

Teaching Percussion

Enhanced Third Edition

Gary D. Cook

TEACHING PERCUSSION WITH Videos

ENHANCED THIRD EDITION

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Australia • Brazil • Mexico • Singapore • United Kingdom • United States

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Enhanced Third Edition**
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T HIS **ENHANCED** 3rd Edition of *Teaching Percussion* has been expanded to include current resources for study and extensive new content, particularly under the “History and Evolution of Percussion and Pedagogy,” presented in Cengage’s innovative MindTap digital platform and in eBook format. This new content will provide comprehensive information in a single resource for music educators, as did previous editions. This edition is intended to be invaluable to university and college instructors teaching percussion pedagogy, literature, or history courses, as well as to graduate students preparing for written and oral exams.

New MindTap features for this edition include:

- video track numbers that are closely referenced throughout each chapter for a clearer understanding of the playing examples and concepts.
- chapter Previews that present Video Activities and Learning Objectives outlining core learning concepts.
- new YouTube videos, websites, and other online resources that are linked to the MindTap sections.
- Bonus Study features throughout each chapter that designate references to websites, articles, and other downloadable sources for use by college instructors and graduate students for further in-depth study beyond the text.
- Timelines in most chapters that present historical material that is referenced and cross-referenced throughout the book and expanded in other chapters.
- new “History and Evolution of Percussion and Pedagogy” sections in most chapters that detail the events in the Timelines and trace the origin, history, and evolution of instruments, composers and their compositions, inventions, and events all contributing to the evolution of percussion—including the genesis of the percussion ensemble, the establishment of educational programs, the formation of professional percussion ensembles, and significant pedagogical developments and schools.
- Chapter Quizzes at the end of each chapter that will help the reader and instructors evaluate these new learnings.

Since the publication of the first edition in 1988, *Teaching Percussion* has been used throughout the world. My goal with the revisions and updates to the second edition, published in 1997, was to make it a better book; in fact, it is still commonly referred to by instructors and students as “The Cook Book.” The third edition, published in 2006, was a result of thoughtful input from reviewers, colleagues, and students—as well as my own desire for further refinements in the book—plus the publisher’s support and eagerness to issue accompanying DVDs with that edition.

This *Enhanced 3rd Edition* contains all the original features of the 2006 third edition, but it is now available as an eBook, with all the videos online in Cengage’s amazing, interactive MindTap digital platform. Those original features include: additional playing exercises to provide more hands-on classroom experience for students; expanded emphasis on percussion of the world, marching percussion, drum set, and new applications of technology, including Internet and updated resources; and further refinements in experiential teaching and learning integrated with new scientific developments in understanding motor control learning. This *Enhanced 3rd Edition* continues to be a book on pedagogy—on how learning (to better facilitate it) takes place, especially through

experiential awareness. This understanding is based on the premise that learning occurs not so much by trying hard to accomplish something, but by becoming more aware of the activity (for example, the stroke, motion, or movement) and paying attention to all aspects of the activity (the sound, look, and feel of it) to allow learning to take place in a natural and expedient manner. In this sense, *Teaching Percussion* continues to be about *developing habits*—habits that become one’s whole approach to playing (for example, the habit of acquiring a concept of sound on every instrument and then *developing* that concept, the habit of playing with a relaxed technique, the habit of discovering and expressing musical ideas, and the habit of efficient practicing that results in satisfying performances). Practice efficacy is examined from the premise of defining the “essential ingredients” that are needed to develop skills, understanding, and musicality in percussion performance, and not from spending time practicing things that have little payoff or results. Expedient practice habits are essential, because there is now so much competition for percussionists’ time. New techniques are demonstrated in the online videos and presented throughout the text, and are learned more efficiently by utilizing the power of “cloning” and “triple-channel experiential learning.” Most importantly, the essential ingredients presented throughout *Teaching Percussion* become “The Cook Book” recipes for maximizing and enjoying the whole learning experience and for developing percussionists into sensitive *musicians* ... who just happen to be percussionists.

The online videos continue the focus on the essential playing ingredients in each chapter and go beyond the textbook with demonstrations and concepts. This gives students greater goal clarity when playing the many exercises and developing hands-on understanding of the concepts and playing systems. The online videos, as before, expand the marching percussion, world percussion, and drum set chapters, and a new video by Drew Lang demonstrates some of today’s on-the-job applications of electronic percussion. All this is integrated through instant links in MindTap to YouTube, websites, and other resources to illustrate even further each chapter’s concepts. By focusing on the essential ingredients in each area of study, progress through the material, particularly in the college methods class, should prove more efficient and timely. The book and videos should be more valuable on-the-job references to music educators than ever before.

The first edition of *Teaching Percussion* was written at a time when scientists, humanists, and psychologists were just beginning to team up with music educators to try to understand further the dimensions of learning and performing music. The learning of musical skills (indeed, of many human activities) has continually been recognized as a process that involves a person not merely in an individual mind-body system inside his or her skin, but within the context of the total environment. The total external environment of any person is the universe. The total internal environment of the person is both conscious and unconscious—*anatomy, physiology, chemistry, and genetics*, as well as the internalized socialization process that includes one’s language, behaviors, concepts, beliefs, disbeliefs, experiences, and education. This approach to the learning and performance of music then involves acknowledgement, realization, and consideration of as many mind-body internal and external environmental interrelationships as one’s knowledge, experience, and sensitivity allow.

In *Mind, Muscle, and Music*, Dr. Frank R. Wilson (a semi-retired neurologist by profession—and author of books on music and the brain and the hand—but an amateur pianist by avocation) presents the major premise of his work when he states, “a close examination of the ‘tried and true’ principles of music teaching shows them to be compatible with what we are now discovering to be the operating characteristics of the human brain and neuromuscular system. Whether or not they actually understand the underlying physiologic or psychologic principles, good teachers have found didactic techniques which optimize the natural learning systems built into the human brain.” He continues by stating that he “can’t help believing that a wider appreciation [and understanding] of the operating characteristics of the nervous system will help make teaching systematically better.”¹

Wilson goes on to explain how the cerebellum processes repetitive activity in the muscular system until it is automatic, and how this process is adversely affected by

practicing too fast for accuracy—certainly not a novel idea to any good teacher’s didactic techniques, but a new explanation of our tried and true principles. He expounds on the benefits of mental preparation and visualization, and likens a musician’s mental practice to that of a serious athlete. He states that visualization techniques have helped athletes “improve their limits and to discover small technical errors that adversely affect performance.” Wilson concludes by saying “these techniques work not simply because they help performers cope with stress and [performance] anxiety, but because they facilitate programming the cerebellum.”²

Recent scientific discoveries in brain plasticity research and refined empirical methods to help teachers and performers better understand the processes of learning and performing music are presented throughout this *Enhanced 3rd Edition of Teaching Percussion*. Refinements made by Jon Gorrie (author of *Playing in the Zone*, 2009) to Tim Gallwey’s *Inner Game* concepts are discussed in the Introduction, and Gorrie expands Gallwey’s thinking to a new level. Research synthesis presented by Po Bronson and Ashley Merryman in *Top Dog, The Science of Winning and Losing* (2013) informs us of new and cumulative research findings based on brain scan studies of electrical and chemical reactions in the brain and hormonal reactions through saliva samples that support, as well as contradict, many postulated beliefs from the past. These new findings are examined and connections made in the new MindTap sections. For example, Gorrie’s perspective that *appropriate levels of performance arousal* help us perform our best is supported by the Individual Zone of Optimal Functioning (IZOF) research expounded by Russian psychologist Yuri Hanin in 2003. Hanin’s research basically defined a level of anxiousness that is beneficial to an individual’s performance. A critical understanding from this research is that having performance arousal is ok; what is critical is how we *perceive* and *interpret* stress as a *threat* situation or a *challenge* situation that triggers performance arousal to an appropriate (or inappropriate) level that, in turn, affects optimal functioning.

Several parallel research findings debating the “10,000-hours rule” of practice to become an expert—that was started in 1993 with the research of Anders Ericsson, et al., with subsequent conclusions by Malcolm Gladwell (and others) in his book *Outliers*—have shed new light on the validity of the claim. A meta-analysis, in 2014, of 88 scientific articles representing some 11,000 research participants contested Gladwell conclusions. Ericsson, in his 2016 discourse *PEAK: Secrets from the New Science of Expertise*, refutes the 10,000-hours rule, proclaiming that it does not warrant expert performance but, more so, reveals that *deliberate practice*, as he terms it, is indeed a key to expertise, regardless of how long training takes. Ericsson’s deliberate practice criteria involve dedicated and focused purposeful practice, with well-defined goals, and a plan for achieving them defined by a highly competent teacher. (See: <http://www.businessinsider.com/anders-ericsson-how-to-become-an-expert-at-anything-2016-6>). However, the critical result of deliberative practice is a new interpretation of a mid-19th century scientific discovery that shows deliberate practice builds a neural insulator called myelin around nerve fibers, and myelin is the key to expertise. This realization is expounded by Daniel Coyle in his book *The Talent Code*, and elements of Coyle’s *deep practice* (as he terms it), which “fires our neural circuits in such a way that our myelin responds by wrapping layers of insulation around the neural circuits to improve performance,” are integrated into the pedagogy of *Teaching Percussion* and presented through the new MindTap links. As an example, view the TEDx Talk “How to Practice Effectively” given by Annie Bosler and Don Greene (author of *Performance Success: Performing Your Best Under Pressure*; see Recommended Reading at the end of the Introduction) on the quality and effectiveness of practice that results in the myelination of neural pathways.

View this YouTube video of a 2017 TED-Ed Talk, “How to practice effectively... for just about anything” given by Annie Bosler and Don Greene on the quality and effectiveness of practice that results in the myelination of neural pathways: <https://www.youtube.com/watch?v=f2O6mQkFiiw>

In the final chapter to his book *Tone Deaf and All Thumbs?: An Invitation to Music-Making for Late Bloomers and Non-Prodigies*, Dr. Wilson reflects on the intrinsic value of music study as something rewarding in itself and akin to “a fundamental tenet of Zen thought, which holds that one studies flower arranging or archery, or motorcycle maintenance, for only one reason: to achieve detachment through self-mastery.” He further states,

Perhaps this formulation is as good a bridge to the deeper levels of musical meaning, and the value of music as a discipline, as can be found. It allows us to see that the spiritual, cerebral and physical aspects of music are not only unopposed but in fact mutually dependent. And, to be very practical, it gives us a solid foundation on which to anchor our interest in music-making, and from which to build a long-range, workable plan for both success and satisfaction.³

In the conclusion to his book *The Inner Game of Golf*, one of several he has written addressing the mental aspects of playing a sport, author Tim Gallwey states that sports could become “the laboratory in which research and experimentation about human motivation, performance, and self-interference take place.” He remarks,

it will no longer be sufficient for a teacher of the game to be a good player and know the mechanics of the swing. Forward looking teachers will attempt to develop an understanding of the learning process. If they do, they will be more valued than in their old role as swing mechanics for they will be teaching such valuable inner skills as concentration, self-trust, will, and awareness...the best of them will be held in the same esteem as the Zen masters of Japan who taught judo, aikido, archery, and even flower arranging—not just as skills useful in themselves, but as vehicles for learning self-control. Such teachers will be recognized as making valuable contributions to the quality of a student’s entire life.⁴

It is my hope that the ideas presented in *Teaching Percussion* concerning both percussion techniques and learning theories will prove provocative to the reader and foster further exploration of their substance. Indeed, the art of music is, like Gallwey’s sports, a perfect “laboratory in which research and experimentation about human motivation, performance, and self-interference take place.” To evolve beyond and transcend our “old role as swing mechanics” is one of the greatest, if perhaps not *the* greatest, challenge and purpose in our profession and life.

