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Introduction

Dear colleagues,

we look back with gratitude to Easter this year. The big conference of the international early years' movement and the worldwide school movement, which had the theme "How the Self finds its Way," lies behind us now. This major two-part conference was a celebration where lectures, work sessions, scientific plenary and evenings with student presentations and eurhythmy performances alternated with conversations and encounters of people from all over the world – all the result of an extended period of thematic and gradually increasing organizational preparations. The Goetheanum was once again filled with life and that was good to see!

We would like to take this opportunity to thank Christof Wiechert once more. He was in charge of the World Teachers' Conference for the last time this year and he went about these tasks with his usual verve and cheerfulness, which gradually infected others so they looked forward eagerly to the crowning celebration.

We are happy and grateful that many colleagues were keen to take part and that we were able to help many of them financially thanks to the donations we received. A warm thank you for that!

We have sent a special edition of our Journal to all conference members, with copies of the lectures and other contributions on the theme. Please ask your colleagues for their copy. Some of the articles could not be included yet in both languages in the special edition. You will therefore find further translations in this journal (the lecture by Maximilian Moser) and the next.

With this year's World Teachers' Conference Christof Wiechert stepped down as section leader and passed on the task to his two successors. In his progress report Florian Osswald describes the tasks and plans of the section. We also include the annual accounts for 2011.

Claus-Peter Röh looks in his contribution at the question of how the healthy relationship between teacher and pupil is necessary for a strong and successful education. If you would like to further deepen this question you can, apart from studying the content of this issue and the recommended further reading, take part in a conference on the theme that will take place in Dornach in October. For more information see our homepage (www.paedagogik-goetheanum.ch).

In this issue we finally publish the English translation of Roland Halfen's article on "How we do not perceive thoughts". The German original was already in the 2011 Christmas edition (No. 43).

Albrecht Schäd's contribution deals with the "seven-year-rhythm", which is relevant to education in that it supports children in their development if they can re-connect with it. You will find the English translation of this text in our next Journal.

Two contributions focus on another big conference: at Easter 2013 the Goetheanum will host the first World Foreign Language Teachers' Conference.

A preparation group is working intensively on this and gives a first brief glimpse of what lies ahead in two introductory contributions. More articles on the theme of foreign language teaching will follow in future issues of the Journal. For more information on this major conference please visit the Pedagogical Section's homepage at www.paedagogik-goetheanum.ch and click the “*events*” button.

We are looking forward to seeing you in April!

Warm regards to all colleagues

from the Pedagogical Section

Pedagogical Section progress report

2011 was a year of transition. On 1 January Christof Wiechert passed the leadership of the Section to Claus-Peter Röh and Florian Osswald.

The new form of leadership had opportunity to establish itself during this year. Having two leaders is the beginning of an impulse that will be developed further in the years to come. Based on the principle of individualization, which is fundamental to the Section's activities, a group of people will be identified who will work with the section leaders on research and development in Rudolf Steiner's art of education. The dual leadership is also a gesture of cooperation, and expression of the ongoing, ever new, dialogue with the tasks of the Section.

The activities of the Pedagogical Section have been widely expanded in recent years. Heinz Zimmermann and Christof Wiechert built up a global network of relationships. One of the first tasks of the new leaders was therefore to get to know the various partners and coordinate the fields of activity. Our encounters showed us the special position the Pedagogical Section is fortunate to have within the school movement. The Section has been able to give impulses through articles, seminars, lectures and participation in training courses all over the world (South Africa, USA, Argentina, China, India, Spain etc.).

We felt the need to facilitate the dialogue between the various organizations that support children, adolescents and the training of teachers. The intensive cooperation with the international early childhood movement (IASWECE) or the discussion of training questions at international level (such as: how can the increasingly academic approach meet the needs of today's children?) are two examples. The discussions fostered a mood that allowed the creative potential to emerge and generated more openness for the initiatives of others.

With that in mind, we planned our two conferences: the World Early Childhood Conference and the World Teachers' Conference. Our intention was to create a space where the archetypal pedagogical question as to the relationship between I and body could be intensively worked on. We hoped these conferences would yield impulses and methods for fostering a healthy and individual relationship of I and body. Again we see a dialogical gesture: the dialogue between the two levels of existence: I and body. The better this dialogue can unfold, the more harmoniously the intentions of the individuality can be realized and the easier it will be for the I to find the healthy middle between being tied too closely to the body and being too detached from it; that is, between de-individualization and anti-sociality.

Another wide field is that of school management. The questions of decision-making and of working together are in a state of limbo. In the everyday school routine we cannot do without decisions. The question as to what inner attitude

informs the decisions revealed a great need for an inner deepening of the foundations of education and for a professional esotericism.

The Section sees it as one of its particular tasks to raise awareness for the School of Spiritual Science and to ask how it can be a source of strength in everyday life. The research into meditation will create the basis for all spiritual work. There is an urgent need to develop forms of working together. The following questions crystallized in many conversations: How do free human beings work together and what inner attitude do the new forms of working together require? According to Rudolf Steiner, school should be rooted in the free spiritual life. “All teaching and education must be developed solely out of the knowledge of the growing human being and his or her individual disposition. True anthropology must be the foundation of education and teaching. We will not ask what young people need to know and what they need to be able to do to support the existing social order, but what lies in the young person as disposition and how we can help this potential to unfold.”

This future impulse needs an appropriate form. Rudolf Steiner requested that the teachers should assume full responsibility for the management of the school: “In a true teachers’ republic we will not have the comfort of receiving directions from the Board of Education. Rather, we must bring to our work what gives each of us the possibility and the full responsibility for what we have to do.”

This ideal when it comes to school management does not make sense unless we foster an entrepreneurial attitude. What nurtures the hope that teachers are capable of such an attitude? One important aspect of entrepreneurial thinking is anticipation. Anticipating in this case means investing in the future. Taking the risk of venturing the future is a fundamental principle of entrepreneurialism. It is the same with Rudolf Steiner’s educational impulse. The teacher must be in constant development. The teacher studies what is evolving and teaches accordingly. Teaching therefore means, first of all, anticipating, and what has been anticipated will then be brought to realization in the actual teaching situation in interaction with the pupils. Lesson preparation is then pure risk capital – provided it holds the potential of enabling the teacher to do what is relevant in a given moment. The learning process only starts, however, when we look back over what happened. The exercise of reviewing enables us to wake up increasingly to the future, to what is evolving. In preparing our lessons we anticipate what will emerge in the lesson and afterwards we look back to see what has happened. This is how we develop the entrepreneurial skills we need for school leadership.

Apart from that, the school also needs a solid foundation. Every event generates two streams: a stream of memory forces and a stream of future forces. It is the task of memory to form the skeleton of our existence. We can remember things and we can describe and retain processes. The second stream, the anticipation described earlier, can only be seen in retrospect. We have to make an

effort to take hold of it. Only a will effort, a conscious decision can awaken it. It involves a will effort. In this stream lives our I. It teaches us that events reveal only part of their potency in the given moment, but will reveal themselves fully in the future. In this sense, the entrepreneurial approach is intimately connected with the approach to teaching.

The entrepreneurial element is the I-activity of school management.

There is nothing arbitrary about leading a school. School management has a firm place in Rudolf Steiner's pedagogical impulse. This is an area of research that could supply contributions to the subject of school leadership.

We would like to warmly thank all colleagues worldwide for their positive support and look forward to our continued working together on Rudolf Steiner's pedagogical impulse.

