

Speech Development from Spiritual-Scientific and Neurological Perspectives ¹

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There is hardly another part of the human being about which so much is currently being written and discussed as the nervous system. Everything that is determining for our life ethically, but also in terms of our understanding of the human being, is tied to this organic function. This is because we see the nervous system as responsible for everything the human being does: first of all for thinking, but also for our feeling life and for the will. Our nervous system, as a sensory-motor complex, is seen as responsible for everything. For this reason, our life is regarded as worth living only if our nervous system is intact.

Given this backdrop, we can understand Rudolf Steiner's statement that the whole of social life, human intercourse and the value of life are all influenced by this, in so far as one is of the opinion that the human being is a product of his nervous system and that this nervous system is the outcome of a person's genetic disposition in combination with what has transpired in the environment. This perspective results in a picture of the human being based on a totally materialistic understanding. One reduces a person to his nervous system that, seen from a purely material perspective, is formed from a basic genetic configuration – without looking at the being who forms, uses, and one day lets go of this nervous system. This can be clarified with a short case history.

A nine-year-old girl came down with the measles and, with severe symptoms, was brought to a clinic. Due to measles-encephalitis, one of the rarest and worst complications of measles, she quickly lost consciousness. The parents were given permission to look after the child around the clock. For three weeks she was in a coma caused by the illness, and then slowly woke up again, began to get better, was discharged and in half a year her health was fully restored. One evening, during her bedtime ritual, when a song was always sung, she asked her mother: "Mama, when will you sing me that beautiful song again that you once sung to me in the hospital?" The mother proceeded to sing all of the songs that she had sung at the time, but the desired song wasn't one of them. Now the mother was stumped, until it occurred to her that one night, when she was in total despair and didn't know what to do anymore, she sung a hit song from her youth – a touching, sentimental song about death, love and loneliness. She hummed the melody and her daughter began to beam and said: "Yes, that's the one!"

Out-of-Body Experience from an anthroposophical perspective

I am telling you this story because the singing of this song brought about a process that belongs to the riddles of the nervous system. This is a riddle that modern research and science are up against because many patients speak of it, yet it cannot be explained on the basis of the physiology of the brain.

On the basis of anthroposophy, we can clearly explain so-called out-of-body experience – the fact that one incarnates as death approaches. The etheric body is loosened, and the astral body and 'I' are closely connected with this etheric body. The etheric body doesn't disengage entirely from the physical body, yet far enough so that the review of one's life begins and the individual sees the body, with which it was connected, from outside. In this process, he perceives the entire surroundings. This perceptual capacity is an encompassing one; one is entirely in the periphery, but there is still a connection to the body. In this review of one's life, one sees one's life as a panorama, while also being aware of the current situation, such as how one's body is surrounded by people attending to it. Many people who were out of body due to anesthesia during an operation have forgotten their supersensible experiences once they come back – due to the medication. Most have no recollection, but 10-20% of heart patients, for example, do remember. They have recently begun to be asked about this, and one learns more and more how one must ask in order for the memory to suddenly come back.

The girl who was mentioned had forgotten everything. Half a year passed before some sound reminded her of the song and it suddenly occurred to her that her mother had sung it during her illness. This opened the door to her out-of-body experience during this time. One has to bump up against something sensory in order for what was a sensory experience to become a memory, quasi mirrored back by the consciousness by which the nervous system is supported. For this girl, the song was the doorway to her out-of-body experience. Her mother did exactly the right thing in this situation: She simply sang the song, and the entire atmosphere came alive again, also for the mother. Then she asked: "I thought you were fast asleep. How could you hear it? How could you remember?" At this, the girl reacted with astonishment: "But Mama, didn't you notice how I was accompanying and comforting you? I was there the whole time." Now the mother asked: "How do you mean that?" Through her questions, she was helping the child more and more to open up her consciousness. Thus the little girl told her that she had found it particularly exciting when the mother went with her blood from the intensive care unit to the laboratory, and described the entire way there and back. "I was there the whole time!" In today's ethics and understanding of the nervous system, the enigma of these kinds of experiences is not yet accepted and integrated into the existing views.

