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## Multimedia Documentation Review



### **A World of Sound and Music: Music Therapy for Deaf, Hearing Impaired and Multi-Handicapped Children and Adolescents** Claus Bang

Reviewed by Claus Bang

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*A World of Sound and Music: Music Therapy for Deaf, Hearing Impaired and Multi-Handicapped Children and Adolescents*

Multimedia documentation on 3 double layer DVD+Rs in Danish with Sign Language, in a DVD box (2005) and online multimedia documentation in English “*A World of Sound and Music*” with International Sign Language (2008).

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**Note of the Editor-in-Chief:** This multimedia documentation was originally presented online by the author at the 6<sup>th</sup> Nordic Music Therapy Conference “Sounding Relationships”, 30 April – 3 May 2009, at Aalborg University, Denmark.

### **Introduction**

In 1998 I retired after thirty-seven wonderful years (since 1961) of employment as a music therapist and audio speech therapist. During those years I worked at the Aalborg School in Denmark, Training and Guidance Centre for deaf, hearing impaired and deaf-blind children and adolescents, and in between as a lecturer and presenter of our music therapy programmes in forty-two countries

around the world. Since my retirement, however, I was urged by my music therapy colleagues at the Aalborg University to collect, document and pass on the scientific theory and practical experience that I have acquired during five decades of therapeutic and educational work with approximately five thousand children and adolescents.

“Retired” was perhaps not the correct word, because since then it has been my wish and my work to pass on these experiences from a life’s work in music therapy so that it could be easily accessed by music therapists, music teachers, speech and language therapists, physiotherapists, occupational therapists and other clinical professionals. This work is also directed towards parents, teachers and carers in children’s homes, social centres and youth groups, as well as many others within the multidisciplinary teams working with these children and adolescents.

In 2005, and in cooperation with the Aalborg School and Aalborg University, the Music Therapy Association “A World of Sound and Music”, which I co-founded in 2000 and still chair, published a multimedia project on three dual layer DVD+R’s in Danish with Sign Language. This multimedia documentation is intended for PC and includes material for treatment, education, training and research in music therapy for deaf, hearing impaired and multi-handicapped children and adolescents. The multimedia documentation comprises work with children and adolescents, aged two to twenty-one years old, with a hearing impairment (e.g. deaf, hard of hearing, with a cochlear implant), learning disability, multiple disabilities (e.g. deaf-blind), physical disability, mental retardation, developmental disability, behavioural or communication disorders. It also contains a wide range of both individual and group music therapy approaches including auditory training and training in sound-perception, musical voice treatment, speech- and song therapy, dance and movement, drama, as well as instrumental and orchestral work.

In the spring 2008, after three more years of hard work, the Association was able to establish the finances for the online version “A World of Sound and Music” in English with International Sign Language along with an online version in Danish: “En verden af lyd og musik” with Danish Sign Language. They are each in an extent of 27 Gigabyte and therefore the most comprehensive multimedia documentations in the field of music therapy, which were presented at the 6<sup>th</sup> Nordic Music Therapy Conference at Aalborg University in spring 2009. Currently on our website ([www.clausbang.com](http://www.clausbang.com)) a German version is also presented, while by the beginning of November 2009 a Spanish version (“Un mundo de sonido y música”) will be included.

“A World of Sound and Music” includes nine chapters (chapters A to I) with material for treatment, education, training and research. Below I will present each of these chapters by describing their contents and providing occasionally some

theoretical background and information. However, this is not intended to be a theoretical or research paper. It is rather intended to be a review of this multimedia presentation. This review takes the form of presenting a life’s work “A World of Sound and Music” in a personal way where personal experiences, stories and theoretical information are interwoven. In this way, I start by sketching briefly my own personal background and journey into music, music therapy and music education.

### **Personal background and journey**

My own musical life started at the age of four with piano and accordion lessons. Soon I started being able to bring relaxation in my severe attacks of asthma through playing classical music (mostly Chopin on my piano), while the accordion showed me how to breathe. Later on, and after having graduated on my way to the conservatory, I had a dream of becoming a professional concert pianist. However, I thought of ‘securing’ my future through a teacher training, still concentrating on the most important thing in my life: music.

