1947

The use of audio-visual aids in music education in California

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THE USE OF AUDIO-VISUAL AIDS IN MUSIC EDUCATION IN CALIFORNIA

By

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Stockton

1947

A Thesis

Submitted to the School of Music

College of the Pacific

In Partial fulfillment

of the

Requirements for the

Degree of Master of Arts

APPROVED Chairman of the Thesis Committee

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DEPOSITED IN THE COLLEGE LIBRARY: Allan R. Lauren

DATED: December 6, 1947 Librarian

PREFACE

During my brief career as an instructor in the Quartermaster School, Camp Lee, Va., in 1945-46, I became interested in the use of audio-visual aids by the Army in teaching soldiers various Army procedures. I was subjected to an Army course in the use of Audio-visual aids, and later I designed visual aids for use in the Quartermaster School. At that time I compared the use of these aids by the Army with the possible use of the aids in music education. When I returned to the College of the Pacific, I enrolled in a summer session course in audio-visual aids which was conducted by Thad Stevens of Oakland, California. This thesis is a result of my interest in this subject; an interest that I intend to retain in my work in music education.

Of specific interest in the presentation of this thesis is the following quotation from the California Administrative Code:

"Institutions to be considered for approval to offer the training and to make the recommendation for the kindergarten-primary, general elementary, junior high school, general secondary and junior college credentials must, effective July 1, 1947, maintain a course, or the equivalent, of at least two semester-units in value in audio-visual-radio education and require that such course

be successfully completed by each applicant for one or another of the credentials listed above."[1]

As teacher training institutions present courses in the use of audio-visual aids, it is to be expected that the use of these aids will increase in California schools. Music teachers will now be informed in the values of audio-visual education, and many innovations in music education will undoubtedly be presented in the near future.

[1] California Administrative Code, Title 5, Section 818.

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CHAPTER I

INTRODUCTION

The Meaning of Audio-Visual Education

The misinterpretation of the term "Audio-Visual Education" by many of the teaching profession seems to warrant an explanation of the proper meaning of the term. Actually, most of our educators have discarded the word "education" for the term "instruction." This has come about inasmuch as school teachers feel that "Audio-Visual Education" designates a special field in education rathern than a set of materials and rules for their effective use, coordinated with all educative activity. Therefore, the task of enlightening our teachers in respect to the common meaning of "Audio-Visual Education" is one of primary importance. Audio-visual aids are intended for use by teachers of all subjects in the curriculum, and progressive school principals should see that their teachers understand the benefits and educational value of such aids.

The sense of sight has been used for thousands of years in conveying the correct impression from one person to another. It was probably first used in pantomine which later became outmoded by the use of pictures, due to the advancing complexity of the situation to be portrayed. Perhaps the first use of the picture by prehistoric man was a scratch on a stone or a carved mark on a piece of

bark to indicate danger in a certain area. At any rate, we are certain that a picture language was the forerunner of our modern alphabet.

The invention of the printing press in the 15th century was a large step in the development of visual education. However, as the printed letter became farther removed from the picture it was intended to represent, it became more abstract; more difficult for the human mind to digest. A technical discussion before a group was illuminating only to those who understood the terminology used in discussing a particular subject. The same discussion, it was found, might be understood by all participants in the group if illustrative materials were used. In other words, it was imperative in the educational procedure to include a maximum number of representations of things which would make the abstract more objective.

In the development of the use of visual education, at the turn of the 20th century, it was believed that the eye was all-important. Even now many psychologists hold to this theory. The armed forces throughout World War II, and now in peacetime, contended that we learn 85% through our sense of sight, 10% through our sense of hearing, 2% through our sense of touch, and 1½% respectively through our senses of taste and smell. This contention, especially in the use of visual instruction in the field of music, is

absurd and invalid. The more progressive educators attach greater importance to the senses of hearing and touch than do the armed forces, although the sense of sight is still foremost in their regard. Because of this, audio-visual education is rapidly supplanting the more common visual education.

The General Use of Audio-Visual Aids

The vast importance of vision in maintaining lasting impressions occurs as an accepted portion of our every-day-life. The unusual situation which has been clearly observed remains as an indelible impression upon our minds. With the exception of a very few cases, the magazines and newspapers of our country which are not illustrated are limited in circulation. Industry has found that employees can be most rapidly and most thoroughly trained through the use of audio-visual aids and that these aids are highly effective in creating consumer buying. The commercial movie theater is now believed to exert a greater influence upon our daily life than do the combined forces of the radio and the press.

In recent years, experimental evidence in the school field has favored the use of audio-visual aids in practically every controlled experiment. Schools and school systems have organized audio-visual departments throughout the country in order to provide for an adequate flow and distribution of instructional aids. States have provided

a loan service to the schools in anticipation of the needs of the schools which are unable to purchase films and slides for permanent use.

The United States is one of the few nations of the world which has not created a centralized research and production department for the preparation of materials for schools. This task has been left to the States to maintain such progress as is within the limits of each state's budget. During the pre-war period, Germany used in excess of 40,000 portable motion picture projectors to instill the Nazi ideologies into the minds of German youth and adults. Who can deny the success of attaining the end product of the national spirit that was created by this means?

World War II furnished a proving ground for practically every type of audio-visual aid that has been developed in the field. The use of audio-visual aids by the armed forces was paramount to the exactness of the degree of training given each man. The safety of millions of men depended upon their knowledge of defense tactics, use of weapons, and first aid. With the use of audio-visual aids, the basic training program in most Army camps was reduced from ten weeks to six weeks, and the soldier trained by audio-visual aids in the shorter period of time was found to be the most skilled. Army instructors were given a course in the use of audio-visual aids and were ordered to use them at every opportunity. Thousands of illiterate men were taught intricate jobs by the use of these aids

when otherwise they would have been an impediment to a highly skilled army.

In general, all types of audio-visual aids are receiving greater and more intelligent consideration than at any time in the past and there is every indication of a continued and accelerated increase in the use of these effective instructional aids. The proper use of audio-visual aids is receiving greater attention from the educational leaders and progressive educational organizations. Many state teacher's associations have audio-visual sections which meet concurrently with other sections of the associations. Several of the national educational magazines are devoting regular space to the consideration of problems and practices in the use of audio-visual aids. All of these activities tend to encourage more than a casual interest in the educational values of audio-visual aids.

Too often is the case of the music teacher who says, "These aids are undoubtedly excellent for use by the history teacher, but they have no value in teaching music." This belief, which I find to be widespread among music teachers, is indicative of a lack of intiative and of study of the potentialities of audio-visual aids.

The intent of this thesis, therefore, is to qualify the use of audio-visual instruction in music and to demonstrate practices and possibilities in the use of these aids by California music teachers. There are many alert music

teachers in this state who have been using audio-visual aids in their programs of instruction, and from their experiences, we may draw valuable information in planning for our own instruction in music.

The Use of Audio-Visual Aids Among Schools

Modern educators are constantly on the alert for new practices that will improve teaching methods. In the past two decades, a great deal of experimentation has been made by progressive educators in the field of audio-visual education. These educators have come to the conclusion that visual and auditory aids are conducive to a higher rate of learning and that through their use, a greater per cent of the students are comprehending the material that is to be learned. Page after page could be quoted from education textbooks and magazines in the praise of the use of audio-visual aids in the school In relation to the thoughts covered by this thesis, however, there is one quotation which should not be overlooked. Raleigh Schorling has made this pertinent statement in regard to the use of audio-visual aids:

"Within the last few years new forms of visual and auditory aids have appeared, each one having a definite educational value. Undoubtedly there is a very real need for most of this equipment in classroom teaching. Our plea is for more teachers to develop and use those aids which

are available; and the fact remains that a vast number of visual teaching aids are found in the smallest school and in the most remote community."[1]

Many other leading educators, in addition to Mr. Schorling, are urging teachers to examine the benefits of audio-visual equipment and the use of these teaching tools is becoming widespread. In attestation of this statement, the results of a survey of audio-visual equipment, made by the U.S. Department of Commerce in cooperation with the U.S. Office of Education in 1941 should be examined.

In September, 1941, questionnaires were sent to 40,000 elementary schools in the United States. Replies were received from 25,703 schools. Of these schools, 7,845 reported that they actually owned either 16mm or 35mm motion picture equipment; 6,602 reported that their schools were serviced with equipment from central distribution centers within 709 school systems; and 11, 256 schools had no call on the use of any equipment within their system, but borrowed from commercial or private sources. This is but one example of the spreading use of audio-visual aids in the classroom.

Today, many teacher training institutions are including training in the use of audio-visual aids as a part of teacher preparation. However, there are thousands of teachers in the field who have not availed themselves of

[1] Student Teaching An Experience Program. p. 185.

this training. These teachers are the ones who must be reached if audio-visual education is to show rapid progress.

As an introduction to the use of audio-visual aids it is important that the purposes and methods for their use should be stated at this point. McKown and Hoban and their associates have set forth in detail the precautions which should be taken for the proper use of audio-visual aids. They emphasize the utilization of audio-visual materials as supplementary instead of substitutionary aids to instruction. Only when definite principles are followed will the employment of extra-curricular aids be the most effective. The following principles are suggested by McKown and Hoban for the guidance of the teacher:

"The aid must suit the age level and experience of the pupils.

"The aid must bring realities to the pupil.

"The aid must build upon the pupil's previous experience.

"The introduction of the aids should be carefully prepared for in advance by the teacher and by the pupil through study and investigation.

"The aids must contribute to the learning process; they must not be allowed to become substitutes for it.

"The aid should take up a reasonable amount of time and no more.

"Not too many aids should be used.

"The use of more than one aid at a time is of doubtful

value.

"The effectiveness of the use of the aids should be evaluated by both teacher and pupils.

"The use of aids should be well balanced, with one type of aid being used at one time and another at another.

"The aids must give an air of reality, not an artificial setting which cannot be understood by the pupils.

"Aids must be used which take into account the differences in children, where one pupil sees a relationship much more quickly than another, and yet all pupils see some relationship."[1]

With this philosophy of the use of audio-visual equipment foremost in the mind of the reader, the following material is presented as a guide to the understanding and utilization of audio-visual instructive aids.

[1] Visualizing the Curriculum. p.38.