As stated in the Preface to the first edition three decades ago, *Teaching Percussion*, “when used as a primary text in college percussion methods/techniques classes and as an on-the-job guide book or manual by music educators, will contribute greatly to the continued elevation of standards and expectations for percussion performance and education in the school music program.”⁵ Indeed, those *standards* and *expectations* have risen as a result of many contributions: the increasing demands of performance literature and new arenas—like PAS, DCI, WGI, and BOA—and the greater refinement and understanding of our pedagogy by teachers and students, which have resulted in a general heightening of skill levels and musicianship in players of all ages and in all situations. These manifested higher skill levels, although labeled many things in today’s society—“artistic excellence,” “realized potential,” and so on—can simply be called *progress* for the most part. Indeed, this progress is a result of meeting the challenge of these elevated standards and expectations with better-informed and refined high-quality teaching. And this progress is a natural evolution for informed, aware musicians, much like the way Dave Weckl titled his 2003 DVD “Natural Evolution,” in which he extols the benefits of a more relaxed, free rebound approach to drumming over the more mechanical, technical previous approach he had used for years.⁶ As more teachers and students recognize and experience this quality of instruction and education, they will be better able to evolve beyond being “swing mechanics,” and greater progress of even a higher level and quality will be made. It is my sincere intention that this *Enhanced 3rd Edition of Teaching Percussion* is a further refinement and continuing contribution toward that progress.

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■ NOTES

1. Frank R. Wilson, *Mind, Muscle, and Music: Physiological Clues to Better Teaching* (Elkhart, IN: The Selmer Company, 1981), p. 14.
2. *Ibid.*, p. 15.
3. Frank R. Wilson, *Tone Deaf and All Thumbs?* (New York: Viking-Penguin, 1986), pp. 193–194.
4. W. Timothy Gallwey, *The Inner Game of Golf* (New York: Random House, 1981), p. 205.
5. Gary Cook, *Teaching Percussion* (New York: Schirmer, 1988), p. xv.
6. Dave Weckl, “Natural Evolution” DVD (New York: Carl Fischer, 2003).

■ ACKNOWLEDGMENTS

The three editions of *Teaching Percussion* have spanned three decades, from the first edition in 1988, the second in 1997, the third in 2006, and now this *Enhanced 3rd Edition* in 2018. An attempt at acknowledging and thanking everyone who contributed to their creation would be ineffectual. However, none of these editions could have been possible without the support, understanding, and love of my family: My wife, Kirsten; our daughters, Tamara and Tekla, and their families; and my parents. Their *years* of patience with me writing *Teaching Percussion* is truly amazing!

The many friends, colleagues, mentors, and editors who made the first two editions possible are beyond listing, but without their contributions the third editions would never have evolved. Some of those wonderful people are my teachers and mentors Salvatore Rabbio, Tele Lesbines, Cloyd Duff, and James D. Salmon, who helped me *beyond* the mechanics of the swing; Paul Buyer, Dave Walton, and Susan Martin and other contributing authors along the way; Sandy Goldthorpe, Jim Shea, Steve Crofts, and others who helped create those editions; the many publishers and manufacturers who supported those editions with permissions and images; and my editors who believed in all these editions.

The seed for the original 2006 third edition was planted when Clark Baxter, Publisher at Thomson/Schirmer Books, asked me if I would like to write it. My response was, “Only if we can do it with a DVD,” and he enthusiastically agreed. I am eternally grateful to the team of editors and tech support people at Thomson/Schirmer who helped to nurture the manuscript and produce the original 2006 third edition: Julie Yardley, Jennifer Gordon, Robin Hood, Joohee Lee, Diane Wenckebach, and Trudy Brown, as well as Matt Dorsey, for his help and patience with the videos. Creating the seven-and-a-half hours of accompanying videos was an amazing process that took just less than a year, and videographer Carlos Terrazas is equally amazing. To Carlos and the video support folks, my deepest appreciation (please read the video credits for all those names). The videos wouldn’t be what they are without the incredible contributions of Aaron Holbrook’s camera work and of Scott Werner and the Corona del Sol High School marching band front ensemble for the marching percussion in Chapter 9. I can never thank Aaron or Scott and his wonderful students enough for making the third edition a better book.

Creating the *original 2006 third edition* and its accompanying videos with the comprehensiveness and quality that I envisioned was beyond my expertise. So, in order to meet my expectations and standards, I engaged colleagues as contributing authors who truly went beyond my dreams. The contributions of Robin Horn to the drum set chapter and to the performances on the entire Chapter 8 video are matchless; the expertise of Mike Vercelli and Todd Hammes in the greatly expanded world percussion chapter (Chapter 7) is inspiring and, hopefully, provocative to readers; the wisdom of Dave Rodenkirch emerges in several chapters, but his text and music, along with Joe Gallegos’ writing and Jeff Moore’s arrangements, make the marching percussion chapter (Chapter 9) unique and very special; and Scott Deal’s expertise in electronic musical instruments and cutting-edge thinking bring greater relevance and clarity to the application of technology to percussion education and performance than ever before. Jay Rees, then Associate Professor of Music and my University of Arizona (UA) colleague, can never be thanked enough for his cooperation with the Pride of Arizona marching band, his arranging genius with the Talking Heads show, and his inspiration creating *Rub the Buddha*. Jay is now Professor of Music and Director of Athletic Bands at the University of Miami. Mike Sammon’s arrangement of *Buddha* and brilliance with the steel band

brought perfect synchronicity to everything we needed for the steel band segments. Special thanks goes to Jeannine Remy for giving pan a special place in my life and for her African Creation percussion ensemble as the perfect experiential learning tool for the third edition. And a special thanks to all the members of the 2004 Pride of Arizona marching band, UA Steel, the Corona del Sol High School front ensemble from Tempe, Arizona, and the world percussion and Groove Tunes groups, who donated their time and talents to making the videos unequivocally one-of-a-kind.

My deepest appreciation is expressed to the manufacturers and publishers, whose contributions of photos and permissions made the illustrations clearer and more interesting—especially Matthew S. King for his all-encompassing cover photo of Guatemalan marimba mallets and Vallabh Kargathra for the photo of Pandit Sharda Sahai; Steve Hearn at Pearl Corporation and Nick Petrella at SABIAN Cymbals (and for Nick’s insistence that we “go with DVDs!”); my dear friend Al Payson for his support and permissions; and Boosey & Hawkes. Jim Casella’s offer to provide mp3 files of Jeff Moore’s arrangements compliments of Tap Space Publications with *Virtual Drumline: 2* sound samples on the *Teaching Percussion* website for Chapter 9 created added value to the third edition, for which I am most appreciative—as I think will be the readers.

And then there are the “students”—or people, most of whom just happen to be enrolled at the UA—who contributed in so many ways to make the third edition revolutionary. To those who rose beyond the challenge of teaching percussion on the DVD—especially Debbie Lewis and Lauren Spencer for their beautiful marching cymbals playing and commentary; and Vicente Lopez, Saul Aguilar, Bob Peterson, Bryce Dunbar, Stephanie Thompson, and Chris Newman for their battery demonstrations and commentary—thank you for being absolutely amazing and taking Chapter 9 beyond my dreams! It is to people like you and all my past students and future readers that the 2006 third edition of *Teaching Percussion* was dedicated. Thank you for being the next generation of progress.

In November of 2015, as I was attempting to contact my publisher, Clark Baxter, I discovered Clark had retired from Cengage Learning. Sharon Poore was the new Product Manager, Art & Music at Cengage; we began correspondence about creating an *Enhanced 3rd Edition of Teaching Percussion* in Cengage’s MindTap digital platform. A production team was assembled, with Julia Giannotti as Project Manager joining Sharon Poore in Boston, and Chrystie Hopkins as Content Development Project Manager with Lumina Datamatics. Three other professionals joined that team in April 2017: Lianne Ames, Senior Content Project Manager, Higher Education Production Cengage Learning; Charu Verma, Senior Project Manager with MPS Ltd. digital publishing; along with copyeditor Joan Templeton.

A special thank you is extended to my colleague Drew Lang for sharing his expertise on using electronic percussion and technology in education in chapter 1 with his video and his contributions to chapter 8. As a working percussionist who regularly uses technology on the gig playing shows and musicals, and well as opera, Drew’s perspectives have made the *Enhanced 3rd Edition* a better book.

A final thank you goes out to two of my colleagues: Dr. Steve Hemphill, Director of Percussion at Northern Arizona University and Kyle Bissantz, Assistant Director of Bands and Director of Percussion at Bishop Gorman High School in Las Vegas. I asked Steve for “real life” questions he uses in his methods classes at NAU and he complied, many of which served as incentive for this *Enhanced 3rd Edition* chapter quiz questions. Kyle provided drumline and front ensemble videos that concluded the chapter 9 MindTap perfectly.

My deepest appreciation goes out to Steve, Drew, Kyle, and the entire production team at Cengage for their support and creative thinking, which has made this *Enhanced 3rd Edition* of *Teaching Percussion* a reality and the comprehensive resource it is today.

T *TEACHING PERCUSSION* is a comprehensive textbook, with accompanying videos and a digital teaching and learning solution called MindTap. Both the textbook and MindTap are designed primarily for use in training the future music educator who is in the college percussion methods and technique class. All aspects of percussion education, performance, and pedagogy are presented in great detail.

The music educator will find this text to be an invaluable on-the-job reference source when used as an accompanying instructional guide with any of the several instrumental method courses for band or orchestra, or when used with any fine percussion method for private or class study. The emphasis on learning and playing philosophies, as well as its enhanced contents, make it suitable for use in college pedagogy, history or literature courses, and in private instruction.

The contents of *Teaching Percussion* represent a synthesis of many successful approaches to percussion performance and education that have been tested, edited, refined, and improved over the years. New techniques and developments in pedagogy have been integrated into the book and videos, which offer the teacher and student a wealth of eclectic insights into all music learning and performance. It is my hope that these insights will stimulate the curiosity of the teacher and student toward further examining the processes involved in the acquisition of musical skills and the intrinsic value of these processes themselves.

