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Hearing

Door to the Soul and Spirit around Us, with a Look at Technological Media

by

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First Image

A man is walking through a small town. The pavement echoes with his footsteps. He hears a child laughing through an open window. In the church the organist is practicing a chorale that the congregation will sing later. A dog barks after him as he walks by the last house.

Second Image

A woman is standing at a bus stop. Countless automobiles drive past. They are so noisy that the birds singing and twittering in the tree next to the bus stop can barely be heard. Inside the bus, people are reading or listening to music with headphones. The bus stop reverberates with a voice that comes from a taped message on a loudspeaker.

At home the woman meets her roommates. She has a discussion with a couple of them. Music can be heard in the background. Later they all watch a television program together.

Changes in the Hearing Landscape

It is clear to everyone that the visible environment has fundamentally changed in the last few decades. That a similar transformation has taken place in the realm of perceived sound must be brought to conscious awareness. Until the beginning of the twentieth century, that which came to the ears originated from just a few, easily identifiable sources. There were people speaking and shouting, sometimes laughing or scolding. There were noises emenating from household work, workshops, and farms. There were the sounds of nature: rustling wind, pattering rain, thunder, mooing cows, and purring cats. Sometimes something very special could be heard, music in the form of singing or instruments being played.

All of these sounds have a clear relationship to human beings. Just as a human being has a body, soul, and spirit, so also can the sources of sound impressions be so divided. Through his hearing the man who walked through the town was immersed in all three regions. The noise of his steps said something about the composition of the ground. The sounds from the laughing child afforded a glimpse into her soul. The tones resounding from the church organ revealed a quality of spirit. In the realm of that which can be heard, the

human being's organization of body, soul, and spirit corresponds to the noise, sound, and tone.

The changes that have taken place in the area of noise can be clearly illustrated by imagining the following: Two houses are being built, one house is being constructed by hand, the other using machines. At the construction site for the hand-built house, the first thing one hears is the digging of the foundation. Spades and shovels dig into the ground and the kind of sound they make when coming into contact with dirt indicates the composition of the soil. Then the building materials are brought to the construction site and unloaded. One hears the clinking of stones falling upon stones. The wooden beams sound denser when they thump on each other. One hears the sloshing of the cement being mixed. Stone masons are chipping stones, using trowels to butter the stones with mortar, and then scraping off the excess as they set the stone. Finally, the carpenters arrive to set the trusses. The rhythmic rat-a-tat of the hammers high above can be heard from far away. It tells of wood, nails, steel hammers, and of the purposefulness of the men using them.

Today, as everyone knows, it is a quite different story. First, a bulldozer comes, scrapes and digs out the foundation in no time. During this process one hears nothing of the soil and rocks, or of the material from which the giant shovel is made because the noise of the hydraulics and the grumbling staccato of the engine overwhelm everything. The sounds are screeching, harsh and abrupt. More machines arrive: trucks, cranes, cement mixers, electric saws, pneumatic drills, air hammers, and so forth. When the house is roofed the carpenters use automatic hammers or staplers; each hammering echoing like a pistol shot.

A house built by hand enriches the hearing landscape. One is happy that a new house is being built. The standard construction methods today disturb people. In order to keep the impact within certain limits it has become necessary to measure the noise volume and determine an allowable limit. Most of the time the workers themselves must wear ear protection.

Volume is not the only problem. A bulldozer is a disturbance for quite some distance. Its noise is penetrating and gets on one's nerves, onecould say. The reasons for this are easy to determine. For one thing, mechanical noises lack rhythm. They do not open up any of the three areas to us out of which our world is partitioned. It is difficult to sort out and organize these kinds of noises. At the same time they are penetrating and impossible to ignore. What we call noise today presents us with a big problem.

The German word for noise is "*Laerm,*" developed out of the word "alarm." Actually, one is startled and "alarmed" out of one's activity when these noises are heard. Mental work, especially, can be so disturbed by noise that it must be postponed. Of course, machines are not the only source of noise. When the neighbor's dog barks constantly, then that is a noise disturbance that can become tortuously irritating. The same goes for the violin

coming from the neighbor's apartment that is perhaps going on and on with the same music and the same mistakes. Of course, it makes a difference if this is happening with a neighbor that one does not like or if one's own children are practicing, in which case, one is happy they are practicing at all. In this instance, one has a different relationship to what one is hearing.

Noise is not a new phenomenon but it has increased enormously in the last few decades. In its most widespread form, traffic noise is considered the source of many health problems because it is with us day and night. In order to prevent the worst effects of this problem in Germany, emissions protection laws were established in 1974 that stipulate certain noise limitations in residential areas.[1]

Legislation about noise pollution standards represents progress. However, one must also realize that many problems remain unaffected. For example, during the first school semester, after many weeks of unaccustomed living in a large city, I had the opportunity one weekday to drive to a lake in northern Germany. I sailed out in a boat and enjoyed the sky and the water, the landscape, and the wind. But I was not alone. From a nearby airport a private plane took off and circled the lake endlessly. Airplane noise covered the entire area. It was immeasurably intrusive. I wavered between anger and disappointment and sent not-so-friendly thoughts in the direction of the offender who was preventing me from having my hoped-for experience because he simply "interrupted me."

Today mechanical noise is all-pervasive. Inside houses there are humming refrigerators, hissing furnaces, whirring air-conditioners, and buzzing fluorescent lights, just to name a few persistant noise makers.

Outside we are surrounded, above all, by traffic noise. If one pays attention one will notice that there is hardly a place where traffic noise does not exist. Noise from streets, train tracks, or airplanes overhead reaches almost everywhere, especially in densely-populated and highly industrialized areas. In other words, quiet places have become rare.

Whoever wishes to clarify this for his own satisfaction, it is recommended he undertake a kind of hearing protocol from time to time. One becomes aware of what can be heard at a particular place at a particular time. Perhaps one will realize (even on the first try) that one must stand still, for even walking creates so many sounds that other sounds are drowned out. Besides, walking requires a certain amount of attention that is then not available for listening.

