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A Survey to Show What Percentage of Musically Talented Pupils are Overlooked by School Music Educators

Sigurd John Ode

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A Survey to Show What Percentage of Musically
Talented Pupils Are Overlooked By
School Music Educators

A Thesis

Submitted to the Graduate Faculty
of the
University of North Dakota

by

Sigurd J. Ode

In Partial Fulfillment of the Requirements
for the Degree of
Master of Science in Education
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This thesis, offered by Sigurd J. Ode, as a partial fulfillment of the requirements for the Degree of Master of Science in Education in the University of North Dakota, is hereby approved by the Committee under whom the work has been done.

Erich Selke
Chairman
O. L. Kjusstad
John V. Vags.

91762

J. W. Breitwieser
Director of the Graduate Division

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Chapter 1

MUSIC TESTING

Contributors in the Field

Psychologists, physiologists, and physicists have all joined in the analysis of capacity for musical performance. Since about the year 1915, psychologists have turned somewhat from the study of the nature of music to the investigation of the musical person.¹ Rupp, Bernfield, Revesz, Schussler, Seashore, Farnsworth, Kwalwasser, Dykema, Tiffen and Mursell have all made contributions to the subject.

Two Most Popular Tests

The Seashore tests and the Kwalwasser-Dykema tests are both concluded to be the most complete inventory of musical talent. Seashore has succeeded in devising, standardizing, and making available for practical purposes scales of measurement for these six basic capacities of musical sensitivity: pitch, intensity, time, consonance, tonal memory, and rhythm. The Kwalwasser-Dykema tests consist of tonal memory, quality discrimination, intensity discrimination, feeling for tonal movement, time discrimination, rhythm discrimination, pitch discrimination, melodic taste, pitch imagery, and rhythm imagery. Experimental investigations in the field of psychology of music have established the importance of these traits as indic-

¹L. S. Hollingworth, *Special Talents and Defects*, p. 164.

ative of music talent and achievement. They represent significant attributes of musicianship and lend themselves readily to objective measurement.

Aptitude and Achievement

These measures of musical talent comply with the following conditions: they are based on a thorough analysis of musical talent; they are standardized for content that does not need to be changed; they give quantitative results which may be verified to a high degree of certainty; they are simple and as nearly self-operating as possible; they are adapted for group measurements; they take into account practice, training, age, and intelligence; they have a two-fold value in the concrete information furnished, and in the training and pleasure gained from the critical hearing of musical elements.

Not all talents lend themselves to measurement. Specific and simple talents, such as sense of pitch or the sense of time, can be measured with precision.¹ In general, the more complex and diffuse a talent is the less it lends itself to direct measurement. Musical reflection and musical emotion are examples of talents which are too diffuse to be measured, as such, although we can weigh many of the factors which are determining components.

¹C. E. Seashore, *The Psychology of Music*, p. 5.

Specifically there are two categories of music tests. The first one is an aptitude test and is indicative of native capacity and endowment. The other is the achievement test and this shows and indicates what use one is making of his native capacities.

Aptitude tests come under three classifications, namely, feeling, sense discrimination, and motor ability. The feeling tests make the subject show his preference. The sense discrimination tests tend to determine the person's ability to discriminate in a variety of musical factors, whether or not he prefers so. Motor ability tests show one's ability to responsive bodily movements to impression.

Achievement tests, as the title implies, cover development in all phases of music taught as theory, harmony, appreciation, and history of music. It might be added achievement tests in the appreciation of music is a field causing much problematic discussion among music educators.

Growth of Music Tests

In a recent questionnaire sent out by Stokes of the Cincinnati Conservatory of Music the Seashore tests were found to be most popular.¹ The others followed in this order Kwalwasser-Dykema, Schoen, Drake, and McCreery. Some reported they used original tests. The questionnaire

¹Mimeographed letter from C. F. Stokes, dated November 18, 1938.

was sent to both grade and high school music teachers, as well as to instructors at higher institutions of learning. It was also found from this survey that the seventh grade was the most popular grade to test. The reason that more students were being tested here of course was to develop interest in musical performance for prospective band, orchestra, and chorus members. The most regularly given test was the test on pitch discrimination.