The playing philosophies, schools, or systems presented in *Teaching Percussion* are derived from the teachings and playing concepts of the greatest artists and pedagogues in the percussion profession, from an informed historical perspective. The approach to all “drumming” presented herein is rooted in a free rebound playing system, as expounded by George Lawrence Stone, Billy Gladstone, and Sanford “Gus” Moeller and furthered by Fred Hinger, Buster Bailey, Jim Chapin, Joe Morello, Dave Weckl, Freddie Gruber, Dom Famularo, William James, and many others, including numerous drum set artists. The approach to keyboard percussion is founded in the playing principles first expressed by the great George Hamilton Green and later by Bob Becker, Buster Bailey, Gene Koshinski, and others and expanded by Gary Burton, Keiko Abe, Leigh Howard Stevens, Gordon Stout, William Moersch, Michael Burritt, Nancy Zeltsman, Mark Ford, Pius Cheung, and many others to include four-mallet performance. Some of the approaches to cymbal playing were originally formulated and practiced by Sam Denov, Charles Owen, Fred Hinger, Al Payson, and other symphonic players. The approach to timpani performance is a synthesis of systems expounded by Fred Hinger, Richard Hochrainer, and Saul Goodman and greatly influenced and inspired by my mentors Salvatore Rabbio, Tele Lesbines, and Cloyd Duff. Similarly, techniques of other performance areas are based on the concepts exhibited by the profession’s most respected artists and teachers. I have had the good fortune of being able to distill these concepts, add many of my own, and refine them all with an extraordinary group of students over four decades of teaching and in three editions of *Teaching Percussion*. The application of these concepts and approaches has produced practical and musical results over many years, and will greatly aid the percussion student and teacher in achieving *musical* percussion performance and education.

Over the years, *Teaching Percussion* has been a significant contribution to percussion pedagogy—a continually evolving, refining body of literature and concepts within the constantly expanding art of percussion. The unique aspect of each edition of *Teaching Percussion*, as stated in the original Introduction, remains its presentation of a consistent basic

percussion technique or playing philosophy throughout the text. This is integrated with current scientific knowledge on motor skills learning and a refined contemporary approach to teaching that is based on understanding natural human learning potentials and experiential awareness learning. The following comments about this experiential learning approach are offered with the intent of clarifying the concepts and encouraging their application.

Experiential learning is a natural process through which people acquire new skills and knowledge. Think for a moment of how a child learns the complexities of walking, eating with a spoon, riding a bike, roller skating, and even talking. When a child learns to walk, no volume of instructions is given by the parent about “how” to put one foot ahead of the other, alter balance, and distribute weight in order to avoid falling. The child learns virtually without language instructions, through an awareness of his or her own experience. The *learning* comes *not* from the doing of the task itself or from *trying* hard to walk, but from the *body* experiencing and the central nervous system registering what happens when the attempt to walk is made. The body naturally learns when an awareness of the experience is registered in the psychophysical system of the child. In this sense, walking is learned by “trial and learning” not by “trial and error.” The child learns naturally, and the body never forgets how to walk. Unfortunately, as the child grows older and experiences traditional education, a large amount of natural learning potential and psychophysical integrity is interfered with, or worse, as John Holt states in *How Children Fail*:

It is destroyed, and more than by any other one thing, by the process we misname education—a process that goes on in most homes and schools. We adults destroy most of the intellectual and creative capacity of children by the things we do to them or make them do. We destroy this capacity above all by making them afraid, afraid of not doing what other people want, of not pleasing, of making mistakes, of failing, of being *wrong*.¹

The past decades have seen an increasing awareness and understanding of natural human learning capabilities. This understanding has been applied to the learning and improvement of many human activities, including sports, human relations in business, health, and teaching, and performance skills in music. Learning and playing music can be summed up as a two-part process: 1. the acquisition or learning of motor skills and music, and 2. the act of then calling on those acquired skills in performance with minimal mental or physical interference to achieve a high quality and satisfying musical performance of the music. The actual learning of any physical activity, and the approach for teaching percussion encouraged throughout this book and on the videos, is based on the principle that change and learning take place in the most expedient, natural, and permanent way when we increase our awareness of “what is” and “what is happening” while engaged in an activity, and not by just “trying hard” to gain certain end results by “doing” the activity. While the importance of having clear learning objectives or goals is a given, strong results-oriented, or end-gaining, judgmental expectations that accompany “trying hard” usually interfere with one’s psychophysical balance, which in turn reduces one’s capacity for learning and performing. Combining triple-channel and cloning methods of teaching with experiential learning concepts can greatly increase one’s awareness of the activity one is engaged in and thus enhance learning. Or, as Tim Gallwey so eloquently states, “Learning and change occur when there is an increased awareness of what is.” The following will further acquaint the teacher (and learner) with the methodology of using triple-channel and cloning methods to facilitate learning through experiential awareness.

W. Timothy Gallwey, the celebrated sports guru, expresses a very useful formula for examining this learning and performance process in his *Inner Game* books on sports, which have been easily adapted to music since their first appearance in the mid-1970s. (Gallwey teamed up with bassist Barry Green in the 1980s to apply *Inner Game* methodologies to music in their co-authored book *The Inner Game of Music* [1986], and Green subsequently produced a video and several workbooks; see Recommended Reading at the end of the Introduction.) Gallwey’s formula of $P = p - i$ translates simply: one’s “Performance” (P) is equal to one’s “potential” (p) minus “interference” (i). A working example of this equation could be illustrated by the scenario in which a performer has prepared a piece of

music in the practice room to 100 percent of its potential, yet when performing in front of an audience, mental interference of 20 percent reduces the full potential to a performance of only 80 percent of the performer's potential. ($P = p - i$: $80\% = 100\% - 20\%$)

Many factors influence each component of this equation and there are numerous combinations possible. For now, the focus is on building the small "p" potential component to an optimum level through understanding what Michael Colgrass first called "triple-channel learning," and through the use of "cloning" as presented throughout *Teaching Percussion*.

Simply stated, a person learns a musical skill through visual, auditory, and kinesthetic channels. In other words, we learn by seeing, hearing, and feeling. While our olfactory sense (smell) and gustatory sense (taste) play important roles in learning to make a soufflé, a tasty salad, or another recipe, they are less involved in learning musical skills. (Yet, the benefits derived from burning incense and other sensory enhancers should not be overlooked.)

Triple-channel learning simply refers to acknowledging and consciously programming any skill that is to be learned equally through each of these three channels. While it might seem that this, of course, takes place in good teaching and through good practice habits, the fact remains that most people favor a preferred learning strategy that rarely equally utilizes a balance of all three senses. Drumming, in particular, is greatly referred to as a kinesthetic experience and, indeed, many drummers and percussionists tend to acquire their skills and learn their parts primarily through their kinesthetic channel (often coupled with their auditory channel). An instrumentalist talks of "having the notes in my hands" (or of "not having the notes under my hands ... yet"). Indeed, a great drummer is one who plays with a good "feel," or "lays down" a nice "groove" and has a nice "touch" on the instruments—all of which are kinesthetic or feeling-related descriptive terms in themselves.

The acquisition of a musical skill or the learning of a piece of music through a balance of these three senses, in contrast to learning primarily through one or two senses, can improve one's small "p" potential and enhance one's performance. All one has to do is consciously pay attention to as much of the visual, auditory, and kinesthetic feedback as possible while learning the skill or the piece.

Take, for example, a beginning drummer learning to play a free rebounding stroke off a drum. The intent is to play the stick so as to allow for a free, uninhibited, natural rebound off the drum. The drummer is usually instructed, in some manner, to play and allow the stick to freely rebound off the head. The player usually observes this process from his or her vantage point and sometimes in a mirror or on video. (Effective teaching involves having the student imitate the teacher's demonstration of a free rebounding stroke and likening it to bouncing a ball. The analogy of bouncing a ball to making a basic percussion stroke establishes sensitivity and timing, and coordinates sensations in the body directly related to the free rebound of the stick off a drum head. Plus, more importantly, it is easy and fun to do.)

While visual feedback (that is, watching this stroking process) may suffice in developing the basic rebounding stroke, other forms of feedback (for example, auditory and kinesthetic) can further enhance the learning. By calling the drummer's attention to the drum *tone* when a free rebounding stroke is played with a relaxed grip (the key to a free rebound), as compared to an inhibited rebounding stroke played with a tighter grip that stops the rebound, the student will begin to process different and new information about the stroke. (A resonant drum provides much greater auditory feedback than a pad for this learning.) Further learning can be gained by listening for the *pitch of the stick* vibrating freely in the hand when the stroke is played, as opposed to little or no pitch heard from the restricted vibrations of a stick played with too tight a grip. (Furthermore, playing on a pad or even on the floor enables one to hear the stick pitch feedback even more than on a ringing drum.)

Listening to stick pitch leads nicely into overlapping learning strategies by calling the student's attention to the *feel of the stick* vibrating in the hand. Stick vibrations can be detected on either a pad or a drum, and experimentation with aluminum or fiberglass sticks for this kind of learning feedback can result in interesting combinations. Asking the student to close his or her eyes and feel the stick vibrations shuts off the sometimes

distracting, and often unconscious, visual watching of the stroke and enhances the kinesthetic (and auditory) feedback. Exploring the stick vibrations on each finger and in every part of the hand furthers learning. Feeling the wrist motion (as it is likened to bouncing a ball) and paying attention to the feeling of the stroke and to the way the sound of the drum and the pitch of the stick change with slight alterations in grip greatly enhance the subtleties that accompany a free rebounding stroke and ultimately advance learning and stick control.

Triple-channel learning can be further enhanced through *cloning*—simply playing both hands at the same time in the same motion or stroke, and even “ghosting” or “air-drumming” one stroke as the other stick plays. (See videos in Chapter 2 that demonstrate cloning and ghosting.) The power in cloning comes from the non-dominant hand learning a myriad of details about the skill from the dominant hand (beyond what could be consciously analyzed and explained by the teacher) when the hands are played together or ghosting strokes are played—more than is possible through playing or practicing the hands separately. Practice time is better utilized and learning is more expeditious. Also, attributes of the weaker hand sometimes benefit the stronger hand! Cloning can be used at every level, from learning beginning strokes on any instrument to developing advanced techniques, as demonstrated on the videos in each chapter of *Teaching Percussion*. Scientific research into this phenomenon—called cross education, contra-lateral transfer, or bilateral movement control—suggests that this process involves brain symmetry and both generalizability of motor learning and proposed anatomical connections through the corpus callosum. While continuing research corroborates and further explains this phenomenon, suffice it for now to recognize cloning as a powerful learning tool for percussionists!

Here is an example of how one might combine cloning with triple-channel learning. Let’s say you’re working with a beginner named Chris (or even with a whole class of students, because it works fine with a group, too) on playing a relaxed, free rebounding, basic stroke. Begin with playing both sticks together (cloning) on single repeated strokes for a while, simply like bouncing balls, not drumming. Then, by directing her attention to how the stick *feels* in her hand, get Chris deeply involved in feeling the *vibrations* of the stick as she makes a relaxed rebounding stroke off the drum with only her dominant hand. Then ask Chris to find out how her “other stick” (in her non-dominant hand) vibrates in comparison to the stick she is playing *when she plays both sticks together*. Your language is simply, “Check out how much your other stick vibrates when you play both sticks together, Chris.” This communication contains a pre-supposition that the other stick *will* vibrate and pulls Chris into a deeper awareness mode of learning by *feeling* (and to some degree hearing and seeing, too) the vibrations of the “other stick.” If Chris is told this when she is busy exploring the look, sound, and feel of the stroke and stick in her dominant hand, she will simply proceed to “check out” the vibrations of the other stick—in essence, she will bypass the self-conscious, judgmental part of her interfering, thinking mind without having the self-doubting thoughts about attempting to play only with her “weak hand.” Continued encouragement of this natural learning process by posing such questions as, “I wonder if the sticks actually are different and your left stick vibrates more in your right hand?” or more simply, “How does the left stick feel in the right hand?” leads Chris into further awareness as she exchanges sticks between hands and enjoys the discovery learning. Cloning is presented throughout *Teaching Percussion* and on the videos as a powerful practice and learning approach.