I have experimented with this many times. It is especially impressive in a chosen place where the immediate surroundings are quiet. In Bremen (Germany) I occasionally ride my bike on a hedge-lined path that is bordered on one side by a cemetery and on the other side by gardens. Sometimes I get off the bike just to listen. The birds are singing in the trees. The wind rustles through the leaves. In the background, however, I hear the same monotonous

drone of the big city. The first time I stopped to listen, I thought there was something unusual taking place, something like a column of tanks driving through or large construction machines. I waited, expecting that it would pass. Finally, I had to admit to myself that what I heard, that clamor enclosing me like a ring, was completely normal, daily noise.

What are we dealing with here? Mechanical noise disturbs us because it does not blend in with what we know. Nature and the human world are known to us. What we encounter on the outside also exists in some small way on the inside. With mechanical noises, on the other hand, we feel that there is something working against us. Many people have experienced how a peaceful mood in the backyard or garden is shattered when a neighbor starts his lawnmower, chainsaw, or leaf blower. The disturbance is caused not only by the noise volume. What can be heard has something akin to a voice; this voice cries, screams, complains, and is sometimes filled with hate. Sometime, try to determine this by just calmly and earnestly listening to what is to be heard.

Before turning to a consideration of the consequences of this all-pervasive, mechanical noise, I would like to relate the following experience. After a few "hearing tests" in the city, one December morning I drove to the edge of town in the hope of experiencing quiet. To my right was a forest, and to my left the street followed an old canal. On the far bank was an area of individual garden plots. In the same measure that the street noise receded, the wind in my ears and squeaking of my bicycle seat became more audible. If I wanted to hear anything quieter I had to stop and get off the bike.

After a short time, what came to my ears was the same droning, dull, incessant noise that I had heard on the path by the cemetery, only more muffled. I had not yet escaped from the city. In spite of that I tried to open myself to the environment. As the night before had been frosty, it was damp out and a film of hoarfrost lay on the trees and the leaves on the ground. A thin sheet of ice had formed on the surface of the canal, geometric surfaces with their intersecting points. Some areas were free from ice, and the water rippled when the wind blew over it.

If I wanted to experience more I would have to wait. Gradually I was taken back into the space that I had hurried through before. It took me in and surrounded me. Things became visible to me and it was clear that they had something to do with one another. The tree that stood before me belonged to the trees standing behind it. The bush belonged to the tree, the tree to the sky, and the wind to the dry leaves to which it spoke.

How was it with hearing? In such a situation it is of no consequence if one listens especially attentively to single sounds. It really has to do with feeling one's way into a space with one's ears. If that can be achieved, the space opens itself and tells some of its secrets.

With mechanical noise, on the other hand, we can do nothing. In its presence we develop the tendency to withdraw our attentiveness away from our ears. We block it out. We hear only what we absolutely must hear and avoid any kind of openness to listening. In addition, mechanical noises often occurs at volumes loud enough to overpower other sounds and make them disappear. This masking, as it is referred to in the discipline of hearing psychology, leads, together with the withdrawal of auditory attention, to a weakening of our relationship to our world. This also means that the sense of hearing is not allowed to completely develop. A further consequence is that of soul poverty because inner enrichment develops through exchange.

Such considerations could be interpreted as general animosity toward technology. However, that would be a misunderstanding. Technology now belongs to human life. But, we must admit that technology has partially gotten away from us. In many cases we have thoughtlessly surrounded ourselves with environmentally unfriendly products. Vehicles that spread as much noise and pollution as automobiles, for example, are not yet sufficiently engineered and should not be in service. (The reasons as why this happens anyway – businesses motivated by profit – is not the subject I will address here.)

Consideration of our sense of hearing could have a transforming, healing influence on technology development. For example, transportation could have not become increasingly faster. Attention to hearing could have also prevented our agricultural methods from becoming one of the worst offenders in environmental pollution. This new method could demand the use of tractors which put a bell jar of noise around the farmers. Would a farmer be capable of spraying poison if he could hear the birds singing?

The noise about which we have been speaking comes as an undesired side effect of the using of machines. But how is it when machines are used specifically to create sounds, for example as is the case of loudspeakers? Do machine sounds transform human voices and musical tones?

Before we consider this question further, I would like to draw your attention momentarily to the situation in which we find ourselves in regard to this problem. Nowadays, when someone asks himself at the end of the day how much time he spent in direct conversation with other people, how long he read or wrote, and how long he listened to voices and music produced by electronic speakers, then many people may come to the conclusion that communications through the media were in the majority.

It is routine, even at small gatherings, for people to reach for microphones and speakers to amplify their voices. Conference tables that have places for only ten or twenty participants often have microphones available for each person. In addition to that, there are most often many speakers providing constant background music. Researchers haver found that this background music in supermarkets affects the subconscious, dulls reasoning, and actually

results in increased purchasing. Public and private rooms are often continuously bombarded with sound. We must also contend with the fact that the holding pause on the telephone is filled with music.

In the more restricted field of art, speakers and microphones are now taken for granted. Live concerts are recorded and edited on the spot. When the required electronic players are on hand, they are available anytime and anywhere. For many people the artistic evaluation of a musician depends upon the number of times these recordings are replayed or broadcast.

Within religious groups there is little concern about the use of microphones and loudspeakers. Even small churches are outfitted with these electronic devices. Nobody stops to ask why church services were possible for hundreds of years without electronic amplification devices. Actually, one should really ask if the ministers have lost their voices or if the congregations have stopped-up ears. Instead, people are proud of what they call simply "progress."

Television screens are deprecatingly called "boob tubes." Those that spend much time sitting in front of them often experience a quiet, uncomfortable feeling. Surveys show that they would rather watch less television so they could do other things, but they are magnetically or psychologically addicted to passivity through the programming and find it hard to motivate themselves to other activites.

Sound media, on the other hand, is not viewed as problematic. It is unconditionally accepted. There are various reasons for this attitude. The person on the television screen is flat and small when compared to reality, and the space-time continuum of reality is hacked-up by various settings and editing, to name only two differences. Recorded sound, on the other hand, is fairly true to the original. A further reason lies in today's widespread, accepted conception of hearing.