I. Foundations for Brain Development

Formative Spirit

The human being forms his own body, as Friedrich Schiller, who was also a physician [besides a poet and playwright], says in his dramatic work *Wallenstein*: "It is the spirit that forms the body." Or, as Leonardo da Vinci puts it in relation to the artist ²: The inexperienced artist wouldn't know that he reproduces himself, painting his own state of being. The experienced artist, by contrast, would be in a position, with the help of the forces of his own being – Leonardo da Vinci speaks of the "soul" – to give artistic form to objective elements. This would be the soul forming the body. If the human being would begin to work artistically, he would make a copy of himself. This is the reason why one fashions and forms oneself. In painting therapy, 'diagnostic painting' is based on this fact: We can read the pathology in the picture.

This is also the case with children's drawings. The drawings reveal the state of development, because children always draw themselves. But also in earlier times, before these concepts existed, great artists instinctively knew of these connections. The eternal element in us, our astral body and our etheric body form the physical body. When an organ is damaged, especially something as central as the nervous system, the spirit or mind is still alive, active and 'there', but the organ is no longer in a position to mediate between the activity of the spirit/mind and the environment. For the nervous system is primarily a junction, a place of interface, whose task is to mediate.

The Brain as an Organ of Relationship

Neurobiologist and neurophysiologist Thomas Fuchs of Heidelberg has written a book called *Das Gehirn – ein Beziehungsorgan* [The Brain – an Organ of Relationship; not translated]. He calls for a paradigm shift in today's neurophysiology when he says that the picture that one has of the nervous system in modern medicine, and which is based on genes, is incorrect. There are, he says, many experiments that substantiate this, so that this view should not be maintained. Thomas Fuchs, who is not an anthroposophist, speaks only of what he has researched himself. He shows in his book that the brain is constantly creating relationships lifelong, and that it forms itself solely on this basis. In a podium discussion I pointed to the fact that relationship is of a supersensible, soul-spiritual nature. He admitted that he doesn't yet have any clear concepts for this, and that this is not yet thinkable for him in his scientific context. Yet, he said, he could already say – and would limit himself to this – that what is of a soul and spiritual nature is also an expression of living processes. For him, life is relationship in an encompassing sense: spiritual life, soul life, bodily life – he didn't differentiate these, to begin with. Life is thus the epitome of a multi-configured relationship to the surroundings, nourished by reciprocal awareness, and the nervous system is in the service of this awareness. It is *the* organ of communication and relationship *par excellence*.

Speech and Brain

These connections form the bridge to speech. Speech is the main feature of communication and relationship in our life, and therefore has very much to do with the brain. Speech has a very strong relation to the brain.

In cases of peripheral or central damage to the nervous system, patients are often of the opinion that everything's no good now because the nerves are kaput. But nerves form throughout life; they have lifelong plasticity and can continue to assimilate and maintain relationships, as well as bring them to consciousness. They can react to relationships and can form relationships – on the organic level, but also with the corresponding consciousness-correlate.

Speaking, Remembering, IQ

An initial research result regarding our theme comes from Wellcome Trust Center for Neuroimaging of the University of London. This has to do with the research branch of neuroimagination. Teenagers were examined with regard to the role played by neuroimagination in speaking and remembering. IQ was measured, whereby one measures recall capacity, speech faculties and tactile intelligence. These are all brain tests covering motor activity, sensory activity and memory. The participants were tested and retested throughout the whole of puberty. To the great surprise of the researchers, it was found that there was an extreme change in IQ between pre-puberty – nine years old – and full puberty at the age of 14 and 15. Children who had very low IQs at the age of nine, for example in verbal skills, had peak IQs after puberty. The same thing applied to memory. It was noted that IQ development took a very individual course, and that no predictions could be made: When a nine-year-old is like this and this, one cannot say that he or she will be like such and such later on. As anthroposophists we'd say: Of course! In puberty the individual element first begins to take effect. This opens up entirely new opportunities. How a teenager develops further depends very much on the surroundings. Puberty is a precarious age. The reasons the researchers were very surprised about their results was because current doctrine in neurology says that a person has one and the same IQ for life: one is either intelligent or stupid.

"An increase in verbal IQ, i.e. in language intelligence and memory intelligence thus correlates with an increase in the density of gray matter."