When a student learns a basic stroke, advanced techniques, or any kind of technical skill through all three senses—watching it, listening to it, and feeling it—the learning is more complete and permanent than through one or two senses and is always more enjoyable. Triple-channel learning is a powerful tool for learning music, too.

Learning a musical score by memory for eventual recall often is done primarily through our kinesthetic and auditory senses. As mentioned earlier, we “get the notes under our hands” and, indeed, this is an accurate description of perhaps the most common learning strategy. We practice and, through repetitions of the passages, program our “muscle memory” with the piece. (Although we know now, through recent scientific discoveries, that practicing doesn’t actually program muscle memory. In reality, efficient and mindful practicing builds a neural insulator called myelin, as discussed in the Preface.)

While an auditory impression of the piece is also being imprinted (hence, the absolute necessity of careful, accurate practice to program the ear and muscles) and, to some degree perhaps, a visual representation of the printed notes or an image of the instrument being played is being acquired, our main recall channel is often primarily our kinesthetic (or muscle) memory. The truth in Gallwey's formula of $P = p - i$ is revealed to a player with this type of learning strategy when performing a piece by memory in public. The player is not realizing that the kinesthetic channel "gets dirty" (as Michael Colgrass calls it in his *Excellence in Performance Workshops*) and is interfered with by the emotional anxiety of the pressure of the performance, referred to as "inappropriate performance arousal" by Jon Gorrie. Such a performance is often marred with memory lapses and playing below one's potential, as cited earlier with the example of an 80 percent performance as a result of a player with 100 percent potential having 20 percent anxiety interference.

Jon Gorrie, in his excellent book *Performing in the Zone* from 2009, takes Gallwey's $P = p - i$ theorem a step further by proposing his Alternative Performance Equation, which acknowledges Gallwey's formula and builds on it to include what Gorrie defines as one's *cognitive* and *physical attributes* combined with *external interference* and *performance arousal*. Gorrie proposes that performance arousal exists in negative (anxiety) and positive (excitement) forms, and he equates the appropriate amount of performance arousal *required* with the appropriate amount of performance arousal *experienced* as resulting in a satisfying and high quality musical performance. Gorrie explains the psychopathology of performance arousal and performance anxiety from the "fight or flight" response perspective and, throughout his book, presents practical techniques, strategies, and exercises to retrain one's mind. He states:

As a performer (rather than a hunter-gatherer), if you can train your mind to consciously and sub-consciously understand that performance situations are non-threatening and indeed pleasurable, you can eliminate performance anxiety, obtain an ideal level of positive performance arousal for your performing situations, and ultimately achieve an optimal level of performance, regardless of your performance sphere. And the best news is that in practise, bringing your performance arousal level under control is not as complicated as it may seem! (38)

See Gorrie's *Performing in the Zone* for his excellent insights into achieving quality performances (www.thezonebook.com).

Triple-channel learning of the musical score can help to alleviate sub-standard performances and relieve performance stress. By borrowing spelling strategies, as expounded in the NLP (Neuro-Linguistic Programming) literature, the visual programming of the score can be greatly enhanced through placing it to the left side in front of oneself (generally for right-handed people) and studying the printed notes on the page. This eye movement, up and to the left, aids in programming the visual recall of the notes. Further visual imprinting of a piece can be accomplished by visually playing through a score while standing at a percussion keyboard instrument and looking at, but not striking, the bars as the music is mentally recalled and heard in one's inner ear. Auditory recall will also be triggered and enhanced as the mind develops greater flexibility with the score. This mental practice at the instrument, as well as on a visualized instrument in one's imagination, can prove to be more difficult than actually playing through the piece by striking the bars; however, the benefits of mental practice are well worth the self-discipline. Mental practicing, while a common routine for many fine artists, can bring a little magic to players whose learning strategies have never included visualizing. Additional study and the application of NLP techniques, *Inner Game* methodologies, and visualization practices for performance excellence are highly recommended. Abundant material can be found in books and on websites by Gallwey, Green, and Gorrie (as previously cited), in Michael Colgrass' *My Lessons with Kumi*, in Carrol McLaughlin's *Dr. Carrol's Power Performance*, and in other resources in the Recommended Reading at the end of this Introduction.

We can conclude from the above that four important components are of paramount importance in experiential learning: 1. having a clear awareness goal or learning objective in mind (either as articulated by the teacher or in the mind of the student), 2. being

aware of all feedback (visual, auditory, and kinesthetic) and aspects of the experience, 3. avoiding or reducing all forms of mental and physical interference, and 4. trusting in the wisdom of the body, especially through cloning, to learn the intended skill or piece of music. As for goal clarification, always keep in mind the game of darts. When playing, one makes a lot more “misses” than “bull’s-eyes.” Yet one doesn’t get better at making misses (even though it may seem that one is “practicing” misses), because one’s *goal* is simply to make a bull’s-eye! The role of the teacher should be to remove all obstacles that interfere with natural learning and making those bull’s-eyes, and then to guide the student to an awareness of the present experience. This awareness includes sensitivity to all visual, auditory, and kinesthetic body sensations and an honest *acceptance* of what is happening so that learning is free to take place. See William Westney’s *The Perfect Wrong Note: Learning to Trust Your Musical Self* in Recommended Reading at the end of the Introduction for his provocative thoughts on “honest mistakes” and trusting oneself.

John Holt’s statements lambasting the educational system point to *fear of failure* as the primary obstacle interfering with natural learning. This fear of failure is easily instilled in the student’s mind by results-oriented expectations. These expectations may be conscious, unconscious, or both, but their existence is manifested in the reduction of learning (and performing) potential.

Teachers can instill a fear of failure with the type of instructions they give to the student. A simple statement like “Relax your grip and try again to play that roll smoother” is full of result expectations. The teacher should avoid telling the student exactly how to “do” something with lots of what Tim Gallwey calls “Do Instructions.” The “do” expectations invariably instill some degree of fear of failure and result in a reduction of learning (or performance). Instead, instructions should be given that lead the student into an awareness of the activity by paying attention to the visual, auditory, and kinesthetic feedback. These “Awareness Instructions” (as Gallwey calls them) foster optimum learning, because they are not results-oriented and are relevant and easy to comprehend. A rephrasing of the above “Do Instruction” to an “Awareness Instruction” might be “What happens if you loosen up the grip between your thumb and index finger and play a roll?” The teacher must remember that the body does not understand or learn from language instructions, but does understand and learn from experience and awareness.

In *The Pianist’s Talent*, Harold Taylor states, “Experience, training, environment, in fact all aspects of existence contribute to the manifestation or the inhibition of one’s potentialities.² Even with conscious application of creative teaching techniques and performance awareness, we still experience various types of mental and physical interference that inhibit our potentialities. Coping with this interference entails *acknowledging* and *accepting* it as it occurs, and consciously diverting one’s creative productive energies and thoughts away from it. Various concentration exercises, which serve as diversion techniques, have proven useful in learning and performance. A favorite strategy is simply to acknowledge “what is” in the moment by thinking “Yep” when things are going well and “Oops” when a mistake occurs. A favorite phrase of Michael Colgrass’ is “Nothing’s happened, something is about to.” A former university colleague, Dr. Carrol McLaughlin (author of *Dr. Carrol’s Power Performance*), simply says “Next” to welcome the next moment. Common traits of these techniques include: 1. keeping one’s thoughts and actions in the present moment by avoiding reflective, judgmental thoughts of the past or future (reflecting on past mistakes or successes reduces, and can eliminate, any chance for awareness of the present experience; thinking too much about the future, such as an approaching difficult passage, creates results-expectations away from the present moment and can generate self-doubt about one’s playing), and 2. occupying or distracting the interfering thinking mind (called “Self I” in Tim Gallwey’s *Inner Game* philosophy, and *V* for *volition*—“the conscious ego’s will to perform action”—by Bonpensiere two decades earlier) to the extent of tricking it into concentrating on some aspect of the activity that is easy, yet still relevant to the activity (called the “Doctrine of the Easy” in Gallwey’s *Inner Game* philosophy). This distraction results in an increase of awareness to the feedback of “what is,” which then allows for the optimum functioning

of one's natural ability (called "Self II" by Gallwey, and *V2* for *volition 2*—"the vegetative soul, which sees to it that the body does all the hundreds of things that have to be done, if the action is to be carried out"—by Bonpensiere).

Suggested applications of these techniques are presented throughout this text and on the companion videos. The specific instructions and video demonstrations are designed to guide the student into an increased awareness of the learning and performance experiences and to reduce interference from results-oriented expectations. Further knowledge can be gained through study of the writings and ideas of Tim Gallwey, Luigi Bonpensiere, Eloise Ristad, Jon Gorrie, William Westney, Margaret Elson, Thomas Sterner, Larry Snyder, Barry Green, Michael Colgrass, Carrol McLaughlin, Joseph O'Connor, Don Greene, Anders Ericsson, Daniel Coyle, and others listed under Recommended Reading at the end of this Introduction.

Lastly, the more knowledge and understanding the teacher (called "director" or "directress" in Montessori philosophy—the teacher directs the student to the next appropriate experience) and student have about the scientific psychophysical and mind-body processes involved in the acquisition of musical skills, the better. When teaching percussion, we need to direct our conscious efforts to the development of the entire psychophysical system, not merely to the structure and function of the physical playing apparatus. An understanding of the interaction of the brain (central nervous system), body, and instrument will aid the teacher in guiding the student into awareness learning experiences.

Adoption of the scientific principles of the structure and function of the central nervous system (as expounded in *Tone Deaf and All Thumbs?* by Frank R. Wilson and in *The Art of Piano Playing* by George Kochevitsky) will enable the percussion teacher to understand, in simplest form, that the performance of a motor skill involves a chain of stimuli and responses that occur sequentially in what is called a ballistic movement. The sequence is: *visual stimulus* (the note sign) → *auditory stimulus* (the inwardly heard note) → *anticipation of motor act* → *motor act resulting in actual sound* → *auditory perception and evaluation of the actual sound*.³ The understanding of these scientific facts has several ramifications for teaching percussion that are built into the consistent playing approach presented throughout this text. For example, it is recommended that fundamental strokes be developed on an open ringing snare drum (as opposed to a practice pad) and on low marimba bars, in order to allow for the occurrence and enhancement of the *auditory stimulus*—the inwardly heard note—and the *auditory perception and evaluation of the actual sound* in this sequence of stimuli and response. Comments throughout the text and on the videos are based on an awareness of this entire stimulus-and-response sequence with regard to all aspects of practicing and performance.

Another form of neurophysical feedback exists in the form of proprioceptive sensations (self-perceiving, inner body tissue stimuli, as in the muscles and tendons, that are conveyed to our central nervous system through movements of parts of our bodies). When one is aware of these and other types of neurophysical feedback one can then better understand, for example, that the initial development of a good touch and, later, of natural velocity on keyboard percussion instruments is greatly contingent upon employing an exaggerated full-stroke mallet height and slow proprioceptive awareness in the beginning stages of practice and, later, consciously lowering mallet height for appropriate stroke height efficiency. Furthermore, a sensitive awareness and synthesis of kinesthetic experiences (sensations perceived from movement, position, and tension in *parts* of the body) and other exteroceptive sensations (visual, auditory, tactile/touch, stereognostic/shape, baric/weight, or chromatic/color) facilitate the learning and development of playing skills.