Different Concepts about Hearing

In a psychology lexicon one reads that: "hearing perception is the returned decoding of a sensory-physiologically processed impulse." The primary task of the "two-ear apparatus," according to the *Fischer Lexicon*, is "the processing of sound and registering the location of sound-producing bodies." Such a definition harkens back to research, the foundations for which were laid in the last third of the nineteenth century. In the *Meyers Conversation Lexicon* from 1876 the word "Auditory" is allotted eight pages. In addition, there are two pages with exact drawings of the auditory organs.

Without exception, the presentations are related to the physical and physiological aspects of hearing. They are supported, above all, by Hermann von Helmholtz (1821–1894), "The physiology of the hearing process has been brought to a very high level of perfected understanding through the brilliant research by Helmholtz and, at the present time, the auditory organs,

in spite of the many as yet unanswered questions, can be counted as the best researched of all the sensory organs."

The plethora of discoveries in the field of natural science supports the illusion that hearing had been completely researched. It is very telling that in the lexicons of the nineteenth century under the word *Hören* (hearing in German), one is directed to the word *gehör* (auditory in German) where the natural scientific research is then presented. Human beings with their feeling nature and thinking nature are thereby removed from the picture.

In this respect nothing has changed to this day. Today every school child is taught about these nineteenth century concepts. The "progress" made consists solely in the fact that people have learned to penetrate deeper into the material process. As an example of the understanding today, take the already-quoted *Fischer Lexicon* in which these words appear at the beginning under the term "Theory of Perception":

> Our sensory organs transform the physical-chemical energies in disturbances of the biological balance in nerve cells which are then centripetally transmitted as electrical impulses along the sensory paths, finally leading to the brain cortex where they act as stimulants on certain ganglia cells.

According to this explanation, our sensory organs transform captured stimuli into electrical impulses from which the brain conjures forth our experienced sensory perceptions whereby the perceptions supposedly have more to do with the brain and sensory organs than with the objects that precipitated said perceptions. Helmholtz upheld this view that in turn led to Kant's teaching about the imperceptibility of the world in sensory psychology.

If one starts with the conclusion that the basis for hearing lies solely in acoustic and physiological phenomena, and, if one further concedes that while the sensory organs certainly provide us an entry into the world, at the same time, they separate us from "the things themselves," then it makes no difference if the voice I hear comes from a human larynx or from a loudspeaker. The loudspeaker actually has some advantages: its range is considerable and it does not get tired.

A critical look at amplifiers and microphones is only possible when the predominant view about hearing is corrected. A first step toward this is to work toward getting clarity about it. How was hearing understood before the purely scientific research and interpretations of the nineteenth century? If one looks in the famous *Great Complete Universal Lexicon* published by Johann Heinrich Zedler in 1735, one finds that the words "hearing" and "auditory" form one term. The article begins:

One of the five outer senses; the soul takes in and recognizes what is transmitted as all kinds of sounds and voices by the ears.

Here the word "soul" is very freely spoken. It is the soul that hears but it must make use of all kinds of help such as the auditory organs of the ears. The idea that the brain, that is, a mass made up of blood and protein, could hear, would have seemed completely absurd to the people of the eighteenth century.

Two passages in the New Testament of the *Bible* give another view about hearing. Paul's letter to the Romans in Chapter 10: Verse 15 it says: "How beautiful are the feet of those who bring good news!" Verse 16: But not all have obeyed the good news; for Isaiah says, "Lord, who has believed our message?" Verse 17: So faith comes from what is heard, and what is heard comes through the word of Christ (New Revised Standard Version). In Paul's letter to the Hebrews in regard to the Christ it is written in Chapter 5, Verse 11: "Of whom we have many things to say, and hard to explain, since you have become dull of hearing," (New King James Version). Here, also, hearing is an ability of the soul, and we can speak of that which does not even require ears.

Anthroposophy is in a position to enlist the aid of spiritual-scientific research in interpreting natural-scientific research about hearing and, in so doing, to reinforce the oldest concepts about hearing and make them more precise. Before this presentation, I would like to point out the following: Views about hearing stemming from the nineteenth century have neglected to differentiate between technically-created voices and music and their immediate reproduction. Additionally, those views contributed heavily to the invention of technical sound media. This can be shown using the example of the microphone.

How do Microphones and Loudspeakers Function?

Thomas Edison invented the microphone in 1876. Edison wrote in his diaries that during the time he was working on the microphone and the phonograph (precursor of the record player) the most varied theories about acoustics and hearing were spinning around in his head. In reference to hearing, the inventor concentrated at that time on investigating the inner ear, especially the cochlea with its basilar membrane and its twenty-five-thousand cilia (tiny hairs), the actual sensory cells. It was correctly assumed, that here is where the sound-created mechanical vibrations are transformed into nerve (electrical) impulses.

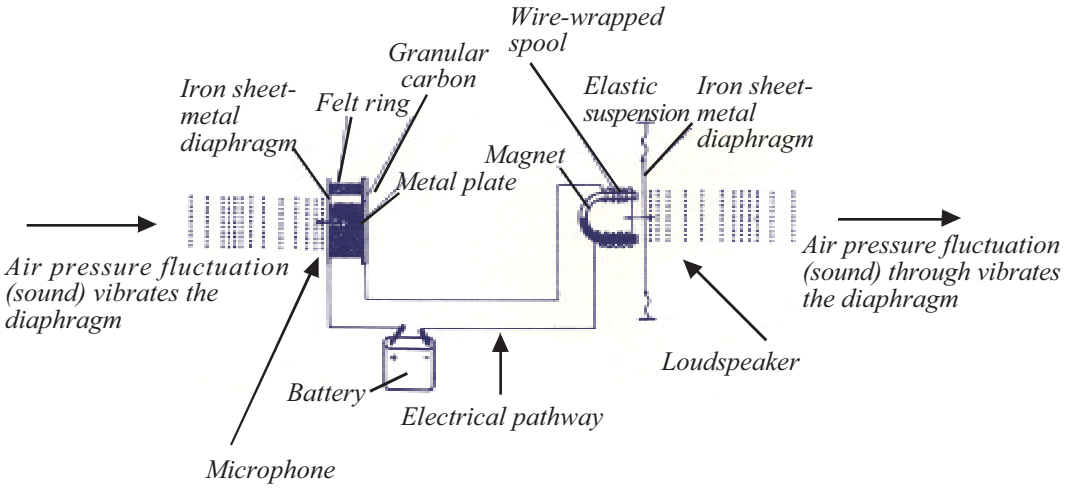
At the time there were varying opinions about this process. Helmholtz upheld the view that has been incorporated into science as the *Resonance Theory*. Other theories were developed that opposed this. Edison knew about

this discussion and obviously used it as a stimulus because the principle of the microphone is that mechanical vibrations can be transformed into electrical impulses with the aid of a membrane .