CHAPTER II

TYPES OF VISUAL AIDS AND THEIR USES - NON-MECHANICAL

Non-mechanical visual aids have been used by man as illustrative materials since the time of his origin. In our early colonial schools little thought was given to the importance of maps, globes, and textbooks as visual aids. These implements were merely considered as part of the classroom equipment. Even today, if the average classroom teacher were asked what visual aid was most frequently used in the school, he or she would most likely not mention the blackboard, due to the acceptance of this tool as a standard piece of classroom equipment. This important tool, however, cannot be overlooked in the study of visual aids.

To the teacher of music theory, the blackboard is indispensable in the demonstration of chord patterns, harmonies, etc. To all teachers of music, the blackboard is an ally in presenting diagrams, outlines, and other representations of materials to be learned. With the use of water-color poster paint representations in color can be drawn on a slate blackboard. The advantage of the use of this paint is that it cannot be removed by a chalk eraser, but it can be taken off the blackboard with water. Therefore, semi-permanent illustrations can be placed on the blackboard and can be easily removed at the teacher's convenience.

With due recognition of the values of maps, globes, and other such aids, the remainder of this brief chapter will be concerned with the two non-mechanical aids that are of the most importance to the music teacher; the school journey, and the school museum.

The School Journey

The school journey, or field trip, is a non-mechanical visual aid used most frequently by music teachers in schools neighboring large cities in California. In these cities, there are many opportunities for the music student to hear and see excellent performances of symphony music, the opera, the ballet, and chamber music. Each year, the San Francisco Symphony presents special children's concerts and music classes from a number of small towns in the bay area attend the performances, filling the San Francisco Opera House to capacity. In a like manner, the cities of Stockton, Sacramento, Los Angeles, and San Diego present special symphony concerts for students. The school journey, however, is not limited to these special programs. In addition to the California musical organizations, there are a number of excellent musical groups from all parts of the United States which appear in our larger cities on tour. These groups include a broad range of musical talent and extend an opportunity to the music teacher to realistically teach good music by class observation. Among these groups are the Ballet Russe, the San Carlos Opera Company,

various well known symphony orchestras, such as the Philadelphia Philharmonic; the Don Cossack Chorus, and many other professional groups.

Many alert teachers in California have seen supreme human values in the school journey, and have made meaningful their classes of music appreciation by making arrangements for their students to attend these musical events.

Ellsworth C. Dent has contributed a comprehensive list of the advantages of the school journey, which should be considered by all music teachers who plan to use this aid as a supplement to their classroom teaching. These advantages are:

"1. These activities provide an opportunity for cooperative enterprise. Teacher and student join in the project with the student the active agent and the teacher the guide and counselor.

"2. Shows phenomena in their natural setting.

"3. Puts students in direct touch with things, persons, movements, relationships, environments, trends.

"4. Shows three dimensions; natural color, qualities, motion.

"5. Offers opportunities for socializing instruction and blending school activities with community life.

"6. Supplies concrete, realistic, meaningful elements.

"7. Connects directly objects of knowledge with their

respective symbols."[1]

In addition to these advantages, Mr. Dent has compiled a technique which is here recommended for organizing and conducting a school journey. This technique is as follows:

"1. Evaluate the advantages in taking the particular school journey under consideration in order that as many contacts as possible may be utilized profitably.

"2. Determine the purpose for which the journey is to be conducted; or a possible combination of purposes.

"3. Examine survey data for:

a. Materials that will develop correct concepts.

b. Situations around which activities may be organized that will assist students in developing desirable attitudes, skills, and habits.

"4. Make necessary arrangements with:

a. School authorities.

b. Owners or representatives of places to be visited.

"5. Initiating the journey:

a. Develop the need for making the journey during class discussion or group activity.

b. Have pupils fix definitely the aim or purpose of the journey.

c. Teacher preparation involves familiarity with place, route, features, and necessary reference material.

[1] The Audio-Visual Handbook. p. 31.

"6. Instruction enroute and the lesson:

a. On the way - pupils alert, cultivating keen observation.

b. At the place - the definite lesson; pupils utilizing initiative, observation.

c. The return - pupils exchanging ideas, freely discussing experiences, asking questions. Reports from pupils. Evaluating reports. Coordinating the work.

"7. Appraising the lesson as to:

a. Teaching values; enriching and vitalizing; motivating; socializing.

b. Constructive influence on pupils appreciation, attitudes, habits, skills."[1]

If the music teacher takes into consideration the points mentioned above, he can effectively use the school journey as a valuable visual aid; one that demonstrates to the student that good music is real and alive, and not confined to textbooks. For the teacher, the preparation involved is engligible in contrast to the experiences that are gained by the students.

The School Museum

A museum is generally believed to be a place where freakish specimens are kept to gather dust and become more valuable with age. In the case of the school museum, this

[1] Ibid. pp. 32 and 33

should not be true. It is of the utmost importance that the school museum be operated in the manner of a circulating library and that its instructional materials be available to the teacher when they are most needed.

The only necessary requirement for the initiation of a museum into a school is space. Specimens to be used should be prepared by the students and it has been found that students respond enthusiastically to this task. The logical location for a school museum is in the school library and its functions are so simple that the librarian may easily serve as the curator. As instructional materials are added to the museum, teachers should be aware of their value and requisition their use in advance in order that they may be used concurrently with the lesson they illustrate.

There are many specimens of importance to music that may be added to the museum. Pictures of composers, symphony orchestras, soloists, choirs, operas, ballets, and musical instruments are always valuable and easily collected. A collection of musical instruments in miniature can be an effective teaching aid and can be inexpensively purchased from novelty shops or music stores. One school in Oakland, California, has in its museum the replica of a complete symphony orchestra in miniature. Other schools have replicas of ancient manuscripts and of original works of the old classic masters.

A collection of primitive musical instruments can be simulated by a class in the study of ancient music with little or no expense. Reed flutes, primitive percussion instruments, and ancient stringed instruments are easily constructed and meet with the enthusiastic creative abilities of the students. World maps, or globes, showing the music centers of the world serve as excellent museum specimens.

Children in various grades are excellent collectors of the unusual, seemingly by instinct. They will develop great interest in a project which involves the collection of interesting objects from the home and the community. In this respect, one of the principal benefits of the school museum is pupil participation. All materials in the museum should be carefully classified and a copy of the classified list of specimens should be given to each teacher. This would enable the teacher to know what materials are available for use in the classroom in correlation with the subject to be studied.

CHAPTER III

TYPES OF VISUAL AIDS AND THEIR USE - MECHANICAL

The Opaque Projector

The opaque projector is one of the most widely used instruments in the field of visual education. It reproduces, by reflection, any pictures, diagrams, flat surfaces or near-flat surfaces which can be placed in the aperture of the machine. For those who wish to project pictures upon a screen in the most effective manner, the opaque projector should be given careful consideration. The average opaque projector ranges in price from $100 to $140, depending upon the type used and the completeness of its accessories. It is a light-weight instrument and may be moved from room to room with facility.

There are many advantages in the use of the opaque projector, the greatest being that it will project almost anything upon a screen for class perusal and consideration. Also, it reproduces the colors of the picture accurately. For example, it can reproduce a picture from any music textbook without harm to the picture or the text.

Because of this simple means of projection, materials for its use are inexpensive. Pictures for its use may be collected from books, magazines, postcards, catalogs, or nearly any desirable source. Although pictures can be reproduced directly from a text, it is advisable to mount

separate pictures upon a piece of cardboard eight inches square.

The opaque projector also contains an apparatus for the use of glass slides and the change from picture reproduction to slide reproduction may be made instantaneously. In this manner, the teacher is able to supplement available glass slides with special pictures that further the explanation of the slides.

One of the limitations of the opaque projector is that it requires a thoroughly darkened room for effective reproduction. In some schools, this results in a problem of ventilation. The newer buildings have controlled ventilation and eliminate this inconvenience. Some of the older opaque projectors damaged projection materials due to the heat generated by the machine. The teacher should make certain that the machine to be purchased is of the newer type which has cooling fans to afford proper ventilation.

There are no limitations to the extent of instructional aid that a music teacher can derive from the use of the opaque projector. Pictures that are too valuable to stand the wear and tear of a bulletin board or personal handling by the students may be projected upon a screen. By this method, the teacher is willing to display coveted pictures of old masters, etc., that otherwise would be kept at home. Slides and photographs of musical instruments can be reproduced on the screen and the teacher can more readily

demonstrate the minute details of construction. The theory teacher can easily mount harmony exercises upon cardboard and use such in demonstration of techniques. In this latter use of the opaque projector, the teacher can use a pencil to point out examples while using the machine. This is easily accomplished as the teacher merely points the pencil on the desired location on the picture, and picture and pencil are both project, saving the teacher many unnecessary steps. This procedure is also valuable in showing examples of the student's work to the class.

The instrumental teacher can use the opaque projector in demonstrating proper sitting positions as well as technical aspects of instrument manipulation. For example, the band leader who is faced with the problem of teaching the marching band to perform stunts at football games can demonstrate his plans by this technique and save his valuable time.

The vocal teacher who is faced with the problem of teaching songs by rote, can project both words and music on a screen for the class. This method not only expedites the teaching of the written word, but it also shows the pupil the relation of the written musical note to the tone to be produced.

All visual aids are recommended as a means of time economy. Certainly the use of the opaque projector serves as an expedient to accurate and thorough instruction.

Lantern Slides

There are two distinct types of lantern slides in general use today. The older of the two is 3¼" by 4" in size, and it is constructed with an image on one side of a glass plate which is protected by another thin piece of glass. The newer of the two is a 2" by 2" slide and is usually a piece of 35 mm film, in color or in black and white, which is mounted in a cardboard holder or in a glass frame.

Preparation of the 3¼" by 4" slide may be accomplished in several ways. For practical purposes in the field of music, the use of etched glass slides is recommended. The etched glass slide is merely a piece of glass, one side of which has been roughened by acid. This roughened side provides a surface to which crayon, ink, or other illustrative materials will adhere. The advantage of the etched glass slide is that it may be used over and over as the original impression can be erased by the use of soap and water or by a solvent.

One of the most simple methods of producing an etched glass slide is with the use of special water color pencils. These impressions may be erased by the use of an ordinary pencil eraser. Another method of construction involves the use of colored inks which can be removed by the use of soap and water. A third material used in the construction of lantern slides is the ceramic pencil, which can be later dissolved by the use of industrial alcohol. The music

teacher can readily make use of these easily prepared slides in demonstrating facts of music history and related subjects.