Body poise and postural use play a paramount role in achieving optimum learning and performance potential. Many piano pedagogues have cited the importance of proper poise and movement at the instrument: Frederic Chopin, Franz Liszt, Josef Lhevinne, Artur Schnabel, and Abby Whiteside, among others. Harold Taylor, in his book *The Pianist's Talent*, goes so far as to define talent as "the capacity for co-ordination" and declare that "posture is therefore the key to talent."⁴ He concludes that "the total posture is the determining factor in the pattern of behavior, and without any alteration

in the posture there can be no improvement in the capacity for co-ordination.”⁵ Taylor supports his revelation with the teachings of the French pianist Raymond Thiberge, the work of F. M. Alexander, and the superb examples of the union of poise and coordination seen in photos of such performers as Sergei Rachmaninoff, Ferruccio Busoni, and Anton Rubinstein. Michael Gelb, in *Body Learning, An Introduction to the Alexander Technique*, recognizes the connection between poise and prodigious performance with the inclusion of a photograph of Arthur Rubinstein at the piano as a superb example of poise in both performance and everyday life.⁶ Max Roach, Elvin Jones, George Marsh, and other legendary drum set artists likewise portray such poise in performance.

The study and practice of principles such as the Alexander Technique, the Feldenkrais Method, t'ai chi chuan or other martial arts, yoga, autogenic relaxation, and other mindful meditation increases sensitivity and kinesthetic awareness and improves body poise and postural use. This improved body awareness and use contribute to a balanced integration of the whole body and mind, which can result in optimum performance (with greater natural ease and relaxation) and heightened creativity, awareness, and satisfaction. See Recommended Reading at the end of the Introduction. Suggestions and comments regarding instrument setup and stance are offered throughout this text and on the videos to aid in promoting good body-instrument relationships.

Phil Farkas, in his celebrated *The Art of Horn Playing*, states, “Practice on a brass instrument is done by the ‘trial and error’ method...that of learning, or intuitively finding, the right way to play a passage by process of elimination.”⁷ As in the example of a child learning to walk, it is clear that what really takes place is learning through experiential awareness, or “trial and learning” more than “trial and error.” We learn from the “error” but we learn, or *can* learn, as much or more from paying attention to all aspects of the “trial”—all that happens *during* the activity of playing. Furthermore, it is not so much the positive-result intention of a given exercise that induces learning (that is, which method book is used in teaching) but the awareness of all mind-body experiences while doing the exercise. Indeed, our intuition, trust in the wisdom of our bodies, and conscious awareness of the experience are our most natural, efficient, and powerful teachers.

Numerous photographs and specific descriptions in the text and demonstrations on the videos show how the particular grip, stroke, or exercise should be executed and how to do it correctly. The teacher should realize that these are included purely for clarification of an *area of correctness* and are intended to be adapted, with much flexibility, to suit each individual student’s idiosyncrasies in hand size, muscle flexibility, capacity for coordination, and so on.

Assimilation of new percussion concepts and techniques will prove gratifying to both teacher and student when presented with awareness instructions that are rich in visual, sound, and sensory imagery, contain metaphorical explanations and comparisons, and use abundant demonstrations (for auditory, kinesthetic, and visual stimulation and concept clarification) together with imitation by the student.

Many other aspects of the psychophysical relationships involved in all levels of teaching and performance can be acquired through selected reading. Optimum learning and performing potential will be realized if the indivisibility of mind and body is recognized and learning through experiential awareness is encouraged.

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URL RESOURCES

Any of these links will take you to a many, many more resources:

- Alexander Technique, The Complete Guide—<http://www.alexandertechnique.com>.
- The American Society for the Alexander Technique—<http://www.amsatonline.org>.
- Auditionhacker, Rob Knopper's website—<http://www.robknopper.com/auditionhacker>
- The Bulletproof Musician courses, resources, coaching—<http://www.bulletproofmusician.com>.
- Paul Buyer's website, books and articles—<http://www.paulbuyer.com>.
- Michael Colgrass' website, books, selected writings, blogs—www.michaelcolgrass.com.
- The Feldenkrais Store—<http://www.achievingexcellence.com>.
- Jon Gorrie's *Performing in the Zone* website—www.thezonebook.com.
- Don Greene's Peak Performance Training School—<https://peakperformancetrainingschool.com>

Many excellent online and electronic resources and suggested further reading:

- The Inner Game/Tim Gallwey—<http://theinnergame.com>.
- Metamorphous Press, books on NLP—https://openlibrary.org/publishers/Metamorphous_Press.
- Multiple Intelligences—<http://www.thirteen.org/edonline/concept2class/mi/>.
- Multiple Intelligences official website—<http://multipleintelligencesoasis.org>.
- The Musician's Toolbox website—www.themusicianstoolbox.com.
- NLP Comprehensive—<http://www.nlpco.com>.
- Real People Press, excellent NLP books, training videos, CDs—<http://www.realpeoplepress.com>.
- The Practice Spot Press—www.practicespot.com.
- The Practicing Mind, Thomas M. Sterner's website—www.thepracticingmind.com.
- Frank Wilson's article, *Mind, Muscle, and Music*—<http://www.bandworld.org/pdfs/SPRINGMindMuscleandMusic.pdf/>.

Select YouTube Channels: videos, playlists, channels, discussions

- @percussion—100 Podcasts as of July 6, 2017, conversations with guest artists on percussion history, performance, and pedagogy—<https://www.youtube.com/channel/UCXQGSZbZ8sF7LAiVtGmUZBg>—Casey Cangelosi host with Ben Charles, Laurel Black, Megan Arns and guests—Cangelosi's website: <https://www.youtube.com/user/CaseyCangelosi>
- Black Swamp Percussion educational videos—<https://www.youtube.com/user/blackswampperc>
- Percussion Axiom TV—discussions of contemporary percussion performance and pedagogy—Thomas Burritt and guests, performances and discussions—<https://www.youtube.com/user/tburritt1971>—Burritt's website: <http://www.thomasburritt.com>
- Vic Firth educational videos—<https://www.youtube.com/user/vicfirthdrumsticks>
- William James Percussion—St. Louis Symphony—<https://www.youtube.com/user/WJPercussion>
- Rob Knopper – Met Orchestra, percussionhacker and auditionhacker—<https://www.youtube.com/channel/UCLKKcZjyZjUxBihfiHQunRw>

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Timpani Iconography

Timpani Shop Talk

University Percussion Networking

University Percussion Teachers

Vibe Summit

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Gary Cook is Professor Emeritus of Music in the School of Music at the University of Arizona in Tucson, where he founded the percussion studies program in 1975 and was Director of Percussion until retiring in 2008. He has been Artist in Residence at the University of Nevada Las Vegas since 2008 where he teaches graduate seminars in percussion. He began his college teaching career at Louisiana Tech University in 1972. Well known as the author of *Teaching Percussion*—its three editions used worldwide—Cook was Timpanist and Principal Percussionist with the Tucson Symphony Orchestra for over two decades, and he has held similar posts over the years with the Arizona Opera and other orchestras. From 1994 to 1999, he served as Director of the University of Arizona School of Music and Dance. In the summers, Cook has been Principal Percussionist with the Crested Butte Music Festival in Colorado and has performed with other summer music festivals in Colorado and Nevada. He enjoys commissioning new music for percussion and chamber music and voice combinations, and he has premiered and recorded many commissions. His 2009 CD on Albany Records, *Towers of Power*, with Jonathan Haas features the wind ensemble version of the Philip Glass *Concerto Fantasy for Two Timpanists and Orchestra*. From 2007 to 2008, Cook was President of the international professional percussion organization, Percussive Arts Society (PAS), and he received the PAS Lifetime Achievement in Education Award in 2011. He has performed at PAS International Conventions (PASIC) and at festivals in Europe.

A native of Michigan, Professor Cook holds degrees from the University of Michigan, and he has traveled widely in the U.S., Europe, Scandinavia, Trinidad, Bali, and Chile studying, teaching, and performing. He was recognized for outstanding teaching in the University of Arizona College of Fine Arts as the first recipient of the coveted Putnam Excellence in Teaching Award in 1990, the James Anthony Sustained Excellence in Teaching Award in 2005, and the School of Music's Maestro Award for student achievements in 2005.

Professor Cook is a contributing author to such publications as *Percussive Notes* and the *Encyclopedia of Percussion*. He is a proud endorser of Sabian cymbals and is recipient of the Sabian Lifetime Achievement Award. He is most proud of his former students, who hold distinguished professorships in colleges and universities around the U.S. and in Trinidad, perform professionally around the world, and are successful teachers, administrators, and performers in all areas of music and the arts.

■ ABOUT THE CONTRIBUTORS

Robin Horn (<http://www.robinhorn.com>) exemplifies the complete musician, with skills as a live and studio drummer, composer, arranger, producer, recording artist, electronic percussion programmer and demonstrator, clinician, and educator. His advanced understanding of electronics has enabled Horn to expand the traditional boundaries surrounding most percussionists. Utilizing all facets of music—including rhythm, melody and harmony—he brings music to life from behind his drum set.

Horn has performed around the world extensively with his father, the late renowned jazz flutist Paul Horn. As a widely versatile drummer, he has performed or recorded with Airto, Brian Bromberg, Michael Bruce (Alice Cooper), David Friesen, Frank Gambale, Andy Griffith, James Ingram, The Jets, Patrick Moraz, Aaron Neville, Linda

Ronstadt, John Stowell, Ben Vereen, and many, many others. As a recording artist, he has two CD releases: “Fast Lane” and “Collection.”

Horn has been an Artist in Residence at the University of Arizona since 1994, teaching advanced drum set and electronic percussion applications part time. He also has been a top clinician for Yamaha from 1988 to the present.

Dr. Scott Deal (<http://www.scottdeal.net>) resides in Indianapolis, Indiana, where he is a Professor of Music Technology and Percussion and the Director of the Donald Tavel Arts and Technology Research Center at Indiana University–Purdue University Indianapolis. He also serves as artist-faculty at the Summer Institute for Contemporary Performance Practice at the New England Conservatory. He was a Professor of Music at the University of Alaska Fairbanks from 1995 to 2007, where he founded the percussion and technology programs and was a Research Affiliate at the Arctic Region Supercomputing Center.

Dr. Deal was formerly the Principal Percussionist of the Fairbanks Symphony and the Timpanist of the Arctic Chamber Orchestra. A specialist in melding music with new technology, he has been a featured soloist at the Sub Tropics New Music Festival; May in Miami; the SEAMUS International Electronic Music Conference; the Northwest Percussion Festival; London’s Almeida Theatre; the Arena Stage in Washington, DC; the ALTERNATIVA Festival in Moscow, Russia; and various Percussive Arts Society (PAS) Days of Percussion and International Conventions.

Continually inspired by new and emerging artistic technologies, Dr. Deal is the founder of the Telematic Collective—an Internet performance group comprising artists and computer specialists. He is a founding member and percussionist for the computer-acoustic trio Big Robot. Dr. Deal was also the president of the PAS Alaska Chapter, and is a frequent contributor of articles and service to PAS and MENC (National Association for Music Education).