When I tried to play Beethoven’s late compositions, I was challenged by the fact that he had composed them after being profoundly deaf since his early thirties. Beethoven wrote in his Heiligenstädter will – his ‘testament’ – that he felt like an outcast, isolated by the community. Surely he was facing great difficulties being deaf and at the same time severely impaired in perception, communication and in social prospects. I wondered how he was able, still in the most exceptional and divine way, to think in these outstanding musical terms, when not being able to hear the music. Beethoven was my challenge.

On the 1<sup>st</sup> of May 1961, at the age of twenty-two, I was employed at the Aalborg School and Guidance Centre for the Hearing Impaired, Deaf and Deaf Blind under the auspices of the Danish Ministry of Social Welfare and started out with music. That was the first music programme of its kind in the Nordic countries. From the very first day the children responded actively to the music I played on the grand piano. They leaned against it, climbed on the top of its cover, or even under the cover! The music was perceived in their bodies instead of the ears, or as a supplement to their residual hearing. Therefore, music stimulated responses from the children’s voices and influenced in a new way the verbal monotony by the children who could not hear their own voices. The music had a pedagogical as well as a therapeutic effect, but at that time we called it “music education”. Later, in 1969, Dr. Paul Nordoff and Clive Robbins described my work in music with children and adolescents at the Aalborg School as “music

therapy". After that our music-programme gained new aspects especially with focus on the children and adolescents with additional limitations and more specific needs.

In this presentation I am not able to share with you all the memories from that time. On the multimedia project however, which I present here, they are all collected and presented along with a long list of documentations from my work in the years until 1998 – the year of my retirement from the Aalborg School.

Since then it has been my wish and my work to collect, document and pass on the knowledge and the experience I acquired during almost five decades of therapeutic and educational work in cooperation with these children and adolescents at the Aalborg School and around the world, where our work has met interest and formed programmes of benefit to children and adolescents with deafness, hearing impairment and further limitations of function.

I have always tried via the music to show the talents of our children which, musically seen, are fully equal to those of the normally hearing ones. The children that I have worked with, from the age of two to twenty-one, were always enthusiastic with experiencing their own achievements and this has confirmed my idea that other people should have such an experience. I am referring to music therapists, music teachers, speech and language therapists, physiotherapists, occupational therapists, teachers and carers in children's homes, social centres and youth groups and many others within the multidisciplinary teams, as well as to the parents, whose role is central.

The parents' consent to use material from the participation of their children, as well as the support from my adolescent students has made it possible to gather all this material in "A World of Sound and Music", which I have dedicated to my students and their families. Therefore all introductions, radio and television broadcastings are naturally interpreted in Danish Sign Language and International Sign Language. Of course, I should also mention that this extensive multimedia production has only been made possible by virtue of the enormous good will in the shape of grants and donations to the project from different ministries and funds.

"A World of Sound and Music" contains primarily music therapy in practice and documentations of its effect compared with statements of the theoretical background. It is my hope that the use of an interactive, audio-visual medium will give the finest potential for presenting its wide range of material and will provide an experiential basis for communication, treatment, education, training and research. I hope that this

will also be an inspiration and significant contribution to the development of teaching, therapy and treatment methods for children and adolescents for whom music is therapy; for whom music therapy opens new perspectives and enhances their quality of life in "A World of Sound and Music".

## Chapter A: Profile

The first chapter of this multimedia documentation is a presentation of my personal context, as well as of my work as music therapist and audio speech therapist at the Aalborg School and around the world. It opens with the DR-TV programme "You and the Music", which in 1978 was the first large television programme about music therapy at the Aalborg School. This programme shows many different musical activities, as well as interviews with deaf and hearing impaired individuals about their experience of music therapy.

After that, a series of radio and television programmes follows, where I explain my view on music as therapy with recordings of individual and group therapy.

On the occasion of the 3<sup>rd</sup> European Music Therapy Conference in Aalborg in 1995 the TV2/Nord brought TV programmes about the conference and about the music therapy work at the Aalborg School, at Aalborg Psychiatric Hospital and about the music therapy training at Aalborg University.

