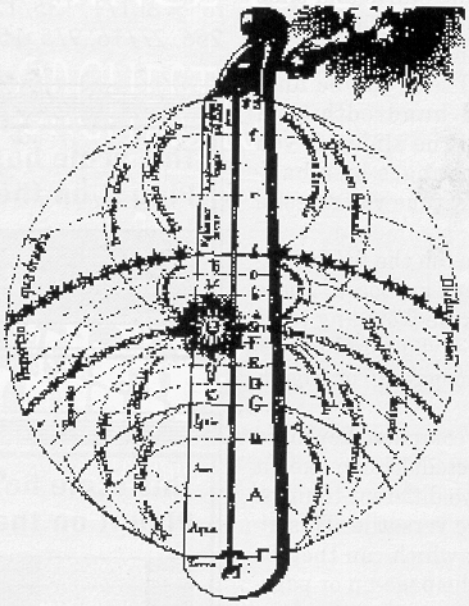
My test system included a Macintosh IIci computer, an Opcode Studio 4 interface and a Proteus 1 sound module. Installing World Music Menu couldn't be easier. Simply double click the icon labeled "Install WMM," tell the software which serial port your MIDI interface is on and then select a synthesizer. I had the program up and running in less than five minutes.

After installing, it was a simple matter to go into the Scales menu, select a scale and have World Music Menu automatically send the proper information to the Proteus. From this point, you can play with the new scale's tones from a keyboard, percussion controller, or even have your sequencer drive the sound module. Everything worked just as it should.

THE SCALES

World Music Menu's scales are divided into nine groups: Greek, Indian 1, Indian 2, Mesopotamian, Asian, Balinese, Middle Eastern, Mathematical and Blue. Each menu selection includes several scales. For example, the Greek menu offers Ptolemy's Diatonic, Pythagoras' Lydian, Ionian, Dorian, Hypolydian, Aeolian, Old Phrygian, Pythagoras' Phrygian, Ptolemy's Malakon, Ptolemy's Tanalon, Mixolydian Harmonia, Archytas' Enharmonic, Didymus' Enharmonic and Olympos. In all, there are over one hundred scales that cover just about every tuning system you've ever heard or read about.

Illustration 1. The opening screen of World Music Menu by Robert Fludd, showing the hand of God tuning up the World Monochord.



By using this program, I've been able to explore alternate tunings, increase my own perception of minor pitch alterations and aurally illustrate these differences to my students.

THE RATIOS

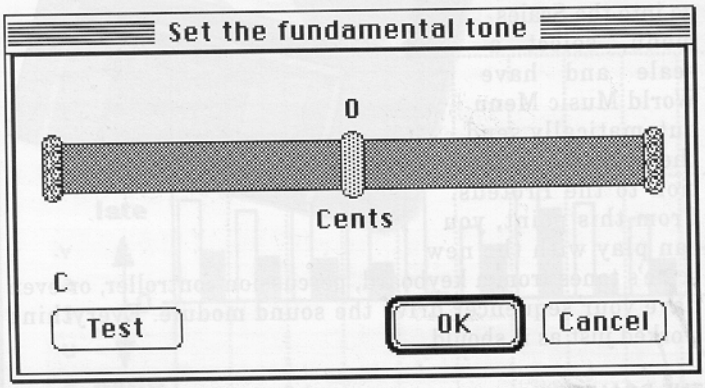
The manuals devote a good portion of their contents to an explanation of ratios and how certain scales are formed by constructing them from mathematical ratios. This is presented in an easy-to-understand manner, but if you wish, you can ignore the ratios and just listen to the tones that a scale produces. For example, here are some ratio tunings of scales included in World Music Menu:

Shree (from Indian 2 menu)
1/1, 25/24, 5/4, 45/32, 3/2, 25/16, 15/8, 2/1
Ishartum (from Mesopotamian menu)
1/1, 256/243, 32/27, 4/3, 3/2, 128/81, 16/9, 2/1
7 Liu (from Asian menu)
1/1, 9/8, 81/64, 729/512, 3/2, 27/16, 243/128, 2/1
Slendro 5 (from Balinese menu)
1/1, 8/7, 4/3, 3/2, 7/4, 2/1
Blues 2 (from Blue menu)
1/1, 7/6, 15/12, 4/3, 3/2, 7/4, 15/8, 2/1

OTHER GOODIES

Once a new scale is sent to a synth, it is played either by using only the white

Illustration 2. The fundamental tuning slider is adjustable in one-cent increments over a two-octave range.



keys (for seven-tone scales), only the black keys (for five-tone scales) or all twelve keys. When using five- or seven-note scales, the other keys are "blanked out" and play only the tonic note for the scale. A feature called "test play" is located in the MIDI menu; selecting this command automatically plays one octave of the current scale.

For simplicity's sake, each seven-tone scale starts and ends on C, and each five-tone scale begins on C-sharp. This can be modified by changing the fundamental tone of the scale. As shown in Illustration 2, the fundamental tone can be fine-tuned by increments of one cent (one hundredth of a semitone) by clicking on the end points of the slider. If you click in the grey area, the fundamental changes by a half-step. This new tonic will take effect the next time you select a new scale.

You can also modulate or transpose a scale "on the fly" by hitting one of the number keys on the compu ter's keyboard. These two options allow you to play the Dorian scale from any tonic pitch center and from any key. For example, you could play E Dorian by playing the notes from C to C (transposing) or from E to E (modulating).