Florian Osswald
(translated from the German by Margot M. Saar)

Finances of the Pedagogical Section 2011 in Swiss Francs

	Spending	–	Income
	(rounded figures)		
<u>Pedagogical Section</u>			
salaries	373'500	–	
administration	11'300	–	
grants for institutions	7'000	–	
project-related donations		–	64'000
<u>Travelling</u>			
travel expenses	43'000	–	
reimbursement of travel expenses		–	35'500
fees/donations		–	67'500
<u>Journal</u>			
printing costs	8'400	–	
translation	2'000	–	
postage	6'500	–	
donations for projects		–	5'500

	Spending	—	Income
<u>Conferences</u>			
income		—	238'000
conference costs	212'000	—	
travel expenses	16'000	—	
printing costs	5'000	—	
postage	2'000	—	
project-related donations		—	11'000
<u>Special Projects</u>			
Travel expenses guests	2'000	—	
meeting upper school teachers	2'100	—	
project-related donations		—	7'000
<u>Mentoring</u>			
travel expenses	31'300	—	
project-related donations		—	36'000
<u>Hague Circle</u>			
travel expenses	21'400	—	
Project-related donations		—	29'000
<u>Donations</u>			
general		—	6'000
institutional donations		—	11'000
donation German association of Waldorf Schools		—	99'000
donations of other european countries		—	16'000
Total	743'500	—	625'500
<u>Religion Teachers' Conference</u> (separate budget)	5000	—	10'000

Inner mobility, artistic activity and the importance of “being in touch”

The following contribution concerns a question that lives strongly in today’s school movement: in what way is the healthy teacher-pupil relationship a prerequisite for a strong and successful education? Let us look at Rudolf Steiner’s indications in the Faculty Meetings up to October 1922 and compare them with his Stuttgart lectures to “The Younger Generation” of 3 and 15 October 1922 (GA 217) to find an answer to our question.

From the joy at founding the school to the concerns of 1922

During the second meeting Rudolf Steiner had with the faculty of teachers after the first Waldorf School in Stuttgart was founded, he spoke joyfully about the relationship between pupils and teachers: *“The most important thing is that there is always contact, that the teacher and students together form a true whole. That has happened in nearly all of the classes in a very beautiful and positive way. I am quite happy about what has happened.”*¹

Three years later things looked quite different. In the faculty meeting of 20 July 1922, Rudolf Steiner expressed “the greatest concern” about the highest grade at the school (class 10). Later, on 15 October, he deplored the lack of contact among the teachers as well as between teachers and pupils: *“The fact that, for instance, there really is no contact among you ... That everyone goes their own way is connected directly with how the school itself is.... In a moral sense, everyone is walling themselves off, and we will soon be at a point where we do not know one another. ... What each individual does must affect others and become a strength in the society. What we need is a joyful recognition and valuation of what is done by each individual. ... You should speak about what is worthy of recognition. ... Negative judgements are justified only in connection with positive ones. ... To a large extent, the contact between student and teacher has been lost.”*²

Beauty as the interpreter of truth

Just before he expressed his concern so seriously in the faculty meeting, Rudolf Steiner had spoken emphatically about the relationship between the younger and the older generation as crucial for the future of education in his lectures to young people (GA 217). In the lecture of 11 October 1922 he pointed out that a transformation had to take place between the imitation-stage of childhood and the time when the first purely intellectual conveyance of knowledge can be

1 Faculty Meetings with Rudolf Steiner, GA 300, vol. I, 26 September 1919, p. 55. Hudson 1998. Tr. R. Lathe and N. Whittaker

2 *ibid.*, 15 October 1922, vol. II

introduced in the 18th or 19th year: *“For this intermediate period we must find the solution of the most significant world-problem; upon these problems depends the future progress or otherwise of human evolution – even its total submergence. The question is: how must adults handle children between the years of imitation and the years when knowledge can be given? Today this is one of the weightiest of all cultural questions.”*³

We come across the same emphasis on the necessity of a cultural renewal in our time at the beginning of “The Foundations of Human Experience” in 1919. Three years later, in his course for young people, it leads to the connection of three levels in education:

- What kind of relationship between educator and pupil is appropriate in the age of the spiritual (or consciousness) soul?
- What do education and teaching during the school years have to be like so that the world and its manifestations are not only grasped and experienced purely intellectually, in the head, but – in a future-oriented way – by the whole person, heart and soul?
- What kind of method will lead to this goal?

Rudolf Steiner’s answer was as unexpected as it was provocative for many of his listeners in 1922: *“The period between the age of imitation and the age at which the human being can receive knowledge in the form of truth must be filled if humanity is not to pine away. This must be done by giving the human being with artistic beauty what he needs for head, heart and will. During the primary school age and far beyond it, for as long as education holds good, the whole teaching must be warmed through and fired by the artistic element. During the primary school years everything must be steeped in beauty, and in later years beauty must rule as the interpreter of the truth.”*⁴

We find vibrant examples for “beauty as the interpreter of truth” if we look at the rich imagination that prevails in the lower classes of the Waldorf school: where contents are brought to life in beautiful language and pictures, ensouled movement and animated melodies, the soul of the child is still in touch with the inherent truth of his or her experience. In our time it is, however, necessary for teachers, children and also parents to constantly regain this union of beauty and truth and carry it into life.

The experience of beauty is much more differentiated in the middle school. In the interplay of sympathy and antipathy the pupils’ questions and thoughts

3 Rudolf Steiner, *The Younger Generation. Educational and Spiritual Impulses for Life in the Twentieth Century*, GA 217, lecture of 11 October 1922. Great Barrington 1976. Tr. R. Querido

4 GA 217, *ibid.*

become much more conscious and targeted, while they have a profound need to experience beauty in the artistic activity and love for their work. How deeply middle school pupils connect emotionally with their work can be observed in the lesson when, in the process of the artistic activity, they grow to the point where they begin to have new, high expectations of their own work. Watching a class 7 look at the exhibition of their successful art work from the previous day, we notice that many pupils are, in a very subtle way, astonished at their own achievement.

The dual perception of beauty

In upper school pupils we clearly see the growing involvement of consciousness with the artistic activity: When, at the end of their combined English-Art main lesson, class 11 pupils paint “Parzival” pictures, we experience how each of them decides in an existential, individual way for “this and no other” motif from the story. This conscious entering into the subject-matter is enhanced if they describe their choice of topic in two key sentences. –

But this is only one – the conscious – side of perceiving beauty. Another – unconscious – perception is at work when we look at the picture: the choice and use of colours and forms, the colour nuances, the resonance and atmosphere of the image-space that has been created... When the observer quietly takes in the picture, an inner “dialogue” can emerge between the elements that one grasps consciously and those that work unconsciously. Rudolf Steiner described this process as the dual perception on the part of two members of the human organization:

- *I and astral body enter into a conscious relationship with the art work.*

- *physical body and ether body unconsciously take in the effect of the painting or sculpture*

It depends on the consonance of the two whether or not the observer experiences the object of his observation as beautiful: *“If the two experiences cannot be made to harmonize, it means that the work of art in question is not understood; in consequence, it is regarded as not beautiful. For beauty to be experienced I and astral body on the one hand, and physical and ether body on the other must be able to vibrate in unison, must be in agreement. An inner process must take place for beauty to be experienced. ... Just think of all the possibilities that exist, in the experience, for agreement or disagreement.”*⁵

5 Rudolf Steiner, Aspects of Human Evolution, GA 176, lecture of 3 July 1917. Hudson 1987. Tr. R. Stebbing

From will activity to flexible thinking

It is this immediate dual effect of the artistic and beautiful on the whole human being that should determine the relationship between educator and child in our time. The subsequent lectures of the same cycle describe the effects of such an “*education in artistic form*”, if it is successful:⁶

If, in education, the child first meets truth in beauty,

- inner activity, right into the will, is kindled in the teacher and in the child,
- as a result the child will naturally accept education from the teacher,
- “*in this inner play of forces*”⁷ a quality of thinking can grow “*freely*” out of the inner will activity and remain active even in the absence of sense impressions.

Here, Rudolf Steiner refers to the will quality of “pure thinking” that he developed in his *Philosophy of Freedom*. It is described as identical in essence with the artistic activity in education: “*So that the moment pure thinking is experienced as will, man's attitude becomes that of an artist. And this, my dear friends, is like-wise the attitude we need today in the teacher if he is to guide and lead the young from the time of the change of teeth to puberty, or even beyond puberty. ... Only out of this free activity can education really be experienced as art, and the teacher can become an artist in education when he finds his way into this mood.*”⁸ If, in the free union of activity, active will and active thought, this artistic mood arises, the teaching is transformed at several levels:

- The teaching contents are no longer experienced as objects outside the self, but grasped in their essence by the thoughts. This change in thinking, in itself, will inspire different teaching methods. When letters are introduced artistically in class 1, the children are not confronted with ready-made signs, but they can experience the inner life of the sounds in greatest activity.
- The development of each child or adolescent can find deeper reflection in the spirit and soul of the teacher. As a result the teacher can, for instance, feel and think the Rubicon crisis, which occurs at the age of 9 or 10, as the child's transition from being carried by the astral body to the awakening of the “*I-forces*”.