This first chapter includes a series of my articles and publications in Danish, Swedish, Norwegian, English, French, German and in other languages. Moreover, a Music Therapy Diploma Project from Aalborg University about the Sprybemus method and the Claus Bang method, and a Teacher Training College Project "Deaf - Body & Music" is presented.

My work as the vice-president and instructor for "The Beethoven Fund for Deaf Children" since 1981 is illustrated by two BBC-TV programmes about the work in Great Britain.

In Germany, I have been a lecturer, instructor and Member of the Board for the International Society for Further Training in Music Education (I.G.M.F) since 1976. In connection with this work, video programmes have been produced containing my demonstrations with severely multi-handicapped children in Germany and with deaf and hearing-impaired children and adolescents in Switzerland. The first chapter concludes with literature lists, links and references.

## **Chapter B: Kindergarten and pre-school (3-6 year old children)**

To those with normal hearing, sound is an auditory perception. The sound waves however can reach us in other ways, too. They can be felt through the skin and the bones in all parts of the body, in addition to the ears.

To the deaf child music is thus primarily a series of vibrations, which are perceived and transported to the brain along other lines than the auditory organ and the hearing aid. Nonetheless, these vibrations can carry rhythms, sounds and melodic sequences, and cause reactions in the deaf child leading to activities of great value to him/her.

The deaf child's experience of music is different from that of those with normal hearing. By touching the sound-source (e.g. by sitting on the loudspeaker, by feeling the vibration on the floor, by touching the musical instrument or by touching his/her own or another person's voice apparatus - the larynx) the child will have a contact-vibration-sensation of sounds, speech, song and music. But even at a distance from the sound-source, the deaf child can perceive the sound as sound-perception, as sound-waves created by the vibrating sound-source and transmitted through the air. Sound can be felt through the skin and the bones in all parts of the body, even in the ears. The lowest tones are perceived in lower parts of the body (i.e. in the feet, the legs and the pelvis), while tones of higher frequency are perceived in still higher parts of the body (i.e. in the chest, the throat and the head) which means also in the ears, even if the child has been born as profoundly deaf. This means that, from the feet to the top of the head, the human being, and especially the deaf, is sensitive to musical sounds. This sound-perception cannot be compared with what we hear, but it enables the deaf child to be in contact with the surrounding world of sounds and in some extent, even in some cases to a high extent, to be able to compensate for the missing hearing.

The fact that the rhythms and tones are experienced from within as vibrations connected with the auditory input (i.e. kinaesthetically and auditory, rather than visually), gives rise to a spontaneous desire of the deaf and hearing impaired person to transform the perceived rhythmical-musical influence into their own form of expression (i.e. movements, mimicry, speech and singing).

Music therapy in kindergarten and pre-school is in close cooperation with the correspondent teachers. The work presented in this chapter comprises auditory training and sound perception with the vibration-bench, drums and tone-bars, training of the accents in music and speech, exercises in phonation with wind-instruments (e.g.

reed-horns), musical voice treatment, speech therapy and articulation with tone-bars and spectral converter, response-training, expressive movements to music and further more.

All this happens as a play-game with content and structure, with the purpose of developing the deaf and hearing impaired child's consciousness about the world of sound. This includes an auditory training of the residual hearing, an improvement of a rhythmic-melodic voice and speech, an increased control in movements of the body, eye-hand coordination, an improvement of body-consciousness and apprehension of form, as well as a development of joy in creativity and social behaviour.

## **Chapter C: Children in class groups (7-12 year old)**

The children in chapter C are in class-groups. Music therapy has, from first to fifth class, become an integrated part of their education in cooperation with the class-teacher, speech therapist, art teacher and other members of the multidisciplinary team. Our music therapeutic work aims, among other goals, at:

- promoting interaction, communication and social skills,
- enhancing speech, language and learning,
- promoting motor, sensory and cognitive skills, as well as
- supporting musical training and development.

In this framework, we try to motivate the children to enhance their creativity, to expand personally and develop new interests. Through movement, dance, drama and group instrumental playing we try to develop self-reliance and self-discipline, as well as cooperation and social living together.

Music gives our children significant emotional experiences and realizations. It focuses on their talents, instead of their problems and limitations which might be a result of the hearing loss or further reduction in function. So, music is self-reinforcing as children experience through it success.