In February, 1925, the Department of Superintendence had this to say in their Third Yearbook - "The art of music is far behind other academic subjects in the attempt to apply the scientific method to the problem of subject matter, theory, and pedagogy. This is due to two principles causes: first, that the typical artistic mind is seldom interested in the scientific aspect of art; and second, that this art has not yet been thoroughly stabilized and assigned its proper place in the public school curriculum . . . Because of the extravagant claims made by enthusiasts for music education and their indiscriminate attempts to force a flat universal music requirement upon every child in the public schools regardless of his innate capacities or abilities to profit by such education, the wholesome growth of music in the public schools has been seriously impeded."¹

This was a challenge. Educators then realized that the

¹Department of Superintendence, Third Yearbook (February, 1925.) p. 354.

aims and objectives of school music should be clarified and some accurate means devised by which aptitudes and attainment should be measured. As a result, a field of scientific investigation was developed and has been productive with far reaching results. As an example, over the past ten years twenty-five thousand pupils in the Rochester, New York schools have been given the Seashore tests.¹ This school found from experience that so many of the untested students failed to make good in instrumental music, that now hardly an instrument is assigned unless the psychologist reports a satisfactory test.

A great social waste, not to mention widespread individual disappointment, could be spared through more definite and satisfactory articulation in discovering talent that is most likely to succeed.² After twenty years of work in the school, Binet concluded that the determination of children's aptitudes was a matter of great importance to education.³

¹Charles H. Miller, "The Seashore Tests," Educational Music Magazine, vol. 17 (March-April, 1938) p. 31.

²G. M. Ruch and George D. Stoddard, Tests and Measurements in High School Instruction, (World Book Co., Chicago, 1927.) p. 210.

³Gertrude H. Hildreth, Psychological Service for School Problems, (World Book Co., New York, 1930.) p.30.

Chapter 2

THE PROBLEM

Preliminary Findings

About a year previous to the beginning of this survey the experimenter gave a music talent test to a group of seniors just for the purpose of acquainting the class with the principles and procedure of a music talent test. In computing the tabulations it was discovered that certain pupils who had never had any music training whatsoever made excellent scores. Some of these scores ranked much higher than students who were active members in the high school musical organizations and who had had three and four years of training. The question then arose - how many high school juniors and seniors who are ready or soon ready to graduate have latent music talent that the music teacher as well as the pupil himself is not aware of?

Purpose of Survey

With this question as a challenge for conclusive proof to determine what percentage of high school juniors or seniors should be in music and are not, music talent tests were given to 135 pupils. Pupils participating in the tests were from the Central High School of East Grand Forks, Central High School of Grand Forks, Teacher Training Department of East Grand Forks, University of North Dakota freshmen, and Bemidji State Teachers College freshmen. The freshmen were tested because they were recent high school

graduates and represented various high schools. In each school a group of musicians were tested against a group of so called non-musicians. Those individuals termed musicians were those who had been receiving training in music for at least three years and those designated non-musicians had never received any music instruction. In connection with this it is rather interesting to note the humorous situation where some of the so called musicians ranked at the extreme end of the ratings.

Method of Securing Data

The tests were given over a period extending from October 1938 to May 1939. The Kwalwasser-Dykema tests were given to the first three groups which included students from the Central High Schools of East Grand Forks and Grand Forks and from the Teacher Training Department of East Grand Forks. (This Teacher Training Department consists of graduates from various high schools in northwestern Minnesota.) The fourth group was made up of selected freshmen from the University of North Dakota and Bemidji State Teachers College and they were given the Seashore test.

Interpretation of Procedure

In interpreting these findings, those students finishing in the upper quartile of the aptitude tests are termed as musically talented. Those who have made a success of music and finish in the upper quartile verify this, though there are instances of students participating in music who

finish below the upper quartile. The percentile method of reckoning was not used. The procedure suggested in the Kwalwasser-Dykema manual of throwing all ten scores together and from them obtaining a person's ranking by a norm is indefensible statistically and psychologically.¹

¹Mary T. Whitley, "A Comparison of the Seashore and Kwalwasser-Dykema Music Tests," Teachers College Record, vol. 33 (May, 1932.) p. 750.