Individuality has only intensity and quality

A third stage of transformation leads us to look at the events of 1922, which are described in lecture 11 as a one-sided culture of over-emphasizing and overrating the head forces while neglecting the human being as a whole. Rudolf Steiner contrasted this one-sidedness with the transformative forces that the human individuality is able to develop today: “*Education must have soul, ... We*

18 GA 217 (see note 3), lecture of 12 October 1922

19 *ibid.*

20 *ibid.*

can have soul only through what we are artistically. ... All instruction must therefore be permeated by art, by human individuality, for of more value than any thought-out curriculum is the individuality of the teacher and educator. It is individuality that must work in the school."⁹

With everything that children bring with them from before birth they stand as individualities before the individuality of the teacher. If the teacher succeeds in transforming the lessons so that they are imbued with the artistic impulse, the karmic forces that the children bring with them can come to life and take effect. The essence of the individuality can only be described as an active, creative force: *"... what does not lend itself to be grasped in concepts but is manifested in the teacher; and it resists conceptual form. Concepts have form, that is to say, external limits. But human individuality in the sense described has no external limits, only intensity, quality; it is experienced as quality, as intensity, very particularly in the period of life referred to. It is experienced, however, through no other atmosphere than that of art."*¹⁰

With his lectures to "The Younger Generation" Rudolf Steiner provided a theoretical foundation for the force of transformation and evolution that comes from the future and wants to be brought to living, active fruition in schools. Steiner's joy about the contact between teachers and pupils at the time when he founded the first Waldorf school and his later concern about the lack of such contact, are dynamically enhanced by the parallel gradual unfolding of the future-oriented lectures to "The Younger Generation": A truly living artistic mood is a spiritual reality that allows the spiritual powers inherent in each of us to unfold and come to realization.

Claus-Peter Röh
(translated from the German by Margot M. Saar)

9 GA 217 (see note 3), lecture of 13 October 1922

10 ebenda

How we do not perceive thoughts

To Wolfgang M. Auer's response to Detlef Hardorp's essay on thinking and the sense of thought (Journal of the Pedagogical Section at the Goetheanum, November 2010)

Wolfgang M. Auer begins his reply to Detlef Hardorp's essay with a scene from Brecht's *Life of Galileo*, deriving from that scene his basically devastating verdict on Hardorp's considerations: "Here is someone who speaks about perception without going into the matter." Since Auer seems to claim the 'going into' the perception for himself, it is only legitimate to examine his deliberations against this claim. The significant part of his reply begins with the words: "Experience teaches us something different, however. Let us look at this more closely."

Auer points out that the sense of thought is active when we perceive a person who is immediately present and who articulates his thoughts through speech. So far he is still in agreement with his opponent. But he then begins to move away from this consensus, taking first small and then bigger steps. As a first step Auer dwells on the different languages that make it possible to express a thought in various ways. He then moves from speech as the medium of thought to the gesture as a medium of communication. Sign language, he suggests, can be a medium of communication too, and so can a sign that is traced into a person's hand as "tactile language" or tactile script. The key sentence in Auer's generalization is: "We can perceive thoughts and meaning in all forms of language, including everything that people can construct or create." We realize that the sphere where, according to Auer, the sense of thought is active is determined by inference, i.e. by generalizing the concept of "language", not by looking more closely at the actual sense perceptions.

Intellectual inference as such is not necessarily wrong. Let us therefore ask whether experience can confirm that we derive meaning directly from gestures, as Mr Auer suggests? A thinking person who speaks can surely, with his gestures, lend emphasis to his words. It is equally true that the observer of such gestures might discern in them nuances or aspects that the speaker did not express in his speech or did not intend to express. But can this phenomenon be just as easily generalized? And, more importantly: can we still speak of "perceiving thoughts" when the gesture is detached from the speech that is heard simultaneously and from the thinking of the speaker that is articulated in his speech?

I think not. Because there are too many gestures whose meaning cannot be grasped just by sense perception unless we have learnt before what they signify and can assign meaning to them, out of ourselves, as soon we perceive them. If you form a circle with your thumb and first finger, it will mean something *totally* different in sport diving than it does in traffic. Numerous examples could

be lined up here to prove that we do not directly perceive the meaning of a gesture or sign, especially if it serves as a signal, but that – for the sign to have meaning – we need to fill our perception with content based on appropriate, previously acquired, knowledge.

Experience does not confirm the proposition that, with any medium which – like language – lends itself to conveying information, we perceive the meaning conveyed directly through the senses. The reason why we think that we immediately perceive the meaning of a sign or gesture lies not in the fact that this meaning is indeed sense-perceptible, but in the fact that this meaning appears in our consciousness with such immediacy and ease. This immediacy is, however, due to previous practice and familiarity. The untrained reader struggles through every word while the fluent reader does not need to spend time on the process of interpreting but can concentrate on the meaning his reading evokes.

We realize that Mr Auer does by no means enter into the sense experience as impartially as he professes to do. Instead, he is guided by a line of thought that blurs the distinction between the thinking which is active in a given moment and the language which is the medium of that thinking. As a result Auer can, in generalizing the concept of speech, transfer the “activation of the sense of thought” by implication to other areas of experience. In short: since one can, in a way, refer to many things as language, the sense of thought is activated in all those things.

Mr Auer then moves on to child development and proposes that children learn the meaning of things solely through sense perception. When he introduces the vivid image of a child playing, that is probably meant to suggest that we now enter into the actual sense perception, the author unfortunately leaves the realm that is immediately perceptible to, and examinable by, him or the adult reader. For, in the case of the child, neither Mr Auer nor the reader can perceive the activity or content of the sense of thought. These are pure conjecture based on externally observed events. What really goes on in the child’s consciousness is concealed from the immediate sense perception of the onlooker and can, also in the case described, only be assumed from the signs observed.

What Auer presents as a perception process in the course of which the infant arrives at the concept of a ball is therefore not even remotely suitable as evidence, but is mere speculation. That the infant doesn’t form the concept of a ball through logic reflection, by assembling a series of sense-given data into a coherent whole, no one will deny. The conclusion that the child acquires the concept of the ball as sensory experience together with the sensory experiences received during playing is a non-sequitur.

The remarkable absence of methodical reflection on his own acts of consciousness – in this case the conclusions drawn from the observation of a child playing – leads the reader to think that Auer is not clear about what is his immediate observation and what he adds to that observation through his own conscious activity. In assuming that reliable insights regarding the activity of the

sense of thought can be gained merely by observing a child, he projects his own mental processes onto the world in a naïve-realistic way.

This lack of precision in the differentiation of the basic conscious acts of perceiving and thinking is also apparent from Auer's proposition that "function" and "meaning" are the "thought aspect inherent in every object" that is "perceived by the sense of thought". It is, however, especially in child play – where the peg becomes a crocodile on which the puppet bravely rides, or where the slipper is a car in one moment and a bed for the tired crocodile in the next – that we see how the child's active consciousness with its strong creative potency assigns variable functions to objects. The peg does not have *one* right function that is supplied with the perception.

It does not need the reference to child play to realize this: adults can also playfully toy with the function of objects that they see for the first time and that don't convey their function in the process of perception. Auer clearly has no reliable criterion for distinguishing the actual properties of sense perceptions from the qualities that we add as a result of mental acts induced in us. Of course we can learn about the function of an object through experiences we have with that object. But we can also be wrong: we can take Philippe Starck's lemon squeezer for a paper weight or even for a piece of art that has no outer function. Genuine sense perceptions are beyond such errors.