In music therapy however music is not considered as a goal in itself. Music is one of the most important pedagogic and therapeutic means of developing an acoustic-visual-motor unity. It is an optimum means of communication in a world of entirety, which is also for the child or adolescent, who does not hear as people do mostly, but nevertheless is in "A World of Sound and Music".

Deaf and hearing impaired children, and that counts also for the normally hearing children, can learn the language in the best way, understand it fully and thereby communicate in an optimum way,

by expressing the language through verbal action. Only when a child actively carries out the action described in the language, is the content understood completely. Children however can also learn through musical action.

In our efforts to teach the children to experience music with an active listening-perceiving relation to it, we use musical auditory training, voice treatment and speech therapy. Here we use, for example, tone-bars and spectral converter, songs with "Children's Play Songs" (by Nordoff and Robbins), rhythmic, expressive movements and dance, rhythm and note reading, as well as instrumental work with various musical instruments.

Especially for deaf and hearing impaired children and adolescents, music activity and active listening to music can produce functions supporting the acquisition of language, attention and perception, as well as the transfer of movement to sound and vice versa (i.e. an experience of the unity of language, music and movement).

#### **Chapter D: Voice treatment, speech and song therapy**

The voice material of the deaf and hearing impaired child and his means of communication has throughout the years been the main point of my work in music therapy at the Aalborg School and around the world.

Chapter D focuses on voice work, which comprises all groups of children from kindergarten to the upper classes. In this sense, this chapter is considered as one of the most comprehensive and central of this multimedia production.

Speech is one of the most rhythmical and musical human activities. At the same time, speech and language are the most valuable instruments for communication and memory. Therefore working with deaf and hearing impaired children's speech and language is most essential. One of the additional difficulties in the case of deafness and hearing impairment is that the control of the voice is lost completely or partially, often resulting in monotonous or forced, strained and squeaking voices. This is to a high extent hampering these children and adolescents in their communication with those who are able to hear.

Music and language offer so many points of resemblance that the basic elements of music can be employed as a means of teaching the hearing impaired children and adolescents to break verbal monotony, to speak rhythmically and melodically, and this way develop their communication skills.

The crux of the music therapy programme at the Aalborg School is therefore voice treatment, speech training and language stimulation through music; musical speech therapy, which starts when the

children are two or three years old and is then integrated into the daily teaching of articulation and speech with co-operation between parents, advisers, teachers, speech therapists and the music therapist. By this form of therapy we try to improve the voice levels and the voice qualities of the children. At the same time we systematically teach the accentuation in intensity, duration, pitch and intonation by utilizing the children's residual hearing by means of hearing-aids, the ability of sound-perception in the whole body, and the contact-vibration sense, particularly in the limbs.

In musical speech therapy a great number of special musical instruments are used, such as Sonor tone-bars (see picture 1 and 2), the frequencies of which are from 64 Hz to 380 Hz - a range that the majority of the deaf people have some residual hearing. This means that the residual hearing can be activated to a certain degree and utilized through work with the tone-bars which possess very specific acoustic-vibratory qualities. The children usually like the tone-bars very much, because their sound is heard in the hearing-aids and felt all over the body. Among other things, the use of tone-bars has given remarkable results in the form of sonorous voices at a good level, which is more easily understood and better heard in both the children's own hearing-aid and by their normally hearing peers.



**Picture 1: A deaf girl with a tone bar close to her throat**



**Picture 2: A deaf child playing and vocalising the tone**

In this chapter you will find articles and publications in Danish, Swedish, Norwegian, English and German. There are radio and television broadcastings among other things about the cooperation with Aalborg University and my research project on “Physiological Sound Functions, Perception and Reproduction of Sound in Profoundly Deaf and Normal Hearing Children Exploring the Use of Tone Bars in Sound Analysis and Musical Speech Therapy” (Bang 1973-1976). This research project started at the beginning of the 1970’s through my investigations on the effect of certain musical instruments. This project, which was the first Nordic research in music therapy, was granted by the Danish State Research Council for the Humanities and the Institute for Phonetics University of Copenhagen, while its results determined the effect of the tone-bars in musical voice treatment and speech therapy for deaf and also for hearing children. Since then the sound therapy with tone-bars has become a central part of musical voice treatment and speech therapy.