Chapter 3

DESCRIPTION OF KWALWASSER-DYKEMA TESTS

The Kwalwasser-Dykema music tests first appeared in 1930. The authors are Peter Dykema of Columbia University and Jacob Kwalwasser of Syracuse University. The tests are recorded on five Victor records.

Each individual tested has one test blank which is plotted and leaves space for responses and evaluation. Percentile ranks are also reckoned on these blanks. There are a total of 275 samples. In getting the percentile rankings there are no provisions made for different age or grade levels.

Tonal Memory

The initial test is tonal memory and consists of twenty-five pairs of patterns. The listener judges each pattern with the letters "S" or "D" to signify same or different. This is an enjoyable test and after it is finished any student who at first resented the idea of a music test is now ready with willingness to go on with the rest of the tests. The test attempts to discover how many tones a person can remember when the pattern is repeated with a note changed.

Quality

The quality discrimination test measures one's capacity to determine sameness or difference in quality of tone. Quality is often termed *timbre* or color. It is the attri-

bute which differentiates tones of the same pitch. There are thirty trials with the responses being "S" or "D". Fourteen various symphonic instruments are used which include: violin, viola, 'cello, piano, flute, oboe, English horn, bassoon, clarinet, trumpet, French horn, trombone, tuba, and celeste. The violin, viola, trumpet, and trombone are on occasions muted which of course cloaks the original quality of each respective instrument. This record can be used to advantage in music appreciation classes for recognition or the naming of instruments heard.

Intensity

The test for intensity discrimination is also made up of thirty patterns. The first fifteen are pairs of single tones followed by fifteen pairs of chords. Intensity, often termed force, is the degree of loudness or softness of a tone. Responses are indicated by "W" or "S" meaning weaker or stronger, The test is not a particularly enjoyable one. The record was made with the use of a hand cut roll on a Duo-Art piano.

Tonal Movement

The final thirty pattern test is tonal movement. It demands the capacity and judgment of the tendency of a succession of four tones to proceed by going up or down to a point of rest. Each pattern is an unfinished melodic phrase requiring a fifth tone to complete it. The inaudible fifth tone to be supplied by the listener must move

up from the fourth tone or down to satisfy the tendency of tonal movement. The authors constructed this test with the conviction that it would reveal significant correlation with sight reading skill.¹ Its greatest weakness is that too many of the items, (1 to 6, 8 to 11, 13 to 22), are all in C major, unnecessarily establishing a feeling of tonality or key relationship.² Labels signify "U" for up and "D" for down.

Time

There are twenty-five patterns in the time discrimination test with responses indicated by "S" or "D". It measures the capacity of the individual's sensitivity of time. The subject is informed to determine whether the three intervals of each pattern are the same or different in length. The second tone is the variable. The first and third tones are always equal in duration, being sustained for a period of approximately three-quarters of a second - $(.74)^3$.

Rhythm

The rhythm test is made up of twenty-five items also. The two notes employed are B and C, with C always ending the pattern. The patterns vary in length from four to

¹Jacob Kwalwasser, and Peter Dykema, "Manual of Directions for the Kwalwasser-Dykema Music Tests," p. 10.

²Robert B. Walls, "Correlation Between General Intelligence and Music Ability in the Schools of East Grand Forks," p. 28. Unpublished Master's thesis of North Dakota University, 1936.

³Jacob Kwalwasser, and Peter Dykema, op. cit., p. 12

eight tones and the reaction is again "S" or "D". Naturally the easiest trials contain only four notes and as the test progresses the number of tones increases, making discrimination more difficult. There is an echo-carry over in this test which in some cases obscures rests.¹

Pitch

The pitch discrimination test has the greatest number of items in the entire test. There are forty. Some of the tones change their pitch while others do not. The response therefore is "S" or "D". Each tone is sounded for three seconds. The first twenty trials measure pitch discrimination in the region of 500 double vibrations. The pitch level of the second half of the test is in the region of 1000 double vibrations. The largest deviation in pitch is .40 tone, while the smallest departure is .01 of a tone.² The tones were produced by a whistle.

