

A NEW LOOK AT THE PARTCH MONOPHONIC FABRIC

by George Secor

A New Notation

Harry Partch never solved the problem of devising a good master notation for his 43-tone just scale. Instead he had to rely on tablatures and the cumbersome ratios. A completely consistent staff notation for the Partch system is possible, however, which is based entirely on the ratios and therefore is unrelated to any tempered notation. It is constructed on the following set of principles: 1) always notate 5:4, 6:5, 7:6, 9:7, and 11:9 as intervals of a third; 2) notate 1/1 as a G, and notate the remaining six tones in Pythagorean relationship to 1/1 on the appropriate lines and/or spaces without using any sharps or flats; use a natural sign, if needed, to cancel another symbol; 3) divide the remaining ratios into three groups on the basis of the highest prime number present in the ratio; subdivide these three groups into six groups on the basis of whether the highest prime is in the numerator or denominator of the ratio; 4) assign a symbol to each of the six groups; this symbol is to be placed in front of each note belonging to its group; 5) a letter name and a symbol serve to identify unambiguously each of the 43 tones in the Partch Monophonic Fabric:

	4	☆	★	◇	◆	✕	✚
G	1/1	160/81	81/80			33/32	64/33
A	9/8	10/9	16/15	21/20	8/7	11/10	12/11
B	32/27	5/4	6/5	7/6	9/7	11/9	
C	4/3		27/20	21/16	10/7	11/8	14/11
D	3/2	40/27		7/5	32/21	11/7	16/11
E	27/16	5/3	8/5	14/9	12/7		18/11
F	16/9	15/8	9/5	7/4	40/21	11/6	20/11.

A New Visualization

A grid visualization of the Partch Monophonic Fabric appears on the following page. Three notations are given for each tone: 1) a ratio; 2) the new just notation; 3) and the 41-tone equivalent notation. True 3:2 relationships between tones are indicated by straight horizontal lines, while true 5:4 relationships are indicated by straight vertical lines. False 3:2 or 5:4 relationships are indicated by jagged lines.

A New Keyboard

If a keyboard is arranged to control tones as indicated in the upper half of the second page following, homogeneous fingering patterns will be achieved in all keys, and approximately just intervals will also occur in the same patterns as their just counterparts. If it is desirable to fill up the empty spaces with keys, duplicate keys may be added as in the lower half of the page. It is also possible to arrange the tones of the 31-, 41-, and 72-tone equal temperaments on this keyboard so that all intervals are fingered homogeneously not only within each system but also from one system to another!

A New Temperament

If the above keyboard is tuned so that each key plays 116.69 cents different in pitch from the one beside it, a temperament will result in which none of the 29 primary ratios within the 11-limit will be more than about 3.32 cents false. With 43 tones per octave, this permits 21 complete tonalities and 21 complete utonalities!

A KEYBOARD FOR THE PARTCH MONOPHONIC FABRIC

Placement of Tones according to 72-tone Matrix

										$\frac{160}{81}$		
$\frac{160}{81}$						$\frac{40}{27}$			$\frac{20}{11}$	$\frac{64}{33}$		$\frac{10}{9}$
$\frac{64}{33}$		$\frac{10}{9}$	$\frac{32}{27}$	$\frac{14}{11}$		$\frac{16}{11}$	$\frac{14}{9}$	$\frac{5}{3}$	$\frac{16}{9}$	$\frac{40}{21}$		$\frac{12}{11}$
$\frac{40}{21}$		$\frac{12}{11}$	$\frac{7}{6}$	$\frac{5}{4}$	$\frac{4}{3}$	$\frac{10}{7}$	$\frac{32}{21}$	$\frac{18}{11}$	$\frac{7}{4}$	$\frac{15}{8}$	$\frac{1}{1}$	$\frac{16}{15}$
$\frac{15}{8}$	$\frac{1}{1}$	$\frac{16}{15}$	$\frac{8}{7}$	$\frac{11}{9}$	$\frac{21}{16}$	$\frac{7}{5}$	$\frac{3}{2}$	$\frac{8}{5}$	$\frac{12}{7}$	$\frac{11}{6}$		$\frac{21}{20}$
$\frac{11}{6}$		$\frac{21}{20}$	$\frac{9}{8}$	$\frac{6}{5}$	$\frac{9}{7}$	$\frac{11}{8}$		$\frac{11}{7}$	$\frac{27}{16}$	$\frac{9}{5}$		$\frac{33}{32}$
$\frac{9}{5}$		$\frac{33}{32}$	$\frac{11}{10}$			$\frac{27}{20}$						$\frac{81}{80}$

Duplicate Keys Added to the Above according to 41-tone Matrix

										$\frac{160}{81}$	$\frac{21}{20}$	$\frac{9}{8}$
$\frac{160}{81}$	$\frac{21}{20}$	$\frac{9}{8}$	$\frac{6}{5}$	$\frac{9}{7}$	$\frac{11}{8}$	$\frac{40}{27}$	$\frac{11}{7}$	$\frac{27}{16}$	$\frac{20}{11}$	$\frac{64}{33}$	$\frac{33}{32}$	$\frac{10}{9}$
$\frac{64}{33}$	$\frac{33}{32}$	$\frac{10}{9}$	$\frac{32}{27}$	$\frac{14}{11}$	$\frac{27}{20}$	$\frac{16}{11}$	$\frac{14}{9}$	$\frac{5}{3}$	$\frac{16}{9}$	$\frac{40}{21}$	$\frac{81}{80}$	$\frac{12}{11}$
$\frac{40}{21}$	$\frac{81}{80}$	$\frac{12}{11}$	$\frac{7}{6}$	$\frac{5}{4}$	$\frac{4}{3}$	$\frac{10}{7}$	$\frac{32}{21}$	$\frac{18}{11}$	$\frac{7}{4}$	$\frac{15}{8}$	$\frac{1}{1}$	$\frac{16}{15}$
$\frac{15}{8}$	$\frac{1}{1}$	$\frac{16}{15}$	$\frac{8}{7}$	$\frac{11}{9}$	$\frac{21}{16}$	$\frac{7}{5}$	$\frac{3}{2}$	$\frac{8}{5}$	$\frac{12}{7}$	$\frac{11}{6}$	$\frac{160}{81}$	$\frac{21}{20}$
$\frac{11}{6}$	$\frac{160}{81}$	$\frac{21}{20}$	$\frac{9}{8}$	$\frac{6}{5}$	$\frac{9}{7}$	$\frac{11}{8}$	$\frac{40}{27}$	$\frac{11}{7}$	$\frac{27}{16}$	$\frac{9}{5}$	$\frac{64}{33}$	$\frac{33}{32}$
$\frac{9}{5}$	$\frac{64}{33}$	$\frac{33}{32}$	$\frac{11}{10}$	$\frac{32}{27}$	$\frac{14}{11}$	$\frac{27}{20}$	$\frac{16}{11}$	$\frac{14}{9}$	$\frac{5}{3}$	$\frac{16}{9}$	$\frac{40}{21}$	$\frac{81}{80}$
$\frac{16}{9}$	$\frac{40}{21}$	$\frac{81}{80}$										

GRID VISUALIZATION OF THE PARTCH MONOPHONIC FABRIC