Chapter D also contains a long series of cases with deaf and hearing impaired children and adolescents in sound and song therapy, where you will find my translations and publications of Paul Nordoff’s and Clive Robbins’s “Children’s Play Songs” in the three Nordic languages with sheets of music and studio-recordings (Bang 1972). In this part of the chapter you will also find many other types of the use of songs in therapy also with sign-language.

The tone-bars are demonstrated in praxis and in sound-diagnostics with children. The examination of the effect of the tone-bars in sound and spectral-analysis are demonstrated through research recordings and results, which are documented in sound-files and graphs with explanatory commentaries. The chapter concludes with a demonstration with the use of new ethnic instruments from Schlagwerk-Percussion and of the spectral converter in musical voice treatment and speech therapy.

In all this we must not forget that the sign-language is the mother-tongue of the deaf child, even if I have leaned very much to the oral element in my work. When both of my hands were often on the piano keys or holding another musical instrument, the rhythmic-melodic sound of my voice, the mimicry, the natural gestures, dancing games and play-songs with the music had built many bridges across the communication gaps.

### **Chapter E: Multi-handicapped children and adolescents (3-16 years old)**

Fundamental human features are contained in the various ways of experiencing music, whether one

has special needs or is typically developed. All persons, even children and adolescents with profound and multiple learning disabilities, respond to musical stimuli and so they are all musical to some extent or another. From this perspective, in music therapy we meet everyone as musical beings.

In the most profoundly deaf person and in the person with severe additional reductions of function of motor, sensory or emotional character, a musical being can be found and this being has the right to be granted the opportunity to be included in participation in music. Through music therapy we try to bring the person out of the isolation caused by the reduction of function or disability.

Music can establish contact without language and through music therapy we find unused potential in other communicative paths that enhance the development of language. Since music produces a means of communication of a predominantly emotional and non-verbal character, it has great application exactly where verbal communication is not possible because the spoken language is not fully developed or understood.

To all people, but in particular to people with a communication disorder, listening to music and music-making means communication. Music appeals to the human being as a whole and influences the total personality in a way different from other forms of therapy (e.g. speech and language therapy).

Music therapy work with children with a hearing impairment and multiple disabilities is varied and differs highly because of the extensive individual considerations taken into account. We must concentrate on how music therapy can develop the potential of the individual child. Consequently, towards the end of the 1960s, we introduced at the Aalborg School an individual music therapy programme for our multi-handicapped children, in particular, to serve as an alternative to and a preparation for possible later musical group work.

In this work the most important purpose of all is to procure conditions of life acceptable to children with special needs, where they have the possibility for self-expression and communication. What is essential in these cases is to find a way of opening up their music experiences and activating them “within the music” by means of developing various means of expression that are possible for the children (i.e. breathing, singing, mimicry, body movements or beating a drum).

Often music has turned out to be the only practicable way to obtain therapeutic and pedagogic results, especially as for improvement of the child’s condition and his potential in communication, perception, action and social prospects. We are able to move ahead in music therapy as far as the

children's potential allows. But the music must be adapted to the child, not the child to the music. The aim of the music therapist is therefore centred on the person, and is not starting out from the music. Therefore, music activities are planned and chosen according to the specific needs and possibilities of each person. One of the most important points of music therapy is to concentrate on the individual person by taking under consideration their problems and difficulties, but indeed, and maybe first and foremost, their possibilities and potential (see picture 3).



**Picture 3: Spectral converter and two multi-handicapped children with tone-bars**

Chapter E includes many cases of children and adolescents with multiple disabilities, all of them exceptional musical personalities, in individual and group therapy, in musical speech and song therapy, in dance, as well as in instrumental and orchestral work. At the end of the chapter there is a recording on the subject and a demonstration with severely multi-handicapped children in Pforzheim, Germany. Finally, there are recordings from an individual music therapy case. This case shows my work with the first multi-handicapped child that I had the chance to work with individually in 1971.