Dr. Michael B. Vercelli (<http://www.michaelvercelli.com>) is the director of the World Music Performance Center at West Virginia University, where he also directs summer study-abroad courses to Ghana and Brazil that focus on music, dance, and cultural immersion. While well-versed in the classical percussion repertoire, Dr. Vercelli’s specialty lies in non-Western instruments. He holds a Doctor of Musical Arts degree in Percussion Performance with a minor in Ethnomusicology from the University of Arizona.

Dr. Vercelli’s research focuses on the transmission and performance practice of the percussive traditions of Africa and African Diaspora. He has conducted long-term fieldwork on the xylophone traditions of Ghana and has studied in Brazil, Uganda, Cuba, and Bali. He has received many awards for both his performance and his study of indigenous music, and he has released recordings with master Ghanaian xylophonists Tijan Dorwana and Bernard Woma. Dr. Vercelli has presented his research at the Society for Ethnomusicology and the Percussive Arts Society International Convention.

Todd Hammes (www.ToddHammes.com) is an eclectic percussionist and composer who creates meaningful connections between himself, his students, his colleagues, and audiences everywhere. Currently residing in Madison, Wisconsin, he teaches, composes, and performs with an ever-widening network of friends and musicians. He regularly performs with Ben Sidran, the Wisconsin Chamber Orchestra, and the Madison Symphony. He also teaches percussion and world music at the University of Wisconsin–Madison and Edgewood College.

Hammes began performing with the Tucson Symphony Orchestra in 1989 and, in 2007, started work on a Doctor of Musical Arts degree at the University of Wisconsin–Madison, as a Paul Collins Wisconsin Distinguished Graduate Fellow under the guidance of Dr. Anthony DiSanza. While pursuing the degree, he was co-director of the World Percussion Ensemble and created a tabla class, and he became a mainstay of the percussion faculty upon graduation in 2010.

Hammes has extensively studied classical, chamber, and western contemporary music—earning a BM from the University of Arizona in 1992—as well as the music of the world. He is a disciple of the late Pandit Sharda Sahai of Benares, India—widely considered one of the world’s greatest tabla players—and he studied with master hand drummer Glen Velez, as well as with notable Latin, African, and Middle Eastern musicians.

As a composer, Hammes has received many commissions for original music. These include works for dance, theater, and the concert hall. As a teacher, Hammes leads teacher training programs, clinics, and master classes in hand drumming, focusing on community and the universal similarities between people.

Hammes’ recordings include his solo CD “Thoughts, Music for Percussion (Mostly)” by Todd Hammes and his Tool and Drum Ensemble. He can be heard on Sonoran Consort recordings and on more than 25 recordings of other artists. He is a World Music Artist for REMO percussion, and he uses Promark sticks and mallets.

David Rodenkirch was the principal marching percussion arranger and writer for the Pride of Arizona Drumline at the University of Arizona from 1996 to 2015, and he served as the University of Arizona Director of Marching Percussion from 1996 to 2007. He is currently a special education teacher in the Lake Oswego school district in Oregon, where he lives with his family.

Rodenkirch’s involvement in teaching percussion and his experience as a performing musician span over 30 years, including marching percussion instructor at Oregon State University from 2010 to 2014, as well as his involvement on the percussion staff of the Sunset Regiment Drum & Bugle Corps, serving on the staff of the University of Arizona beginning in 1990, and serving as Marching Percussion Director and Head Arranger for the Copper Bowl and Insight.com Bowl All-Star Bands. Rodenkirch has served as a clinician and percussion judge for a variety of festivals and events throughout Arizona and Oregon since 1986, and he has instructed and arranged for many high school drumlines throughout Southern Arizona.

As a freelance musician, Rodenkirch plays percussion, drum set, and Zendrum. He studied at the University of Oslo, from 1992 to 1993, and at the University of Arizona, where he earned a Bachelor’s degree in Psychology (with a minor in Music) and a Master of Arts degree in Educational Psychology. From 2000 to 2008, he worked in administration at Pima Community College as the Advanced Program Coordinator. Beginning in 2004, he served as Program Manager with the Public Safety and Emergency Services Institute in Tucson, Arizona.

Joe Gallegos is currently a Senior Website Designer and Developer at the University of Arizona, having served as a recording engineer at Pure Wave Audio and Allusion Studios in Tucson. He earned his Bachelor of Music in Music Theory and Composition from the University of Arizona in 1998, where he studied under renowned faculty members Daniel Asia and Tom Patterson. As an undergraduate, he spent considerable time in several university ensembles, including the Pride of Arizona Drumline and the university’s Steel Band.

Gallegos has a combined 12 years of experience in performing and teaching contemporary marching and rudimental percussion at both the secondary and post-secondary levels. From 1999 to 2003, he served as Associate Director of Marching Percussion for the Pride of Arizona, and he was their Director of Marching Percussion from 2004 to 2005, before going into full-time recording studio work as an assistant audio engineer at Allusion Studios.

Jeffrey M. Moore, currently Dean of the College of Arts and Humanities at the University of Central Florida, joined that faculty in 1994 as Director of Percussion Studies and is a Professor of Music in Percussion. He served as the first Director of the School of Performing Arts from 2013 to 2016 and as Music Department Chair from 2009 to 2013. Professor Moore’s instructional duties include teaching applied percussion majors, the Percussion Ensemble, and the Marimba Band. Additionally, he supervises the

instruction and music arranging for the Marching Knights drumline and assists in the instruction of Black Steel, the school's steel drum band.

Active in all facets of percussion, Professor Moore has performed with several major symphony orchestras and is a frequent performer of chamber music. He also performs on drum set and is an international clinician, lecturer, and soloist. He has served as the Percussion Director of the internationally acclaimed Madison Scouts Drum and Bugle Corps, and as Program Consultant and Percussion Arranger with several European, Japanese, and Indonesian drum corps and bands. He was the battery arranger for the 1999 Drum Corps Associates World Champion Syracuse Brigadiers.

Professor Moore is a contributing author to the 3rd edition of *Teaching Percussion*, and he has published two method book and CD packages, entitled *Fundamental Drumstick Control* and *Drumstick Control*, with Alfred publications. He has served as an associate editor of *Percussive Notes*, the Percussive Arts Society's scholarly journal, and is an active contributor to the Society.

Dr. Jeannine Remy is a lecturer of music at the Centre for Creative and Festival Arts at the University of the West Indies (UWI) in St. Augustine, Trinidad, where she teaches steel pan, percussion, and ethnomusicology. Originally from Sturgeon Bay, Wisconsin, she holds a DMA from the University of Arizona, as well as Master's and Bachelor's degrees from Northern Illinois University. Prior to UWI, Dr. Remy was a tenured professor of music at Idaho State University from 1992 to 2003 and taught at the University of Wisconsin Oshkosh from 1990 to 1992. She was also the musical director and arranger for the Hatters Steel Orchestra in San Fernando in 2002 and for the Invaders Steel Orchestra in 1998 and 2000.

Dr. Remy is internationally recognized for her contributions to the art of steel drum performing and arranging. She is an adjudicator for Pan Trinbago, the world governing body for steel pan. She was a recipient of a Fulbright Award in 2000, which allowed her to lecture at UWI and research the history of steel drums. Her research will culminate in the publication of a book on the history of the Invaders Steel Orchestra of Woodbrook, Trinidad.

Drew Lang is Adjunct Lecturer, Marimba in the Southern Methodist University Meadows School of Music in Dallas and is the newest contributing author to the *Enhanced 3rd Edition of Teaching Percussion*. He performs regularly with the Dallas Opera Orchestra and the Fort Worth Symphony Orchestra, is the principal mallet player with the Dallas Wind Symphony, and is the percussionist for Casa Mañana Musicals. He played the world premiere of *Fly* and a newly staged version of *Les Miz* at the Dallas Theater Center, and he has been the regular percussionist for Broadway shows at the Winspear Opera Hall. Lang plays drum set in local symphonies, churches, and other venues, as well as with the Dallas-based rock band Scarlet Vermillion.

As a performing marimba artist, Lang has commissioned and premiered works for marimba in solo, chamber, and concerto settings. An active recitalist and clinician, he appears throughout the U.S. He has premiered two concertos by G. Bradley Bodine, and he recorded David Maslanka's *Concerto for Marimba and Band* with the University of Arizona Wind Ensemble and Dan McCarthy's *Concerto for Marimba, Percussion, and Synthesizers* with the Meadows Percussion Ensemble. Lang was part of a consortium of eleven university percussion ensembles commissioning and performing G. Bradley Bodine's *Namaste: Concerto for Marimba and Percussion Ensemble*. He has also recorded Astor Piazzolla's *Histoire du Tango* with flutist Helen Blackburn on the Breckenridge Music Festival label, and he performed Eric Ewazen's *Concerto for Marimba and String Orchestra* with the Festival in August 2010. He was also a guest artist at the 2016 University of North Texas Keyboard Percussion Symposium. In addition, Lang spent eight summers as principal percussionist for the Breckenridge Music Festival in Breckenridge, Colorado, and one summer as principal percussionist of the Music in the Mountains Festival in Durango, Colorado.

As well as serving on the percussion faculties at Southern Methodist University and Eastfield College, Lang is director of the "Marimba Madness" summer junior high and high school percussion camp.

TEACHING PERCUSSION WITH Videos

1

GENERAL CONSIDERATIONS AND PREREQUISITES

THROUGHOUT the twentieth century and now into the new millennium, composers of serious orchestral, band, and chamber music have been attracted to the inherent compositional potentialities of percussion instruments more than at any time previously in the history of music. By exploring these potentialities and writing more imaginatively and abundantly for percussion, these composers have imposed increasing demands on music organizations to provide a larger inventory of percussion instruments and more well-trained percussionists to perform on these instruments. The average school percussionist is now likely to be called upon to perform technically and musically demanding parts that are far beyond the capabilities developed through the average school music program. To address these demands of percussion writing, today's percussion students and teachers must adopt a system of study that develops a musical understanding of percussion instruments, their techniques, and their literature. The objectives of such a system can only be fully realized when consideration is given to all aspects of the percussionist's education and the environment in which the study and performance occur.

Too often, the standard music aptitude tests will result in a person's being assigned to "play the drums" because he or she indicated a weakness in perceiving relative pitch or seemed to be lacking in "intelligence" or "seriousness" with regard to musical ability and study. As will be clear from the following chapters, the musical demands on the percussionists are equal to, if not greater than, the complexity of those encountered in the study of any musical instrument. Therefore, the person who undertakes the study of percussion should at least possess average musical skills and perhaps display exceptional intelligence and seriousness.

The percussion student's (and teacher's) initial exposure to percussion study should include discussions about the historical considerations of percussion music and styles and the development of a complete theoretical understanding of music. This understanding of the rhythmic, melodic, harmonic, and structural elements in music is most naturally developed while pursuing the technical and aural study of *both* the drums and percussion keyboard instruments. In addition, piano study is highly recommended, although starting the percussionist first on some band or orchestra instrument other than percussion is not. If a marimba, xylophone, or vibraphone is definitely not available, then a "percussion kit" may be used that includes a drum or pad and bells. As soon as possible, the school and/or the serious student should acquire one of the larger keyboard instruments for continued study.

To advance the musical and technical development of the percussionist further, solo literature should be studied and a percussion ensemble established. It is through

percussion ensemble performance that the student will learn musical ensemble listening and sensitive playing habits, become familiar with a variety of percussion instruments, and be challenged technically and musically beyond the average demands of band or orchestral literature. Working with the percussion ensemble will also enable the teacher, and especially the nonpercussionist music educator, to best understand the percussion instruments and his or her percussionists.

