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## **Eugenics and Musical Talent: Exploring Carl Seashore's Work on Talent Testing and Performance**

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In the late 19th century, psychologists became interested in understanding the nature of “ability” or “talent” through quantitative testing. This was generally motivated by a desire to bring scientific objectivity to the realm of aesthetics, explicitly or not to substantiate claims for the superiority of certain musical traditions. One significant figure in this area was Carl Seashore at the University of Iowa. His seemingly objective approach to studying individual’s musical abilities through a battery of psychological tests on apparently objective musical components (e.g., pitch, loudness, rhythm, and timbre) was in fact influenced by a range of cultural biases about music that were borne of his belief in eugenics. Through his battery of tests, known as the Seashore Measures of Musical Talent, he was promoting a theory of musical talent deeply rooted in European classical music culture. Seashore applied the tests as “objective” measures to a range of non-white populations in order to draw conclusions about the relative degrees of musical ability in these groups. The tests were also used extensively in educational contexts, extending the reach of Seashore’s conception of musical talent beyond a purely psychological theory and into the realm of musical practice. They also laid the foundation for his work on analyzing musical performances, which has continued to be influential in contemporary empirical music performance work.

This article seeks to illuminate parts of this history in order to demonstrate how the Western canon is integrated in current musical training and practice in more than just the composers being discussed and the pieces being taught, but into the very nature of the conception of talent itself. I consider a number of questions regarding Seashore’s tests and their influence. First, how was Seashore’s belief that music talent was innate and measurable related to his beliefs in eugenics? Second, how did his approach to the testing of musical talent influence musical education? And finally, how did Seashore’s work on musical talent testing influence his later work in analyzing musical performances?

Musical talent, or aptitude, testing did not begin with Seashore. That distinction lies with Carl Stumpf, a German psychologist whose work has some influence in comparative ethnomusicology.<sup>1</sup> Stumpf’s tests of musical talent, published in 1883 and revised in 1890, evaluated participants’ perception of relative



*Carl Seashore*

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pitch, chord pleasantness, and tone fusions along with a single production task: singing back a note struck on a piano. His tests required individual administration and he compared the results of the tests to self-reports of musical ability. Seashore published his “Measures of Music Talents” test in 1919. It consisted of five components: Sense of Pitch (discriminating between high versus low), Sense of Intensity (discriminating between weaker versus stronger), Sense of Time (discriminating between longer versus shorter), Sense of Consonance (where participants determined which of pair of simultaneous notes blended better or worse), and Tonal Memory (a melody-based error detection task where participants heard two versions of a melody and had to identify which note had changed between the two). The test was designed to be given to groups of people at one time and, although Seashore would argue that for precise evaluation tests should be administered individually, this appears to be how it was largely administered. The most notable omissions from the early version of Seashore’s test were rhythm and timbre, two aspects of musical practice that are still often underserved in traditional conservatory-based music curriculum.

Seashore added additional components to subsequent revisions of his test including Sense of Rhythm (also same/different) in 1925 and Sense of Timbre (a comparison task of two stimuli to be marked as same or different), which replaced the Sense of Consonance component in 1939. This latter change appears to be influenced by Jacob Kwalwasser and Peter Dykema’s 1930 test, which aimed to cover a wider range of skills than Seashore’s. Kwalwasser/Dykema’s test, however, retained the atomistic nature of Seashore’s test. This approach was challenged initially by James Mursell, an American educator who empirically evaluated the reliability of Seashore’s test and espoused a more gestalt approach to the assessment of musical aptitude testing, with additional measurements and criteria. One such example of this was Herbert D. Wing’s 1940 “Test of Musical Ability and Appreciation.” While the gestalt approach appears to have had some impact on music education, it did not completely replace the atomistic approach, which was primarily developed through the work of Edwin Gordon and his colleagues.

From the 1960s through the 1990s, Gordon, a student of Seashore’s, undertook extensive work on the evaluation and development of music aptitude tests. Gordon shared Seashore’s belief that musical aptitude could be tested and that the results of such tests provided a measure of how much musicality ability a person may develop with the appropriate training. He released the first version of his “Musical Aptitude Profile” that is still available and administered today.<sup>2</sup> In the past twenty years, a number of musical test sets, often referred to as batteries, have been developed to assess musical ability in specific populations. These include the Montreal Battery for the Evaluation of Amusia (2003), University of Washington Clinical Assessment of Musical Perception for English-speaking participants with cochlear implants (2009) and the Beat Alignment Test for assessing musical beat processing ability (2010). These batteries inherit many of the biases of the Seashore tradition, including the beat-based focus on repertoire from white Western musicians. One recent development that has at least introduced some nuance into these types of test is the shift away from the use of terminology like “aptitude” or “talent” towards “musical sophistication.” Although the term “sophistication” is not without connotations of “high” versus “low” culture, it at least acknowledges that much of what these tests measure is influenced by specific musical exposure.

