

## THE ENDLESS OCTAVE

*THE ENDLESS OCTAVE* is an auditory illusion. Two and four-channel stereo and artificial reverberation are common examples of auditory illusions in space. *The Endless Octave*, however, is an illusion in frequency.

On Side 1 of the record a diatonic musical scale is repeated over and over. *EACH* and *EVERY* note sounds higher than the preceding one, yet after *ANY* number of octaves have been played the scale is still in the middle of the audible frequency range. (On the second band the scale descends indefinitely.) On Side 2 the effect is similar except the scale is continuous.

### THE PRINCIPLE

*The Endless Octave* was produced on a special-purpose music synthesizer. The concept is simple. Imagine a piano with a very long keyboard. The notes of this imaginary keyboard span more octaves than the ear is able to hear. The frequency of the lowest note is well below 20 Hertz (cycles per second). The frequency of the highest note is greater than 20,000 Hertz. First, imagine that all the C's are played simultaneously. Refer to C-1 in the figure on the opposite side of this page. The resultant note will sound like "C". Next, all the D's are played simultaneously. The resultant note sounds like "D". Similarly all the harmonics of E, F, G, A and B are played in that order. If the player next struck all the C's as shown in C-2 of the figure, the listener would simply hear the next higher note. If this were to continue for a number of octaves the player would eventually run out of notes. If, instead of continuing upward, the player returned from B to C-1, he could repeat the scale indefinitely without running out of notes. Comparison of the notes C-1 and C-2 *within the audible range* reveals that they are identical. C-1 sounds exactly the same as C-2. The differences between these two notes lie outside the audible range. C-2 appears to sound one note higher than B. Therefore, C-1 will also sound one note higher than B. The sequence C-1, D, E, F, G, A, B, C-1, D, E, . . . is played over and over and the scale appears to ascend indefinitely. (The same argument applies to the descending scale.) This is *The Endless Octave*.

On Side 2 the effect is similar except the frequencies rise (and later, fall) continuously rather than discretely. In the 6 minutes included on this side, *The Endless Octave* sweeps through more than 20 octaves in each direction.

This is a monaural recording. It can be played on either a monaural or stereo phonograph. Experimentation with tone control settings and volume level is encouraged. A slight bass boost is recommended.

### AN ADDITIONAL EFFECT

An additional interesting effect can be obtained by playing *The Endless Octave* at 16 or 45 rpm, instead of 33-1/3. The duration of each note will change, but the scale will still remain in the middle of the audible range.

### APPLICATIONS

The monotonous nature of this sound plus its unusual characteristics make it:

- a potential aid to hypnosis and/or self-hypnosis
- a demonstration of the limitations of perception in human hearing
- a puzzling mind-twister • a possible aid to sleep • a possible aid to meditation.

### TO OBTAIN ADDITIONAL ENDLESS OCTAVES:

Send a check or money order with your name, address and zip to:

The Endless Octave  
P.O. Box 176  
Palo Alto, CA 94302

Specify \_\_\_\_\_ records at \$2.50 each. Please add 50¢ shipping and handling for each record. (Orders outside the U.S. add \$1.00 shipping and handling per record.) Calif. residents add 15¢ sales tax.

C-1



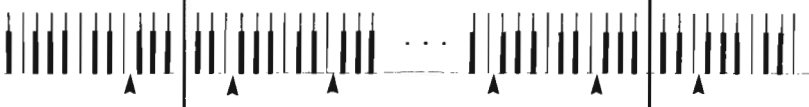
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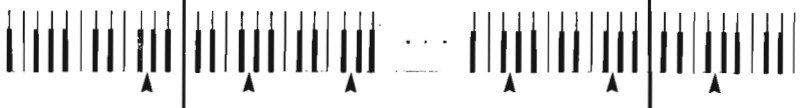
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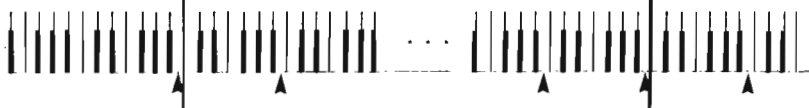
G



A



B



C-2



20 HERTZ

audible range

20,000 HERTZ