Melodic Taste

The melodic taste test measures sensitivity to phrasing, structure, and musical appeal. There are ten trials repeated for a total of twenty. The purpose of the repetition is for the listener to choose differently on the second trial if he so desires. This test gives the chance to think in complete units, rather than in divided segments. The decision is not based upon the intrinsic merit of the second phrase but upon

¹Robert B. Walls, op. cit., p. 24.

²Jacob Kwalwasser, and Peter Dykema, op. cit., p. 17.

its congruity and compatibility as a proper termination of the first phrase.¹ The test was cut for the Duo-Art player piano. Choice is designated by "A" or "B".

Pitch Imagery

In the pitch imagery test the subject is examined on his ability to comprehend twenty-five tonal patterns on a test blank. Responses are indicated by "S" or "D". The subject attempts to match the printed samples to what he hears. The various musical signs; viz., sharp, double-sharp, natural sign, etc. make the test a difficult one.

Rhythm Imagery

Rhythm imagery is somewhat comparable to pitch imagery, the difference being that pitch does not play a part here. There are twenty-five trials here with "S" or "D" being the subjects answer. This is a difficult test as was the immediate previous one and it is no more than natural that the individual needs the early rudiments of music notation to score well here. It seems to come somewhat in the category of an achievement as well as an aptitude test.

¹Jacob Kwalwasser, and Peter Dykema, op. cit., p. 18.

Chapter 4

DESCRIPTION OF SEASHORE TESTS

The Seashore music talent tests are recorded by the Educational Department of the Columbia Graphophone Company. The records number 53000D - 53004D. They are of course based on the author's book "The Psychology of Musical Talent".

The material needed for the test of this series is contained on the five double-disc records. The measures are so adjusted as to be easy enough in parts for the poorest listener, and difficult enough in parts for the best listener. There are in all 450 samples.

A revision of these tests might adopt the useful device of the Kwalwasser-Dykema series of incorporating the announcer's voice item by item with the actual test stimuli on the phonograph record. This assists very greatly in keeping subjects oriented.

Pitch

In the test for the sense of pitch there are one hundred sets of stimuli. Two tones are heard which in each case differ in pitch. If the second is higher, "H" is recorded; if lower, "L" is recorded. It is interesting to note here that no two tones are the same as is the case in numerous of the trials in the pitch test of Kwalwasser-Dykema. There is no appreciable difference in sex in the computation of this test and also training has no effect on discrimination.¹ Likewise

¹Carl E. Seashore, The Psychology of Musical Talent, (Silver, Burdett and Co., Chicago, 1919.) p. 60.

there is no dependence on intelligence.¹ A person may hear a difference of $\frac{1}{4}$ d. v., less than $1/200$ of a tone.

Intensity

This is another one hundred item test. The responses are "W" weaker or "S" stronger. In other words the second tone is to be compared to the first. It is concluded that this test has not the reliability status of the pitch record.² Audiometer tones reproduced on a record constitute the means for this test. In connection with this particular test, it might be interesting to add that a decibel is the unit of intensity measurement. The two fundamental aspects of the hearing of intensity are the hearing ability of audible sounds and the ability to hear differences.

Time

This is the final test of one hundred items. Some authorities have suggested that the first three Seashore tests are too long and that seventy or less items would suffice for the test. For this test the instrument should be set slower than for the other tests. It should run about sixty to sixty-five revolutions per minute. Its usual rate is 78 or 80. Judgment is given whether the second item is longer (L) or shorter (S) than the first one. In general children do not do as well as adults in this test, though a keen sense of time

¹Carl E. Seashore, op. cit., p. 56.

