

When the editor asked me to write a brief professional biography emphasizing the major influences in my life, my inclination was to decline. It was not my sort of writing. Rather than say no, however, I gave it a try. Much to my amazement I began to enjoy recalling those persons, events, and professional opportunities and struggles that contributed to my current thinking. I hope the following account serves well the intended purpose.

Einstein wrote "Science without religion is lame, religion without science is blind." The following analogy, which bears on the music learning process, seems appropriate to this paper. "Aural comprehension without theoretical understanding is lame, theoretical understanding without aural comprehension is blind," or better yet, "deaf."

I know I would not have been able to explain with precision the import of that analogy in 1942 when I was a boy about to turn fifteen. Nonetheless, I would like to believe that at that tender age I had at least some insight into the nature and implications of the problems associated with music education which the analogy suggests. I can only guess that the reason that to have been that I had begun to take lessons on the string bass during that time, and I came face to face with the realization that all was not well with me and music. I remember thinking that I was learning how to play the bass in the same way that one might be taught to use a typewriter designed for a language that one did not understand. The instruction that I received might have been offered in a trade school. It was not appropriate for a highly motivated young fellow who was beginning to find excitement and challenges in music. I know that I was disappointed with the instruction that I was being given.

True, in a short period of time I had become capable of playing in a pick-up band around town. I could read notation and I was developing the technical facility for translating what I was reading to the bass, but other than that,

what I was being taught seemed pointless. I should have been satisfied because I was learning well what I was being taught to do. I was bothered, however, because I could not comprehend the sound that was coming from the instrument. I had little awareness of the intonation, tempo, tonality, and meter of the music I was performing, let alone its implied harmony, style, or form. I was not taught to consider whether the tone quality that I was extracting from the instrument was characteristic or even acceptable. My situation was not unlike that of my friends who were at the same time taking lessons on other instruments with different teachers, or that of many students of all ages who are taking lessons today.

I must regress for a moment to tell you what happened to me when I was a typical nine year old boy in the fourth grade who was not blessed with a favorable musical environment in the home. To the best of my memory, no one in my family sang to or with me, suggested that I respond to music, or guided me in listening to music. In school, the music instruction that was offered in the first three grades by the classroom teachers was a combination of what was called music appreciation (we listened often to "In the Hall of the Mountain King") and occasional performances, during which class singing served as an accompaniment to the assembly hall piano. In the fourth grade, instruction by a music specialist was initiated. Each child was directed to come to the front and sing "The Battle Hymn of the Republic" in solo as the teacher played the piano. I have no idea of the key that she had us sing in, but I strained and soon ceased in my attempt to comply. Thereupon I, joining a few other boys, was labeled a blackbird. The remainder of the children, the bluebirds, were the singers and we blackbirds were the non singers, always assigned to the back of the room during music instruction. When the bluebirds sang, the blackbirds were instructed to be quiet and listen so that we might learn how to sing. When the

class sang in public, the blackbirds were told to move their mouths but not to make any sounds. That procedure continued through eighth grade. The memory of my frustration still lingers, because I knew, even then, how much I wanted to express that part of me that was musical.

Back to the high school days. My bass teacher told my father after about a dozen lessons that he had no more to teach me. He suggested that a teacher be found for me in New York City, only 35 miles away. Although the new teacher was highly recommended, the lessons were more of the same. I was losing interest in playing the bass, and as I think back on it, I really did not know why. The teacher suggested that I might take a jazz lesson along with my regular lesson each week. That rekindled my interest and I was subsequently introduced to Sid Weiss, the legendary bass player at that time with Benny Goodman, and before that with Artie Shaw. They were excursions more than lessons with Sid. My music education began to take shape. Each of us with bass in hand and without notation would play together and back and forth. It became clear that I was to think (more about that word and its relationship to audiation later) about what I was going to play before I played it. I "laid down" contrapuntal lines to an on-going melody, the line establishing an intimate relationship to the chord progressions of mostly Gershwin tunes. I learned how to become a bass player who is felt and not heard. The rule, as Joseph Campbell would say, was to follow my bliss, using intuition. My apprenticeship with Sid, which continues to influence my understanding of ideal pedagogical procedures, lasted until I was drafted into the army upon graduation from high school in 1945.