Successful percussion education and acquisition of musical concepts of performance are facilitated when the training of the percussion student

- Is based on practical and logical development of playing techniques and aural skills
- Examines percussion's heritage, literature development, and organization considerations
- Cultivates an aesthetic appreciation and general understanding of music
- Offers the student meaningful and provocative musical experiences

■ PERCUSSION PERFORMANCE AND EDUCATION

General Considerations

Percussion writing has evolved to its present prestigious and complex level in music. Composers incorporated percussion sounds into their scores gradually, after careful experimentation and consideration over a long period. These evolutionary developments in percussion writing have resulted in increased use of percussion in music at all educational levels, from college down through elementary school band, orchestra, and small ensemble literature—with greater technical and musical demands placed on the performing school percussionist. The percussion teacher and performer need to concern themselves initially with adopting a percussion teaching and playing system that addresses these technical and musical demands *and* develops a knowledgeable musician. The need for a consistent playing system on all percussion instruments is primary in this era of the total percussionist. In preparation for the study of the techniques of playing, a familiarity with the instruments and their notation is essential.

Classification of Instruments

A survey of the modern symphony orchestra will reveal a division of the instruments into three major families: the strings, the winds (perhaps further divided into woodwinds and brass), and the percussion. Similarly, the instruments in a concert or marching band can be categorized as the winds (again, perhaps woodwinds and brass) and the percussion. Yet while comprising one-third of the instrumental families in an orchestra and one-half of the instrumental families in a band, the instruments of the percussion section are entrusted to a very few performers. Each percussionist must possess an immediate familiarity with the many different instruments that he or she is called upon to play. This great variety of percussion instruments is commonly divided into two separate groups: those of definite pitch and those of indefinite pitch (or, as Cecil Forsyth's *Orchestration* states, "musical" and "unmusical").¹ However, a more detailed examination and logical classification of this large family of instruments will yield Curt Sachs's classification of *idiophones*, *membranophones*, *chordophones*, and *aerophones*²; this classification, then, as Reginald Brindle suggests, may be subdivided further according to possible musical characteristics, resulting in: (1) tuned instruments, (2) instruments of indefinite pitch, and (3) instruments usually considered to be of indefinite pitch but that can be tuned.³

Idiophones The idiophones produce sounds through the vibration of their entire body. Although they are usually struck to make a sound—as is a cymbal, triangle, wood

block, clave, slapstick, or keyboard percussion instrument—they may be shaken, scraped, rubbed, or bowed, as is a maraca or guiro. (See Chapter 1 video: Track 1 demonstrations.) The keyboard percussion instruments, chromatic cowbells, steel drums, and authentic gongs comprise the tuned idiophone list, with most other idiophones classified as indefinite pitch even though a set of temple blocks or wood blocks or a number of graduated cymbals or triangles may be grouped in an intervallic relationship to sustain melodic ideas. The unique tonal quality or timbre of most indefinite pitch idiophones (as well as indefinite pitch membranophones) allows for a blending of their sound with pitched orchestral and band instruments without unpleasant dissonances.



Membranophones The membranophones produce sounds through the vibration of a membrane, usually an animal skin or plastic head, stretched over a shell or bowl. There are various constructions of these drums: shells with open ends, as is the case with timbales, bongos, and some tom toms shells with ends closed by a membrane that sympathetically vibrates with the struck membrane and air chamber within the shell, as with snare drums and most bass drums and tom toms; and the closed shell or bowl of the timpani or tabla. (See Chapter 1 video: Track 1 demonstrations.) Timpani and the tabla are tuned to specific pitches and, along with the shell-less roto-toms, are clearly discernible as tuned membranophones. Most other drums are considered indefinite pitch, although many of the open-end or single-headed bongos and tom toms are capable of being tuned to definite pitches. Developments in marching percussion include multi-toms and tonal bass drums that are deliberately tuned to definite pitches (see Chapter 9). However, their pitch is often unclear, and therefore they are not generally classified as tuned membranophones but indefinite pitch membranophones that can be tuned.



Chordophones Chordophones produce sounds through the vibration of strings stretched over or through a resonating box that helps to amplify the sound. Most chordophones are tuned and are played by striking, stroking, rubbing, or plucking, as with the cimbalom or zither, or are played by a hammer striking or plucking a string through a keyboard action, as with the piano or harpsichord. Because of this, the piano is sometimes called a percussion instrument. The lion's roar is a common percussion chordophone. (See Chapter 1 video: Track 1 demonstration.)



Aerophones Aerophones produce sounds through the vibration of an enclosed air column, usually set into motion by air blown across a reed or special aperture. Percussion aerophones include various kinds of train, bird, boat, and slide whistles as well as sirens, horns, wind machines, and bull roarers, the latter causing air itself to vibrate when swung overhead. Although some percussion aerophones produce a definite pitch, they are generally not classified as tuned. (See Chapter 1 video: Track 1 demonstrations.)



Electrophones

Contributions by Scott Deal

Another category of percussion instruments is the electronic percussions or *electrophones*. In addition to electronic instruments, these include the use of microphones with acoustic instruments for sound amplification, reinforcement, or to obtain unique effects when fed through complex filters, processors, mixers, and amplifiers.

The growth and development of the electronic and percussion media over the last century and a half are strikingly intertwined. Their nearly simultaneous development is rooted to enormous technological innovations in the late nineteenth century that served as a catalyst for new and revolutionary musical thought. As technology progressed through the twentieth century, composers and musicians sought new forms of expression, and perhaps the most important medium that came out of this quest was noise, or un-pitched sound. Early pioneers in the use of noise as an expressive medium produced great works in both electronic and percussion genres.

Edgar Varese's *Ionization* (1931) for 13 percussionists is regarded as one of the great musical masterpieces of the twentieth century. In it and his other works of the 1930s (he used the Thereminvox in *Equitatorial* in 1943), Varese took acoustic sounds and sonorities as far as he could with the compositional materials available. With the advent of *musique concrete* on tape in the 1940s and electronic laboratories in the 1950s, Varese and other composers now had new composition materials. In 1954 he produced *Déserts*, one of his most important works, for wind instruments, percussion, piano, and electronically produced sounds on tape. Varese created his *Poème Electronique* for 425 loudspeakers at the Brussels Exposition in 1957, after a nearly two-decade hiatus from composing as he waited for these new musical resources. *Poème Electronique* is one of the landmark electronic compositions of the twentieth century.

In addition to Varese's works, John Cage's *Amores* (1943), for percussion ensemble with prepared piano, is regarded as a classic, and his *Imaginary Landscape* series (1942–1951) is a monumental work for percussion and electronic sounds. Cage further experimented with electronics in 1960 with his *Cartridge Music* and used it in his lecture, "Where Are We Going and What Are We Doing?" in the same year. In addition, Karlheinz Stockhausen's *Electronic Studies* (1954) became the first published score of electronic music. His *Kontakte* (1960) for piano, percussion, and electronic sounds on tape and his *Microphonie I* (1966) for amplified tam tam are examples of his style of incorporating acoustic percussion with electronics. In light of the way these two media were used in tandem, it is not surprising that electronic percussion instruments were eventually created and became an essential part of the percussionist's tool kit.

The use of electronics and percussion was generally confined to experimental music until the 1960s, when continued technological and cultural advancements paved the way for widespread musical use. The ability to build affordable high-quality electronic devices meant that many more people could create meaningful music. Consequently, electronic sound as a medium sprang forth from the culture of experimental music and spread to virtually every other genre. The first commercially accessible synthesizer was the Mini Moog synthesizer, which became very popular after Wendy Carlos recorded *Switched on Bach* in 1968. This album of Johann Sebastian Bach's compositions was performed entirely on the larger and more expensive Moog synthesizer and became a huge international success.

With the widespread popularity of the Mini Moog, other synthesizers became available commercially, so that by the 1970s many devices were in use across the spectrum of musical styles, including Classical, jazz, funk, rock, pop, and country. The first widely marketed drum synthesizer was the Moog 1130 Drum Controller. This device, introduced in 1973, gave audiences their first exposure to synthesized drums in the concerts of progressive rock bands such as Emerson, Lake & Palmer. Other devices, most featuring minimal built-in synthesizers, followed in the pre-MIDI era of the later 1970s and can be heard in much of the dance/disco music of that time, notably the Pearl synthetic drums, the Synares, the Syndrum, and the percussion interfaces from ElectroHarmonix.⁴

In the 1980s, as computer microprocessors became more integral to synthesizers, a computer protocol called musical instrument digital interface (MIDI) was developed to enable instruments to be connected and to work in tandem. With the advent of MIDI, many new devices came into the music market, including programmable drum machines capable of playing dance beats independently and percussion controllers, which when struck would measure contact and impact velocity and send MIDI information to modules containing drum and percussion sounds.

Samplers also became very popular in the 1980s. A sampler differs from a synthesizer in that it plays recorded sounds as opposed to electronically produced sounds. The Linn LM-1, built by Roger Linn in 1980, was the first drum machine to use sampled drum sounds. A host of drum machines followed, including the Linn Drum, the E-Mu Systems Drumulator, and the Roland TR-808. In 1982, the Simmons Company of the United Kingdom introduced the first digital drum set. In 1985, Roland followed Simmons

with an electronic drum kit of its own, the DDR-30. Soon, drum machines and electronic drum sets were made by Dynacord, E-Mu Systems, Kawai, Korg, Oberheim, Pearl, Sequential Circuits, and Yamaha. As manufacturers perfected the MIDI specification over the next several years, other percussion controllers came into the marketplace. In 1985 Simmons introduced the Silicon Mallet, the first commercially available mallet configured controller. In 1986, Roland introduced the Pad-8 (later known as the Octa-Pad), a dedicated percussion controller with eight playing surfaces and a variety of MIDI controlling functions. In the early 1990s Bill Katoski, founder of the Massachusetts-based KAT Corporation (now called Alternate Mode), invented the MalletKAT, a mallet controller with up to a four-octave range and in 1995 introduced the DrumKAT, a percussion controller very similar to the Octa-Pad and TrapKAT. In 1999 Roland introduced its V-drums electronic drum technology to the world of hand percussion with their HPD-15 HandSonic Hand Percussion Pad, capable of triggering 300 drum sounds by hand from 15 pads. See Scott Deal's comments and demonstrations of the MalletKAT and DrumKAT and their use in education on the Chapter 1 video: Track 1. Also see Chapter 1 video: Track 3 by Drew Lang of new electrophones and their applications, and video and audio demonstrations of electrophones at www.alternatemode.com and www.roland.com/uk/categories/drums_percussion/.

By the 1990s MIDI controllers had become very powerful and quite sophisticated in their number of functions and the degree to which they could perform according to the wishes of musicians. Aesthetically, however, many musicians and concertgoers found that MIDI percussion controllers did not measure up to the sophistication of acoustic percussion instruments in their sound and in the way they are performed, and since the late 1990s there has been a trend toward refining uses for MIDI percussion controllers. Although MIDI controllers have retreated somewhat from the concert stage in favor of acoustic instruments, they thrive in recording studios, and the MIDI protocol has become an indispensable component to the modern musician.