Seashore’s interest in and philosophy about musical talent testing is perhaps best described in his own words, as presented to a congress on eugenics in 1923. There he argued that “musical talent is resolvable into a number of inborn natural capacities which may be isolated and measured or rated adequately for statistical or experimental purposes,” highlighting “their availability in the study of racial differences as well as the study of individual differences in the experimental investigation of the inheritance of musical talent” and concluding that the “relation of these to eugenics is self-evident.”<sup>3</sup> He subsequently argued that

The approach to the problem of inheritance of musical talent, from the point of view of eugenics, divides itself naturally into five stages or tasks: (1) the analysis of what

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constitutes musical talent and the isolation of measurable factors; (2) the development and standardization of methods of measurement and rating of each of these talents under control; (3) the actual field work of measuring sufficiently large numbers of generations in selected family groups; (4) the interpretation of such results in terms of biological principles of heritable factors; (5) interpretation and dissemination of established information for eugenic guidance.<sup>4</sup>

The development of Seashore's test fulfilled the first and second stages. The third and fourth stages were undertaken both through schools and through comparative analysis projects where Seashore and his colleagues attempted to demonstrate inheritance within racial groups and within families.<sup>5</sup> The fifth step does not appear to have been actively pursued, although Brenton Malin has noted that Seashore's subsequent adoption of eugenics to describe his work was a tactic that allowed him to side-step the increasing push-back against the biological determinism in eugenics while retaining a justification for dividing up groups of people on racial and/or gender lines.<sup>6</sup> Seashore's basic assumption was that the sensory capacities he was measuring were innate. The idea that talent is inborn has been widely disproved for other types of talents or aptitudes based on socio-economic factors (e.g., academic gifted tests for children). It has also been drawn into question for the sensory capacities Seashore's test examined. Experiments with his tests showed correlations of less than 0.5 between the performance of parents and children on the test, casting doubt on the inheritability of talent.<sup>7</sup> Other experiments have shown that sensory capacities such as pitch discrimination can be improved with training, demonstrating that these capacities are not necessarily inborn.<sup>8</sup> Current critiques of talent tests are largely focused on the process of the tests, rather than the underlying assumptions.<sup>9</sup> As recently as Richard Cowell in 2018, scholars go as far as to argue that Seashore's use of simple musical stimuli shielded his testing approach from being influenced by race or socio-economic status.<sup>10</sup> An exception to this is the work of Hoffman who has explored how talent tests contribute to a construction of musical talent that is similarly biased to the concept of smartness and who has looked at musical talent testing of the early twentieth century (including Seashore's) through the lens of critical race theory.<sup>11</sup> Work like Hoffman's, however, has been limited in comparison to the continued uncritical use of talent testing in education and academic research.

Seashore's tests had an impact on music education at both the elementary and post-secondary levels. Through the Iowa Child Welfare Research Station, founded in 1917 at University of Iowa to study child development, Seashore had a voice and standing within the local education community. This likely helped the dissemination of his test and its findings. Interestingly, the work on general intelligence testing at the Research Station ultimately demonstrated that IQ scores could improve with training and thus were not an impartial representation of potential.<sup>12</sup> This view did not, however, appear to inform Seashore and his colleagues' work on musical talent testing. In terms of impact, Patricia Shehan Campbell has argued that interpretation and dissemination of the results of Seashore's Measures of Musical Talent test led elementary school music teachers to minimize efforts to teach rhythm in favor of vocal training, based on the argument that rhythm was not an important component of musical development.<sup>13</sup> Also, the idea that the musical talent was innate disavowed educators from having to consider the impact of socio-economic conditions on students' musical achievement.

At the post-secondary level, the most extensive implementation of Seashore's test was a ten-plus year experiment at the University of Rochester's Eastman School of Music.<sup>14</sup> It was directly funded by George Eastman and began shortly after the School's founding in 1921. The experiment used the 1919 version of the test, administered both during admission and during enrollment, in combination with qualitative information from the School's faculty. The test scores were also compared to four-year completion rates with modest results. Alexander Cowan has argued that the use of the test at Eastman contributed to racial- and class-based stratification.<sup>15</sup> Moreover, the use of the test so soon after the School's founding likely

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allowed it to influence significantly the overall culture at the School much more than if it had been used later in the School's life-cycle.