²Paul R. Farnsworth, "An Historical, Critical, and Experimental Study of the Seashore-Kwalwasser Test Battery", Genetic Psychology Monographs, vol. 9, (May, 1931.) p. 304.

will manifest itself early in the life of a child.¹

Consonance

The test of consonance is to discover the natural capacity for hearing differences in consonance and dissonance. There are fifty parts to the test and, needless to state, because of the dissonance it is a taxing and rather disagreeable one to listen to. Some of the dissonant chords are so extreme that it produces amused laughs from the subjects. A good combination results into a smooth blend, which tends to fuse together into one. A bad combination results in just the opposite. Results here are cited by B for better, and W for worse - that is, comparing the second with the first.

Tonal Memory

This test contains fifty items of a series of two, three, four, five, and six tones. Each pattern gives two playings of a series of tones, and the second playing has one tone changed in pitch. The subject listens and counts mentally to note what tone is changed and then he records the number. This is a difficult test for younger students as it is a problem to make them understand what the task is and what is wanted. Because of this the test must be explained most carefully before beginning. The power of retention is the keynote of this test. Those who lack general power of mental application in sustaining effort will disturb and distort the reliability of this test.

¹Carl E. Seashore, op. cit., p. 110.

Rhythm

In rapid succession the listener hears two rhythmic patterns. The second is either the same "S" as the first or different "D". There are twenty four cases of "D" and twenty six of "S". The original of the record was a punched strip of paper drawn mechanically between a brass plate and brass brush which made electric contacts through the patterns of holes. ¹ Rhythm is not an attribute of sensation like time and intensity, but is a complex process that involves practically the whole organism in the form of responsiveness to measured intervals of time or tone.

¹Mary T. Whitely, "A Comparison of the Seashore and Kwalwasser-Dykema Music Tests," Teachers College Record vol. 33 (May 1932.) p. 739.

Chapter 5

RESULTS OF FINDINGS

Using the tabulations from the four groups tested for musical aptitude it is found that only 11% of the pupils who had musical talent and were not participating in music were overlooked by high school music educators.

There were one hundred and thirty-five students tested and from this total sixty-eight were classed as musicians and sixty-seven were classed as non-musicians. From the tests it is found that only fifteen of the so termed non-musicians have musical aptitude.

Summing the groups together they appear thus:

- Group I - Forty-six tested and three out of twenty-five non-musicians finished in the upper quartile.
- Group II- Twenty-one tested and four out of eleven non-musicians finished in the upper quartile.
- Group III-Fourteen tested and none out of seven non-musicians finished in the upper quartile.
- Group IV- Fifty-four tested and eight out of twenty-four non-musicians finished in the upper quartile.

The quartile line indicated by an asterisk (*) in the following tables shows what number finished in the upper quartile. The upper quartile was obtained by counting three-fourths of the way through the scores from the bottom up or one-fourth of the way through the scores from the top down. The lower limit in the upper quartile score for the Kwalwasser-Dykema test was 206, while in the Seashore test it was 337.

Group IRESULTS OF KWALWASSER-DYKEMA MUSIC TESTS BY JUNIORS AND
SENIORS OF CENTRAL HIGH SCHOOL OF EAST GRAND FORKS

Pupil	Musician or Non-musician	Total Number Right
1	M	231
2	M	229
3	M	225
4	M	224
5	M	221
6	M	218
7	M	218
8	M	216
9	M	214
10	M	214
11	Non	213
12	M	212
13	M	211
14	Non	211
15	Non	211
16	M	210
17	M	210
18	M	209
19	M	207
20	M	206

* Upper Quartile

Group I (continued)

Pupil	Musician or Non-musician	Total Number Right
21	M	202
22	Non	201
23	M	199
24	Non	196
25	M	192
26	Non	191
27	Non	191
28	Non	190
29	Non	190
30	Non	189
31	Non	188
32	Non	188
33	Non	188
34	Non	188
35	Non	188
36	Non	187
37	Non	186
38	Non	186
39	Non	185
40	Non	185
41	Non	184
42	Non	184

Group I (continued)