In the end Auer turns his attention to pathological phenomena, moving yet another step away from the realm where the reader can, by entering into the perception, discover where the sense of thought is active and where it isn't. That there are people, as described by the Anglo-American psychiatrist Oliver Sacks, who can see forms but are unable to interpret them, Auer simply explains with an impaired sense of thought. But he fails to provide a plausible explanation for the fact that the same patient's sense of thought works perfectly when he's talking to his doctor. While the pathologies Sacks described are extremely interesting, we find that Auer again, and to an even greater extent, naively projects his assumptions – which he presents as facts – onto the documented phenomena without examining their validity or consequences. Or should I see a neurologist because, when I look at Chinese characters, I fail to understand their meaning?

In a nutshell: the inquiry into what really happens when we perceive the thoughts of another person cannot be suspended. We must engage in it ourselves. We will only come closer to a factual answer to this question if we distinguish sharply between our own thinking processes and the perceptions that come to us from the outside. Only the adequate description of the very subtle processes that take place in our own consciousness during a conversation or in other situations will bring us forward in this field that has not been sufficiently explored yet. Divisive polemics won't.

Roland Halfen
translated from the German by Margot M. Saar

The First World Foreign Language Teachers Conference: Easter 2013

Transforming Habits: Creative Approaches to Teaching and Learning Foreign Languages

It is difficult for us to imagine today just how radical Rudolf Steiner's concept of foreign language learning was when it was first put forward in 1919. Having all the pupils in a school for working-class children learn two modern foreign languages from the first grade on was an idea without any precedents, diverging in every respect from the traditional teaching-practices of that time. For Steiner, creating a wholly new approach to foreign language-learning was a keystone of a new form of education rooted in a spiritual understanding of the child and the world. Within this larger spiritual context – and within the framework of sensory experience and development – the learning of foreign languages was considered to be essential in developing the child's individual potentials, as well as a far-ranging contribution to the transformation of a world that was just emerging from the suffering and ruins of World War I.

Almost one hundred years later, the crucial question of the ideals we bring to the teaching of foreign languages must be openly and constructively addressed. On the one hand, there now exist many rich traditions in Waldorf language-teaching which have been developed and carried out in all parts of the world. There are, for instance, very helpful collections of teaching materials for the different languages specifically designed for Waldorf Schools. Clearly, in this regard and in others, we have come a long way since 1919. On the other hand, it also appears to us that it is rather the exception than the rule when the guiding impulses and ideals of Waldorf Education are truly realized in language-teaching practices today. The questions that thus clearly need to be addressed are the following:

- *What does it actually mean today to realize the spiritual and social ideals of language-teaching?*
- *What creative changes and developments would we have to make in our own teaching to be able to realize such ideals?*

These questions call, above all, for practical and not theoretical answers. Accordingly, it is with the hope of instituting creative change and growth that this first World Foreign Language Teachers' Conference has been initiated. The wide range of courses, lectures, seminars and plenary sessions that will be offered share the common goal of supporting such concrete, personal developments. At the same time, it is our conviction that this cannot be done alone. It is within a larger community of learners that such steps become most

attainable. Our vision is that out of this largest-ever gathering of teachers of all the different languages taught at Waldorf Schools throughout the world, new and far-reaching impulses for Waldorf language-teaching in the 21st century will emerge. In the exchange and synergy made possible in such a conference, we see the finest chances for the birth of a new, creative understanding of language-teaching rooted in those spiritual and social impulses that Rudolf Steiner first envisioned and which can be deeply connected to our own times, our lives and our students. It is out of this spirit that the idea of this conference was born.

So, let us start planning now and book those trains, ships and planes that will be necessary to bring us from all over the world to Dornach next Easter Monday (01.04.2013) to join together in something that has never happened before in the history of Waldorf Education – a *World Foreign Language Teachers' Conference!*

On behalf of the preparation group,

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How do we get competence in methods for learning a foreign language?

World Foreign Language Teachers Conference

If we observe social life in those countries of the world influenced by western culture, we can see an overall tendency everywhere to the “dehumanization” in social relationships. This phenomenon is visible in our attitude towards the Earth, in human relationships and in economic approaches.

Anthroposophy and Waldorf education place the individual with his thinking, feeling and will at the heart of realisation and actions. These form a real and alternative stream, out of which a renewal of our culture is being striven for.

If a teacher learns to work with thinking, feeling and the will, in this way, it will be visible even in the pedagogical striving of everyday life with the students in the classroom. One attains a different type of consciousness of thinking, feeling and the will in regard to the individual and his development according to his age. One soon notices that the variety of methods often used and praised nowadays is for the most part a variety of intellectual methods. Creativity is often applied with the

desire for results, so that too little attention is given to the creative, genuine individual process. How can we educate young people so that their individual core can develop in a social environment and then lead to competence?

Let us look more closely at an example of a foreign language lesson. The so-called “grid exercise” is often used in mainstream teaching of a foreign language:

F	I	G	H	B	M	O
L	O	E	W	E	D	G
A	A	L	X	Y	E	A
U	S	W	E	Q	P	N
S	A	T	C	V	L	S
N	I	M	B	A	E	R
S	W	E	U	D	F	T

If a student learning German as a foreign language approaches this exercise, he must utilize his thinking, feeling and will in order to discover the hidden animal names. He dedicates himself to the exercise by using his feeling ... or daydreams because he is so bored. Then, the will must be employed, otherwise the student will only stare at the grid and not search for anything in it. But the activity of the soul, which is most necessary, is thinking. This becomes dominant as soon as the student puts it into action. Even if one knows that the grid contains the German words “Loewe” (lion), “Aal” (eel), “Laus” (louse), “Gans” (goose) and “Baer” (bear) one needs a great deal of imagination and active thinking in order to discover them.

This exercise, however, is often used for relaxed learning after a strenuous phase of concentrated grammar work or after applying thinking to a factual text. On the one hand, it provides variety, but on the other hand, it is not a relaxing exercise at all.

Similar observations can be made with regard to “filling in the blanks” and other exercises. The student remains in his head and is centred in himself.

How differently the student is involved with this thinking, feeling and will in the following exercise. In a French lesson, 13-year olds are reading a story in which five men are buried by an avalanche at night. They are in a mountain hut, but are not injured. One of the men’s daughters had followed them secretly and against her father’s will. She had stayed overnight in a neighbouring barn and had quickly run to the mountain hut when she heard the avalanche.

The girl has climbed onto the roof and speaks to the men inside through the gaping hole, left by the missing chimney:

Papa, papa, vous êtes tous sains et saufs?
Mais ... mais, c'est la voix d'Anais ! Anais, Anais, c'est toi ? Qu'est-ce que tu fais là ?
Oui, c'est moi. Vous êtes tous sains et saufs ?
Oui, personne n'est blessé, mais nous ne pouvons pas sortir ; il y a trop de neige dehors¹...

Not only do the students practice understanding the text (the teacher has told the story beforehand), but they also practice reading fluently. Then the students pay attention to the emphasis in the sentences, the pauses, and the intonation of the voices. They also practice speaking to a person who is above or below them. Their tone is varied according to whether the character is expressing surprise, fear, relief, strength or hesitation. The students practice speaking the dialogue in small groups and perform a small dramatic scene in front of the class. They are certainly allowed to keep the text in their hands while reading. Thinking, feeling and the will are equally required. And one student's soul answers another's. They lead the action to a climax or subdue it. A delicate social network arises out of this exercise. The language becomes communicative. An intensive level of conscious, half-conscious and sub-conscious learning, as well as a strong identification with the situation take place.

Teachers who are just beginning tend to let students read the text only once, ask them which words are new, give them the vocabulary to help them understand the passage and then ask them to prepare a short dramatic presentation of the passage. In this case, the students remain in a cognitive form of learning and comprehending, rather than experiencing feelings which, in turn, can lead to a physical gesture or action.

Which methods and exercises does one use when wanting to provide students with lively, emotional and authentic foreign language lessons in Waldorf teaching? Which pre- and post-preparation are required, which artistic skills must be developed, what respect for the individuality of each student must a teacher carry within himself in order to achieve methodological competence in the 21st century?

These and other questions will be dealt with at the World Foreign Language Teachers Conference.

You are warmly welcome to attend and participate!

Alain Denjean
translated by Angela Wesser

1 Daddy, daddy, are you all safe? But, but, that's Anais's voice! Anais, Anais, is that you? What are you doing here? Yes, it's me. Are you all safe? Yes, no one is hurt, but we can't get out because there's too much snow outside.