They measured not only IQ but also brain mass, which can be done very well today with the help of MRI and other neuro-diagnostic imaging techniques. In this way it was determined that during puberty not only do numerous nerve cells die, but that the gray matter becomes larger and other areas become active, and that numerous new nerve processes [axons and dendrites] are formed – which means that the core nerve substance is continuously changing. This wasn't known before. There are only a few areas of the brain in which nerve cells are still reproduced from embryonic cells throughout life. These are the exception. As a rule, one has one's basic configuration. But this develops further, also with regard to size. It was observed that the further development of this gray matter takes place particularly in the course of speech development, which contributes a lot toward an improvement or decline in IQ. This fluctuation in IQ cannot be explained from a scientific perspective. It is discussed in terms of children being early or late developers.

"Besides this, scientists also see indications that the brain does in fact remain malleable throughout life and is constantly able to accommodate itself to new challenges."

If the challenges are of a negative kind, the child withdraws, becoming weaker in what he is able to achieve. If the child is challenged positively, exactly the opposite takes place. The brain is an organ of relationship, it accommodates lifelong – it mediates.

Seeing and the Etheric Body

Naturally, it is not only the brain that is involved in bringing about relationships, because *who is it that shapes and makes use of these relationships?* It is the soul-spiritual human being. From an anthroposophical perspective, the brain faithfully bears the stamp of these relationships and forms itself accordingly. It is the imprint or replica of supersensible perceptions, and thereby forms the organs. In *Study of Man*³ [also published as *Foundations of Human Experience*] Rudolf Steiner describes the process of seeing from the perspective of natural science. In summary, he says: *The eye is an apparatus based on physics, configured – right down into the lawfulness of the refraction of light – so as to refract and focus the light entering the eye.*⁴

It is built like a camera, with a lens and camera obscura – but this is only one aspect. The other is the fact that there is only very little life-sustaining etheric force in the physical nature of the eyes. It is for this reason that, seen in terms of the physical and physics-related attributes, they are so easily injured and tire so easily, and we always have to allow them to regenerate again and again. We keep closing them briefly – when we blink. The greater part of the etheric of the eye is quite loosened and body-free. It reaches out like a polyp or tentacle, and ‘touches’ everything in a sensing way. Our eyes always wander back and forth in the process of seeing. The etheric body is like a ray that touches and makes an image of everything, in fact *replicates*. With the help of mirror neurons, which have meanwhile been researched, this image can be held and, in turn, mirrored into consciousness via the nervous system. We do perceive also supersensibly: we see with our ether body, and the nervous system and eyes are the instruments for this. They are merely the intermediaries.

Rudolf Steiner’s definition of a sense, on which he built what he has taught us about the senses, can be read in *Anthroposophy (A Fragment)* of 1910: *“In the light of anthroposophy, everything can be called a sense that gives the human being occasion to recognize the existence of an object, being or process in such a way that he is justified in placing this existence in the physical world.”*⁵

It is essentially defining for our twelve senses that, when we engage them, we know at the same time that this is not a supersensible perception but that we are perceiving something of which we know that it is sensory, physical, present, verifiable. Today we would say that it is “intersubjectively verifiable”. If I see it, so do you. All other perceptions are supersensible. Thus the sense organs are also organs that give one the possibility to know that something is there in the physical.

This is a terrific definition. If one further pursues the path of Thomas Fuchs, one will be able to read about the organic correlates of the senses not only in anthroposophical books. One will come to understand and be able to acknowledge the twelve senses and their organs also from a mainstream medical perspective.

Laterality and Writing with the Right Hand

A second research result that is important for our topic relates to the laterality of right and left. In the lectures of April 6, 1923⁶ and May 2⁷, 1923, Rudolf Steiner speaks of lateralization and mentions how the left and right hemispheres of the brain are differentiated. Our brain has two hemispheres and, in the middle, the sulcus – a fissure. In Steiner's time – and something of this is represented in the two lectures mentioned – one was of the opinion that speaking is directly related to writing, and that, if one writes with one's right hand, the speech center is in the left hemisphere. In the case of left-handed individual's, it was believed to be on the other side. Rudolf Steiner links up with the knowledge of the times in order to make himself understood by his contemporaries. His view that one should help children to write with the right hand is also in accord with today's research. He never spoke of converting, but only of learning to write with the right hand; everything else could be done with the left. Writing with the right hand really is helpful, good and important, even if there are authors from time to time who assert the opposite, and with as much emotion and engagement as I myself. The basis for this debate is a vast topic of its own.