Since the quality of technically reproduced voice and music can be better judged when it is known how recorders and loudspeakers function, I shall give a short description of the microphone invented by Thomas Edison. It is the carbon microphone still used today in telephone receivers.

The electrical current flows through the metal plate by the granular carbon to the membrane.

The electric flow through the wire coil strengthens and weakens the attraction of the magnet vibrating the iron sheet metal diaphram.



The electical flow in the line varies depending upon the sound “pressing” together the granular carbon in the microphone.

Hearing as a Bridge to the Soul

This especially applies when someone listens to another person. I have chosen to illustrate this complex process with only those examples that show how an opening is created to experience another person at the soul level.

Third Image

There are times and places in which the gods speak more clearly, such as at an ocean shore. Yesterday morning I stood upon a cliff on the west coast of Brittany. There was a light swell. From time to time a long wave rolled upon the beach. It sounded to me like the breathing of the sea.

Let us assume that a person who experienced the above was compelled to say "How beautiful!" to express the impression of the experience. A friend who hears these words would become alert to the special aspect of the moment because of the emotion resonating in them.

What happened with this speech and this hearing? Let us begin with the speaker: First of all, there is the perception of nature and the internally experienced answer to the perceptual soul. The desire arises to give expression to the impression. In the above instance, this occurs by way of speech. The speech must be formed with the help of the tools of speech. Since the soul cannot directly activate the organ muscles, etheric forces transmit the desire which in turn stimulates the formation of outer sound waves, allowing the person to speak, thereby creating an expression of the soul.

There is a progressive sequence to this process, from the soul, through the etheric, to the physical. A person's physical aspect is penetrated by his or her soul aspect with the help of etheric forces. In the case of speaking, the physical aspect consists of varied sound waves that can be exactly described as tonal pitch, length of duration, and tonal volume. One can also say that through speaking, the soul receives clothing perceptible to the senses. If the listener is interested, a real encounter is possible in which the listener, with his or her soul, ventures onto an "etheric bridge" and receives what is met.

What does it mean for the hearing process when what is heard comes from a loudspeaker? For now, the question can be explored using the example of birch wood. First of all, it must be clarified as to what extent a microphone and loudspeaker are capable of receiving and sending out again the sound waves produced by two pieces of wood colliding. When one considers that the membrane in a loudspeaker, unlike a piece of wood, has a two-dimensional, planed surface, then it must be assumed that with today's technology standards, the sound waves emanating from a loudspeaker are less differentiated than those coming from the original. (In principle, it must be assumed that sometime in the future it will be possible to copy acoustic phenomena exactly.)

Even with all the imperfections, the transmission process of technical equipment today is so far developed that different kinds of wood can be differentiated. It is possible that someone could get the impression "birch wood" from something that is heard out of a loudspeaker. How is such an impression created?

Since a quality is being experienced with which the hearer has a soul connection, the sound waves generated by the loudspeaker must have enough energy to stimulate the tone ether because there is no direct path between the physical realm and the soul realm in either direction. This stimulation of the tone ether happens on the surface since the membrane is made of material that was chosen because it can be made to move without developing its own vibration. That makes the loudspeaker very versatile, but versatility also has

its price; the person hearing transmissions from a loudspeaker remains cut off from the essence of what is being transmitted.

Loudspeaker transmissions do not lead the hearer to an etheric birch wood formative process as has been used as an example in the above paragraphs. Why is it that even so, the kind of wood is still recognizable? It is because the loudspeaker transmission is good enough that it is still recognizable. The impression that the hearer experiences, however, harkens back to a memory and not to a present encounter.

The result is a weakening of the hearing will. If a real encounter occurs, one tries, with one's own soul forces, to emulate that which is heard in order to understand it. If, by reason of a loudspeaker transmission, it is only possible to recognize what is heard from memory then all further attempts at understanding are fruitless because the hearer is cut off from the essential quality of the sound. Human beings are thereby educated to hear only superficially. At the same time, there is more appetite and interest in the pleasure to be had through hearing, perhaps as an attempt at balance.

The effect of a loudspeaker becomes even more clear if we imagine the words "how beautiful!" would be recorded and someone heard them played back through a speaker. A point of departure from the original event is formed by the soul. Because the soul wants to impart something to another person, physical aspects with the help of etheric forces are brought into action.

However, if a technical sound medium is used, then the physical aspect is what is present at the creation of the sound waves. One could also say that the clothes came first. The sound waves then compel the tone ether to approach. The hearer becomes attentive. He awaits an encounter that will not, cannot, take place. The hearer is hardly ever consciously aware of this because he is "stuffed" with the clothing woven of sound waves with the help of his memory and the deployment of his own soul substance.

If this happens again and again, the ability of the soul to take in what is unfamiliar becomes hardened and paralyzed. A new kind of deafness occurs that one could call inner-deafness. Before we go into more detail about this, I would like to turn your attention to something that has a special place in the world of hearing: music.

Music and Loudspeakers

The uniqueness of music has to do with the fact that our souls are moved by music in an incomparable way. When we listen to music we are completely within the sensory realm but the impression we receive does not reference that fact. Consequently, I detach myself from all sensory references. The rain pattering on the window tells me about the meeting of water and glass. If I hear a human voice from another room, then, besides the impression of soul qualities, I have an idea of a certain person and his outer appearance. But music tells of something that cannot be found in the realm of the senses.