#### **Chapter F: Deaf-blind children and adolescents (3-20 years old)**

The Aalborg School was the first place in the Nordic countries, in the late 1960s, where music became part of the treatment and education of deaf-blind children and adolescents arranged according to the diagnosis and specific needs of each person. This form of individual music therapy was inspired by the American-English music therapists Dr. Paul Nordoff and Clive Robbins and broke new ground.

One of the most important therapeutic principles in this work is to build on what already exists in the child and make it appear in the consciousness of the child. These means of expression can be breathing,

vocal sounds, speech, song, mimicry, signs, body movements, beating a drum and so on. It is necessary to be flexible in regard to instrumental methodology, because of the difficulties in co-ordination, hearing loss, field of vision, apprehension of space or physical restrictions, which may demand a simplification of the task.

Music is one of the best ways of keeping the attention of a human being, because it is a constant mixture of new and already known stimuli. The active and attentive condition, which can be obtained through adapting the music to the person's responses, is an excellent resource for all kinds of learning.

We regard music, among other things, as a form of structured sound, just as in language, and musicality as the ability to respond to the musical stimulus and to create music by ourselves. The person who is listening, or perceives with other senses the innumerable variations of those musical sounds, is himself creating music (see picture 4).



**Picture 4: A deaf-blind child on the piano**

It is crucial in music therapy to motivate and stimulate the child to an achievement and then support and stabilize this new development in any imaginable way. During the music activities, I have felt and listened as a music therapist into children's music, 'tempting' a development and trying to reinforce this new development.

In my work with the deaf-blind children and adolescents in the Deaf-blind Department at the Aalborg School and in the Youth Centre for Deaf-blind, neighbour to the Aalborg School, I met in music therapy a series of outstanding personalities, all of whom contained a wonderful musical human being. In chapter F some of them are shown in individual therapy with drums by the piano, on the vibration-bench, where they feel rhythms and music, in song therapy, in sound therapy with tone-bars and in dance on a wheel-chair.

Music therapy with the deaf-blind children and adolescents is also the theme in a broadcasting, while the chapter concludes with recordings of individual therapy cases with three deaf-blind girls in the years from 1971 to 1975, which were some of the first attempts of individual music therapy work with deaf-blind children and adolescents.

### **Chapter G: Movement and dance therapy, drama**

Particularly during the first years of life, sounds and music are perceived directly by the body. This is also true even to a higher degree with the hearing impaired child who compensates for the reduced hearing, and as a supplement to limited residual hearing, is perceived by his whole body. Therefore music and movement are inseparable.

Formerly, the deaf children were often designated as “eye-creatures” because of their auditory problems they rely strongly on their visual resources. Music therapy with these children unmistakably confirms that the best way to bring about a visual and an auditory combination is by the use of the motor element. Thereby, we experience the deaf person as a total being who receives through music a multi-sensory impact on all his/her senses.

By means of the musical activities, the child with special needs has the possibility of expressing feelings and ideas, which he is not yet able to express in words or in a bodily way (i.e. through mimicry, sign-language). The child has a possibility of co-ordinating their voice with music and movements in a relaxed spontaneous way, while the articulation difficulties, for the time being, are insignificant. Stimulation through physical action and motor training contributes to the initiation of linguistic development. The awareness by the child or adolescent of his body and of his motor functions, the kinaesthetic perception and feedback is extremely important for auditory perception and linguistic skills.

Chapter G shows the children and adolescents, from three years old in the kindergarten “Bambi” at the Aalborg School up till the upper classes, participating in activities of sound perception and accentuation of sound and music. It shows the use of the vibration-bench, motor exercises and expressive movements from our Rhythm-Programme for Movement and Speech Stimulation, as well as other rhythmical and creative dance activities.

In the musical adventure “A Journey to the Moon” play, movement and drama help to increase the capacity for concentration of the children and their ability to transform sound impressions into

movements and feel joy in the co-operation with the others in the group.

The musical “Pocahontas” was a result of the successful interdisciplinary teamwork between the music therapist, class teachers, the speech therapist and the art teacher (see picture 5). Children took part in this positive teamwork between different groups in speech and song accompanied by sign-language to their own manuscripts and in self-created costumes and scenes.



