

## The Indigenous Use of Rasps and Ratchets and its Influence Upon Western Art Music

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**T**HE FAMILY OF PERCUSSION INSTRUMENTS is among the oldest known to man. Their invention and discovery are lost in time. However, their worldwide use by various tribes, cultures and races attests to their ancient past. The focus of this research was to examine the types of indigenous percussion instruments that produce their sound by scraping.

Primitive man (or even the higher apes) struck two items together to scare other animals or to warn their neighbors of territorial trespasses. It is but a small progression to the rubbing together of those same two items to produce rasping sounds. This basic sound-producing technique can be seen in very young children. When toddlers are handed two sticks or toys, they often begin hitting them together and then rubbing them together.

The act of scraping is so basic to human nature (and the sounds it can produce are so unnatural) that the earliest musical use of rasps has been linked to mystical or religious ceremonies. The Aztec culture used bone rasps at the funeral rites of kings and principal warriors. But even at that time, the rasp had developed to the point where it was resonated for extra volume. Bone rasps have also been found in the Pekarna Cave in Moravia, Czechoslovakia dating from the Paleolithic era.<sup>1</sup> Paetkau seems to believe that these Paleolithic bone rasps were used by hunters,<sup>2</sup> perhaps to flush game and animals out into the open.

Rasps have been used in many places by prehistoric man. Notched sticks have been found in the Great Basin, the Plains, and near the Gulf of Mexico. There is some evidence that these sticks were placed on baskets or inverted pottery to increase their resonance.<sup>3</sup> In India, the Muria Ghonds of the Baster State have a legend of the first musician. This god (who had the ability to play eighteen instruments at one time) was named Lingo, and played all of the basic instrument types known to the tribe including rasps.<sup>4</sup> Pre-Colombian cultures of South America used rasps made of dried fruit shells<sup>5</sup> which may have been the historical precedent to the

pine cones which were rubbed together to accompany the dancing in certain parts of Portugal.<sup>6</sup> A more modern use of the rasp can be found in the washboard of the North American Black. This normal household object, played with sticks or fingertips covered by thimbles, was a normal progression in the history of using the available materials at hand to make music.<sup>7</sup> Just as the Paleolithic hunter used bones and the North American Black used a washboard, cultures have always used common materials to build their instruments.

The ratchet or cog rattle, as it is sometimes called, is a technical innovation upon the simple rasp. As a later mechanized form, it can be looked upon as a combination of the operator (the stick used to rub the surface of the rasp) and the sound-producing source (the body of the rasp itself) into one unit. An interesting reversal of roles takes place for the operator now produces the sound while the cogwheel initiates the sound. The ratchet

consists of a cogwheel which is either revolved, twirled, or spun by means of a handle against one or more semi-stationary tongues of wood or metal. When rotated, the tongues strike the cogs of the wheel, producing the characteristic sound.

Known by names such as Crecelle in France, Ratsche in Germany, Raganella in Italy, and Carraca in Spain, the ratchet is an instrument with widespread and diverse uses. In addition, its history dates back quite far. Bonanni,<sup>8</sup> whose illustrations show an already advanced state of development, gives several depictions of types of ratchets. One depiction is of a "box rattle," a very large container with four slats set at different angles designed to hit the tongues at staggered intervals. Another illustration is of a large ratchet used during Holy Week in Spain and Mexico. Called the Matraca, this instrument consists of approximately twenty sprockets on a large wheel which can revolve to strike a single tongue.

The religious uses of the ratchet have varied. In the Roman Orthodox Church, ratchets were used to replace the bells during Holy Week, particularly on Maundy Thursday and Good Friday.<sup>9</sup> It was during this period of the liturgical year that the bells were sent to Rome to be

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blessed by the Pope. During the Jewish holiday of Purim, ratchets still are used by the children of the congregation during the reading of the book of Esther.

The use of the ratchets as warning devices has a history which dates back several hundred years. In medieval Europe, ratchets were sounded by the pullers of carts containing the bodies of those dead from the Black Plague. When the ratchet was heard, people knew to shut their doors and windows to prevent the spreading of the disease. Another use of ratchets as warning devices existed during the nineteenth century. Before the invention of radar, sailing ships would sound a ratchet when in fogbound weather, and in so doing, let other ships in the area determine their approximate position and distance.<sup>10</sup> Ratchets also were used by watchmen during the first World War in Europe as gas warning devices.<sup>11</sup>

Children have a fascination for smaller versions of ratchets, used worldwide as toys, games, or party favors. Because of their volume and ability to cut through the loudest settings, ratchets also are used at sporting events, such as football or soccer games, and as simple noise-makers to cheer on teams. In many parts of the world, ratchets are used to scare birds and animals away from crops and villages.