Right and Left Hemisphere

To understand the nervous system, it is important to know that the right hemisphere is strongly connected with the eyes. This hemisphere processes optical and spatial experiences. If a person is blind, it is connected with the area of touch. The right hemisphere is a space-hemisphere, an imaginative sphere, a primal, archetypal image-furnishing and image-bearing hemisphere. It is first developed during childhood, when its development is favored. Or put differently: The left hemisphere takes longer to develop. Specific lateralization to left-handedness or right-handedness comes about between six and eight years of age. Mixed or cross-dominance can be attributed to underdevelopment. At the age of five, one is still ambidextrous and usually not yet lateralized.

One could even remove one of the hemispheres of a five-year-old, and the child would hardly have any neurological deficiencies because everything is still so malleable and interconnected – but also because spatial capacities remain intact or are quickly “carried over”, since the **entire** brain takes part in the structuring of the right hemisphere, just as the entire brain is subsequently involved in the structuring of the left hemisphere. In a middle phase, it is decided what remains on the right and what on the left. This is a highly dynamic process.

What is decisive for us is that

- space, image, imagination, creativity and wholeness belong to the right half of the brain.
- time, analysis, differentiation, speech/language acquisition, music acquisition, sound acquisition and everything else related to this belong to the left half of the brain.

Thus we have at our disposition a pictorial, outwardly-directed perceptual capacity and a non-pictorial, inward-directed inspirational perceptual capacity.

Why did Rudolf Steiner want one to pay attention to orthography starting at the age of nine, when the decision has been made between right and left, and, up until then, to let children write what they hear, without being fastidious about spelling? This has to do with the fact that the left hemisphere needs more time for its development than does the right. If it is overly stimulated and challenged too early, for example by orthographic precision, something of the capacities of the right hemisphere are suppressed – capacities that account for the holistic, imaginative, one can also say spiritual, complex, structuring, creative perceptual potential. If the right hemisphere is suppressed too early, this results in a development in the direction of analysis, abstract thinking, lack of pictorial qualities, aridity.

Effects of Writing with the Left-Hand

When an analytical quality is quasi imposed on the right hemisphere of the brain due to writing with the left hand, a wrong impulse likewise takes effect on this hemisphere and needs to be worked through there. For this reason, it is of no help to let the child write with the left hand. However, artistic painting, everything imaginative, creative puzzles and activities that promote dexterity don't disturb the development of the right hemisphere because they are suited to it and even further eye-hand coordination, i.e. they support spatial development. This precise information has been available to us only for about the last 25 years, since the availability of modern imaging techniques. In this way, Rudolf Steiner's indications to further cross-dominance by trying to strengthen the weaker side with corresponding exercises acquire new significance.

II. Embryonic Development

In the third week of embryonic development, one sees the embryo for the first time as a bilaminar, and very soon thereafter as a trilaminar embryonic disk. In the fourth week this germinal disk configures itself wonderfully into a double-folded surface – the archetypal form of the etheric – concave and convex. The sheaths surrounding the body stalk allow the delicate embryo to swim in its watery sheaths. We now clearly see that a center is being formed within a large peripheral surrounding. This center has an outer cell layer, the so-called ectoderm, and an inner cell layer, the so-called endoderm, from which the organs of the metabolic organs are formed. All of the nerves and sense organs are formed from the ectoderm. The embryonic formative gesture and development, the entire imparting of form, is determined by the nervous system. It is the largest and most powerful, potent organ. When one looks at the embryo at the end of the second month, it forms a circle, and all of the organs are already there in their beginnings. No one understands why the embryo curves itself at four weeks. It would have ample space to stretch itself out. Prior to this, it is wonderfully outstretched. Why doesn't it just continue like this – hovering, floating? Why not?

The embryo forms a “human circle”, says Rudolf Steiner, so that the cosmic forces, the zodiacal forces, can work in from all sides, imprinting and forming the embryo.

In the first two months, we speak of embryogenesis, the formative phase of the embryo. Today one knows that in embryogenesis all of the organs become established, as far as their form is concerned. It is for this reason that the severest gestational deformities can come about due to infection or, for example, to extreme and regular alcohol consumption during this phase. These kinds of embryonic deformities arise on in the first two to two and a half months.

The Fetal Phase

After the second month, we speak of the fetal period. The embryo has now become a fetus. The organs are already formed. At this stage there may be abnormalities in how an organ matures, but not any more in the actual formation of the organ as a whole. The fetus just continues to grow and to shape its organs. The nervous system sets the pace for the entire process of shaping and forming. It is the largest, most prominent organ.