Of greater value to the music teacher is the use of the cellophane lantern slide. This slide may be used to reproduce printed matter and is easily prepared. The slide is constructed by slipping a piece of cellophane into a folded sheet of carbon paper and typing or writing the desired impression upon the carbon. The cellophane is then removed and mounted between two pieces of clear glass for projection. There are many practical uses of the cellophane slide for the music teacher. Songs that are to be taught to the class can thus be easily projected with the words alone, or with a combination of words and music. The music theory teacher can use cellophane slides in demonstrating involved constructions in harmony, in teaching music fundamentals, or in conjunction with a course in ear training. Special formations or stunts can be easily explained by the teacher of the school band with the use of these slides. These are but a few of the many uses of the cellophane slide that can be adapted by the progressive music teacher.

In any situation the 3¼" by 4" slide can be used in the consideration of any topic to stimulate interest or to introduce new material. They may be used as a background for material that is to follow or in the presentation of other visual aids, such as the motion picture. In some

schools the teacher has prepared an explanation of the slides on a phonograph recording which is used in conjunction with the showing of the slides. The extent of the use of the 3¼" by 4" slide depends entirely upon the creative ingenuity of the teacher.

The 2" by 2" lantern slide is not as easily adopted to the field of music as the 3¼" by 4" slide is, due to the nature of its construction. Whereas the 3¼" by 4" slides consist of a variety of materials, the 2" by 2" slide is usually made from a section of 35 mm film or some other positive film. This limits the use of the 2" by 2" slide to actual photographs, which are less practical than the various types of 3¼" by 4" slides. However, the preparation of the 2" by 2" slide is relatively simple as the process merely requires the mounting of the film to be used between two cardboard holders.

If the music teacher has the use of a 35 mm camera, he may use the 2" by 2" slide to a good advantage. Pictures of valuable manuscripts, rare musical instruments, and historic music events may be photographed and converted into slides for classroom demonstration. In some cases the teacher may find that the use of actual photograph-slides will contribute much more to the learning process than will the drawings on a 3¼" by 4" slide.

The latest development in the production of the 2" by 2" slide is that of the Kodachrome slide. This slide is in

color and an extensive library of subjects in the Fine Arts are available to the music teacher at a reasonable cost.

In the final evaluation of the two general types of lantern slides, it may be said that the 2" by 2" slide is less expensive to produce and more durable over long periods of use than the glass 3¼" by 4" slides. Also, with the advent of the film strip, a wider selection of subjects is becoming available in the libraries of the 2" by 2" slides. Another advantage in the use of the 2" by 2" slide is that it can be projected by means of a slide-adapter on a film strip projector. This latter advantage affords the school an opportunity to own two pieces of visual equipment in one machine. Whereas the 3¼" by 4" slide is designed for use in a lantern slide projector, the 2" by 2" slide can be projected by the same equipment that projects film strips.

The music teacher should weigh these advantages and disadvantages before deciding on one type of slide for school use. Although the lantern slide is not as practical as an aid to teaching music as are other aids, the music teacher can, and should, make use of any such equipment that he might find in his school.

The Film Strip

The film strip was introduced as a visual aid in 1920 by the Society for Visual Education. Since that time, administrators in every walk of life have adapted the film strip as an instructional tool. Industries teach the operation of technical machinery to laborers with the use of this aid. The armed forces instructed millions of men in life-saving methods as well as preparing them for highly skilled jobs with the use of this aid during World War II. And now, educators are continuing their demands that this aid be used in the public schools.

When economy becomes the essential factor in the purchase of visual aids, the film strip is less expensive than the 3¼" by 4" slides or the 2" by 2" slides. A complete film strip roll of from 25 to 75 pictures can be purchased at an average cost of from two to five cents a picture. In addition, the film strip is much more durable than the lantern slide, and it is more easily projected. As in the use of the 2" by 2" slide, the teacher can prepare his own film strips, if he has the use of a 35 mm camera, at a cost of about five cents a picture.

An advantage of the film strip is that it consists of a chain of pictures in unbroken sequence. Because of this, a detailed explanation of a process can be projected in logical order without hesitation. In some cases this aid proves to be more valuable in instruction than the motion

picture as a still picture is often desired in the demonstration of intricate details. Many of the newer film strips include caption material between each picture. This eliminates the necessity of separate manuals to be used in explanation of the strip.

There are a number of sources of film strips that are available to the teacher. One of these sources is the Society for Visual Education, which has a catalog of film strips in all subjects.[1] Another large collection of film strips has been produced by the U.S. Office of Education, and the individual subjects are now distributed by Castle Films.[2]

The adoption of the film strip as a visual aid by the music teacher opens a wide range of varied uses for this tool. It should always be remembered that experimentation in the use of any visual aid is the only way that progress can be attained. With this in mind, the following possibilities are suggested to activate creative thinking on the part of the reader.

The modern instrumental music teacher is required to teach all band and orchestral instruments in the fulfillment of his duties. Usually this teacher is a semi-skilled performer on one or two instruments, and perhaps he has a vague knowledge of several other instruments. As a result,

[1]100 E. Ohio St., Chicago, Ill.

[2]30 Rockefeller Plaza, New York, New York.

many beginning students are improperly started on their instruments and learn poor techniques, which places them at a disadvantage as they progress. With a little effort and a minimum of expense the teacher can create a library of film strips which give basic instruction on all instruments. This type of film strip should be produced by the teacher in collaboration with an authority on the instrument to be taught.

In producing a film strip which teaches the fundamentals of playing the clarinet, for example, the proper embouchre, proper sitting positions, and proper fingerings could be photographed for reproduction at a later date. The same type of film strip could be used to an advantage in teaching beginning students the techniques of the stringed instruments; i.e., proper bowing positions and proper fingering positions. The operation of the film strip projector is so simple that the student could review the photographed instruction frequently without the necessity of the teacher being in the room.

Such a film strip would be particularly valuable in teaching large groups of beginning students. Also, this method would standardize instruction throughout the music department. It is to be remembered that as pupils advance in progress, a competent private teacher should be secured. However, the student that has had the proper initial instruction will progress rapidly under the guidance of an advanced teacher.

The teacher of music theory is often confronted with the task of making the harmony lesson interesting to his class. As the film strip is operated as a sequence of still pictures, the theory teacher can prepare entire harmony lessons on the film strip and thus save the valuable time that is consumed by drawing illustrations on the blackboard. For example, the use of the dominant seventh chord can be effectively presented by the use of the film strip and at the same time hold the interest of the class. A suggested sequence might be: pictures showing the construction of the dominant seventh; pictures showing inversions of the dominant seventh; pictures showing the proper approach to the dominant seventh; pictures showing the proper resolutions of the dominant seventh; and pictures warning the class against improper uses of the dominant seventh. The photographing of such a lesson would involve time and effort on the part of the teacher, but the product can be used repeatedly over a period of years as a time saving device as well as a method to create variety in the presentation of the course.

These possibilities in the use of the film strip are not beyond the realm of reality in an age of scientific experimentation. However, it is the responsibility of the individual teacher to consider the proper methods of presentation and to be watchful for methods that will improve his instruction. "Necessity is the mother of invention"; likewise, ingenuity is the life blood of progress.

The Silent Motion Picture

The motion picture is not entirely a product of the past fifty years. Centuries ago the Greeks developed a type of panorama which may be compared to the principles of modern movie production. The Greek sculptors carved likenesses of humans on the pillars which surrounded their government buildings, and each likeness varied slightly in its appearance. Therefore, when the Greek chariot drivers raced past these pillars, the varied appearance of each pillar created an illusion of motion to those racing by. Although the modern methods of movie production are not as tedious as were the Greek methods, the motion picture is still produced with certain psychological factors concerning illusion being involved.

Psychologists maintain that an image on the retina of the eye remains there for one-twelfth of a second after the actual object of the image has disappeared. This phenomenon is known as persistence of vision. In constructing motion pictures this factor has been considered in that the individual frames of a film are connected in such a manner that the showing of the film appears as one continuous, but changing, picture. Actually, there is a break between each frame, but our persistence of vision affords a smooth continuity of a series of still pictures with no visible breaks in the film. To meet the psychological requirements of this phenomenon, the pictures are changed on the screen at a rate

of twenty-four times per second. The ordinary motion picture reel, which would run for about fifteen minutes, is composed of a series of 16,000 separate frames which are closely related to produce the desired illusion.

The use of the silent motion picture is not as advantageous to the music educator as the sound motion picture. It is only natural that the best presentation of music subjects should be given in coordination with illustrative sound. Therefore, only a brief space will be devoted to the use of the silent film production.

One of the principal advantages of the motion pictures is that it can be used to slow down the action of a rapidly moving object. For example, in describing the vibrations of a cello string which has been plucked, the motion picture can decrease the speed of the vibrations to such an extent that the student can actually count the movements of the string. The same device may be used in reverse: to speed up the action of a slow moving object. For example, the harmonization of a figured bass in the theory class would appear on the screen in a logical order much faster than it could be written on the blackboard by hand.

Band leaders have found, in some cases, that by photographing the band on the march, a film can be easily produced with several specific values. First of all, the film can be used by the band leader in pointing out the defects of the marching band during a performance. In this case,

the student can be shown exactly what his defect is whereas the mere word of the teacher is often not accepted. The film can also be used as an advertising media by the band leader in conjunction with the school or the community. Many times the student body association or the service clubs of the community are hesitant about granting funds to a needy band. If the bandleader can show these organizations a photographic record of his band's activities, the resulting impression can create a great deal of enthusiastic generosity on the part of the organization. Such a film can also be used to stimulate interest in playing band instruments in a high school or in the elementary schools that feed a high school.

In producing a motion picture of band activities, a 16 mm camera should be used. This camera can be purchased at a price as low as $60, or the camera can often be rented from local camera shops. The films are inexpensive and they can be developed within a week's time at any one of several agencies in California. Further use of the motion picture as an instructional aid will be discussed in Chapter V.

Screens for School Use

A discussion of audio-visual aids would not be complete without a consideration of the types of screens that are used in projection. The selection of a proper type of screen is paramount to good production no matter how

excellent the projector may be. Although the screen is the least expensive item in the use of audio-visual aids, its importance in producing the desired results cannot be neglected.

There are two general types of screens; the opaque screen, which reflects the picture, and the translucent screen, which transmits the picture. Of these two, the opaque screen is the most practical for school use although the translucent is used in some cases.