The Symphony of Life

Importance, Interaction, and Visualization of Biological Rhythms

Biological rhythms in a wide range of frequencies are present in the whole organism as well as within each living cell. Some of these rhythms reflect adaptations to cosmic cycles and help to anticipate changes in the environment. Others integrate and coordinate body functions. Extensive coordination has been found between different rhythms, indicating a systemic temporal cooperation. Rhythms and their interaction might be more important for our health than was realized before. Disturbance of the circadian rhythms by night-shift work or jet lag not only disturbs our metabolic balance but also increases the risk of cancer as well as cardiovascular diseases, which together account for 70% of all causes of death in industrialized countries. Rhythms in the organism obviously stabilize the systemic functions. They maintain organismic stability by calibrating the system's characteristics during sleep and rest when rhythms are also most present. Regulation curves in time and space are crucial for controlling physiological long-term stability. To be continuously aware of its properties, an autopoietic system may vary its parameters at different frequencies simultaneously, according to what our body does, e.g., in heart rate variability (HRV). Methods such as autochronic imaging [27], [28] allow the visualization of the body's proprietary rhythms, which are present in long-term heartbeat and brain wave recordings. Similar to spatial X-ray images of the body, they provide a temporal image of our time structure.

Tuning and synchronization of rhythms reduces energy expenditure. Huygens already observed the synchronization between two pendulum clocks mounted on a wall. The synchronization occurred and became stable spontaneously and obviously reduced the drain of energy. It turned out later that synchronization is a frequent phenomenon observed in bodies' rhythms and can be found, for example, between heartbeat and respiration and between blood pressure and blood perfusion rhythms, especially when we relax or sleep. At times when energy consumption is expected to be minimal, our body is working most efficiently.

In two recent papers [1], [2], an additional aspect explaining the necessity of oscillations has been introduced. Chemical reactions need a certain environment, for example, reducing or oxidating. As space is limited in a cell, temporal compartmentalization allows different environments to occur in the same space unit but at different times. No transport is needed and the same space can be used for subsequent chemical processes that would not be possible simultaneously [1] due to differing enzymatic and chemical requirements. A similar concept may also apply to more complex organs and even organismic processes. Systole and diastole, inspiration and expiration, work and relaxation, wakefulness and sleep, and exhaustive and recreative states cannot happen

efficiently at the same time. Temporal compartmentalization is probably the most efficient way to mediate between these polarities and provide periods for both poles. The understanding of the cyclic nature of our lives opens a new and very exciting insight into our bodies' functioning. The biological time and its oscillations gain more attention and importance as these interrelations are understood.

Cosmic Connections

Since aeons, organismic life has been exposed to various cosmic cycles, the most evident of which is the rotation of the earth resulting in the geological day, which occurred about a billion (10^{12}) times during the last 3,000 million years since life occurred. Although for a long time these external influences were thought to be responsible for the cycling physiological patterns, we know since the work of Aschoff [3] that our bodies' clocks are working independently, but triggered by Zeitgebers cues, which help to establish and stabilize biological rhythms. Temporal adaptations to the external cycles of dark and light or cold and warmth, consequently, have found their ways into the human genome. Regulation centers such as the suprachiasmatic nuclei or the pituitary are involved in the coordination of the internal circadian cycles as well as several genes of the so-called clock, cryptochrome, and period families [4]. The biological significance of an internalized image of external rhythms is obvious as it helps to anticipate changes of the external environment. The ergotropic functions of work (collecting or hunting for food), fight, and flight are mainly needed during the day, the trophotropic analogs of digestion, immune system function, and regeneration are maintained during the rest phase, which in human beings is the night. This separation allows for a coordinated adaptation of the organism to either ergotropy or trophotropy.

Additionally, the change of heart rate, hormone levels, and electrolytes, to mention just a few parameters varying during the circadian cycle, exposes the internal sensors to different systemic levels, recalibrating them and facilitating their autoregulative work.

The Body Works Like an Orchestra

Besides the circadian rhythm, chronobiology observes a notable amount of rhythms at all organismic levels and over several orders of timemagnitude [5]–[7]. The rhythmic orchestra investigated up to now ranges from milliseconds of a nerve discharge to the annual rhythms of hibernation (Figure 1). Although circadian and long-term rhythms help to anticipate the environmental changes connected to the earth's and solar movements, the faster ultradian rhythms organize the interplay between different organ systems. There is a horizontal orchestration of body functions comparable to the themes of a symphony and a vertical orchestration comparable to the rhythmic interaction between different

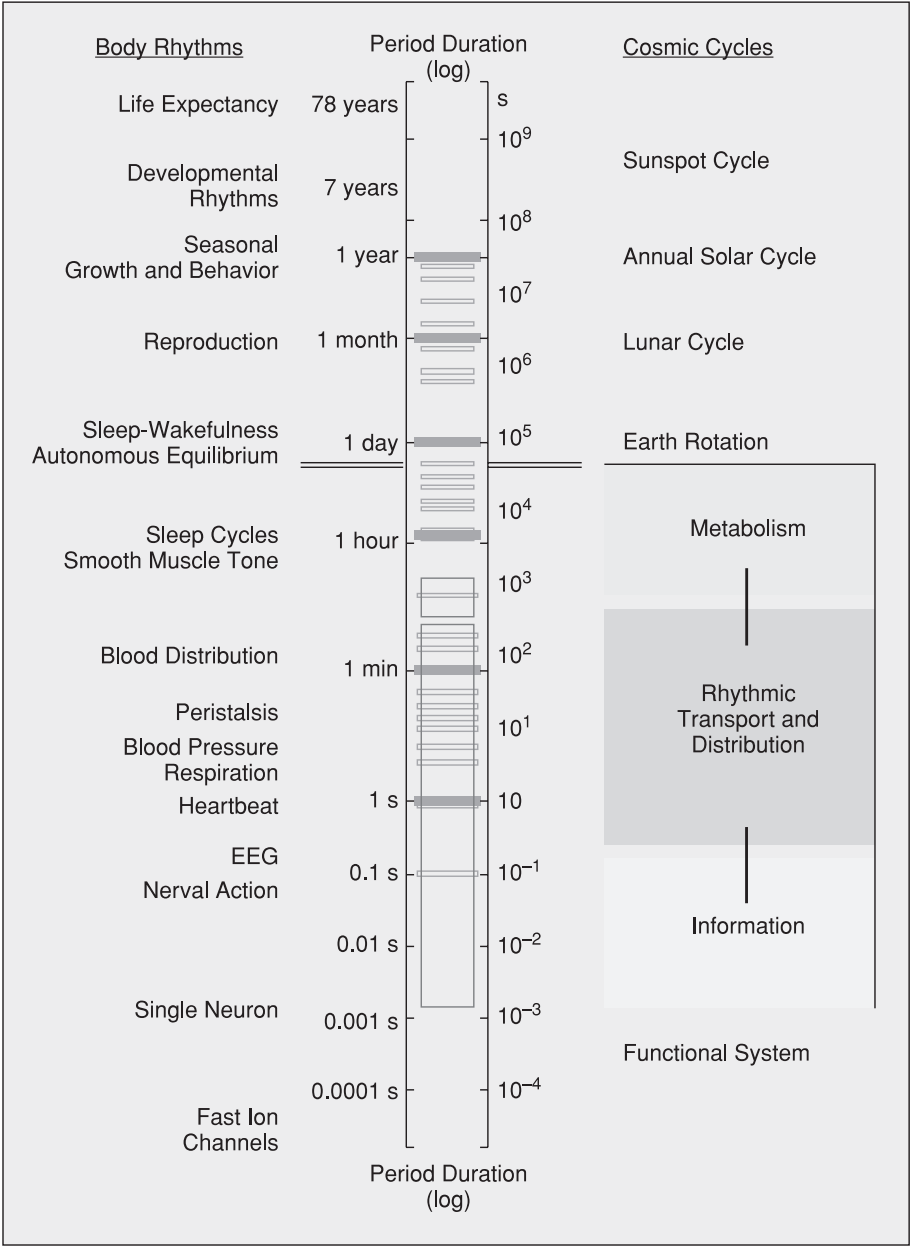


Fig. 1. Spectrum of biological rhythms identified in the human organism (modified after[5]).

instruments in a music ensemble. Forty-eight octaves are available for the human organism of which ten are audible to the human ear. Longer cycles of seven years can be found, for example, in the biography of celebrities like Goethe, who used to change the lady he adored with such clear periodicity. The occurrence of tooth change (~7 years), puberty (~14 years), and adolescence (~21 years) also follows such cyclicity. The whole life span, which is expected to be around 78 years for a subject born in United States in 2001, is the longest cycle observed in the human life.