At any time, hitting the space bar on the computer keyboard alternates between the last two scales selected. This makes it very easy to quickly compare the sound of two different tunings. The "stacking scales" command is even more versatile. This allows you to stack up to twenty-four scales, which can then be cycled through with the touch of a button (the page-up or page-down keys). If you hit the home key, you'll go to the top of the stack, and the end key takes you to the bottom of the stack. This feature could be useful during live performances. In addition, World Music Menu lets you map MIDI information to these functions. For example, hitting a certain MIDI key, pedal or other controller can be programmed to cycle through the stack.

FINAL NOTES

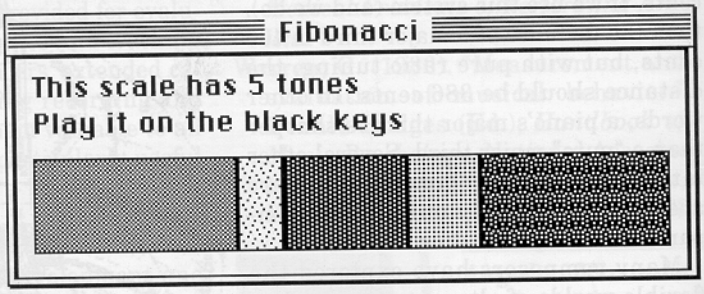
This is a fascinating program. Those interested in world musics can use this program to tune synths to authentic-sounding scales. Composers may become inspired by the beauty of certain scales, and performers can use World Music Menu to create some interesting and unique melodic and harmonic textures.

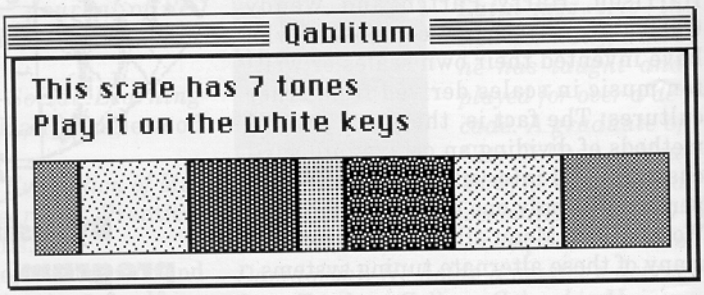
I've often tried to explain timpani tunings to my students. Most experienced timpanists know that a perfect fifth may not always be "perfect"—that a D-natural as the root of a chord may be a different pitch than a D-natural acting as the third of a chord, depending on which instruments are playing in the orchestra. By using World Music Menu, I've been able to explore alternate tunings, increase my own perception of minor pitch alterations and aurally illustrate these differences to my students.

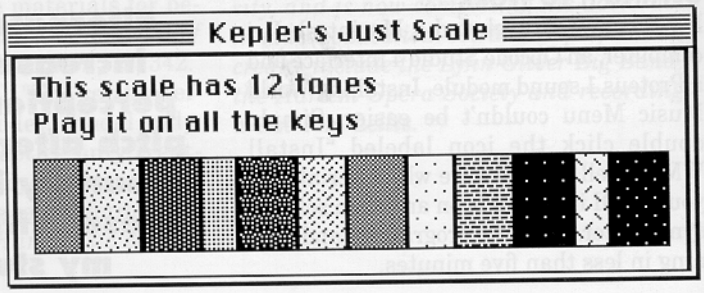
PROS

This program could not be any easier to use. There is mention in the manual that future versions of the program will include even more scales, and the ability to "roll your own" scales. World Music Menu comes with a sixty-nine-page user's manual and a forty-page booklet on tuning; both were written by Stephen Nachmanovitch and both are excellent.

Illustration 3. The visual representation of tones in three of World Music Menu's scales. The Fibonacci scale, found in the Mathematical menu, has ratios of 1/1, 5/4, 21/16, 3/2, 13/8 and 2/1. The Qablitum scale, in the Mesopotamian menu, has ratios of 1/1, 256/243, 32/27, 4/3, 1024/729, 128/81, 16/9 and 2/1. The Kepler's Just Scale, also found in the Mathematical menu, has ratios of 1/1, 135/128, 9/8, 6/5, 5/4, 4/3, 45/32, 3/2, 405/256, 27/16, 9/5, 15/8 and 2/1.







CONS

Here is a very minor gripe: the manuals are poorly bound. After my first look through the user's manual, I was the proud owner of several individual sheets of paper that kept falling out of the cover.

Also, the small number of synths supported may keep this program out of the hands of many musicians, but that is not a fault of the program or the programmers. In order to have altered tunings, the synth must support this feature in its design. Most newer synths are including the capability for altered tunings, and future versions of the program should support them.

World Music Menu: $99.00
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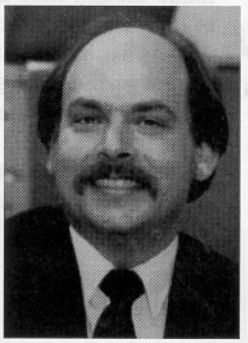
System requirements for the Macintosh version include System version 6.0.7 or above (System 7 is recommended), a Macintosh compatible MIDI interface and one of the following supported synthesizers: E-Mu Proteus (any model); Yamaha VL1, SY99, SY77, TG77, TX81Z, DX7II or TX802; Kurzweil K2000 or K150. **PN**



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