In using the opaque screen the projector is placed at the opposite end of the room. The opaque screen is usually from 4 x 4 feet in size to 8 x 8 feet in size, depending upon the size of the classroom. Too large a screen should not be used as it will tire the eyes of those seated in the front of the room. For practical use, the width of the screen should be about one-fifth the distance from the screen to the most distant person viewing the projected material. Hence, in a classroom that is twenty-five feet in length, a 5 x 5 feet screen should be adequate.

The three types of opaque screens are the beaded screen, the silver screen, and the white mat screen. The beaded screen is similar to other screens except that it is covered with glass beads. This screen has the highest reflective value of the three types of opaque screens, but the projected picture is not always satisfactory to those seated at the side of the room, due to the variation in

the brilliancy of light that is reflected by the glass beads. The silver screen has a metallic surface and the amount of reflection from this screen is slightly greater than that of the glass bead screen. However, the silver screen will produce a distorted picture if the slightest wrinkle appears in its surface, and if color films are used, the coloring is often lost when projected upon a silver screen. The mat white screen has a wider angle of reflection than either of the other opaque screens although it is never as bright in projection. Many teachers feel that this lesser brightness prevents eye-strain on the part of the pupils, and that color films are best used on a mat white screen.

Translucemt screens are used to transmit light to the audience. Therefore, the projector is placed behind the screen when in use. This screen affords clear projection in a room that is well lighted and is considered valuable in that the students' eyes are not subjected to intense light changes between the projections of films. Such a screen can be easily made by constructing a frame of the proper size and covering the frame with architect's tracing cloth.

Screens of various types and sizes can be purchased at a cost as low as $10, but the teacher should select the screen that is best adapted to the use of the projector in his particular situation.

CHAPTER IV

TYPES OF SOUND AIDS FOR SCHOOLS

The desire to record sound for reproduction dates back many years from the modern era of complex equipment. From Egypt comes the first account of sound issuing from a lifeless object, more than 1500 years before the Christian era. Also, an ancient Chinese book relates the story of a curious box into which a prince supposedly spoke a message over 2000 years ago. When the box was delivered to a friend, the friend could actually hear the words which had been spoken by the prince.

The first authentic recording of the human voice was accomplished by Leon Scott, a French scientist, in 1857. Twenty years later, Thomas A. Edison invented his first recording machine which produced indistinct sounds. Edison's work, however, paved the way for the development of the phonograph, and through the efforts of Alexander Graham Bell, Sumner Tainter, Emile Berliner, and Eldridge R. Johnson, the modern phonograph and recording equipment slowly developed.

Phonograph Records in the School

Records indicate that the first important step toward the utilization of the phonograph in the school was taken on April 1, 1911. On that day, the Victor Talking Machine

Company brought to Camden, New Jersey, an alert young music supervisor from the Milwaukee City Schools. This young woman, Frances Elliott Clark, was the first person to use phonograph records as instructional aids in music education. Writing of Miss Clark, Ellsworth C. Dent observes:

"She believed it should be taken into classrooms throughout the land, so children might learn to know and appreciate good music by hearing the finest compositions reproduced from recordings of the world's greatest artists and musical groups. This belief has been substantiated by a steady increase in the use of recordings in schools. It has been attested further by the fact that phonograph records are used more extensively by schools today than are any of the other types of visual, sound, or audio-visual aids to instruction."[1]

Records are available for instruction in rhythm for all ages. Recordings are also used to teach songs to individual pupils as well as to groups. The Congressional Library has an enormous collection of the folk songs of all countries which can be procured by the teacher at a price of $35 per eight volumes. These records are invaluable in teaching the songs of other countries and the folk dances of the world.

Records are also used to demonstrate the various instruments of the orchestra and the sound of each instru-

[1]The Audio-Visual Handbook. p. 132.

ment. Other records are used to teach the pulsating or soothing combinations of sounds resulting from combinations of instruments in group performance. Many teachers have used recordings as patterns for vocal or instrumental performance, individually and in groups.

The application of the recording as an instructional aid in teaching music appreciation is unlimited in range. Such courses as "Music Lieterature", "Knowing the Composer Through His Music", "Music History", and "Men in Music" have become the central element in the teaching of music in the upper grades through the use of the phonograph. The now familiar survey of music in colleges, and the resultant action of the Carnegie Foundation in donating a large number of record libraries to these colleges, was indicative of the fact that appreciation through much hearing is the only way to reach a student body in a presentation of music as a general cultural subject open to all.

One of the more recent developments in the use of the phonograph recording is the reproduction of educational radio programs available, but their broadcasting time may not coincide with the hour in which the program should be presented to the class. Recordings of these programs now enable the teacher to present them when best suited to teaching plans and as often as may seem desirable. Another method of recording these programs will be discussed later in this chapter in the section which describes radio transcriptions.

The Radio Program

The use of the radio in the school is now receiving more emphasis among schools and educational service agencies than any other single sound aid to learning. Among the organizations contributing to the development of ways and means of utilizing the radio to its best educational advantages are the National Broadcasting Company, the Columbia Broadcasting System, and the National Office of Education.

Of great interest is the fact that these organizations are experimenting and planning, hand in hand, with the schools in order that the ultimate benefits of radio may reach the classroom. The foremost problem, now before these agencies, is that of selection of the proper programs for school use. Education has been too harsh in the past as certain phases of instruction have been given as disciplinary measures. In planning the radio program the controlling agencies are attempting to provide music for the classroom which will create interest and at the same time provoke serious thought in the minds of the students. Great care is being taken that these programs do not become trite and meaningless or sheer entertainment.

The philosophy behind the modern educational radio program is of great interest to the music educator. Success is now attained by the creation of desirable objectives in learning and the attainment of these objectives by following direct procedures. In connection with these

procedures, the bulletin "Education by Radio" presents a summary of guideposts which clarifies the problem of proper educational production of radio programs:

"1. Does the program have unity; that is, do the parts contribute to a central idea which, in turn, is a logical sector of a program series?

"2. Is the subject matter selected educationally important? A good test of importance is whether or not the facts or anecdotes would be included in the curriculum of a progressive school system.

"3. Will the program effectively induce a considerable proportion of listeners to explore the subject more completely by reading, by discussion, or other self educative activity?

"4. Is there a summary at the close to fix in the listener's mind the major points brought out by the script?

"5. Is the selection and presentation of the material such that the voluntary interest of the students will be aroused?"[1]

The methods of proper presentation as to content and form are being thoughtfully considered by the producing agencies. The presentation of the program by the teacher, however, is not as it should be in many cases. In order to gain the ultimate benefits of the radio program, the teacher must secure advanced information concerning the program,

[1]Education by Radio. Vol. 7, No. 4, April, 1937.

and must properly prepare the class for each session. Such programs as the CBS "School of the Air", the symphony broadcasts such as the one conducted for many years by Walter Damrosch, and many other such programs will send advanced information to the teacher upon request. This information is usually in the form of bulletins which contain sufficient information to guide the teacher in preparing the class for an intelligent and instructive reception.

Once again, the problem of the variations in the school curriculum must be considered in the use of the radio program. There are several solutions to this problem and these solutions will now be offered.

First of all, the direct broadcast of a desirable program may not coincide with the teacher's lesson plans. It may be produced at an inconvenient hour, or on Saturday or Sunday. In this case, a recording of the program in doubt may be made and used at the convenience of the teacher. Also, the program may be of sufficient value to merit its reproduction for the entire student body. This is accomplished in many of the larger schools through the use of a centralized radio-sound distributor.

The primary advantage of the educational radio program is that it can be used in schools of all sizes and descriptions. The small country school can secure a battery receiving set which will provide satisfactory reception for several years at a very low cost. Individual radios or the

centralized system may be used in the larger schools, depending upon the financial status of the school. Caution should be exercised by administrators in the selection of radio equipment, as a few dollars saved may sacrifice the quality of reception in a radio. Thousands of dollars are spent in the production of the radio programs, and this expenditure should be considered in the selection of school equipment. If a school is in a large city, the administrator should consider the possibility of obtaining the new Frequency Modulation equipment. This latest development in radio adds to the clearness of radio reception and its use is rapidly becoming wide-spread.

Another recent development in audio-educational aids is the production of radio transcriptions for use by the schools. At least two of the major broadcasting companies and the Federal Radio Project, U.S. Office of Education, are now making transcriptions of radio programs and offering them for school use through state and city service bureaus at a very low cost. These transcriptions will not only allow the teacher to use the program at an appropriate time, but will also be available from year to year for use as historic documents of music performance. Transcription play-back equipment is now available, ranging in price from $110 to $150, complete. But before this equipment is discussed, it is imperative that the difference between phonograph records and radio transcriptions be explained.

The phonograph record is recorded on recording wax at the rate of 78 revolutions per minute. Thus, the average 10 inch phonograph record can reproduce about three minutes and fifteen seconds of the original on one side of a record. Similarly, the 12 inch phonograph record can reproduce about five minutes of the original on one side. The process of making a transcription is made as the wax revolves at the rate of 33-1/3 revolutions per minute. Because of the slower revolutions of the transcription, it is possible to record fifteen minutes of the original on one side of a 12 inch disc. In either case, the phonograph record or the transcription must be played while revolving at the same number of revolutions at which it was recorded. Therefore, an adequate play-back machine should be equipped to revolve at two speeds: 78 revolutions per minute for the phonograph record, and 33-1/3 revolutions per minute for the transcription.

Although radio transcriptions are available for use in the school, instantaneous recording equipment is of great value to the teacher. There are many types of instant recorders that may be purchased for school use. These recorders may be used to record radio programs as they are broadcast over the school radio and they may be used to record any type of individual or group performance. In addition to the standard models that will record at the rate

of 78 revolutions per minute or 33-1/3 revolutions per minute, there is another recorder which is becoming popular. This latest development is the recording of material upon a small magnetic wire which will accomodate several hours of recording. This latter innovation is still in the experimental stage as far as amateur use is concerned, but shows great promise for the future.

The possible and practical uses of the instantaneous recorder are almost unlimited. Its use allows the student to hear himself as others hear him and affords the student the opportunity to measure his progress in comparison with later recordings. Teachers of music should find this recorder to be invaluable as an instrument in the measurement of pupil progress. By its use, the music teacher can help the pupil measure his progress in a strictly objective manner, as the record eliminates the possibilities of the personal element and human judgment. Also, in recent years various schools have carried on individual and group contests in music by the use of the recorder. Each school in the contest records the number to be used as a basis of competition, and the records are judged by impartial listeners who are not influenced by the appearance of the group in their judgment.