There are three embryonic formative gestures:

- A first gesture is the purely etheric one. The technical term is “proliferation”. Proliferation means the forming of new cells, i.e. growth.
- The second gesture is differentiation. Each cell becomes differentiated, specialized. For example, the forming of the hand takes place as follows: The first preliminary stage that gives rise to the fingers and hand is just a disk. To begin with, this disk first curves and then forms deep indentations from the periphery, until in the end the hand is formed. This involves a distinct process of differentiation, which is integrated with the process of proliferation.
- The third gesture is integration. This involves a process of integration that ensures that the fingers, for example, are later a proportional fit with the arm and the overall structure.

What it looks like when the human being has not yet completed the integration phase can be seen most clearly during puberty. The overall build is not yet harmonious: long legs, narrow trunk, retracted shoulders, giant-sized feet – not really beautiful. The wonderful last part of the maturing process, until the adolescent is fully grown, is for the purpose of integration: The growth forces of the ether body have done their work and already freed themselves; the astral body has completed the process of differentiation and has also freed itself; and now it is only the ‘I-organization’ that is still at work as an integrating force, harmonizing the whole.

In summary, the three formative gestures:

- the etheric body proliferates, allowing for growth;
- the astral body differentiates and forms intervals, analyses sequences and proportions;
- and the ‘I-organization’ integrates.

Speech-Forming Processes and the Working of the Finer Bodies

We find the three gestures again in how the finer bodies work together in the art of speech [a.k.a. speech formation or creative speech]. The etheric organism is responsible for the possibility of forming speech. There can be disorders in which the speech organs and the ability

to form sounds are affected. But forming sounds is not yet speaking. Animals can also create sounds, but this isn't "speaking".

Spoken language requires the ability to structure and to analyze – the ability to differentiate sounds, and to form each sound separately. This is an impulse of the astral body. But it is the 'I' that speaks and that plays upon this claviature of etheric potential and astral differentiation, bringing into being a wonderful and differentiated whole. Speech has its seat in the astral body, and receives from the etheric the possibility to shape. The 'I' has the task to come into relationship with itself, with God and with the surrounding world by means of this instrument, in order to become a speaking being.

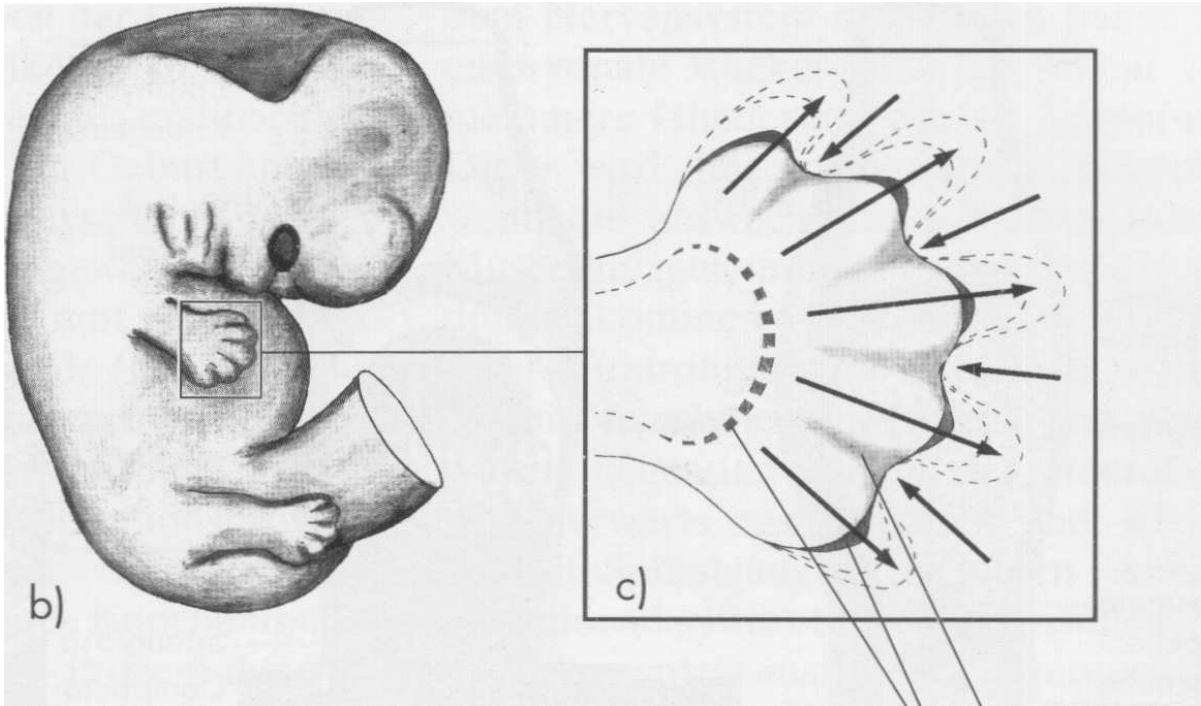
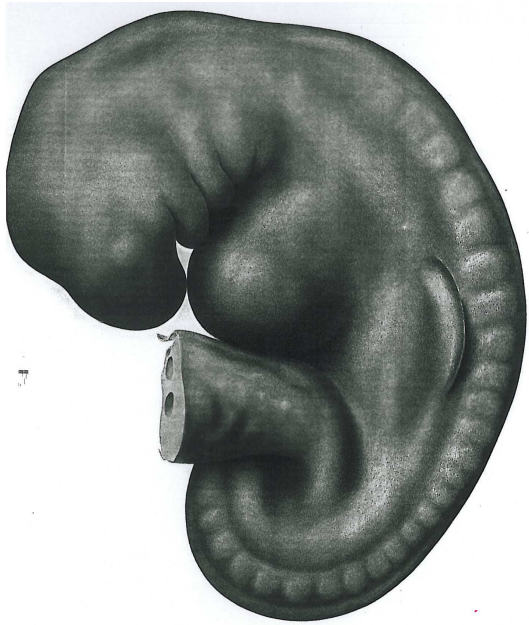
Accordingly, we have three characteristic traits in regard to the finer bodies:

- The capacity to recognize and form larger connections – with the danger of mixing up specific details and not correctly cognizing them because one can't analyze. (Ether body)
- The capacity to clearly structure and analyze, thereby creating word- and sound-connections; i.e. the ability to create and recognize small combinations and relationships, right down to fragments and syllables. (Astral body)
- The capacity to coordinate the whole in such a way as to deal with it as an instrument at the disposition of the 'I'. It is an enormous job for the 'I' to hold sway without being "bothered" by the lower finer bodies' too strong tendencies of their own.

These three "building sites" are ongoing throughout our development.

Polar Growth of Nerves and Limbs

Embryology provides us with a "read" on the formative growth gesture of the limbs-pole and of the nerve-pole. At the beginning of the fifth week of embryogenesis we have the beginning of the development of the limbs. We see something like tiny bulges or buds sprouting and pushing themselves out. Then small invaginations begin to form from the periphery, which dig deeper into the limbs that are pushing themselves out, until the hand has formed itself. Then comes the lower arm; following this, the upper arm is slowly formed, and at the end of the second month the entire arm is there. Hands and feet, arms and legs – all grow from the outside inward. The first thing to appear is at the periphery, not yet structured, purely etheric. This is followed by a differentiating impulse: the fingers become articulated, and finally the parts are integrated into the whole, creating an instrument that fits the body.



Ectodermal ridge Necrotic zone

Illustrations: Development of the hand, starting with a plate-like beginning, whose ectodermal thickened edges induce the development of the fingers. The inter-digital necrotic zones have been marked (wedge-shaped, shaded areas).⁸

The forming of the nervous system takes place in a fashion that is polar to these three formative gestures: The nervous system forms itself from the inside outward, in an evagination process. By contrast, the hands and feet appear from the periphery inward: the distal aspects are the first to appear, while the proximal aspects appear later on.

III. The Nervous System – an Organ of Perception

These connections are of fundamental importance for our understanding of the nerves. According to Rudolf Steiner, all nerves are sensory nerves, even the so-called motor nerves. Neurological science says that the nerve is what makes the movement take place. And this is true: If one would sever the nerves in my arm, I would of course no longer be able to move it. So how can there be no motor nerves?

Rudolf Steiner elaborates: *The 'I', the musculature, the blood – these are all about movement; they bring about movement. And we are able to move consciously and skillfully only because the nervous system perceives on the one hand the movement of the blood and muscles and on the other hand my intention to move.*

The human being forms himself from two directions – from the periphery and from the center... from the destiny aspect, of which we are not aware in our daytime consciousness and in our self-aware 'I'-being, and from our self-aware daytime consciousness.