**Picture 5: Pocahontas dance and drama**

The so far greatest challenge came in 1980, where nine deaf adolescents from the Aalborg School (Denmark) together with nine deaf adolescents from the Samuel Heinicke School for Deaf in Hamburg (Germany) opened the International Conference on Education and Training for the Deaf in Hamburg Congress Centre with three thousand delegates from eighty different nations in the audience.

My very best dance, however, I had with Anne Marie with deaf-blindness and cerebral palsy from the Youth Centre for the Deaf-Blind. On her wheelchair she taught me her own personal and beautiful interpretation of what a dance can also express.

### **Chapter H: Instrumental and orchestral work**

Most children and adolescents who are deaf can through the hearing aid distinguish sound from



musical instruments, especially in the lower frequencies, where even the profoundly deaf may have a small residual hearing. They can discriminate differences in the most important elements of music, which are intensity, duration and pitch, as long as the difference is of a certain extent.

Since 1961 I have investigated and researched the effect of musical instruments and how they are experienced by deaf and hearing impaired children and adolescents. All deaf children and adolescents perceive the sound of drums, while they generally perceive the sound from a wooden instrument better than metal sound (e.g. they perceive the sound of xylophone better than the sound of metallophone). The deaf and hearing impaired prefer low sounds from tone-bars in rose-wood in the frequency area from 64 Hz to 380 Hz, simply because they are heard and felt better. That is the reason why a large selection of different wooden instruments with low sounds is presented in the instrumental and orchestral work of this chapter.

The music instruments that I often use in music therapy have a span from 32 Hz up to 4.096 Hz, namely from 3 octaves below middle C up to four octaves above middle C. From my experience with deaf people, 32 Hz is felt mostly in the feet, 64 Hz around the knees, 128 Hz in the pelvis, middle C with 256 Hz in the chest, 512 Hz in the throat and 1.024 Hz in the head. Higher frequencies are often felt on the crown of the head and the hair. A very profoundly deaf girl told me once, that the highest tone from the soprano-glockenspiel (i.e. four octaves above middle C, 4.096 Hz) tickled her in the eyebrows. At the same time music in that frequency range is an outstanding means to activate and utilize the residual hearing through the hearing-aid. Consequently musical instruments are indispensable in auditory training and training in sound-perception.

So, music is more than “just music”, and musicality has not only to do with the auditory skills. As the late Danish professor of music, Gunnar Heerup, once said: “Musicality is not a special talent. Musicality is part of the common intelligence”. I would like to add: “All this lives not only in the ears, but in the brain and the soul”.

In this chapter we will meet many of the children and adolescents in this work with instruments, individually and in groups playing together (see picture 6). The first television programme from the music therapy at the Aalborg School was “You and the Music” in 1978. After that you will find a series of activities, such as: rhythm-groups, orchestra with Orff-instruments, playing on the organ, guitar and drums and finally

improvisation on new ethnic instruments from Schlagwerk-Percussion.



**Picture 6: Orchestral work “Amazing Grace”**

In an extraordinary part you will get a good idea of the sound analysis made on some of the instruments and illustrated in the spectral converter. This analysis is thoroughly described for research purposes in chapter D.

From the orchestral work you will find the concert performed at the opening of the International Conference on Education and Training of the Deaf in Hamburg in 1980, my thirty-seventh and last Christmas concert in 1997 and finally the farewell concert on the 14<sup>th</sup> of August 1998, where all students at the Aalborg School along with my colleagues and me marked my round day and my farewell to the school.

At the end of my workshop in I.G.M.F. in Germany in 2001 the participants played a series of my music arrangements. These arrangements have been made accessible as PDF files in the multimedia documentation “A World of Sound and Music” by my successor, music therapist at the Aalborg School, Kent Lykke Jensen.

## **Chapter I: Four decades in music therapy: A retrospect**

This final chapter looks back on the building and further development of the music therapy programme at the Aalborg School through four decades from the 1960s until the 1990s.

As I explained previously, when I was employed at the Aalborg School in 1961 there was no music on the timetable, like in all other Nordic schools for the deaf. I found it was a great lack in the schooling of the deaf and hearing impaired and in their life in general. So, I decided to take the challenge and to try to do something about it. The motive power was my delight for children and for music, and I always had in mind, that Beethoven became deaf in the middle of his unbelievable career as composer, but

continued to create immortal music, even when he was profoundly deaf.