On the other end of the spectrum, very short periods of length, of microseconds, may be found in the clockwork of the receptor channels present on the surface of cells [8]. Musically speaking, 48 octaves can be counted from the frequency of a fast ion channel (29,000 Hz) to the average human lifetime (~78 years), which is about six times the range of a stage piano.

Recent investigations give hints that the different rhythms are interconnected, at least in healthy subjects, by phase coupling [9], synchronization [10]–[12], or mutual modulation [5], [13], [14]. As in a symphonic orchestra, different oscillators cooperate within and between cells and organs from plants [15] to man. The resulting time network supports organismic regulation and is an important precondition for the maintenance of normal development and health. Consequently, there is now increasing evidence that the destruction of the biological rhythms and their synchronization results in the loss of health.

The circadian rhythm itself shows up short after birth and becomes synchronized with the external day during the first 16–20 weeks of human life [16]. Toddlers exposed to a lightcycle program display improved growth and circadian entrainment when compared with those exposed to continuous dim or bright light [17], [18].

The terrestrial movement around the sun results in the geological year and is responded by a circannual cycle in organisms living under its influence. The period of the lunar cycle is possibly found in the female menstrual cycle, although today only some studies find a significant connection [19]–[21] most likely due to the light pollution present in urban societies, thus obscuring the lunar influence. In many traditional societies, social life during the year was organized in synchronicity with the lunar cycle [22].

As already mentioned, it seems favorable for the organism to orchestrate its functions in synchrony with external conductors such as cosmic rhythms and also to synchronize the internal rhythms among each other. This is the case in the circadian rhythms, which are synchronized with the external day and night by Zeitgebers, of which light [23], [24], feeding [10], and temperature [25] are the most important. The onset of light in the morning triggers a couple of hormonal reactions, which turn down the immune cell response, the readiness to sleep, and the production of growth hormone and melatonin [23]. On the other hand, heart rate, vigilance, the secretion of epinephrine, cortisol, and other hormones necessary for wakeful activities are turned up. It is easily

understandable that this has to be done in synchrony and coordination, otherwise the resulting chaos would neither allow for a vigilant day nor a restful sleep. Shorter rhythms than the circadian do not reflect cosmic cycles, although some authors claim a connection between body rhythms and solar events [26], some of which may display ultradian cycles.

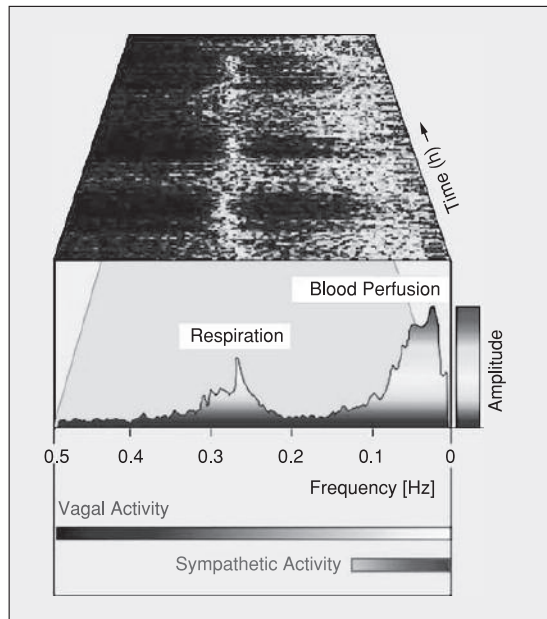
Bodies' Own Time Symphony

One of the most prominent cycles of short duration is the heartbeat, the period of which is modulated by and can be used to gain insight into a couple of other body cycles. This HRV is easily obtained noninvasively from a 24-h Holter ECG and mirrors the rhythmic activity of the vagal and sympathetic nervous system controlling the action of the heart. The autonomic activity is always cyclic, generated by oscillators in the brain stem. As the autonomic modulation of the heart rate is proportional to sympathetic or vagal tone, information about the sympathicovagal balance can be extracted from the amplitude of heart rate variability, thus giving access to the state of the autonomic nervous system, which governs almost all body functions.

An impressive overview about rhythms present in a subject can be obtained by time-variant analysis of HRV. We have developed a special method to visualize these rhythms from longtime recordings of HRV [27], [28] (also see www.heartbalance.com). The resulting graph called an autochronic image (in

Fig. 2.

Time-variant spectrogram of a multi-oscillatory biological rhythm, in this case HRV. After sampling beat to beat intervals with high accuracy (sampling frequency ? 4,000 Hz) for several hours, a moving Fourier transform is performed every 5 min. The resulting amplitude curves for each 5 min are color-coded so that small amplitudes are blue, intermediate are white, and large amplitudes red at each given frequency. Put together, an image of the different rhythms becomes visible (autochronic image, upper part of the figure). Particular frequencies can be seen as lines running through the upper part of the image, and chaotically distributed autonomic activity is seen as visual noise in the image. The image shows several hours of HRV during different sleep stages.



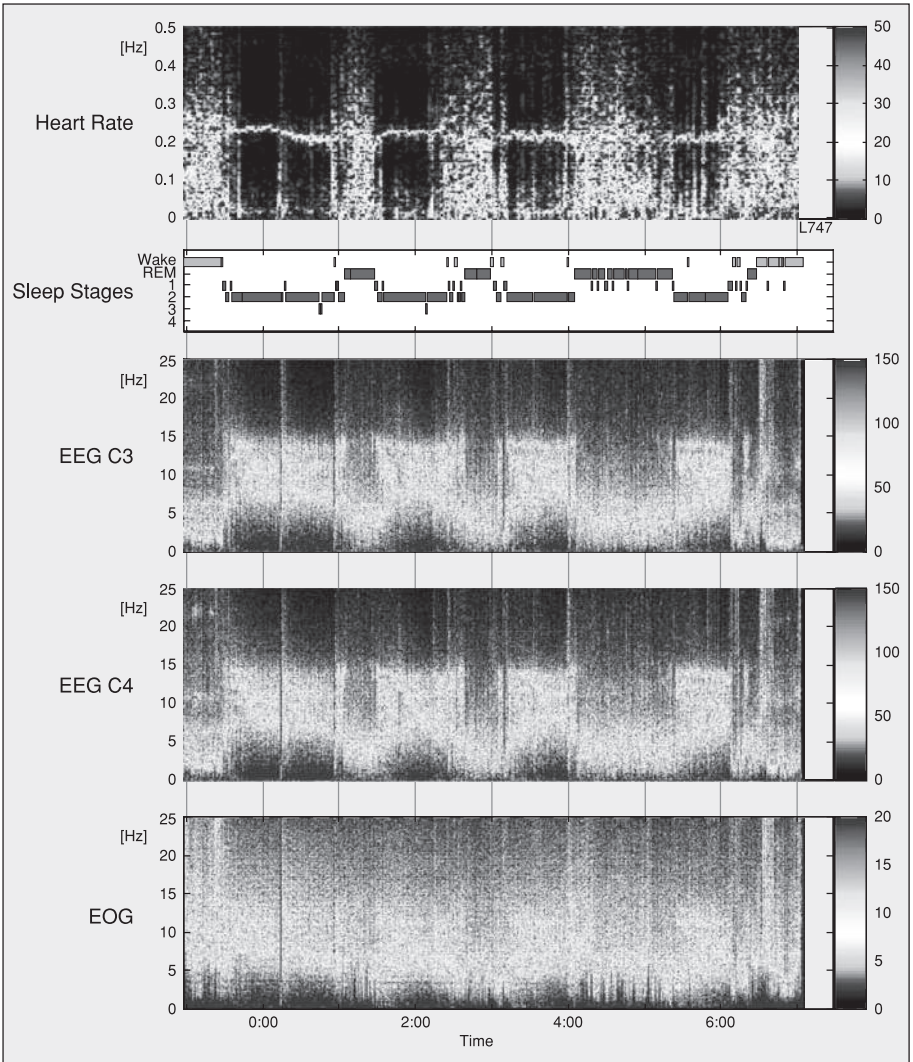


Fig. 3.