It does not process any material as does a painter with paint, or a sculptor with stone.

The soul experiences that music brings out in us are not comparable to other stimuli, and they also cannot be brought about by any other means. Understandably, they can not be described with words. If one tries anyway, perhaps one speaks of happy or uplifting experiences knowing, however, that these words are rather indequate in reference to music.

It is not surprising that among the earliest human thoughts were those having to do with the essence of music. Pythagoras gave us the first philosophy of music. He spoke of *musica mundana*, the music of the spheres, and meant, among other thoughts, that the perfection of creation can be heard in music. Since then many expressions about music, in their core, have been aimed at this thought. From the abundance of writings I would like to quote only Jean Paul who said, "Music tells us about the heavenly home of the soul."

First of all, the question can be pursued with a trivial example. Whoever wishes to learn to drive an automobile must know how it functions, which handles and pedals to use, and which rules apply to street traffic. Then the practice can begin, the processing of experiences and the "polishing" of maneuvers and reactions. When, for instance, in a critical situation the right foot slams on the brakes "by itself," then the ability to drive an automobile has been gained through practice.

When we speak of ability, we mean there is something we are able to do and it is available to us at the right moment. We change ourselves through gaining an ability because we can then do something of which we were incapable before. If one questions from whence this change came, clearly it can not be from the outside; the hands and feet that have learned to drive have not changed.

Anthroposophical knowledge of human beings states that the etheric body is the supersensible energy body that forms, enlivens, and maintains the physical body. It is possible to educate the etheric body to stimulate our limbs into movement when our attention is focused there.

For example, the etheric body that has been disciplined and trained is also that which supports the fingers of a violin player to glide over the instrument. And, because it happens "by itself," the musician can do more than merely hit the right notes; he or she can artistically create. The inspiration comes from the music itself. Through practice a person can become so connected to her instrument that they form a single unit, almost like a new instrument that can now serve the music. Musicians whose music moves listeners are only in the position to do so because they have worked on themselves to the point that, when they play, the music can take hold of them. Such a statement only makes sense if it is understood that by "music" one is referring to something that has a spiritual essence.

For this reason it can not be surprising that the sound waves created by the violin strings have to do only indirectly with the effect of the music. The sound waves are something like heralds that have hurried ahead to attract the attention of the listener to the music. How can airwaves with their pressure fluctuations call forth the joy that music gives its listeners? It is the result of a real immersion of the listening soul into the musical spheres.

Here the essence of hearing comes forth as especially pure. Of all the sense impressions, hearing has the strongest connection to the soul. It allows for real encounters. Through hearing a bridge is built to the innermost parts of other beings.

In order to overcome the abyss that separates us, as embodied beings, from other beings, our hearing souls need something other than tracks laid in the air by sound waves. When music is played, one can experience, that something like a tonal space is created between the musicians and the listeners. This tonal space forms itself with the help of the tone ether which has already been discussed. An energy field is created with three centers that are all connected with one another just as in an organism. Through playing, a musician builds an etheric bridge to the musical spheres and to the listeners. The music answers by blessing the musician with its secrets. But the music also turns directly to the listeners who are opened to it by what is sounding in their senses. The listeners support the players through the intensity of their devotion. The music accepts from both equally.

The existence of the tone ether is easily proven when there is speech, singing, or instrumental music done in unison. It is perhaps made most clear in choral singing. Especially at the beginning cue, it can be felt that beginning in unison is only possible because there is an invisible connection between the singers. The cue given by the director is only an indication of this connection. The choir director Von Furtwängler is well-known for giving very imprecise cues. Probably he is trying to avoid the musicians becoming too dependent upon outside perceptions.

It is clear that music which has earned that name can always only exist as a unique, unrepeatable event. Even if something is played that has already been performed many times, music must always be newly invented. Since the people who do this are always different, or differently attuned, and since the circumstances also change, the result will also always be different. An artistic event can only be created when the music is played out of the presence of spirit. The spirits and souls of the musicians and the listeners, and the essence of the music, encounter each other in a unique way each time.

By reason of this consideration alone, that which can be heard from records and other technical sound recorders is not really music and it certainly has nothing to do with art. In place of spiritual presence, there appears a machine stimulated to make sound by electricity. It is easy for this machine to override the second hallmark of a true artistic performance, its singularity.

Mechanized recording and storing of music happens when a microphone is held inside the energy field that has been described. The microphone can take in only the most unrefined part of the energy field, the sound waves. They are transmitted to the loudspeaker from which music sounds.

If one is clear about the essence of music on the one hand and the essence of technical equipment such as microphones and loudspeakers on the other hand, it is an enigma that music can actually sound forth from a loudspeaker. Just imagine, on one side is an orchestra with many musicians and the various instruments and on the other side a few loudspeakers with their membranes that produce something that came directly from the instruments and it is impossible to tell the difference. We have tried to offer the solution to this riddle by the example of the statement: "Oh, how beautiful!"

Reasons Why Loudspeakers Are Popular

When one thinks that throughout the world many people are exposed to music and speech almost exclusively via loudspeakers, then the question arises: What makes loudspeakers so attractive? The search for an answer to that question leads us to a basic problem of our present era. First, there is the materialistic attitude that closes off the spiritual. The spirit revealed in music has something joyful; but there is also a challenge in it and an indication of one's own weaknesses. That is all put aside by loudspeakers. The music sounds without the presence of the spirit which brought it forth originally. Listeners can selfishly indulge in themselves and their feelings.

Something else also plays a role. The encounter that is made possible by listening requires ego ("I") forces which must be used to put one's self in the background so that a place is created for something new. People who have a weak "I" avoid encounters because they fear they will be overwhelmed by them. Through the interference of technology, the desire for relationships with others is satisfied, but, on the other hand, coming into contact with the "I" of another person can be avoided.