- The “social human being” of the higher self or 'I' works in from the periphery via the limbs as the destiny-being that is unconscious to our daytime consciousness and self-aware 'I'-being, and guides us through life.
- The nerve-supported human being that works from the center reflects and attempts, to the best of its ability, to harmoniously bring together self-consciousness on the one hand and world-consciousness and destiny-consciousness on the other.

The nervous system serves as an organ of relationship between these two “people”, the unconscious peripheral will-person and the conscious, central nerve-person. The nervous system forms itself out of the dual activity of guidance from the periphery and reflection in the center. For this reason, our understanding of the higher 'I', of social life, of the night side of existence is closely related to another understanding of the nerves – to the recognition that the nerves always serve perception: sometimes for impulses from the periphery and sometimes for impulses from the center. These polar directions of perception have it seem as though some nerves are sensory nerves and others are motor nerves. In reality, both are sensory nerves, because both of these polar directions serve perception.

This is incredibly significant for therapy.

IV. Speech and Language Development in the First Three Years

Given the background that has been presented, it is understandable that in the first year of life the child concentrates all of his forces, his entire nerve activity and sense activity, as well as his capacity for relationship, on one thing: on the perception of his own body in relation to the surrounding space. He concentrates totally on the formation of the right hemisphere and its characteristics. This results in ongoing bodily activity in order to become aware of oneself as a totality and bring oneself into uprightness, and to be able to make the brain the crowning of this verticality.

In the first year of life, the most dramatic development of the nerve cells takes place. The processes of development, elaboration and configuration take place most quickly in this first year and then become increasingly slower. Brain development is first and foremost connected with the achievement of verticality of the human form and with the awareness of all of the organs that, due to this verticality, acquire a new position, function and relationship to each other. The first step is the integration of all of the organs into the upright human form. What kind of a formative, structuring gesture is this? What does it have to do with the spoken word?

Verticality and the Foundation for the Spoken Word

This first developmental stage is the foundation of speech development. All of the organs first develop and then attune and adjust to each other. The larynx must first become totally free and in place, so that it can come into relationship with all of the other organs and be in coordination with them. It is for this reason that we are able to heal organ-based illnesses by means of therapeutic speech. The foundation for this consists of the developmental connections in the first year of life – the forming of speech by the human being who has come to uprightness and whose organs have come into relationship with one another. Before this has taken place, speech is not possible.

The preliminary stages of speech development that we hear during the first year of life – speech sounds, sound gesture – are all formative gestures that build speech. They are not yet speech, yet from the very beginning are highly intelligent and holistic. Research shows that already right after birth children live in holistic, intelligent interconnections of reaction and meaning. Right after birth the mother's or father's laughter is already imitated. As a formative gesture this is a highly intelligent communication process. One has always wondered at the fact that when children begin to play with objects during their first year, they use building blocks to build vertical towers. It would certainly be a lot easier to build horizontally. Researchers are amazed at these towers and don't know what to make of this phenomenon of vertical construction. In his creativity, the child does what his body is doing. In his formative processes, he is oriented entirely toward coming into verticality.

Horizontal Gesture of Speech Acquisition

After verticality as the foundation for speech development now comes the next step: the horizontal gesture of speech acquisition. Speech acquisition depends primarily on the quality of hearing. Whoever observes a child learning to speak can see how the child sometimes listens for days – only listens. Sometimes one also sees how the lips move in imitation of movement, but the child doesn't yet speak. He hears, listens, imitates and practices. Speaking develops entirely out of hearing. Speech acquisition builds upon learning to hear.

Due to the fact that hearing is being practiced, we notice that the left hemisphere attains a first stage of basic maturation. In hearing, the child now learns to differentiate individual speech sounds and individual intervals. It can happen in this first phase of speech acquisition that children regress in regard to the development of the first year: that they become clumsier and fall down more easily again because they are now concentrating entirely on hearing and on acquiring speech, at the cost of what they have already attained. Their entire attention is dedicated to differentiating, to assimilating what has been heard, to speech acquisition.