"In the last thirty years, the role of percussion in the orchestra, like that of chamber music has completely changed; once percussion played an episodic part in music, now it is often an essential force."<sup>12</sup> The use of rasps and ratchets in the repertoire of Western art music has had a curious life. The rasp would seem to follow the normal progression in that most percussion instruments are "...introduced into the orchestra on the basis of a certain instrument to be associated with a definite set of facts, often not even related to a musical aspect."<sup>13</sup> Stravinsky calls to mind the sacrificial rituals in the *Rite of Spring*, and composers such as Milhaud brought the indigenous South American dance music into the classical setting. The Afro-Cuban and Latin rhythms were made even more popular in the late 1940's by Chano Pozo of the Dizzy Gillespie band.<sup>14</sup> Dances such as the Rumba, Mambo, Merengue, Cha-cha and more became crazes in North America. Composers influenced by jazz brought these dances and their characteristic instruments into the concert hall. Gangware states that these instruments' "...main purpose is to give authenticity to the performance of the music of these Latin American Countries."<sup>15</sup> Latin American composers, going through periods of nationalism, would write for the instruments, styles, and forms which were native to their homeland. The ratchet, on the other hand, seems to go against Gangware's theory, for it has always been used in the orchestral setting as a sound effect. Used to imitate various sounds from gunfire to awkward movement, the ratchet has no cultural or nationalistic nature. Perhaps the reason for this lies in the basic noise-making applications it has assumed over the centuries.

It has been shown that rasps play highly varied roles in cultures around the world. In some cultures, the rasp is a very specialized instrument. The metal rasp peculiar to the Maninka people of Guinea, is used only to accompany the songs of the Jali, which were an elite caste of professional musicians who acted as advisors to the Emperor and chronicled the Maninka society.<sup>16</sup> In some cultures the rasp's use is widespread. For example, a similar type of metal rasp used in Mali can be played by any member of the tribe without restrictions while all other instruments of the group are subject to strict caste requirements.<sup>17</sup> In still other cultures, the rasp has come full circle. For instance, rasps are now used in modern rock bands and high life groups in Upper Volta which now look toward Cuba for musical inspiration.<sup>18</sup> It might be remembered that Latin America, most importantly Cuba, received its musical heritage from the African nations.

In terms of Western art music, the rasp has now lost most of its indigenous cultural associations and is looked upon by contemporary composers as simply another sound-generating device. Just as the bass drum, triangle, and cymbals were first associated with Turkish music, and later lost this cultural connection, rasps too have followed the same path. ■

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His last book, **The Complete Electronic Drummer**, has recently been published by Modern Drummer Publications, and **The Last MIDI Book**, was published by Alexander Publications in March, 1988. Weinberg has published articles in several journals including **Modern Drummer**, **Percussive Notes**, **Percussive Notes Research Edition**, **The Instrumentalist** and **Rhythm**. He has compositions published by Southern Music Company. Also, he was a guest clinician at the 1988 Percussive Arts Society International Convention in San Antonio, Texas.

## A Selected Listing of Works Using Rasps and Ratchets

### RASPERS

Berio, Luciano  
*Circles*

Birger-Blombahl  
*Play for Eight*

Carter, Elliott  
*Double Concerto*

Chávez, Carlos  
*Sinfonia India Xochipilli Macuilxochitl*

Clementi, Aldo  
*Informel No. 1*

Copland, Aaron  
*Billy the Kid*  
*Music For a Great City*  
*Appalachian Spring*  
*Rodeo*