So, one aspect is that the loudspeaker is connected to our weaknesses. It also has a relationship to our deepest hopes and inklings. Many people feel that materialism is only a transitory phase. To overcome it requires the training of possibilities of knowledge that are presently only seminally formed in us. Anthroposophy describes the possibility of knowledge that goes over and beyond the sensory as three aspects of higher soul life called: *imagination*, *inspiration*, and *intuition*. Technical media give the illusion of these three steps. Image media imitate imagination and weaken the viewers' own imaginative forces. Sound media replace inspiration.

Imagination has to do with a kind of spiritual sight. The visible part of something detaches from the object and takes on an image character. For example, if I am led to an experience of autumn by a special light quality that I see in August, then I have already reached the first level of imagination.

Outer aspects become porous to what lives behind, and my perceptions speak of what is otherwise hidden.

With inspiration, spiritual hearing, everything that is sensory steps back. We experience this strongest when listening to music. Naturally, close to the surface is the objection that hearing is also a sensory-physical process. But the airwaves have nothing to do with the actual quality and effect of music.

The entire organization of the ear is geared toward bringing sound waves to rest so that that which the sound waves serve, as heralds, can be newly created in the etheric, soul aspects of the listeners.

The listener must summon up courage and imagination, courage to make place for the uniqueness and challenges of the musical spirit and imagination in order to empathize with and recreate what is different and coming from the outside. Mechanically reproduced music makes it easy on us in these respects. The illusion is created that one is experiencing something at the level of inspiration so that recorded music can be perceived as a step above human-created music. This has consequences. If I hear a melody that is really played on a violin, then the music always has something of the singularity of the material from which the instrument is made. It is also experienced that the music comes from a certain area in the room. These elements must be overcome by the listener and the fact that he or she accomplishes this elevates the listener into the real musical realm.

A loudspeaker produces something that can be heard whose physical origination can not be determined. The singularity of the construction material of the instruments is not available nor is the place of origin in the room. Typically loudspeakers are hidden, and the listener is usually not interested in their location.

In this way inspiration is imitated. With this in mind, consider for a moment the fact that many people today are almost constantly within hearing range of loudspeakers. While one is going about one's daily business, in the background are whispers, voices, and tones. Someone could have the impression they were hearing spiritual beings at work, following their conversations and experiencing their uniquenesses. If this was reality, then it would be taking place completely within the region of inspiration.

Forms of Inner Deafness

What are the consequences of people allowing themselves to be taken in by illusion and even developing a preference for it? Just like noise, loudspeakers always interrupt. Through this we are made deaf to certain things that we really should perceive. These are questions and problems that are connected to our own existence. We should listen and then take action. Background music that almost constantly surrounds many people helps them to avoid the challenges their own lives have given them. In the end, one is almost cut off from one's self.

Something similar occurs to interactions with fellow human beings. It is our sense of hearing that turns us into social beings. To be a social being means first and foremost, at an elementary level, to pay attention to and be interested in the uniqueness and desires of fellow human beings. Uniqueness and desire are included in hearing. Hearing is more than the processing of sound waves, and it is also more than the deciphering of words. One of two people who are friends says, "I would like to go for a walk with you. I want to tell you something." The mere deciphering of the word meanings cannot shed light on whether the speaker wishes to impart some juicy gossip or if some question is burning in his soul that he wishes to talk to his friend about right now. The success of human cohabitation depends upon our being able to differentiate such things.

The significance of hearing for the life of society can also be illustrated by the difference between blind people and deaf people. Blind people are very handicapped in their ability to get along with life's outer circumstances. As soon as they leave a place with which they have become familiar they must have a guide. Deaf people can be observed to move freely in the outer world. In respect to the inner soul life, however, the circumstances are reversed. Blind people have close and rich relationships with other people. They are included in the social sphere in which they can freely move through their hearing. Deaf people easily feel excluded. It is easy for mistrust to develop. They also have more of a tendency to have fluctuating emotions.

In addition to the sense of hearing being shriveled by technically reproduced sound, there often follows a handicap in speech development. As a result of this problem, the popularity of technical media increases. Finally, one is addicted to what caused the problem in the first place.

One last form of inner deafness is created by the illusion of inspiration. With it, the limits of the sensory world are almost insurmountable. This also means disappointment. Again, media is used to repress this.

If one wishes to clearly summarize the effects of loudspeakers once again, it would be best to, first of all, consider healthy soul development. One can say: It has to do with people gaining inner riches during the course of their lives. Where that is successful, every perception leads to an abundance of experiences and thoughts.

The path to that success requires something that children normally bring with them, namely, patience and the ability to be awed. Where these characteristics can develop, a person goes gently from impression to impression. He or she learns to listen to the reverberations that the sensory world leaves behind on the inside. The soul can be compared to a bell. Outer impressions are represented by the clapper inside the bell that causes it to ring. Just as it requires only a few taps to make a good bell ring for a long time, so it is that a developed soul requires few impressions for a rich inner life.

If such development has not occurred, there is hardly any reverberation then and a person is compelled to pile impression upon impression. Here a comparison with the membrane of a loudspeaker is applicable. With its help the most varied acoustic phenomena can be produced, but at the very moment that it is not stimulated, it is mute.

Since muteness in the soul is unbearable, a hunger for experience comes about that is comparable to the hunger cravings that occur when there is never a feeling of having been satisfied. Hunger for experience makes people egoistic because in their encounters with the world they are only interested in covering up their inner emptiness. Whoever has learned to allow the world to reverberate within, through listening for this reverberation, the secrets of the world begin to be revealed.

Of course, the forms of inner deafness that have been discussed here also exist without the presence of loudspeakers. One could even say that the desire for distraction, the difficulties in interacting with other people and also higher beings, have actually caused the creation of the loudspeaker. Whoever is interested in other people and the world, and is ready to meet challenges and work on one's self, those people can do without technical media. Rather, it is often a torment to them.

A conscious confrontation with the media is therefore necessary because some of their side effects are strengthened with use, including feeding the personal weaknesses which lead to the use of media in the first place. The greatest hidden assault occurs with the use of loudspeakers, where it is most difficult to identify the effects and make them understandable.

At this point an exact analysis of the elements involved in the technical aspects of sound transmission will be helpful. How are sounds and tones created and where do they come from? How do microphones and loudspeakers function?