The tonoscope for analyzing the pitch of the tones on a disk phonograph record

*Carl Seashore with the tonoscope*

The development and deployment of Seashore's musical talent test dominated the first part of his career. The second was focused on the empirical study of musical performances. The thread tying together these two projects was Seashore's desire to quantify artistic practice for scientific investigation. In his studies on musical performance, Seashore was trying to measure those aspects of the musical sound that characterized not just skill but also expression. The performance analysis undertaken by Seashore and his colleagues in the laboratories at the University of Iowa used a range of devices to measure timing and dynamics in piano performances and timing, dynamics, intonation, and vibrato in violin and vocal performances. They also used comparative musicological techniques to study musical practices in African-American and

Native American communities, termed "primitive" music by Seashore and colleagues.<sup>16</sup>

The music was represented, prior to analysis, in pattern scores: a modified version of a Western musical score that retained twelve-tone divisions of the octave and Western rhythmic durations that also represented continuous changes in pitch and intensity. Thus, the analyses used techniques and terminologies designed for Western art music even as they sought to describe other musical practices. Through these analyses the researchers sought to assess performance practices directly from the recordings, without consulting the musicians being studied. Indeed, the attitude towards the musicians was dismissive; for example, Seashore, when describing one of the African-American musicians from the Howard Quartet assessed that "While this singer has appeared before learned audiences and thrilled musicians, he is still ignorant and sings by his primitive impulses with a most charming abandon ... he could not sing the song twice alike."<sup>17</sup> This quote demonstrates both Seashore's bias against music that falls out of Western art musical training and the way in which this bias likely informed his analysis of the recording data. Specifically, his statement that the singer was not able "sing the song twice alike" raises queries about whether the similarity criteria Seashore was using was useful or appropriate. This also calls into question how useful Seashore's measurements were in describing non-Western art music practices. The performances were decontextualized and analyzed through a Western art music lens, much in the same way that members of various groups were assessed with the musical talent testing while maintaining the illusion of objectivity.

Carl Seashore's seemingly objective tests of musical aptitude and subsequent analyses of performances were deeply influenced by his eugenist world view. His belief in the innateness of musical talent in combination with his beliefs about the primacy of pitch over rhythm and perception over any corporeal production outside of singing reflected his narrow conception of musical talent to the Western art music concertizing tradition. Seashore's musical talent tests had an influence on music education at both the primary and post-secondary levels in Seashore's time as well as on subsequent research in music education, contributing to notions of race-specific musical abilities. His work also had a strong influence on the field of music psychology, both in terms of test batteries used to assess musical abilities and the way in which talent in musical performance is conceived.<sup>18</sup> In both education and psychological domains, the idea that Seashore's tests are objective measures of musical ability pervades without appropriate

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consideration given to the biases underlying the design of the tests and related research protocols. One of the implications of this is that the narrow definition of musical talent likely influenced which people in Seashore's time were encouraged to study music seriously and continue into higher education music programs. This in turn defined the group accepted into graduate music programs and who performed the next generation of research. More broadly, even though a more developmental view in music education ultimately gained traction, the notion of natural-born musical talent that Seashore nurtured and promoted has continued to pervade in both popular culture and academia. More broadly, the belief in innate and testable musical talent parallels persistent beliefs regarding these same characteristics in general academic tests for children and young adults, which have wide-ranging implications on the type of education opportunities that people are afforded. Thus, the investigation of the origin of musical talent testing as part of a wider testing agenda has implications that go beyond the music classroom and relate to education accessibility and equality as a whole.