As I recall, eight weeks of basic training were required in the army. Things went all right for me until I found myself on the rifle range and it became painfully obvious that using the same finger to trigger a rifle and to play pizzicato was not in my best interest as a rising young musician. I proved

to be a menace to anyone within the vicinity of the target I was aiming at. I was quickly shuffled off to the 302 Army Band with the provision that I teach myself how to play the tuba and be assigned an military occupation status (MOS) number. Many off hours were spent each day jamming with the fine musicians in the band. After eighteen months I was discharged and entered the Eastman School of Music as a string bass player in 1947.

The GI Bill saw me through the initial years at Eastman. When my money was depleted, I headed for New York City, looking for work. I was hired by Gene Krupa to join his band. It was an auspicious experience. I learned more from him about rhythm than from anyone else before or since. The basis of my theory of rhythm as developed today is rooted in the genius of Krupa. I like to believe that I have given his concept of rhythm a research base and academic credibility, and that as far as I am able, have made practical use of it in every music curriculum that I have developed and published. I regret that he did not live long enough to be able to tell me whether he approved of my interpretation and logical extension of his unique ideas. Krupa's big and small beats, fundamental to rhythm, became for me macro and micro beats.

Upon leaving the Krupa orchestra, I returned to Eastman and received Bachelor's and Master's degrees in 1952 and 1953. Returning to New York City to play commercially brought about another significant period in my life through an introduction to Philip Sklar, then the principal bassist of the NBC Symphony. I studied with him, and for the first time learned to cope with the instrument I so dearly love. He was such a fine teacher that I may say that I learned more about pedagogy from him than about music. Because I think he knew my tonal aptitude was not high enough to fully comprehend the extent of his musicianship and what he might try to teach me, we spent a great deal of time analyzing the learning process. Although he continually complimented me on my intellect rather

than on my musical mind, in his patient and uncompromising way, he brought out the best musicianship in me. Moreover, he was the first person to ask me to sing since I had been in the fourth grade. Not only did I sing what I played, but also I danced what I played. Today I find that his ideas underlie all of the pedagogical principles of my work. Those who are familiar with music learning theory can clearly see the basis for the most important levels of the discrimination type of skill learning sequence, aural/oral and partial synthesis.

It was Mr. Sklar's suggestion that I attend Ohio University in Athens to pursue a second Master's degree, in education, to qualify as a certified music teacher. After I graduated and taught briefly in the public schools, I was offered a fellowship by the University of Iowa. I completed the Ph.D in 1958 and remained there for fourteen years as a faculty member. My professorship called for teaching a variety of courses in music education as well as affording me opportunities to teach general music and instrumental music at the elementary and secondary levels in the university laboratory schools. During the Iowa years I became infatuated with the possibilities of objective research in what was then referred to as the psychology of music, and what I now more appropriately call music learning theory. Though the familiarity I gained with the pioneering work of Carl E. Seashore became a major influence in my life, it was my mentor, Albert N. Hieronymous, to whom credit must be given for whatever success I have achieved in educational measurement, particularly in the measurement of music aptitudes. Like that of Philip Sklar, the value of Hieronymous' guidance cannot be overestimated. I was indeed most fortunate to be in the right place at the right time to have had the opportunity to study and work with those two caring and knowledgeable persons.

As a young assistant professor at Iowa, I initiated my research in music learning theory. What I saw in the laboratory schools I had seen in the past in other schools. Teachers were so busy teaching that they had no time and seemed to have no desire to consider the role of learning. I wanted to gather information on how we learn when we learn music, or in current terminology, how audiation is developed and sustained. Unlike my colleagues, I had little interest in techniques, that is, **how** to teach. I needed to know **what** should be learned, **when** it should be learned, and **why** it should be learned.