Those who are exposed over and over to sound emanating from loudspeakers lose important abilities. Especially with children, these abilities can not develop past the beginning stages. There are many reasons why there is so little awareness of this fact. The interference coming from loudspeakers has long-term effects. However, each time one listens to amplified music one can come away with the impression that nothing negative has happened.

Here, there are clear parallels to known problems in the area of ecology. Over a long period of time, tiny amounts of poison add up to a general poisoning of our environment. But the connection between cause and effect is difficult to discern and hard to prove. There is too little attention paid to the media, and there are unintended consequences that occur because different poisons get mixed together.

Even though this article is focused on sound media, it must of course be understood that no one is exposed solely to this interference. All the other media also come into play, and there are new forms being constantly invented

just as there are new kinds of environmental pollutants being constantly produced. Everything together is so debilitating to the healthy development of human beings that we face challenges to develop into the beings that we could and should be.

Especially significant are the already identified negative effects of the sound media on certain areas of today's musical experience in that music today is everything but a reflection of the music of the spheres. One example is the loud volume that is damaging to the ears.[2]

It is not only the technical reproduction of music that creates problems, but more and more also the negative content that is imparted with it. There is, especially in certain kinds of rock music, a completely original confabulation of tribulations. We find blasphemy, Satanism, pornography, and violence worship, sometimes all at once. There are special technical systems that are integral parts of this message. Many of the musicians are drug addicts. Most of them die young. Again and again there are lawsuits filed against rock bands in which the complaint is the children and youth are encouraged to commit murder or suicide by their music.[3]

Of course, such phenomena can not be solely attributed to the media. They have much more to do with the fact that more and more decisions are handed down concerning people's freedom and responsibilities. In earlier times music that people created was either significant or insignificant, valuable or banal. Now, it can also be classified as evil.

Technical media have not caused this development, but they serve it. A piece of music by Mozart is devalued by sound technique; it loses something. Evil music, on the other hand, is dependent upon technology. Its avenue of expression is technology. It is therefore justified to say that a relationship exists between sound technology and a kind of music that is anti-human. It is also true that this music comes from a spiritual presence, but it is an adversarial, antagonistic spirit which is in alignment with the mechanized coarseness and the solidified sameness of the repetitions because they allow this spirit to be present when a record or tape is played for the hundredth time, or, with the help of radio, reaches a million listeners.

Insight into the essence of hearing can sharpen our awareness to the consequences of such music. With our hearing we allow something to come inside of us, something that we emotionally recreate, that we allow to resurrect inside of us. We experience something similar during meditation. Meditation's strengthening and transforming effects come when we give space inside ourselves to something that has been captured from the spiritual world through a prayer or mantra. With music's help we can touch upon the greatest mysteries that are inside of us. The sublime effect of meditation has to do with this aspect.

Through negative music what enters into us by the same process is something that pulls us down. In addition, such music can be heard over and

over again with the aid of technology. During concerts, the audience often sings along in a state of ecstasy. Some music groups attract mostly children. In that case, negative influences work into the soul by way of extreme force.

What Can Be Done?

In light of the widespread presence and the popularity of the media, it is easy to be under the impression that one must let things take their course, that one can do nothing. However, in reality, even the so-called mass media is only used by single individuals and single individuals can affect only themselves and their immediate surroundings.

The following suggestions are given in the spirit of helpfulness. First of all, one should become well-informed about these matters so that one is really convinced that the media – meaning electronic media – has a negative influence. Coming to an informed judgment about sound media requires an especially big effort.

Once one has reached the point of acquiring a critical stance in regard to the media, then it is one more difficult step to teach others about it. It requires sensitivity and a lot of patience. For instance, if one wishes to bring up this subject at parent meetings, then it must be thoroughly prepared, preferably by several others as well. Otherwise, the meeting could degenerate into sharp arguments. One should give as much factual information as possible. It is really astounding how much is not known. How often, during conversations with students, I have heard the amazed exclamation: "Why wasn't I told about this sooner?"

The extent to which one sees through the media, to that extent one will find a way to push it out of one's own life. This does not happen without conflict, disappointment, and relapses. Those who are responsible for children have an especially hard time. On the other hand, that is where the efforts are most worthwhile.

There are hardly any general rules to apply. Naturally, it would be best is one could ban all electronic media from one's own home. In regards to hearing, it should be clear that it can not be considered progress if one gives up television but is surrounded by acoustic media. It will always be so that consequential behavior and stubborn or dogmatic insistence reside in very close proximity. How does one react when, for example, the ten-year-old son wants to watch a football championship on television? One will not be able to make the decision without considering how strongly the child is interested in football, what his classmates are allowed, and so forth. One has no other choice but to negotiate. An example of negotiations is: Two games on television and the finals if the team you are rooting for makes it that far. In addition, one game on the radio. In all seriousness, a cheerful attitude should be maintained during such negotiations which are often very difficult for parents. It is generally advantageous if one does not own a

television. If such discussions are entered into with conviction and love for the children, they will feel it and even thought they are outwardly fighting and complaining, deep in their hearts they are thankful to their parents.

Of course, limiting access to the media and warning of its effects is only a first step. When one is successful in strengthening his interest in his fellow human beings and other creatures in this world, and to the extent that this interest grows, the media will be perceived more and more as a disturbance.

In regards to children and youth this is, above all, a question of education. As long as intellectual achievements are demanded and requested, the media will experience a boom time because it will serve as replacement for missing feelings and experiences. The media is a mirror of our one-sidedness. But when we view it as a challenge to self-education, we could even gain something positive from it.

There are two further points I would like to make in reference to this. The media threat will not be resolved without the regaining of fields of activity that we have given over to machines. Every person still needs food, clothing, and a roof over their heads, just as before; but after these things have been provided for, people have hardly anything to do. Irreplaceable fields of experience are being lost. Additionally, the joy and satisfaction of completing a necessary task is also becoming lost. I should not like to give the impression I am advocating a return to an existence as a self-provider. It has to do with giving children and youth the opportunity to get to know about basic work and learn to appreciate it. That will only happen if we bring it back into our own lives. And it is not only educational reasons that support this. The machines that are fully automated and used in agriculture and food processing create products of bad quality and burden the environment. What we change for the sake of the children will do us all good.