The music teacher should certainly be aware of the possibilities in the use of the radio as an aid to instruction. We must not lose sight of the fact that the first

educational phonograph records and radio programs were produced for instruction in music appreciation, and that these programs and records are still at the top of the list in quality and quantity.

Sound Amplification

Modern methods of sound amplification now enable the individual and the group to speak or perform with comparative ease, especially in large auditoriums. The equipment used allows the user to speak or perform at his best level of volumn without fear of not reaching those of his audience in the rear of the room.

Earlier in this chapter, the phonograph-reproducing machine was discussed and mention was made of it as "complete." The final item of this machine is the amplification unit which is part of its standard equipment. The better reproducing machines are equipped with two 12 inch speakers and a microphone. This equipment can be easily used as a portable public address system and can accommodate an audience of 2500 to 3500 persons. The advantages of this equipment are many. The machine may be used indoors and outdoors and can be used to re-enforce speech and music separately or at the same time. It is a compact unit which is easily carried from one place to another, and the mechanics of its operation are very simple.

For the school which can afford stationary equipment in

its auditorium, there are several types of amplification sets. However, before selecting stationary equipment for auditorium use, the administrator should consult a sound engineer as he can recommend equipment which is entirely adequate where the school might otherwise buy a more expensive set that has power to waste.

CHAPTER V

TYPES OF AUDIO-VISUAL AIDS TO INSTRUCTION

The first four chapters have shown the use of aids to instruction in two general groups; the visual aid, and the sound aid. These aids can be used separately or together, depending upon the ingenuity of the teacher. In this respect the teacher should learn to recognize the possibilities in coordinating the use of both types of aids, and various combinations can be effectively used at the discretion of the teacher. The discussions which follow will involve the use of audio-visual aids to instruction which rely upon fixed synchronization for their effective use.

The Sound Slide Film

The sound slide film is perhaps the most simple audio-visual aid to operate of the entire group. It consists of two major parts and both parts can be easily handled and operated by the teacher or a student. The first part consists of a series of still pictures on a 35 mm strip of film and is projected by means of a film strip projector. Any number of representations of pictures may be included as "frames" on a single film strip. The second part consists of an ordinary phonograph record or transcription which describes the pictures that are recorded upon the film strip. In operation the picture and the sound description are produced simultaneously, although either section

can be reproduced separately if so desired.

The sound slide film has not been used to any great extent among public schools for two general reasons. First, due to the war, materials and equipment have been rendered unavailable. Second, very few film strips of an educational nature have been produced for use in the public schools. At present, there is no large company producing film strips for use in public schools as the demand for such materials is not great enough to warrant their production. Nevertheless, in the near future such companies will undoubtedly attempt to produce film strips as a commercial enterprise. Schools did not purchase the other types of visual aids to instruction until there was an abundant supply of materials. Consequently, it is doubtful that the schools will invest in sound slide films until a wide range of materials has been developed.

The average teacher should be better equipped to explain the values of any projected material to a class. On the other hand, an expert in a given field might be better qualified than any classroom teacher to interpret works of art and music. There is also the fact that the actual sound of music on the transcription or record will contribute more to learning than the teacher's mere explanation. Experiments determining the practical value of the sound slide film have been conducted by several important educational agencies, such as the National Education

Association, the New York Society for the Experimental Study of Education, and the School of Education at Harvard University. All agencies agree that the sound slide film, properly produced and used, will be of great benefit to classroom instruction.

When sound slide films do become available for use among schools, their low cost will be a distinct advantage for their use. At present, the sound slide films that are available for school use range in price from $10 to $20, and if they were produced on a large scale, the cost would be proportionately less.

Of special interest to the music educator is the sound slide film "The Instruments of the Orchestra" which was produced by the city schools of Los Angeles. This sound slide film includes four film strips and two double faced sixteen inch 33-1/3 R.P.M. recordings, available to schools at the price of $17.50. In this production the four basic sections of the orchestra are considered; the strings; the brass, the woodwinds, and the percussion. The production describes the correct sitting positions for each player, and the sounds and typical passages played on each instrument. In the latter part of the production, all of the instruments join together in ensemble and the student is tested to see whether or not he can pick out the various instruments and the parts they play. Certainly this type of sound film would be an invaluable instructional aid to

the music teacher.

Some of the larger school systems now own and operate their own production facilities. The Los Angeles city schools have the most complete set of facilities at the present time, and productions are created regularly to meet the needs of the school system. The principal cost of making a production involves the making of the film strip and the recording of the sound. The latter phase of the production may be easily accomplished by the use of the phonograph recorder, which was mentioned in the previous chapter. In planning the production of a sound slide film, Ellsworth C. Dent recommends that the following plan be used:

"This plan should include questions leading to a logical introduction of the sound slide film subject, a statement of the purpose of the showing, some advance indication of the important things to be learned from the showing, and a question period to determine whether or not the primary objectives were achieved."[1]

The Sound Motion Picture

The sound motion picture was not considered to be a successful audio-visual aid in education for many years, as the forerunners of our present day sound movies were merely silent films with titles deleted and sound added. This process was not accomplished sagaciously and teachers had

[1] The Audio-Visual Handbook. p. 157.

good reason to believe that in most cases the sound detracted from the educational value of the picture. The old sound film usually began with a grandiose fanfare, and either a running commentary or a superfluous background of music accompanied the film to its conclusion. At that time most commentators felt that it was necessary to comment upon every incident that occurred in the moving picture.

In recent years the producers of educational films have learned that the best result is obtained when the commentary and background music is used only to contribute to a greater understanding of the film. There are those who maintain that both the silent motion picture and the sound motion picture have distinct and separate uses. Nevertheless, the fact that sound has a natural appeal to the human ear cannot be overlooked, and because of this, the modern trend is toward sound movies for the school. In the field of music education, sound is paramount to an understanding of music theory, instrumental performance, and vocal performance. When music becomes a matter of technical form and the sound of the end product is neglected, music ceases to be an art.

World War II served as a proving ground for the experimental use of all types of audio-visual aids, and the aid most frequently used by the armed forces was the sound motion picture. At the beginning of the war, trained technicians were called into service and developed an extensive

training program of sound movies to which has been credited, to a great extent, the winning of the war. Army officials have indicated that the training time of soldiers was shortened as much as from forty to fifty percent with the use of the sound motion picture.[1] The incentives of self preservation and defeat of the enemy were perhaps greater than those offered in the schools. However, it is only logical to believe that if the material to be learned was grasped more rapidly by servicemen through the use of the sound motion picture, the same type of instructive aid should be applicable to the school situation. The modern educator is not interested in reducing the training period of the student by one-half, but if such training would allow the student to absorb twice as much usable information in the ordinary period of time, it would certainly contribute to the progress of education.

Sound motion pictures were slowly adapted for use in the school because of the lack of educational films. At the present time there is a wide range of 16 mm sound motion pictures, and several companies are producing such films for school use. Schools in many California cities are accumulating a library of films which are pertinent instructional aids to teaching. Also, there are several regional distribution points where a large library of films are

[1] Army Field Manual 21-5. p. 15

available to the teacher on request. The majority of these distribution centers are connected with the State Department of Education and are qualified to offer suggestions in the selection of films to be borrowed or purchased. Among these centers are the Extension Divisions at the University of California, Berkeley, California, and the University of California, Los Angeles, California; the Department of Education, Los Angeles, California; the Department of Visual Education, Stockton, California; the Department of Education of Oakland City Schools, Oakland, California; and the Visual Education Department of the Mendocino County Schools.

There are a number of educational publications which devote space each month to the use of audio-visual education, and the teacher should digest the information concerning new techniques in this vital field. Among these publications are the Sierra News, a West Coast publication; the National Educators' Association Journal, a national publication; and the Music Educators' Journal, also a national publication. One of the most important publications in this field is the Educational and Recreational Guide, published by Educational and Recreational Guides, Inc., 172 Renner St., Newark, New Jersey. This magazine describes both feature and educational films as they are released each month and provides discussion and use for each film.

The selection of sound motion picture equipment should be made with several important facts kept well in mind.

First of all, the 16 mm projector is the most desirable type for school use as the greatest number of pictures are printed on this size of film. Also, the 35 mm film has been outlawed in California schools due to its highly inflammable qualities. Although some California schools use the 35 mm films, they are required to operate their machines in specially constructed, fire-proof projection booths. The purchase of 16 mm projectors and films is much cheaper than that of the 35 mm size, and the 16 mm equipment is of portable size in contrast to the bulky 35 mm equipment. In selecting the proper 16 mm equipment, the teacher should decide upon its most practical use in the school. If the projector is to be carried from room to room, a portable projector and amplifier is sufficient. However, if the same equipment is to be used in the school auditorium, care should be taken that the amplifier and speakers are suitable to the size of the larger hall. The price range of the 16 mm projector is from $375 to $475, which includes projector, amplifier, speakers, and other necessary projection equipment.

The sound motion picture must be given careful consideration as a teaching tool. An adequate preparation and presentation by the teacher is necessary before the proper results can be obtained. The following is a suggested teaching plan for use in teaching with the aid of the sound motion picture projector:

I. Preparation

A. Teacher should preview the film to ascertain its usefulness in the classroom situation.

B. Teacher should prepare questions concerning important details in the film in advance of the actual showing.

II. Introduction

A. Teacher should introduce film as a part of the subject which is under study.

B. Teacher should inform the class of important portions of the film to be viewed and of questions to be answered.

III. Presentation.

A. Teacher should present the film with the best conditions of ventillation and lighting that can be obtained.

B. Film must be used educationally, not recreationally.

IV. Discussion

A. Teacher should lead the class in a discussion of the material presented.

B. Pertinent details should be recalled.

V. Examination.

A. Class should be tested to ascertain the value of the film as well as student reaction to the film and the assimilation of material by the student.