MIDI is used as the basis for notation software programs such as *Finale* and *Sibelius*, and it is also the foundation for DAW, or digital audio workstation software. DAW software is multi-use and can record and play back musical sound sources such as samplers, synthesizers, and sound processors. These sound devices are available as stand-alone boxes or as software. DAW software is also capable of digital recording and sound processing, so a musician can have MIDI signals playing sound modules while simultaneously playing a recording of a singer or instrumentalist. Today, music technology has become so sophisticated that it becomes hard to imagine what it cannot do. Most of what is heard in commercial and industrial music today is produced on software.

Percussion controllers are found in almost every aspect of music performance and production, and music technology in general has become an integral part of the total music experience. Enhancing the band or orchestra classroom with percussion controllers ensures young students are receiving a realistic exposure to the music world at large. (See video demonstrations of electronic drum set in Chapter 8.)

Tone Production on Percussion Instruments

The acoustical properties of percussion instruments vary greatly according to instrument size and construction. Membranophones produce sound when the membrane or head is put into vibration, usually in combination with air within the drum. They have three basic sound-producing head areas: (1) *center*—producing the lowest, fundamental tone, with a dry, non-ringing quality; (2) *off center*—producing a very low tone with much greater resonance than center; and (3) *edge*—producing a very ringy, light, superficial tone. Excluding timpani, this edge area is unsuitable for loud playing. These playing areas are discussed in greater detail in Chapter 2 (snare drum), Chapter 5 (timpani), and Chapter 6 (bass drum) and are demonstrated on their respective chapter's videos.

Idiophones produce sound when their bodies are caused to vibrate. Excepting keyboard instruments, most idiophones have a fundamental playing spot (sometimes referred to as “sweet spot”) and other playing areas that may be struck for effect or color sounds but are not generally recognized as the best characteristic sound-producing





areas of the instrument. However, the deliberate manipulation of timbre and tone color by varying playing spots on keyboard percussion instrument bars is essential to performance with musical expression. Stick selection aside, the musical context of a passage will suggest the use of a particular playing spot to a sensitive performer. Great care must be taken to maintain the selected playing spot to achieve tonal consistency throughout the performance. (See Chapter 1 video: Track 2 demonstrations.)

Basic tone production on all struck percussion instruments requires an understanding of grip and stroke. In general, if a resonant, full-sounding, or *legato* tone is desired, a relaxed grip and fluid stroke is employed with a stick or beater. (Although *legato* actually refers to the connection of notes, the term is used here in its traditional sense to convey a fully sustained, resonant tone quality. It also connotes the proper type of stroke that is fundamental to optimum technical and musical development.) On membranophones especially, the stroke is usually made in such a way that the beater is allowed to rebound off the playing surface free of any resistance in the grip or stroke. This initial *legato* approach to tone production (presented consistently throughout this text) will develop a flexible technique that will later enable the performer to alter the grip and stroke to varying degrees, as intended, and therefore affect the sound produced. A slight alteration in the grip or stroke can result in a sharper and dryer attack sound or, conversely, a lighter sound. The sharper attack requires a firmer grip and shorter, stiffer stroke, which together result in the beater's remaining on the playing surface slightly longer (a fraction of a second) and therefore creating a dryer or more *staccato* sound. A lighter tone requires a more relaxed grip and quicker lifting of the beater from the playing surface than is obtained by allowing a free, uninhibited rebound.

The ring length, timbre (harmonic structure), and dynamic shading of a tone produced on idiophones, especially keyboard instruments, is most greatly affected by the *velocity* of the stroke. The basic relevant equation for bar ring on keyboard instruments is $\frac{1}{2}M \times V^2$ (one-half the mass of the mallet times the velocity of the mallet squared). Relaxed, wrist-generated strokes allow for the best control of velocity in keyboard performance. Any subtle alteration in grip or stroke type should only aid in creating an "attitude" toward tone production and phrasing that ultimately enhances musical expression. Although easily described, these articulations are only produced with well-developed technique and musical sensitivity.

Other factors in tone production are the size, weight, and construction of the beater and stroke angle. In general, a soft beater will absorb high overtones and produce a more fundamental tone. As hardness is increased, more partials are heard and, in some cases, less fundamental. Great care must be taken in selecting appropriate mallets for the instrument and passage to be played. While in general one may assume a smaller-headed beater produces a smaller, more compact (or *staccato*) tone, the *weight* more than the size of a beater in many playing situations determines whether a characteristic sound is produced. Too often timpani mallets are used for rolls on a large bass drum or tam tam instead of appropriate heavier bass drum or tam tam mallets. Similarly, a yarn marimba mallet or heavy snare drum stick used on a high-tuned small bongo will "overplay" or muffle the characteristic tone that should be achieved by using lightweight dowels or fingers. This muffling of tone that results from using too heavy or too large a mallet is caused by the mallet's staying on the striking surface too long because of weight or by too many vibrations from the instrument being absorbed into the contact area of the mallet head due to its large size. The relation of stroke angle to playing surface also greatly affects mallet contact area.

Other artistic concepts regarding tone production must be considered when performing. The reader is referred to sections in each chapter for further discussion of ideas concerning the playing areas on the instrument, placement of strokes relative to each stick's striking point in the playing area, sticking choice, direction of stroke (whether straight up and down or in a slightly clockwise or counter-clockwise curve), the projection of tone to the listener, and basic concept of tone desired according to the musical context of the particular note in the phrase line and the performer's mental/aural/kinesthetic image of the music.

Notation Systems for Percussion

With an understanding of the classification of the many percussion instruments, the percussionist must next learn about the various systems for percussion notation and become aware of their advantages and disadvantages. The objective of any musical notation should be to show the performer as clearly as possible what he or she is expected to play. For percussion writing this would imply using the least number of written instructions or symbols and the fewest lines as possible. Notation for tuned percussion instruments presents few problems, since a standard five-line staff is used with appropriate clef signs and key signatures. However, the lack of standardization and discrepancies in notational practices for untuned percussion result in serious notational problems for the percussionist as well as the composer and conductor.

Of the basic systems of notation generally used—(1) staff, (2) line score, (3) symbol notation, (4) combined line score and symbol notation, and (5) adapted keyboard notation—the conventional five-line staff is most common. Standard orchestral and band percussion parts written on a conventional staff afford the performer a clear understanding of what needs to be played as long as only a few instruments are written on the same staff. Example 1-A is a typical march part for snare drum, bass drum, and cymbals (three players). The cymbals and bass drum play together (notated *tog.*) unless stated separately.

EXAMPLE 1-A ■ Typical march notation

Example 1-A shows three staves of musical notation for a march part. The top staff is for Snare Drum (S.D.), the middle for Bass Drum (B.D.), and the bottom for Cymbals (cym.). The notation includes various rhythmic patterns, dynamic markings (*f*, *mf*), and articulation symbols. The first staff starts with a *f* dynamic and a *tog.* marking. The second staff starts with a *mf* dynamic and a *B.D. only* marking. The third staff starts with a *B.D.* marking and a *tog.* marking. The notation ends with an *etc.* marking.

The conventional staff has also sufficed for notating simple standard drum set music (Example 1-B). See Chapter 8 for further examples.

EXAMPLE 1-B ■ Drum set notation

Example 1-B shows musical notation for a drum set. The notation is written on a single staff with various symbols and clefs. The instruments are labeled: Cymbal, Small Tom Tom, Snare Drum, Large Tom Tom, Bass Drum, and High Hat. The notation includes various rhythmic patterns, including triplets, and articulation symbols.

In both Examples 1-A and 1-B, the use of bass clef is quite standard, although no definite pitch is implied and therefore its use is unnecessary. In the past, various orchestration books and composers have used treble clef and even alto and tenor clefs to suggest a confusing pitch relationship among several percussion instruments. More recently the use of a “neutral” or “percussion clef” has become more widely adopted for notating untuned percussion (see Examples 3-A and 3-B). Further examination of line score, symbol notation, combined line score and symbol notation (sometimes referred to as expanded symbol notation), and adapted keyboard notation is taken up in Chapter 3. Refer to musical Examples 3-A to 3-I for more study of these notational concepts.

Interpretation of Notation

Beyond understanding and being able to perform notes in a correct mathematical relationship to time—in other words, being able to play rhythms and dynamics accurately, sometimes referred to as “playing the ink”—there are other considerations that have to do with music interpretation. Once a basic proficiency in note reading has been acquired, the percussionist will need to consider the interpretation of the *duration* of notated percussion sounds. When a composer writes a note of any value, this note essentially tells the performer when to *start* the sound. Depending on the percussion instrument played, that sound may decay very rapidly or naturally vibrate and ring for several seconds. A sensitive musical problem arises when the percussionist attempts to interpret what the composer intended, or better, what the music demands in terms of muffling or allowing notes to ring. Specific comments about each instrument’s physical and technical capabilities will be discussed in detail in individual chapters and in Chapter 10. Briefly, if the performer listens closely to the ensemble to determine the kind of sound that will match or enhance its sound, he or she can quickly decide whether to muffle or to allow a tone to ring. If a question remains concerning interpretation, one might investigate the score or other instrumental part or discuss note durations with the conductor.

A problem similar to single-note performance is roll interpretation. Probably the most common question is whether or not to tie a roll into a successive roll or single release note (if no tie is written), or to roll a single release note. The performer should first listen, then check a score or part, or discuss the question with the conductor. The notation for rolls varies depending on the instrument, style, period of music, and the notational practices of the composer. Rolls may be indicated by writing a *tremolo* sign, or three or more slashes over a note, or merely by instructing the performer to “roll all notes.” Generally, the beam or flag of the eighth note is counted as one of the three slashes designating the roll (see Example 1-C).

EXAMPLE 1-C ■ Roll notation



Timpani

A. *tr* 

B. 

Confusion results when a roll is intended for a sixteen-note value, and only one slash is added to the sixteenth. To avoid this ambiguity, some composers have adopted the practice of using two or three slashes regardless of note value. However, the percussionist must be prepared to interpret and perform any version (Example 1-D).

EXAMPLE 1-D ■ Roll clarification

S.D.
A.  instead of B. 

While most Classical composers indicate rolls with the *tr* sign, many times they will use abbreviated notation for strict eighth-note or sixteenth-note subdivision to give a “metered roll” effect (Example 1-E). Very often this will occur in orchestral passages where the timpani are reinforcing eighth or sixteenth notes in the strings. Correct interpretation of such abbreviated rhythms is critical to the musical outcome of the performance.

EXAMPLE 1-E ■ Metered rolls

Timpani
A. 
(as written)
B. 
(as played)

A solution to unclear roll notation is the addition of a tie from the note value to be rolled to a successive roll or single release note. Use of a tie from the roll to the release note in Examples 1-C and 1-D would clarify the exact value of all the rolls, as shown in Example 1-F.

EXAMPLE 1-F ■ Tie clarification


Occasionally, when interpreting tied rolls the performer may choose to sustain the roll through the value of the single nonrolled release note. A common example would be a written quarter-note roll tied to a single quarter note when musically what is sounding is a half note in the ensemble. Again, careful listening and references to another instrumental part or score will detect such situations. The techniques of performing both tied and nontied rolls are discussed in later chapters.

The phrasing of roll attacks and releases and single-note lengths should be marked by the percussionist in all parts. The use of standard articulation markings is suggested,