HRV, sleep stages (classified according to Rechtschaffen and Kales), electroencephalogram (EEG C3 and C4), and electrooculogram (EOG; eye movements) during sleep, analyzed by time-variant spectral analysis (autochronic image, from top to bottom). Blue color indicates low, white color medium, and red color high amplitudes. Slow wave sleep stages in the EEG correspond to periods of intense respiratory sinus arrhythmia in the HRV (single lines in the upper trace), indicating a strong vagally transmitted heartbeat modulation by the respiration. Rapid eye movement stages are empty of rhythms in the EEG recordings and are characterized by chaotic HRV.

Greek, *autos* means self or proprietary and *chronos* means time) is a portrait of the rhythms modulating and moving the beat of the most central organ of the body (Figure 2). This activity is also closely connected to our emotional state and state of consciousness, to work strain or relaxation (Figure 3). The autochronic image has since been used extensively in projects of occupational health promotion [29], shift work, and even space medicine [30], [31] to diagnose sleep quality and rhythm disturbances (Figures 4 and 5). The heart rate is synchronized with several other cycles, as, for example, the respiratory cycle, the blood pressure rhythm, and the rhythm of peripheral circulation. This synchronization is especially strong during rest and relaxation and is not present if subjects are under increased stress and strain. These conditions do not allow for tuning and, consequently, spend more metabolic energy than the well-tuned sleep.

The orchestration of the rhythmic system has a horizontal and a vertical aspect. Horizontally, rhythms such as the circadian conduct the sequences necessary for the daily activities at the time they are needed. This corresponds to the sequence of themes in a symphony. The temporal compartmentalization arising from this gesture permits oxidative and reductive reactions to run undisturbed alongside of each other within the same spatial compartment. As mentioned, this has been investigated recently in yeast cells [1], [2], and the rhythmicity becomes most pronounced under nutrient-restricted conditions. Interestingly, nutrient restriction also has been found to prolong life [32], [33], which tightens the connection between rhythmicity, health, and longevity.

Vertically, rhythms such as heartbeat and respiration coordinate with each other to “give me five” (slap hands) every four or so cycles. In an orchestra, this would correspond to the rhythmic interaction present between different instruments during the play, e.g., the relation of the violins to the slow contrabass. The coordination can be a phase coupling, a mutual modulation, or a synchronization [9], [11]. The obtained synchronization obviously saves energy, such as clocks synchronizing their beats if mounted on the same wall [34], indicating that the synchronized state is the one with lower energy expenditure.

Rhythmic gene regulation is also important for normal embryonic development [35]. During development, time structures in gene expression and cell division are translated into spatial shape, which makes precise timing most crucial to translate the precise shape of the developing structures [36]. It appears reasonable, therefore, that abnormal development found in cancer cells might originate from disturbances of rhythms. Severely disturbed rhythms, have, in fact, been found in cancer patients as it should be expected.

Circadian Rhythm Disturbances in Cancer

Circadian rhythms are disturbed in cancer patients, with regard to heart rate and HRV [37], [38]. Sleep quality is extremely reduced in cancer patients [39], which also hints at a disturbed circadian system [40].

In a study performed in a German cancer clinic by our group, it was especially the circadian profile of the sympathetically mediated low-frequency HRV around 0.1 Hz that differentiated between healthy subjects and all cancer patient groups [38]. Disturbances of biological rhythms can also be found in cancer cells and vessels supporting cancer tissue. Cancer cells divide rather slowly as long as their metabolism is limited, and they are not connected to the circulation. The vascularization that makes cancer tissue really harmful is evoked by angiogenetic hormones secreted by certain cancer cells. These new vessels sprouting from normal vessels lack normal development and appear disorganized and chaotic due to their rapid growth [41], [42]. Smooth muscle cells in the vascular wall of these vessels are missing, so that they do not respond to the hormones regulating normal vessel diameter in a circadian profile. As there is no temporal restriction to growth, the connected cancer cells grow faster than normal cells. In addition, a chaotic circadian temperature profile can be observed [42]–[44]. The cancer tissues seem to be different in their rhythms from those of the remaining organism. The resulting desynchronization weakens the circadian oscillation and decreases the amplitude of the circadian profile in cancer patients. As early as the 1980s, Bartsch and coworkers found a disturbed melatonin excretion in breast cancer patients, which was not synchronized with the circadian rhythm, compared with the synchronized patterns of controls [45]. The circadian clock, representing the most intensively investigated rhythm, is increasingly recognized as an important tumor suppressor [46].

Ultradian Rhythms

Ultradian body rhythms oscillate faster than daily but are usually whole-number multiples of the circadian rhythms. One example is the basal rest and activity cycle, which controls deep and rapid eye movement phases of our sleep in an approximately 90-min pattern corresponding to 16 cycles per day. These rhythms are phase coupled to the circadian rhythms in healthy subjects so that their ups and downs appear approximately at the same time each day. Shortperiod rhythms are present in the human circulation and permit the study of the possible benefits of oscillating parameters establishing homeodynamic [47] equilibria in the body. Blood pressure control has been studied as early as the 1930s. The blood pressure loop was disconnected under experimental conditions, and a dependence between blood pressure and the heart rate was found. Increasing the pressure in the carotid sinus (the location responsible for sensing the blood pressure value) leads to a compensatory reduction of heart rate via vagal pathways (Figure 6) in a classical experiment performed by Koch [48]. Along the range of different pressures, a sigmoidal shape of the resulting regulation curve was found. Interestingly, the steepest part or point of inflection of this regulation curve is located almost exactly where the normal systolic blood pressure can be found at around 120 mmHg. As physiological sensors adapt to each steady stimulus, the blood pressure regulation