At present, there are a number of excellent sound motion pictures for use in the teaching of music.[1] These films

[1]See Appendix II

demonstrate instrumental techniques, show great artists in performance, and portray historic music events in opera. With the constant improvement of movie sound tracks, films are now being produced with very little distortion in the explanatory sound which accompanies the film. In addition to the films that are now available, it is probable that the music films in the future will be the greatest instructional aids that have ever been produced for teaching music. Entire courses in music will most likely be presented with the sound motion picture as the teaching media. In Chapter III the inadequacy of instrumental teachers was pointed out and the use of the film strip was recommended as an aid. Here again lie great potentialities in the producing of audio-visual aids which would help the beginning teacher. For example, an entire series of sound motion pictures can be produced which demonstrate the fundamental techniques of band and orchestral instruments. With the use of such films the teacher could start new pupils in the study of an instrument, and by means of carefully prepared films, the student would learn the proper methods of playing from the beginning of his instrumental experience. A complete library of instrumental techniques can be produced with separate films constructed to teach beginners the fundamentals of brass, strings, woodwinds and percussion.

The production of each film should be accomplished with the assistance of an authoritative instrumentalist who

knows all the correct techniques of the instrument to be studied. There are a number of these films that are now available to the music teacher, several of which are listed in Appendix II. Similar techniques may be applied in the production of films for courses in vocal music, music history, and music theory. The use of sound motion pictures in the field of music is in its infancy, and we can expect to see many innovations in the near future in the use of this aid.

Television

In May, 1939, the National Broadcasting Company inaugurated the regular service of television at the New York World's Fair. Although the public had been foretold of this new invention before 1939, the actual operation of television equipment at the Fair opened a new horizon in the development of recreational and educational research in the use of this electronic art.

Television may be described as the instantaneous broadcasting and reception of pictured action and sound, which combines the features of radio, drama and the motion picture. Its greatest advantage is that it presents a scene of action at the time the action occurs. Actually, events may be more clearly portrayed through the television receiver than if the persons viewing them were at the happening as the television camera is usually placed on the most advantageous spot at the event. Therefore, it is now possible in

some localities to sit at home and view events through the use of the television receiver more clearly than if the person viewing the scene were present at the actual performance. Television receivers are now constructed for theater use and it is believed that television reception will some day be practical for classroom use.

At present, television reception is limited to a radius of fifty miles of the transmitting station. Many radio stations are installing television equipment, however, and it is to be expected that the use of television will become more extensive as time goes on. It is not expected that television will replace all other visual aids in the classroom, but it will supplement classroom material by making available types of programs which can be presented more effectively through this medium.

A number of programs have been presented through television since its inauguration which are of interest to the music teacher. Among the artists and music groups that have been presented are Richard Bonelli, the Nordkin Ballet, the Paulist Choristers, the Westminster Choir, and the Fred Waring Show. In the near future we may expect to see, by means of television, the best symphony orchestras in concert, complete opera productions, musical comedies, operettas, and many of the world's leading vocal and instrumental artists in performance.

Most of the audio-visual aids in use today were first

used in industry and were not accepted for school use until industry proved their worth. In anticipation of a like occurrence with television, the National Education Association has appointed a committee to investigate the use of television in the school, and to expedite the acceptance of television as an important and necessary aid to instruction. Hence, we may expect rapid developments in the educational use of television in these post-war years.

Piano Playing By Eye

In conjunction with the rehabilitation program at Walter Reed General Hospital during the late war, the Army experimented with a new device which was constructed with the intention of teaching the techniques of the piano by audio-visual instruction.[1] The device consists of an exact replica of a piano keyboard on a plastic panel which is placed on top of an actual piano in full view of the class. Each key on the replica is connected with its corresponding key on the piano in such a manner that as the instructor strikes the key on the piano, an electrical impulse is transmitted to the plastic key, and a small light behind the plastic key illuminates the key. In addition to the keyboard, the plastic panel includes replicas of the left hand and right hand, and the teacher can illuminate desired fingers on either hand in demonstrating finger

[1]Life Magazine, April 21, 1947. p. 89.

techniques. Above the keyboard on the panel there is a music staff upon which the instructor can illuminate notes of any chord pattern that he chooses to demonstrate.

The use of this device may be described in the following manner: The students of the piano class are given imitation keyboards which they place before themselves on their desks. The teacher plays piano exercises for the class and simultaneously the panel records the keys that have been depressed, the staff picture of the exercise, and the correct use of both hands. The class practices these exercises at their seats, and when each student feels that he has mastered the exercise, he is allowed to play it on the piano.

The use of this device should not be confined to classes of piano instruction, however, as the teacher of music theory could use the panel method in teaching harmony and ear training. Many valuable minutes could be saved each week if the theory teacher presented his course with this aid, as the chords played on the piano would be accurately portrayed on the panel and sight and sound would be in perfect synchronization.

Although this device is not available to the general public at the present time, Educational Methods, Inc., plans national distribution in the near future.[1]

[1] Ibid. p. 92.

The Phonoscope

Dr. W. Otto Miessner first introduced the use of his invention, the phonoscope, to the Music Teachers National Association in 1940.[1] This audio-visual aid was the product of 30 years of research by Dr. Miessner, and it was conceived to meet the needs of the music listener in identifying sectional parts and themes while listening to a recorded performance. An undertanding of the phonoscope entails the description of its three mechanical parts.

The first part consists of a chart which has a five minute scale in minutes and seconds printed on the left margin of the chart. In direct relation to this chart, information concerning themes and descriptive passages of the music to be played is printed to the right of the scale.

The second part consists of a small lamp projector which is mounted on the record tone arm. As the tone arm needle passes through the grooves on the record, a beam of light is projected from the lamp to the descriptive chart on a horizontal plane.

The third part consists of a box which contains three mirrors placed at such angles as to reflect the projected lamp rays from the horizontal plane to a vertical plane as the explanatory material proceeds down the chart. This box also holds the chart at a fixed distance for proper vision.

[1] Music Teachers National Association Proceedings, 1940.

Due to the fixed synchronization, the phonoscope operates in the following manner: A record is played on the machine's turntable, and at the same time, a beam of light is flashed upon the descriptive text. The mechanical coordination is so accurately accomplished that the beam of light plays upon a description of a passage at the very instant that it is reproduced by the record-player. Hence, immediate explanation is viewed as important portions of the record are played. For large group participation, some models are equipped with a slide projector which will enable 200-300 people to view the descriptive material at the same time. In the use of this latter device, the optical pointer is also projected to insure perfect synchronization. At present there are over 100 musical text-charts available for use with the phonoscope, and additional charts can be easily prepared by the teacher.

There are four models of the phonoscope available to schools which range in price from $75 to $195. Detailed explanation of prices, etc., may be obtained by writing to Angle Products Corporation, 149 Cady St., Rochester, New York.

In conclusion, it is significant that Dr. Miessner's enthusiastic description of his phonoscope be included:

"With this visual aid the most inexperienced listener can identify at a glance each significant event as it takes place. He sees, on the chart, the lapse of time expressed

in space relations. He can relate each present incident - each part with the whole of any particular record side - the present with both the past and with the future event.

"In music appreciation classes the problem has been to know whether the students are engaged in purposeful listening or merely in passive day dreaming. If, along with the use of the phonoscope and slide projections of the charts, the students are supplied with blank charts, they can record their impressions and reactions from time to time during a given recording and the teacher can discover what this music has meant to each one of them. There does not seem to be any other way to test growth in musical insight and understanding.

"The purpose, then, of the phonoscope is to aid the listener by visual means to recognize, identify, compare, repeat, and remember what he hears. With such help, he can grow in discrimination and derive, through his more pleasurable experiences, an every-increasing comprehension and appreciation of that most intangible, most immaterial, most evanescent of all the arts - the art of music!"[1]

[1] Ibid. pp. 316, 317.

CHAPTER VI

EXAMPLES OF AUDIO-VISUAL PRACTICES IN CALIFORNIA SCHOOLS

Throughout this thesis, the ingenuity of the music teacher has been consistently challenged in an effort to create an interest in the use of audio-visual aids. The various uses of audio-visual equipment is not entirely theoretical, however, as many teachers have used, and are using, these aids to a good advantage. In substantiating this last statement, three cases will be cited in this chapter which demonstrate the resourcefulness of three different music teachers in using audio-visual equipment. Each of the three teachers has been interviewed personally, and their experiences should serve as an impetus to all music teachers in the adoption of audio-visual aids.

Use of the Phonograph-Recorder and the Wire Recorder in Humboldt County Schools

This portion of the chapter has been obtained by interview with Mr. Jack Murphy who was an elementary music teacher in seven elementary schools in Humboldt County, California, from 1940-43. Mr. Murphy made extensive use of the phonograph-recorder in teaching elementary orchestras, bands, ensembles, and solo students during his term of employment at Humboldt County. The machine he used was a Wilcox-Gay recorder and playback machine. Mr. Murphy found that the phonograph recorder was best used as a means

of measuring progress among his various groups. Several times during the year, the same groups would be recorded while playing the same musical selection. After each recording was made, it was compared with past recordings, and the students were able to hear for themselves the amount of progress they had made in the interim. Also, the students were able to hear their defects and thus learned what phases of their technique needed improvement. When the acme of performance had been reached by each group, a final, permanent recording was made to be used as a means of comparison with succeeding groups. Mr. Murphy recommends the use of the 33-1/3 R.P.M. transcriptions for rehearsal recordings as the transcriptions can record a larger number of groups at a comparatively small cost. However, he believes that the 78 R.P.M. recordings give a more accurate pitch reproduction and should be used for cutting permanent discs. Mr. Murphy also found the phonograph-recorder to be a durable piece of equipment as the nature of his work necessitated the transporting of the equipment over poor roads from one school to another.

In selecting a suitable phonograph-recorder, he recommends the following factors be considered:

1. The machine should be easily operated and transported.
2. The construction of the machine should be of a durable nature.
3. The machine should be pre-tested for tone quality.

4. The proper microphone should be purchased to meet the requirements of sound recording.

Mr. Murphy also used a wire-recorder in his work in Humboldt County. The machine he used was a Mirrophone wire-recorder and recorded one minute of sound at a time. Due to the short length of the wire-recordings, the machine was only used to record bits of practice sessions. Although the sound was erased at will from the wire after each recording, the clearness of the sound reproduced was poor, and the shortness in length made the machine of little value. In addition, the wire-recorder is expensive, selling at $350, and is too heavy to be of practical portable use.

In conclusion, Mr. Murphy remarked that the one disparaging fact about the phonograph-recorder and all other types of audio-visual aids, is that these aids are not used as widely as they should be in the public schools.

Experimental Use of the Home-Recorder in San Joaquin County Schools

This portion of the chapter has been written as the result of a personal interview with Mrs. Ellis Harbert, Associate Professor of Music Education, College of the Pacific, Stockton, California.