Study visits in Germany, Holland and Austria in the years from 1961 to 1965 gave me inspiration to the building of a music programme with rhythmical-musical education and dance.

By means of well preserved audiotape recordings since 1961 and videotape recordings since 1968 (therefore in black and white) we get in this chapter an insight into the work with rhythm and dance (see picture 7). This work was called “music education” in the 1960s. But when Dr. Paul Nordoff and Clive Robbins, during my study with them in 1969, heard and saw these recordings of mine, they described them as “music therapy”. The music made by the students and me at the Aalborg School had not only a educational, pedagogical effect and purpose with “music as a goal in itself”, but also a therapeutic effect and purpose with “music as a means”. It was music therapy! The same year the Danish Society for Music Therapy was founded and I had the privilege to be co-founder.



**Picture 7: Deaf children around the piano in concert**

By the celebration before Christmas in 1969 the deaf, hearing impaired and multi-handicapped children at the Aalborg School presented a Danish first performance of “Goldilocks and the Three Bears” - my translation and adaptation of the Nordoff Robbins production, in a multimedia performance (Bang 1972). Then, in 1970 the music therapy programme at the Aalborg School was presented for the first time by the International Congress on Education of the Deaf which was held in Stockholm.

In the same period we introduced the use of songs in therapy following the Nordoff-Robbins method with my translations and adaptations of their “Children’s Play Songs” into Danish, Norwegian and Swedish editions (Bang 1972). In 1977 the Aalborg School celebrated its twenty-fifth anniversary with music and dance. In 1982 I published “Rhythms for Children for Movement and Speech Stimulation” (Bang 1982) and at the

same time the music therapy work in kindergarten and pre-school was intensified. By documenting the effect of different musical instruments in the music therapy programme we succeeded in extending the entire instrumentarium to comprise also specific music-therapeutic instruments.

In the 1980s we had one weekly music therapy session and one dance session on the timetable for all classes at the Aalborg School and our music therapy programme became a basis for other schools. In the 1990s the interdisciplinary teamwork between the music therapy and other teams at the Aalborg School flourished. This decade is on the focus of the previous chapters.

### **Concluding reflections**

The most important duty for me as a music therapist has always been by means of music to try to give these wonderful, individual, exceptional and outstanding personalities, the optimum potentials to discover themselves as being on the same level and of value to the others. With these efforts in the meeting with all the children and adolescents I have been privileged to share experiences in music with them.

The thousands of children and adolescents I have meet at the Aalborg School and around the world in the forty-two countries I visited, and with whom I have had the great privilege to share my life, have given me extensive human experiences and values as long as time goes by. Therefore, I am thanking all the children and adolescents, their families, as well as my colleagues, staff and the direction at the Aalborg School for the good cooperation throughout the past decades, which now, forty-eight years after that it all began, has made my life’s project “A World of Sound and Music” possible.

Looking back, I must say that all my hopes and more than that have come true. One of the main aspects is that music has expanded within multidisciplinary teams, which are nowadays a reality and guarantee for the future of our profession.

In concluding I would like to wish you all, dear friends and colleagues, meaning in all the remaining years of your life. Meaning is something we build into our life, starting fairly early and working at it fairly hard. We build it out of our own past, out of our affection and loyalties, out of the experience of mankind as it is passed on to us, out of our own talent and understanding, out of the things we believe, out of the people and things we love, and out of the values for which we are willing to sacrifice something.

The words ‘faith’ and ‘hope’ has followed me all my life. For me faith means believing the

unbelievable, and to hope means hoping when things are hopeless. I have great faith and hope for the future of music therapy and for all the people we meet in music throughout the world and who have a potential for development and enrichment in life through music as therapy. We are all musical, and music is the only language in the world which is understood by all people.

For them, as for you, dear colleagues and friends, and for me: "To hope is a duty, not a luxury. To hope is not to dream, but to turn dreams into reality". I wish you all many fulfilled dreams.

As ABBA sang: "*What would life be - without a song or a dance - what are we?*"

Therefore I say: "*Thank you for the music!*"

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