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### Notes

1. For an in-depth discussion of Stumpf's influence in the development of comparative musicology, see Christensen, Dieter, "Erich M. von Hornbostel, Carl Stumpf, and the Institutionalization of Comparative Musicology," in *Comparative Musicology and Anthropology of Music: Essays on the History of Ethnomusicology*, ed. Bruno Nettl and Philip Bohlman (University of Chicago Press, 1991), 201–9.
2. John Grashel, "The Measurement of Musical Aptitude in 20th Century United States: A Brief History," *Bulletin of the Council for Research in Music Education* 176 (Spring 2008): 45–49.
3. Carl E. Seashore, "Individual and Racial Inheritance of Musical Traits," *Eugenics, Genetics and the Family* 1 (1923): 231.
4. Ibid.
5. Zaid D. Lenoir, "Racial Differences in Musical Capacities," (Ph. D. Thesis, Iowa City: University of Iowa, 1925); Guy B. Johnson, "Musical Talent and the Negro," *Music Supervisors' Journal* 15, no. 1 (1928): 81–96; Davenport, Charles B. Davenport, "Race Crossing in Jamaica," *The Scientific Monthly* 27, no. 3 (1928): 225–38.
6. Brenton J. Malin, "Not Just Your Average Beauty: Carl Seashore and the History of Communication Research in the United States," *Communication Theory* 21, no. 3 (2011): 299–316. Seashore distinguished between eugenics as "the science and art of being well born" and euthenics as "the science and art of living well or wise living." See Seashore, "The Term 'Euthenics,'" *Science* 94, no. 2450 (1941): 561.
7. Donald A. Hodges, "Human Musicality," *Handbook of Music Psychology* 2 (1996): 29–68.
8. Micheyl, Christophe, Karine Delhommeau, Xavier Perrot, and Andrew J. Oxenham. "Influence of Musical and Psychoacoustical Training on Pitch Discrimination," *Hearing Research* 219, no. 1–2 (2006): 36–47.
9. For example, see Joanne Haroutounian, "Perspectives of Musical Talent: A Study of Identification Criteria and Procedures," *High Ability Studies* 11, no. 2 (2000): 137–60; and Susan Hallam, "The Power of Music: Its Impact on

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the Intellectual, Social and Personal Development of Children and Young People,” *International Journal of Music Education* 28, no. 3 (2010): 269–89.

10. Specifically, Cowell argued that Seashore “believed that pure tasks from music stimuli matched the pure tasks in intelligence testing. This was wise, as the concern for the influence of culture (race and socioeconomic status [SES]) that marred other music talent tests as well as IQ testing is not an issue with discrimination competence. This interest in ability, aptitude, talent, or musicality dominated testing for more than half a century and continues to be present in new formats. It remains important, as does Seashore’s foundational research.” Richard Cowell, “An Overview of Music Tests and Their Uses,” in *The Oxford Handbook of Assessment Policy and Practice in Music Education*, Volume 1, ed. Timothy S. Brophy (Oxford University Press, 2019), 537.

11. Adria R. Hoffman, “‘Blessed’: Musical Talent, Smartness, & Figured Identities,” *Equity & Excellence in Education* 48, no. 4 (2015): 606–20; Adria R. Hoffman, “Competing Narratives: Musical Aptitude, Race, and Equity,” in *The Palgrave Handbook of Race and the Arts in Education*, ed. Amelia M. Kraehe, Rubén Gaztambide-Fernández, and B. Stephen Carpenter II (Palgrave Macmillan, 2018), 103–17.

12. For an in-depth discussion of this see Henry L. Minton, “The Iowa Child Welfare Research Station and the 1940 Debate on Intelligence: Carrying on the Legacy of a Concerned Mother,” *Journal of the History of the Behavioral Sciences* 20, no. 2 (1984): 160–76.

13. Patricia Shehan Campbell, “Rhythmic Movement and Public School Music Education: Conservative and Progressive Views of the Formative Years,” *Journal of Research in Music Education* 39, no. 1 (1991): 12–22.

14. Hazel Martha Stanton, “Measurement of Musical Talent: The Eastman Experiment,” *University of Iowa Studies in the Psychology of Music* (University of Iowa, 1935).

15. Alexander Cowan, “Eugenics at the Eastman School: Music Psychology and the Racialization of Musical Talent,” presented at the 2017 American Musicological Society conference in Rochester, NY, <https://cowanaw.wordpress.com/2017/11/07/eugenics-at-the-eastman-school-music-psychology-and-the-racialization-of-musical-talent/>.

16. Seashore, “Three New Approaches to the Study of Negro Music,” *Annals of the American Academy of Political & Social Science* (1928); Milton Metfessel, “Phonophotography in Folk Music: American Negro Songs in New Notation,” (1928); Ray E. Miller, “A Strobophotographic Analysis of a Tlingit Indian’s Speech,” *International Journal of American Linguistics* 6, no. 1 (1930): 47–68.

17. Seashore, *Psychology of Music* (University of Iowa Press, 1938), 352.

18. Dissemination of Seashore’s work and ideas had been aided in a large part through the availability of a low-cost Dover edition publication of *Psychology of Music* (1967).