In 1936, Mrs. Harbert, with the cooperation of Mrs. Beverly Castle, a San Joaquin County teacher, conceived the idea of recording music instruction upon records which

could be used for classroom teaching. Although no school equipment was available for their use at that time, they made a number of excellent Auralgraph records with the home-recorder. These records were intended for use in the elementary schools and reproduced instruction in reading songs, rote songs, and rhythms for all grades. Also, eurhythmic records were made which served to stimulate freedom of response to the student listeners.

The records were intended to give a helping hand to elementary teachers who were not equipped to teach vocal music, or to those progressive teachers who were intent upon presenting music in the most complete manner possible. As an example of the benefits of the use of such records, Mrs. Harbert cited an example of an "un-vocal" teacher who came to her for help in 1936. This teacher was not prepared to teach vocal music, and had been rated in performance as "poor" by her supervisor. Mrs. Harbert and Mrs. Castle prepared instructional records for this teacher, and within a remarkably short time of their use, the supervisor rated the teacher's performance as "excellent."

Mrs. Harbert has gained considerable recognition for her commendable work in music therapy in recent years. In about 1940, she made her first spastic clinic records and has found these records to be highly valuable in working with spastic children. The spastic records are constructed to allow eurhythmic response at the spastic's own

speed of movement.

Because of the success that Mrs. Harbert has found in the use of the Auralgraph records, she has been selected to act as a critic of a new set of transcriptions of music instruction produced by Teaching Training Aids, Inc., 7414 Beverly Blvd., Los Angeles, California. These transcriptions have been critically heard by this author and are recommended for use in the school music department.

Mrs. Harbert's work with the home-recorder serves as an excellent example of the ingenuity that should be used by all music teachers in teaching with the help of audio-visual aids, and demonstrates the amount of good that can be accomplished with no school equipment available for experimentation and use.

Experimental Use of the Tape Recorder at Modesto High School

The following section was obtained by a personal interview with Mr. Robert H. Wing, instructor of vocal music, Modesto High School, Modesto, California.

Mr. Wing reports that the music faculty of the Modesto High School experimented with the tape recorder during the spring semester of 1947, and after a thorough consideration of the values in the use of this aid, they ordered a machine for use in their music department. During the trial period in the use of the tape recorder, the entire Spring Concert of the Modesto High School Music Department was

recorded. This recording included the band, orchestra, and a capella choir. Mr. Wing was enthusiastic in his praise of the clearness of tone and the accurate reproduction of sound by the tape recorder. As soon as the machine is actually purchased, Mr. Wing plans to use it extensively in teaching vocal music. In addition to recording performances of his vocal groups, he intends to use the tape recorder in his daily work. In this regard, he feels that defects in meter, lack of unity in vowel formations, and incorrect harmony can be more satisfactorily remedied by reproducing portions of rehearsals. Also, predominant voices that do not blend with the group, and the effects of staggered breathing in the group can be demonstrated to the class.

The cost of this audio-aid is $225, and each half-hour reel of recording tape costs $2.25. Mr. Wing pointed out several distinct advantages in the use of the tape recorder. First of all, he said that the tape recorder has a higher fidelity than the wire recorder, and consequently, reproduces a more accurate tone. The tape can be re-used by the teacher as the reels can be de-magnetized at the same time that a new recording is being made. Also, reels of tape can be joined by scotch tape if a long recording is desired. The latest innovation in the use of the tape recorder is the production of tape reels of various colors. These reels will allow the teacher to record different selections

on different colored tapes. Hence, the desired selection can be reproduced by mere identification of the color of the reel upon which the selection was recorded.

The Modesto Music Department did not select this piece of equipment in a hap-hazard manner. Before purchasing the tape recorder, the music faculty demanded an adequate demonstration by a representative of the tape recorder company, and experienced the benefits of its use by actual performance. Such a method of selection should be employed by all teachers who plan to purchase audio-visual aids.

The significance of the use of the tape recorder by the Modesto High School Music Department lies in the fact that through foresight and proper planning, music can now be taught with the aid of a progressive teaching tool.

The three examples of progressive teaching through the use of audio-aids in this chapter have been cited as illustrations of ingenuity, foresight, and creative thinking in the teaching of music. In each case, the teacher has found many advantages in the use of audio-aids, and recommends their application to all music teachers.

CONCLUSION

We have learned through the study of audio-visual education the varied uses of its equipment and the possibilities for future development of these aids in the field of music. The purpose of this thesis, stated in Chapter V, page was "to qualify the use of audio-visual instruction in music and to demonstrate practices and possibilities in the use of these aids by California music teachers." In addition to the fulfillment of this intention, it is hoped that the reader has been stirred by a creative interest in audio-visual aids as a result of the presentation of the possibilities herein contained. The progressive teacher should be alert for any device that will improve his methods of teaching, and he should exercise his ingenuity in adopting the use of audio-visual aids to his own situation.

Music teachers in many schools are faced with the problem of stretching the music budget to cover a multitude of operating expenses. However, it is not intended that all school music departments should attempt to purchase equipment for their own solitary use. A number of schools in California have an audio-visual service within the school upon which all departments are free to draw. In this case, the music teacher does not have the expense of purchasing and maintaining equipment, and he is free to use the equipment to his own best advantage. If expensive equipment is not available within the school, the music teacher can

obtain his own equipment inexpensively if he plans properly.

For the teacher who has equipment available for use, the following source lists of materials is offered.

Lantern Slides

Eastman Educational Slides Co., Iowa City, Iowa

Keystone View Co., Meadville, Pa.

McIntosh Lantern Slide Service, 30 E. Randolph St. Chicago, Illinois

Henry G. Peabody, 800 Prospect Blvd., Pasadena, California

Sims Visual Music Co., Quincy Ill.

American Council on Education, 744 Jackson Place, Washington, D. C.

Society for Visual Education, Inc., 100 E. Ohio St. Chicago, Illinois

Film Strips

American Council on Education, 744 Jackson Place, Washington, D. C.

Jam Handy Organization, 2900 E. Grand Blvd., Detroit, Mich.

Long Filmslide Service, 944 Regal Road, Berkeley, Calif.

Society for Visual Education, Inc., 100 E. Ohio St., Chicago, Illinois.

16 mm Motion Pictures

Bell and Howell Co., 1801 Larchmont Ave., Chicago, Ill.

Better Vision Institute, 630 Fifth Ave., New York, N.Y.

Bray Pictures Corp., Educational Dept., 729 Seventh Ave., New York, New York.

16 mm Motion Pictures (Cont'd)

Burton Holmes Films, Inc., 7510 N. Ashland Ave., Chicago, Illinois

Castle Films, 30 Rockefeller Plaza, New York, New York.

Eastman Kodak Co., 343 State St., Rochester, New York

Encyclopaedia Britannica Films, 20 No. Wacker Dr., Chicago, Illinois.

William J. Ganz Co., 40 E. 49th St., New York, New York

Garrison Film Distributors, Inc., 730 Seventh Ave., New York, New York.

Harmon Foundation, Inc., 140 Nassau St., New York, New York

International Film Bureau, 59 E. Van Buren St., Chicago, Illinois

Metropolitan Museum of Art, Fifth Ave. & 82nd St., New York, New York

RCA Manufacturing Co., Educational Dept., Camden, New Jersey

In addition to these sources, the music teacher may find materials in any number of magazines, commercial and educational. Among these magazines are Educational Screen, 64 East Lake St., Chicago, Ill; Film News, published by Educational Film Library Association, 45 Rockefeller Plaza, New York City; See and Hear, published by the Hale Publishing Co., Eau Claire, Wisconsin; and Visual Review, published by the Society for Visual Education, Inc., 100 East Ohio St., Chicago, Ill.

The adoption of audio-visual aids as instructional tools in music education has gained in popularity in the past ten years, and it will continue to grow in the future. With

this in mind, it is hoped that this thesis may serve, even to a small extent, the needs of some music teacher in planning for the use of audio-visual aids.

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APPENDIX I

LANTERN SLIDES RECOMMENDED FOR USE IN THE STUDY OF MUSIC

The following list of lantern slides for use in teaching music was compiled by the Keystone View Co., Meadville, Pennsylvania.

The Development of Musical Instruments in Lantern Slides, a most interesting and valuable teaching aid for the teacher of music.

Unit I - 15 slides - The Piano

Unit II - 16 slides - The Violin

Unit III - 10 slides - Brass and Woodwind Instruments

Unit IV - 12 slides - Percussion Instruments

School and Community Songs arranged for mixed voices.