In conclusion, I should like to point out an area that has more specifically to do with hearing that is useful in gathering experiences that are just as important as those in connection with elementary work. I have already spoken about the relationship between music and inspiration. One must realize that for many people, especially young people, music has been sealed off as a source of inspiration. One reason could be that for too long we have depended upon tradition. If I named Bach and Mozart in the above, I did not intend to give the impression that only classical music has the power to remind us the music of the spheres. Bach and Mozart were given as examples because many people connect them to positive musical experiences.

The sensitivity of the ears is taken into consideration in the work place. In Germany the law requires that personal ear protection be provided if there is a noise decibel level exceeding eighty-five. If these regulations also applied to areas outside of work, then the capacity of a Walkman or Discman would have to be limited to eight-five decibels. In reality, it is much higher. In discos and at open-air concerts ear protection should be required. But, only

Footnotes:

[1] The following quote illustrates how the "hearing landscape" has changed in the last two hundred years. (Taken from *Klang als heilende Kraft* by Steven Halpern, 1979) "When Mozart composed his music at the end of the eighteenth century, it was so quiet in the city of Vienna that a watchman in the tower at St. Stephens Cathedral could call out a fire alarm. Shortly before WWI all that was needed to clear the way through traffic was a bell on the fire truck. In the 1930s the bell proved to be no longer loud enough. Sirens were brought into use. In 1964 the noise level on the streets of London had already increased so much that sirens had to have eighty-eight decibels. At the present time, noise levels in major cities in the United States require that sirens on police cars put out 122 decibels. When noise reaches the level of 120 decibels as it does with strong thunder, airplane motors, sirens, rock bands, disco's, fireworks, and home stereos, then it has reached the threshold of pain."

[2] What we perceive subjectively as volume is created by the wave pressure by which the sound waves reach the ear. The unit of measurement for this wave pressure is the decibel. It is generally accepted that anything higher than ninety decibels can be damaging if one is exposed to this volume level for several hours. Ninety decibels can be reached by very loud music, heavy traffic noise, or the noise in a building full of machines. Ear damage occurs when the cilia in the inner ear shrivel and eventually die because they have been burdened too heavily. Since the cilia cells, as the actual sensory cells, do not re-grow, then every bit of damage to this area is irreversible.

This applies almost exclusively to adults. Some young people have even developed an abhorrence of classical music. If one looks into this, it usually becomes clear that the problem is not with the music but with the often really repugnant official promotion of the music and society events.

A paralysis has come about on a high level. It has worked its way clear into musical education. Many people lose their joy in music through grades, drills, and pressure to perform.

It is self-evident, but I will note it anyway, that music which can lead us to the music of the spheres will, in the future, sound different than classical music. Perhaps it will also require new instruments and a different method of learning to play them. Perhaps this music is even already here and we have not noticed it because of our old listening habits. In that case, we must practice listening.

The sensitivity of the ears is taken into consideration in the world of jobs. In Germany the law requires that personal ear protection be provided if there is a decibel level above 85. If these regulations also applied to areas outside of work, then the capacity of a Walkman would have to be limited to 85 decibels. In reality, it is much higher. In discos and at open-air concerts ear protection should absolutely be worn. But, only those who are employed at these places actually use such protection; for the audience members such regulations are unfortunately not applied.

In order to get a more exact idea of the dangerous threats posed to the ear by noise, the following table shows a maximum allowed length of time without ear protection. (Table from M. Bryan, W. Tempest, Hearing Conversation Programs from *Audiology and Audiological Medicine*, Vol. 2, Pages 829-849, by H. Beagly, Oxford University Press, Oxford 1981)

Sound level	**Maximum Length of Time**	**Sound Source (Example)**
90 Db	8 hrs.	machine rooms, very heavy traffic noise
100 Db	48 min.	motorcycle without muffler at a distance of seven meters
110 Db	5 min.	air raid siren at a distance of thirty meters, steel mill
120 Db	30 sec.	air hammer at a distance of one meter, loud rock music at concerts
130 Db	always damaging	cannon shots nearby, jet at low altitude

The decrease of the maximum allowed time that is not damaging from eight hours with ninety decibels to thirty seconds with one hundred decibels has to do with the fact that with every ten-decibel increase, there is an increase in wave pressure of ten times. The rule of thumb is that with every three-decibel increase, the maximum allowable exposure time without damage is cut in half. Above 130 decibels there is always damage. A few years ago, before I knew anything about these things, I wanted to see a concert by Sting. I had already purchased a ticket, and on the back I read:

> *Concerts of this kind can be loud enough to cause hearing damage. The producers are not responsible.*

At the time I had no thought of wearing ear protection. Later I did, however, investigate further what could be expected with a volume of 120 decibels. I discovered that servicing jets produces that amount of volume. The employees not only wear ear protection, but entire bodysuits to protect

against sound waves which can otherwise damage body tissue. I changed my mind about going to the concert. I informed a stadium management employee about the effects of 120 decibels. She said, “It is the young people who come to these concerts. They want it this way. And, by the way, you’re the first person to complain.”

That rock concerts have become increasingly louder has to do with the narcotic effect of many large loudspeakers together, comparable to the effects of alcohol or strong sedatives. As with all addictive substances, with subsequent use, the volume must always increase in order to maintain the same effect.

[3] On July 16, 1990, a court case in Reno, Nevada was brought against the heavy metal band “Judas Priest.” The plaintiffs were the parents of two teenagers who had committed suicide by shooting themselves in the mouth with a sawed-off shotgun. On the cover of the “Judas Priest” album *Stained Glass* something similar is portrayed. The plaintiffs maintained that the record contained subliminal messages encouraging suicide. The group was found innocent of the charges. The sound engineer hired by the plaintiffs was not successful in convincing the court of the existence of subliminal messages. He would need the cassettes used to put together the album, *Stained Glass* and the record company would not release those tapes. The band was punished with a monetary fine, and nothing further happened.

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