The Integrative Gesture of Speaking

The third stage stands under the sign of integration. What matters here is the bringing together of the spatial forms with all of their relationships, speech acquisition and the forming of speech, the fact that everything that exists in space 'speaks' to each other, and that everything has been configured and shaped, has a physiognomy, is supplied with forces – to bring this together with the imageless, analytical acoustic world of the individual speech sounds and isolated meaning-connections.

How does one bring these two worlds together in such a way that now a third step becomes possible: speech that is based on communication with oneself in thinking? How can the child form words out of thinking, and create thoughts from words?

The three primordial gestures of development presented at the beginning also correspond to the three essential stages of development of the child during the first three years. In the lectures mentioned, Rudolf Steiner describes the incredible wisdom that brings it about that the child is able to concentrate on coming into uprightness, able to learn to listen into the communicative horizontal level, and able to lift itself beyond time and space and thus awaken in pure thought consciousness and to notice: I am thinking. Earlier, the child also has thoughts, but knew nothing of this. Earlier, the child also had words, but could not utter them. Only when the child knows of its own existence, and begins to consciously reflect and slowly acquire control of its movements and actions, does conscious speech acquisition begin. Suddenly these two developmental streams merge: the one that issues from self-consciousness, and the other that is purely the result of the will and of unconscious spiritual guidance, and which is the impulse for the developmental events of the first three years. The latter becomes pushed back more and more in order to increasingly make place for the centered, reflecting human being.

V. Understanding Various Speech Disturbances

Following on the formative gestures that have been described, three kinds of speech disorders need to be distinguished in the first three years of speech development.

- **Speech production disorders:** Here the underlying causes are to be found in an organic malformation of the speech organs or incomplete development and reforming of the speech organism following the process of coming into uprightness.

- **Speech acquisition disorders:** In the case of an acquisition disorder, the situation is entirely different. The speech organs are normal, but there is a communication disorder: The child wasn't allowed to learn to hear. The child wasn't allowed to practice; one didn't listen to the child; he wasn't allowed to finish what he was saying – he had no possibility of practicing. When one observes the speech development of children in their second and third year of life, one can see how susceptible this phase is to disturbances: how children sometimes go mute, withdraw, suddenly say nothing for days on end. But one can also observe what gets them to speak and to practice. Thus this is a completely other kind of disorder.

- **Loss of speech:** In the case of loss of speech, there is the question as to the degree to which the 'I' is able to take hold of the body as its instrument and bring about a relationship between itself and the world. For people who have lost their speech capacity through trauma, accident or stroke, the potential for recovery is thanks to the fact that the mind is still intact. This is where one must begin, with all optimism and courage, with everything that one knows, for example: that nerves regenerate lifelong; that large hemorrhages can recede; that it's about practicing consistently, keeping at it, and using the capacities that one has. One should tell the person: The brain is an organ that is about relationship. Take up this spiritual relationship, live and practice with what you have; then much can be rebuilt.

Translator's note: The German word 'Sprache' can be translated as 'speech' or as 'language', depending on what is meant. In this lecture, it refers primarily to 'speech', except where otherwise noted. In the verse that follows, 'language' is the more encompassing term, which is

here understood to include the spoken word.

To one who grasps the sense of language
The world reveals itself
In image form.

To one who hears the soul of language
The world unlocks itself
As being.

To one who lives the spirit of language
The world bestows
The strength of wisdom.

To one who can love language
Language gives
Of its own power.

So will I turn my heart and mind
Toward the spirit and soul
Of the word;

And in my love for it
Now feel myself
Complete.

Rudolf Steiner

¹Lecture given at the conference for Therapeutic Speech, held in Dornach on October 27, 2011. Reworked by Claudia McKeen and Eveline Staub Hug, while retaining the style of the original oral presentation.

²From the notebooks of Leonardo da Vinci.

³*Study of Man* (German bibl. no. 293)

⁴Ibid.

⁵*Anthroposophy (A Fragment)*, p. ?? German bibl. no. 45.

⁶*The Forming of Destiny in Sleeping and Waking* (German bibl. No. 224). Published in *The Golden Blade*, 1973.

⁷*The Cosmic Word and Individual Man* (German bibl. no. 224). Published in *The Golden Blade*, 1951 from a shorthand report unrevised by the lecturer.

⁸Illustrations from: J.W. Rohen/Elke Lütjen-Drecoll, *Funktionelle Embryologie [Functional Embryology]*, Schattauer-Verlag, Stuttgart, 2006. Not translated into English.

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