Abide with Me - Monk

Alice, Where Art Thou? - Ascher

All Through the Night - Welsh Air

America - Smith

America, the Beautiful - Bates

Angelus, The - Flanders Folk Tune

Annie Laurie - Scotch Air

Anvil Chorus - Verdi

A-Roving - Old English Song

Auld Lang Syne - Scotch Air

Battle Hymn of the Republic - Howe

Bendemeer's Stream - Old Irish Air

Blue Bells of Scotland - Scotch Air

Calm As the Night - Bohm

Carillon - Loomis

Church in the Wildwood, The - Pitts

Columbia the Gem of the Ocean - Shaw

Comin' Thru' the Rye - Scotch Air

Crossing the Bar - Barnby

Crusader's Hymn - German Tune

Darling Nellie Gray - Hanby

Dixie Land - Emmet

Drink to Me Only With Thine Eyes - Old English Tune

Every Time I feel the Spirit - Spiritual

Faith of Our Fathers - Henry

First Noel, The - Traditional

Flow Gently Sweet Afton - Burns

Flowing River - Loomis

Frog He Would A-Wooing Go - Horn

Good Night Ladies - Old Song

Hail Columbia - Phyla

Hark, Hark, My Soul - Dykes

Hark, the Herald Angels Sing - Mendelssohn

Holy, Holy, Holy - Dykes

Home is Waiting - Croatian Folk Tune

Homeland - Gounod

Home Sweet Home - Bishop

I'll Sing Thee Songs of Araby - Clay

In Old Madrid - Trotere

In the Gloaming - Harrison

It Came Upon the Midnight Clear - Willis

I Would that My Love - Mendelssohn

Jingle Bells - Pierpont

Juanita - Spanish Melody

Killarney - Balfe

Lake at Night - Mozart

Largo - Handel

Laughing Song - Von Suppe

Life on the Ocean Wave - Russell

Lift Up, Lift Up Your Voices Now - Calkin

Loch Lomond - Scotch Air

Long, Long Ago - Bayly

Lost Chord, The - Sullivan

Love's Old Sweet Song - Molloy

Lullaby and Good Night - Brahms

Luther's Cradle Hymn - Luther

March of the Men of Harlech - Welsh Air

Marseillaise Hymn - De Lisle

Maryland, My Maryland - German Melody

Massa's in De Cold Ground - Foster

Merry Life, A - Denza

Minstrel Boy, The - Moore

Minuet, The - Mozart

Morning Light is Breaking - Webb

Music in the Air - Old Song

My Bonnie - Fuller

My Old Kentucky Home - Foster

Night's Shadows Falling - Fleming

Nobody' Knows the Trouble I See - Spiritual

Now the Day is Over - Barnby

O Come All Ye Faithful - Reading

O Day of Rest and Gladness - Mason

Old Black Joe - Foster

Old Folks at Home - Foster

Old Oaken Bucket - Kaillmark

O Little Town of Bethlehem - Brooks

Onward Christian Soldiers - Sullivan

On Wings of Song - Bartholdy

Our Flag is There - American Patriotic

O Worship the King - Haydn

Quilting Party - Old Song

Robin Adair - Scotch Air

Rocked in the Cradle of the Deep - Knight

Rock of Ages - Hastings

Santa Lucia - Neapolitan

Silent Night - Gruber

Silver Threads Among the Gold - Rexford

Soft Music is Stealing - German Tune

Soldier's Farewell - Kinkel

Stars of the Summer Night - Woodbury

Star Spangled Banner - Key

Sweet and Low - Barnby

Sweet Genevieve - Tucker

Swing Low, Sweet Chariot - Spiritual

Tenting on the Old Camp Ground - Kittredge

Wanderer's Evening Song - Rubinstein

Wearing of the Green - Old Irish Air

When Johnny Comes Marching Home - Lambert

Who Is Sylvia - Schubert

Yankee Doodle - Unknown

APPENDIX II

MOTION PICTURES RECOMMENDED FOR USE IN THE STUDY OF MUSIC

The following list of sound motion pictures for use in teaching music was compiled by Kenneth Ball of Oakland, California, and presented at the MENC Conference at Modesto, California, in 1947.

Explanation of abbreviations:

el. - suitable for elementary school students

jh. - suitable for junior high school students

sh. - suitable for senior high school students

Air for G String - Bach. 9 min. -- el., jh., sh.

With the music of a symphony orchestra being played, the Doris Humphrey group of four dances in an effective studio setting.

Andante et Rondo - Weber. 8 min. -- el., jh., sh.

Gregor Piatigorsky, noted Russian cellist, demonstrates his mastery of his instrument. Close-ups of the hands of the soloist and his accompanist.

Ave Maria - Gounod. 8 min. -- el., jh., sh.

With the organ music of Gounod's well known classic as a musical background, the camera focuses on interior shots of Canterbury Cathedral.

Brass Choir, The. 11 min. -- el., jh., sh.

Shows the place of the brass choir in the full orchestral setting with shots of each brass instrument in a solo passage. To illustrate, Beethoven's Fifth Symphony,

Mendelssohn's Midsummer's Night Dream Nocturne, and the finale of Wagner's Tannhauser Overture are played by the orchestra.

Carnival Romaine Overture - Berlioz. 10 min. el., jh., sh.

The Paris Conservatory Orchestra directed by Philippe Gaubert plays the composition. Close up photography of the various groups; stringed instruments, woodwinds, etc., as each takes up the theme.

Dance of the Hours from La Gioconda. 10 min. el., jh., sh.

An orchestra provides a musical background while the camera focuses on appropriate scenes from nature.

Der Freischutz Overture - Von Weber. 10 min. el., jh., sh.

Played by the symphony orchestra of the Paris Conservatory of Music, directed by Felix Von Weingartner, Full and close up shots of the various choirs and individuals of the orchestra.

Dilling, Mildred, Harpist. 11 min. el., jh., sh.

Miss Dilling's technical proficiency is illustrated at her instrument as she plays "The Fountain," (Zabel) "Fireflies," (Hasselman) and "March of the Men of Harlech," arranged by John Thomas.

Faust - Gounod . 11 min. jh., sh.

Sections of the first act of the opera with Faust's soliloquy, "Interrogo Invano," and his duet with Mephistopheles, "Ma el Ciel." The action on the stage is interrupted several times to spot the camera on the occupants of a box.

Hungarian Rhapsody, No. 2 - Liszt. 11 min. el., jh., sh.

Oscar Fried directs the Paris Conservatory of Music Orchestra. Full and close up shots of individuals and groups.

Idol of Seville - Bizet. 20 min. jh., sh.

A condensation of the opera "Carmen" in English. As a film, it is interesting to young audiences, unfamiliar with opera, to see the substitution of a song for speech to secure a dramatic effect.

Iturbi, Jose, Pianist. 11 min. el., jh., sh.

Shows this famous guest conductor of the Philadelphia Orchestra and internationally known pianist as he plays three pieces on the harpsichord by Jean Phillippe Rameau and a piano rendition of Liszt's Eleventh Hungarian Rhapsody.

Percussion Group. 11 min. el., jh., sh.

Full orchestral accompaniment is used to show the playing techniques of the tom tom, snare drum, bass drum, tambourine, cymbals, chimes, gong, castenets, triangle, bells, xylophone and celesta. Excerpts from Tschaikowsky's Nutcracker Suite, Fourth Symphony, and Marche Slav; Wagner's Die Walkure and Tannhauser Overture; and Schubert's Marche Militaire.

Rhythm in Light. 5 min. sh.

To bring out the theme that the artist uses visual materials as the musician uses sound. Sound background

of Edward Grieg's music with a pictorial accompaniment of abstract forms. The modern artist's impression of what goes on in the mind while listening to music.

Song of a Nation. 19 min. el., jh., sh.

Filmed in technicolor. The story of the writing of the National Anthem.

Songs of Stephen Foster. 11 min. el., jh., sh.

A film that invites community singing by employing singers dressed in Southern costumes of the period against a plantation background. Includes "Oh Susanna," "Beautiful Dreamer," "Jeannie With the Light Brown Hair," "Old Folks at Home," "Captetown Races," and "My Old Kentucky Home." Words to the songs are flashed on the screen.

Sound Waves and Their Sources. 11 min. sh.

Several types of sound sources, including the vocal organs. Visualizes the transmission of sound waves through the air. Explains, with acoustic accompaniment, frequency, amplitude, wave length, fundamentals and harmonies. An oscilloscope helps to clarify the phenomena portrayed.

String Choir. 11 min. el., jh., sh.

Demonstrates types of bowing and pizzicato, and the finger techniques of violins, violas, cellos, and contrabassi. Portions of Schubert's Rosemonde, Tschaikowsky's Fourth Symphony, Mendelssohn's Violin Concerto,

Rossini's William Tell Overture, and Schubert's B Minor Symphony.

Symphony Orchestra. 11 min. el., jh., sh.

Shows the relation of the composer and conductor to symphonic music and the various choirs that make up the orchestra. Illustrates the techniques of the conductor. Employs the Ride of the Valkyries and the Prelude to Act III of Lohengrin to develop and adequate understanding of the organization of the symphony orchestra.

Valse Brilliante - Scopin. 8 min. el., jh., sh.

The pianist, A. Brailowsky, is photographed from many angles to show his technique.

Vendetta. 21 min. jh., sh.

Tabloid version of the opera "Cavalleria Rusticana" in English. Highlights of the opera are contained to produce a popular version.

Woodwind Choir. 11 min. el., jh., sh.

Shows the individual tone qualities of the various woodwind instruments and something of their playing techniques. Excerpts from Brahm's First Symphony, Mendelssohn's Midsummer Night's Dream, Rossini's William Tell Overture, Von Weber's Der Freischutz Overture, Beethoven's Third Symphony, and Brahm's Fourth Symphony.

The Children's Corner - Debussy. 9 min. el.

Alfred Cortot, concert pianist, plays "Serenade for the Doll" and "Golliwog's Cake Walk" in a little girl's playroom. At her usggestion various toys and playthings take up the rhythm of the music.

Feuermann, Emanuel, Cellist. 8 min. el., jh., sh.

The famous cellist soloist with the New York Philharmonic plays "Rondo, Opus 92" (Dvorak) and "Spinning Song" (Popper). Close ups show fingering techniques.

Gorin, Igor, Baritone. 8 min. el., jh., sh.

Igor Gorin, well known concert artist, sings the "Largo Al Factotum" from the "Barber of Seville" by Rossini. It is suggested that before this film is shown, an explanation be made of the character of Figaro in the opera.

Gypsy Revels. 11 min. el., jh., sh.

The film reproduces music as known in the inns and music halls of Czarist Russia. Yasha Bunchuk, with orchestra and singers, in costume, play and sing "Dark Eyes," "Sighing Winds," and others. Also includes a Russian Gypsy Group.

Ave Maria - Schubert. 7 min. el., jh., sh.

Elisabeth Schumann, opera and lieder singer, presents the "Ave Maria" with photographed background of orchestral instruments and religious settings.

Vronsky and Babin - pianists. 8 min. el., jh., sh.

The artists at two pianos play "Waltz in A Flat" (Brahms), "Valse" (Arensky), and "Flight of the Bumble Bee" (Korsakoff). Close ups of the piano keyboard show the artists' technique.

Strauss, Johann. 9 min. el., jh., sh.

An old print containing several numbers by this composer and a brief sequence of Strauss (impersonated) conducting the "Blue Danube."

Fantasie Impromptu - Chopin. el., jh., sh.

Jose Iturbi plays "Sevilla" (Aleniz) and "Fantasie Impromptu (Chopin).

Archaic and Unusual Instruments 10 min. el., jh., sh.

Evaluation of instruments from man's first crude attempts to organize sound, a musical mousetrap made of nails, a harmonica made of bottles, through the precursors of the piano, the spinet, the octavino and virginal, down to the latest attempt to improve on the piano, the nuance.

Violins and Cellos. 10 min. el., jh., sh.

J. C. Freeman, curator of the Wurlitzer collection, shows the world's most priceless violins and cellos, Benno Rabinoff, noted violinist, and Beneditaky, concert cellist, play, providing close ups of their fingering technique.