Pupil	Musician or Non-musician	Total Number Right
43	Non	181
44	Non	178
45	M	177
46	Non	176

Group IIRESULTS OF KWALWASSER-DYKEMA MUSIC TESTS BY JUNIORS AND
SENIORS OF CENTRAL HIGH SCHOOL OF GRAND FORKS

Pupil	Musician or Non-musician	Total Number Right
1	M	231
2	M	229
3	M	229
4	Non	224
5	M	222
6	M	222
7	M	221
8	M	221
9	M	220
10	Non	218
11	M	216
12	Non	215
13	Non	214
14	M	210
* - - - - -	- - - - -	- - - - -
15	Non	204
16	Non	198
17	Non	198
18	Non	196
19	Non	196
20	Non	194
21	Non	179

* Upper Quartile

Group IIIRESULTS OF KWALWASSER-DYKEMA MUSIC TESTS BY STUDENTS OF
TEACHER TRAINING DEPARTMENT OF EAST GRAND FORKS

Pupil	Musician or Non-musician	Total Number Right
1	M	237
2	M	223
3	M	220
4	M	220
5	M	207
* - - - - -	- - - - -	- - - - -
6	Non	202
7	M	200
8	Non	197
9	M	196
10	Non	196
11	Non	193
12	Non	186
13	Non	170
14	Non	167

* Upper Quartile

Group IV

RESULTS OF SEASHORE MUSIC TESTS BY FRESHMEN OF THE
 UNIVERSITY OF NORTH DAKOTA AND BEMIDJI
 STATE TEACHERS COLLEGE

Pupil	Musician or Non-musician	Total Number Right
1 - ND	M	437
2 - ND	M	426
3 - ND	M	408
4 - ND	M	400
5 - BST	Non	394
6 - ND	M	393
7 - BST	M	390
8 - ND	M	390
9 - ND	M	389
10- BST	M	383
11- BST	M	376
12- BST	M	376
13- BST	M	376
14- BST	Non	376
15- BST	Non	369
16- BST	M	369
17- ND	M	367
18- BST	M	367
19- BST	M	367
20- BST	M	363

Group IV (continued)

Pupil	Musician or Non-musician	Total Number Right
21- BST	Non	363
22- BST	M	360
23- BST	Non	360
24- BST	M	359
25- ND	Non	358
26- ND	M	355
27- ND	M	353
28- ND	M	353
29- BST	M	353
30- ND	M	351
31- BST	Non	350
32- BST	M	345
33- ND	M	344
34- BST	Non	337
* - - - - -	- - - - -	- - - - -
35- BST	Non	335
36- BST	Non	335
37- BST	Non	335
38- BST	Non	334
39- BST	Non	333
40- ND	M	333
41- BST	Non	332
42- BST	Non	331

* Upper Quartile

Group IV (continued)

Pupil	Musician or Non-musician	Total Number Right
43- BST	Non	330
44- BST	Non	330
45- BST	M	330
46- BST	Non	330
47- BST	M	325
48- ND	Non	322
49- ND	Non	320
50- BST	Non	308
51- BST	Non	302
52- BST	M	300
53- BST	Non	295
54- BST	Non	291

Chapter 6

CONCLUSIONS AND RECOMMENDATIONS

From the results shown in Chapter 5 it can be stated that as far as this survey is concerned the percentage of musically talented pupils overlooked in high schools today is extremely low.

The results also conclude then that music educators have not ignored or passed without notice very many possible participants and performers in secondary school music organizations. Educators should realize though that a music testing program can be made more productive and have far more reaching results if the measuring is utilized as a guidance to the individual pupil. In other words it is best that these music aptitude tests be given during the junior high school period to all students in order that the spirit and mechanics of music education may serve the all-round musical development of the pupil.

Had this survey been done a decade or more ago, very opposite results no doubt would have been found. The growth of instrumental and vocal high school music has been tremendous the past ten years. There are today approximately 20,000 to 25,000 high school bands in the United States. A conservative average of fifty pieces to each group would make 1,250,000 high school band members. The total high school enrollment in the United States in 1939 was 6,000,000.