El Salón México



Donatoni, Franco  
*For Grilly*  
*Puppenspiel*

Gould, Morton  
*Latin American Symphonette*

Guarnieri, Camargo  
*Flor de Tremembé*

Janáček, Leos  
*Out of the Death House*

Kekemen, Milko  
*Equilibres*

Kotonski, Włodzimierz  
*Musique en Relief*

Lambert, Constant  
*Rio Grande*

McDonald, Harl  
*Rhumba Symphony*

Manino, F.  
*Mario e il Mago*

Matsudaira, Yoriaki  
*Figures Sonores*

Mignone, Francisco  
*Batucafé*

## RATCHETS

Beethoven, Ludwig von  
*Wellingtons Stieg*

Blitzstein, Marc  
*Airborne Symphony*

Copland, Aaron  
*Symphony No. 2*

Falla, Manuel de  
*El Ratale de Maese Pedro*

Gould, Morton  
*Philharmonic Waltzes*

Havergal, Brian  
*Second Symphony*

Ibert, Jacques  
*Suite Symphonique*

Jacobi, Frederick  
*Music Hall Overture*

Milhaud, Darius  
*The Death of a Tyrant*

Mozart, Leopold  
*Toy Symphony*

Mussorgsky, arr. Ravel  
*Pictures at an Exhibition*

Pizzetti, Ildebrando  
*Introduzione all' "Agamnonne"*

Respighi, Ottorino  
*Pini di Roma*

Rogers, Bernard  
*Characters from Hans Christian Anderson*

Rosenthal, Manuel  
*Les Petits Métiers*

Rossini, arr. Respighi  
*La Boutique Fantasque*

Satie, Eric  
*Parade*

Milhaud, Darius  
*Suadades do Brazil*  
*Le Boeuf Sur le Toit*

Orff, Carl  
*Weihnachtsspiel*  
*Oedipus*  
*Prometheus*

Revueltas, Silvestre  
*Sensamaya*

Sanjuan, Pedro  
*Liturgia Negra*

Stockhausen, Karlheinz  
*Kontakte*  
*Zyklus*

Stravinsky, Igor  
*Le Sacre de Printemps*

Varèse, Edgard  
*Ionisation*

Villa-Lobos, Heitor  
*Uirapurú*  
*Choros No. 6, 8, 11*  
*Bachianas Brasileiras No. 2*

Schuman, William  
*Undertow*

Siegmeister, Elie  
*Sunday in Brooklyn*

Skilton, Charles  
*Suite Primeval, Parts I and II*

Strauss, Richard  
*Till Eulenspiegel's Merry Pranks*

Varèse, Edgard  
*Hyperprism*

Villa-Lobos, Heitor  
*Amazonas*

## NOTES

- 1 James Blades, *Percussion Instruments and Their History*, (London: Faber and Faber Limited, 1975), p. 40.
- 2 David H. Paetkau, *The Growth of Instruments and Instrumental Music*, (New York: Vantage Press, 1962), p. 33.
- 3 *The New Grove Dictionary of Music and Musicians*, s. v. "Notched Stick."
- 4 Blades, *Percussion Instruments*, p. 133.
- 5 Nicolas Slonimsky, *Music of Latin America*, (New York: Thomas Y. Crowell Company, 1945), p. 71.
- 6 Blades, *Percussion Instruments*, p. 41.
- 7 Karl Peinkofer and Fritz Tannigel, *Handbook of Percussion Instruments*, Translated by Kurt Stone and Else Stone, (Mainz: B. Schott's Sohne, 1976), p. 155.
- 8 Filippo Bonanni, *The Showcase of Musical Instruments*, (Gabinetto Armonico), With a new introduction and captions by Frank Harrison and Joan Rimmer, (New York: Dover Publications, Inc., 1964), pp. 149, 150, 152.
- 9 James Blades and Jeremy Montagu, *Early Percussion Instruments From the Middle Ages to the Baroque*, Early Music Series: 2, (London: Oxford University Press, 1976), p. 21.
- 10 George Gaber, Interview held at the School of Music of Indiana University, (Bloomington, Indiana: August, 1982).
- 11 Anthony Baines, ed., *Musical Instruments Through the Ages*, new ed., (New York: Walker and Company for the Galpin Society, 1976), p. 30.
- 12 Pierre Boulez, Foreword to *Percussion*, by James Holland, Yehudi Menuhin Guides, (New York: Macmillan Publishing Company Inc., Schirmer Books, (1981), p. ix.
- 13 Edgar Brand Gangware, *The History and Use of Percussion Instruments in Orchestration*, (Ph. D. dissertation, Northwestern University, 1963), p. 247.
- 14 Gordon B. Peters, *The Drummer Man: A Treatise on Percussion*, (Wilnet, Ill.: Kemper Peters Publications, 1975), p. 208.
- 15 Gangware, *Percussion in Orchestration*, p. 239.
- 16 Grove Dictionary, s.v. "Guinea."
- 17 Grove Dictionary, s. v. "Mali."
- 18 Ibid., s. v. "Upper Volta."

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