In a short time it became apparent that without the knowledge of how to adapt instruction to the individual musical differences among students, any type of sequential instruction, and especially that based upon music learning theory, would yield less than optimum results. Thus my research in music learning theory was immediately side-tracked and I was forced to embark upon the study of the nature, development, and measurement of music aptitudes.

The first spate of research in music aptitudes, which culminated in the publication of the "Musical Aptitude Profile" and associated longitudinal and cross sectional validity studies, lasted almost ten years. Somewhat more mature, and with data to guide me, in the late 1960's I was ready again to begin research in music learning theory, the need for which became increasingly apparent as I prepared the manuscript of "The Psychology of Music Teaching" during my final months at Iowa. That book, I believe, was the first of its type in the discipline to give a detailed account of music learning theory. It is outdated now, but it is still an accurate statement of my thinking at that time. Its sequel is "Learning Sequences in Music: Skill, Content, and Patterns," currently in its fifth edition.

In 1972, I accepted a position at the State University of New York at Buffalo, where I remained for seven years. As a professor of music, I taught and

held an administrative post in music education. Nonetheless, I had sufficient time to develop the Ph.D program in music education as well as to establish the firm foundations of music learning theory through continuous research and teaching. "Audiation" found its modest beginnings as a coined word in a footnote in 1976. (Audiation is to music what thinking is to language.) Before that time, valid music aptitude tests could be used only with students who were in the fourth grade and above. During the Buffalo years I was able to research the differences between stabilized and developmental music aptitudes. Even the "Great Blizzard of '77" came to my aid in affording time and isolation during which the "Primary Measures of Music Audiation" were designed, and were followed by their extensive validation and standardization for children in kindergarten through grade three. The "Intermediate Measures of Music Audiation" were published three years after leaving SUNYAB.

In 1979, I became a professor of music at Temple University. I have held the Carl E. Seashore Chair for Research in Music Education since that time. Once again, I designed and established the Ph.D program in music education, the first to be offered at the Esther Boyer College of Music. Time has been afforded me to engage not only in research, but also in writing, traveling, and lecturing. Thus much has been accomplished in the past ten years; perhaps they have been the most productive years of my life. Among the writing of new text books and the revision of others, there has been with the collaboration of David G. Woods the publication of "Jump Right In: The Music Curriculum," and with the collaboration of Richard F. Grunow the development of "Jump Right In: The Instrumental Series. Music learning theory, as it contrasts with music theory, has been brought to even greater resolution, and the amount of information currently relating to the types and stages of audiation requires for explanation at least one chapter in each of my recent books. Now in my sixth year as the curriculum director and one

of the teachers in the Temple University Center City preschool music program, I specialize in teaching eighteen month old children, and soon "Jump Right In: The Preschool Curriculum" will be published.

Two other events, significant of the years at Temple, have been the ten consecutive five day Music Learning Theory Summer Seminars which have now spread across the country, and the establishment of the Gordon Institute for Music Learning, also known as GIML. The Institute is a non-profit organization dedicated to advancing research in music learning theory and music aptitudes, with the ultimate goal of improving music education for teachers, students, and parents.

I have enjoyed a variety of interests in my professional career, but my interest in music aptitudes and the nature and importance of movement and rhythm has not waned. Validity studies of the established music aptitude tests continue, some in conjunction with the "Instrument Timbre Preference Test." Two new tests will be published this year. One is "Audie," a music aptitude test for three and four year old children. The other is the "Advanced Measures of Music Audiation," a music aptitude test for college and university students, both music majors and non-music majors. Much of what I have been able to accomplish has been made possible through my publisher, Edward Harris of GIA, who has been uniquely supportive of my work and whose commitment to music education has steadfastly been farsighted.

The learning process, particularly as it relates to music and our individual differences, will always fascinate me. As more substantive data are gathered, it is my hope that each person's potential in music not only can be revealed, but also can be appropriately nourished by informed and caring parents and professional music educators.