While vocal music was recognized as a school subject in

Boston in 1838, instrumental music was not introduced even as an extra-curricular activity until about 1900.¹ Various causes for this belated start could be attributed to opposition towards secular music, absence of authoritative performances of master works, and attitude of school administrators who had no precedent either in this country or Europe. As late as 1918 two of the greatest obstacles to further growth of the instrumental program were the lack of school-time rehearsals and school credit for music work. Administrators liked bands, orchestras, and glee clubs as extra-curricular activities, but few were willing to rank music with other academic subjects. Rehearsals were held after school hours and class instruction was given on Saturday mornings. Underprivileged boys and girls who worked after school and on Saturdays and who needed free instruction were excluded from the music program.

How the picture has changed today! The youngsters who are not in music today have not been handicapped or seemingly avoided as heretofore. Rehearsals are held during school hours in most schools. Instruments may be rented for those who cannot afford to buy. In many schools credits earned in music count toward graduation.

A word of caution should be said in connection with the music testing program. The whole problem of measuring music-

¹Lawrence W. Chidester, "The Evolution of the School Band", School Musician, vol. 6 (December, 1934.) p. 10.

ality is indeed complex. Perhaps the non-musicians tested in this survey who finished in the upper quartile lack certain traits that would make them musicians. In other words just because a person does well in a music aptitude test that is no reason to state that he will become a successful instrumentalist. Naturally his chances are better as has been proven by the testing program in the Rochester, N. Y. schools. However let's dwell upon this question.

What are the necessary traits that make a successful instrumentalist? Briefly they are five: (1) the sensory traits of pitch, intensity, etc., (2) the motor traits of co-ordination, and to a large extent rhythm, (3) the intellectual traits, the ability to learn, imagination, etc., (4) the character traits of persistence, drive, stick-to-itiveness, and (5) the physiological traits, shape of teeth, size of lips, fingers, hands, etc., peculiarly desirable for each of the instruments. These five traits integrate with each other and tend to work together as a whole.

The character trait of drive could not be tested for in any pupil. However a judgment score of several teachers concerning a child's persistence and stick-to-itiveness might be a reliable index. One famous school bandmaster inspires his pupils through this medium by stating that fifteen minutes a day of intensive practice on an instrument for twelve years and you will be a genius. With such a statement he is considering neither aptitudes nor the five aforesaid mentioned traits.

As we mention performance and talent we must make ourselves aware of the aims and objectives of our public school music program. Music educators are not trying to fulfill a demand for artists, but they are developing and fostering appreciation of music. All pupils should be aided in order to become discriminating auditors of music and be developed in the ability to enjoy good music in its various forms. Then, in turn the talented pupils should be enabled and encouraged to acquire skill in the use of the principles and techniques involved in the different phases of music.

These 15 students from the four groups tested who finished in the upper quartile of music talent or aptitude tests without being performing musicians have excellent chances of becoming producers of music, that is, providing they have the necessary traits mentioned before. Yet those who ranked below the upper quartile are deserving of an enriched music program as well in order to share in the inheritance of the race in this art and to be able to feel the emotional side of music as it should develop in life.

The right of every child to an education paid for by the public of which he and his parents are a part, is no longer questioned. It is now being recognized that his education must be both cultural and vocational. The trend of education is toward taking everything into the public schools. Each year, new courses are started in the high schools to meet the insistent demands of the public for complete training that

will fit pupils for social as well as industrial life. The study of music is coming into the high schools more and more as people begin to see that when rightly carried on, it combines mental, physical, moral, emotional, and vocational training of high order.

The impulse to bring music into the lives of all the people is not a fad, but it is the result of working out of a deep-seated and tremendously significant innate tendency - the instinct for self-expression; the same instinct which in another form is making us all feel that democracy is the only sure road to ultimate satisfaction and happiness. It behooves the school administrators and music supervisors, therefore, to study the underlying bases of this school music movement and to use this tool that has been thus providentially thrown into their hands for the advancement of art appreciation.

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