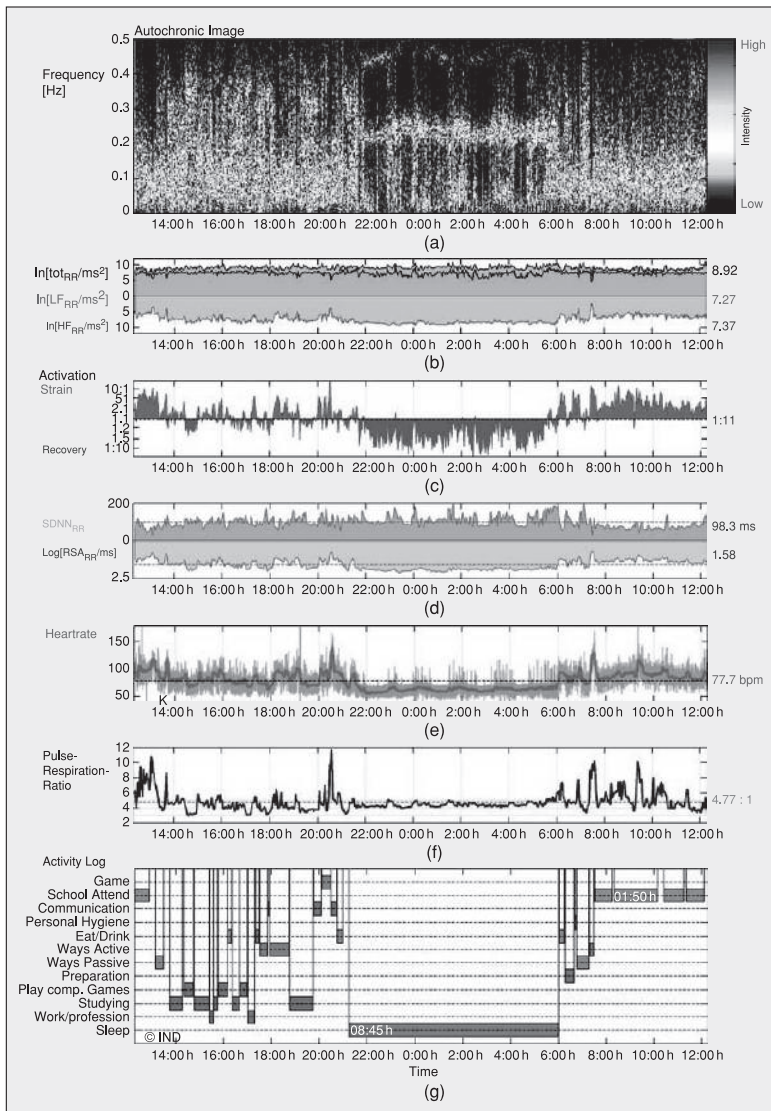


Fig. 4. Example of the multioscillatory rhythms of HRV in a 11-year-old boy not yet in puberty. During the day [(a), left and right], a strong variability indicating an active cardiovascular regulation is present. During the night [(a), center], a strong respiratory sinus arrhythmia is visible especially during quiet slow-wave sleep. Blue areas in the autonomic balance [(c), center] indicate a vagal predominance and a recreational sleep. Cardiorespiratory synchronization (4:1 ratio) is seen in the pulse-respiration quotient during the sleep (green line). The boy had a range of different activities according to his activity protocol and was well integrated in his family.

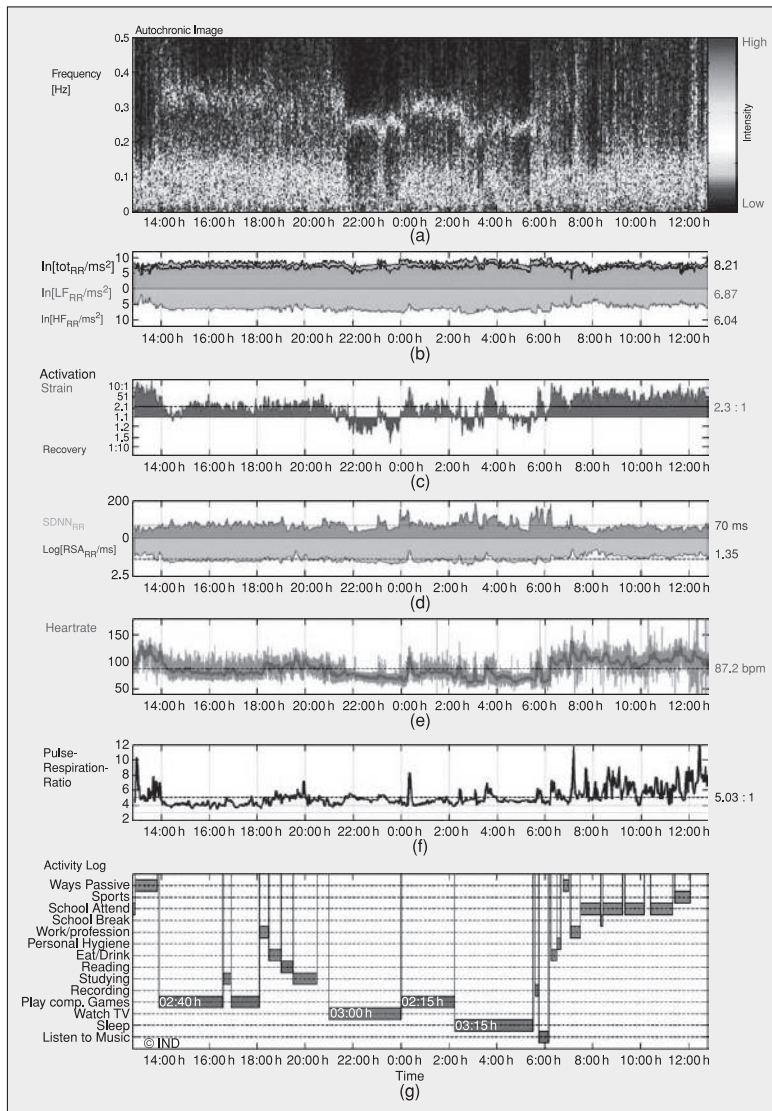


Fig. 5. The other boy from the same school was 14-years old and already in puberty. Disturbed and irregular rhythms during sleep can be observed. They are caused by extensive use of television 2100–000 h and computer games 1400–1800 h and 000–0200 h. Sleep quality is accordingly bad due to sympathetic predominance [(c), center], and cardiorespiratory synchronization is disturbed and irregular (green line). Such demonstrations of disturbed body rhythms can be understood after explanation and can be very helpful to motivate health behavior in occupational health projects (method available from www.heartbalance.com).

would shift and become unstable after a while, if no variation in the pressure occurred. A slight variation of the heart rate (which is found in the HRV mentioned previously) prevents this adaptation by a resulting continuous variability of blood pressure. Thus, the blood pressure regulation loop obtains the necessary feedback to estimate the amount of heart rate change required for a certain increase or decrease of blood pressure.

The small oscillations present in the organism support the self-calibration of the organismic functions. Blood pressure is therefore obviously not controlled by a single neuronal center, which sets the scheduled value to 120 mmHg. It is rather the result of a democratically achieved regulation curve that integrates all relevant parameters, such as the elastic properties of vessels, blood volume, blood viscosity, and peripheral resistance. At the inflection point, the strongest interconnection between heart rate and blood pressure can be found, making regulation most sensitive close to this value and, hence, most stable for the circulation. Opting for a stable supply of blood and oxygen, it is not surprising that the organism shifts its normal blood pressure value to this turning point. This is especially the case under resting conditions, where more regular oscillations with higher amplitudes occur. Under ergotropic conditions, the metabolic needs determine heart rate and blood pressure, and HRV becomes small or disappears as it loses its importance for regulation. Consequently, rhythms are mostly found when the energy expenditure has to be minimized, which is during the economic and quiet periods of the night and during rest. There is a second instance where rhythms might occur especially in well-trained subjects. Long time periods of equal exercise also do not supply changes of blood pressure necessary to prevent blood pressure drifts. Accordingly, rhythmic variations of heart rate can appear under these conditions.

It is not yet known whether such sigmoid regulation curves such as the one shown in Figure 6 exist for hormones as well. Given the known pulsatile secretion of hormones, it seems very likely that other control loops are maintained in a similar fashion, again especially under conditions of rest, where the hormonal pulsing becomes most pronounced [49], [50]. Oscillations in this context obviously act as search functions seeking points of optimal regulation in our organism. Recent work has connected the decline of the dynamic range of environmental cues in modern societies to observed biological dysfunctions, such as insulin insensitivity and metabolic diseases [51]. A dynamic system lacking variability is more likely to lose its points of calibration.

Chronamins

If decreased rhythms are harmful, an enhancement of rhythmicity can be expected to improve organismic function. Modern life has restricted rhythmicity due to artificial light, controlled temperature, and restriction of outdoor activities. Like vitamins lacking in modern food, rhythms are missing in modern life. This knowledge could help provide therapies based on chronamins [38] and

lifestyle approaches providing dynamic environmental cues [51], [52]. In musical instruments, long-term stability of sound is achieved by playing, i.e., vibrating the instrument for a period of time. This stable state may even be mimicked by vibrating the instrument artificially [53]. In several studies not yet published in English, we found therapies based on art and rhythmicity very successful in improving subjective as well as physiological sleep quality and well-being. Heart rate dropped in the treated subjects, and autonomic circadian amplitude increased. In construction workers, the number of accidents dropped from 12% of workers per annum to zero in a company of 300 workers [29]. Sleep quality significantly improved only in the rhythm therapy group, whereas the control group treated just with simple gymnastics did not show this improvement.

As we are taking part in various revolutions in our understanding of life, one of them might be based on the results of modern chronobiology. Like Andrea Vesalius, who so beautifully described the spatial aspects of our body, giving access to the anatomical shape of our muscles and bones [54], chronobiology is now dismantling the secrets of our hidden time shape. This is also interesting from a philosophical point of view, as natural science gains access to an area that is not physical matter, a substance, its concentration, energy, or even space—it is time and its biological structure. In a way, we are discovering what could be called an anatomy and a histology of time represented in the different rhythms

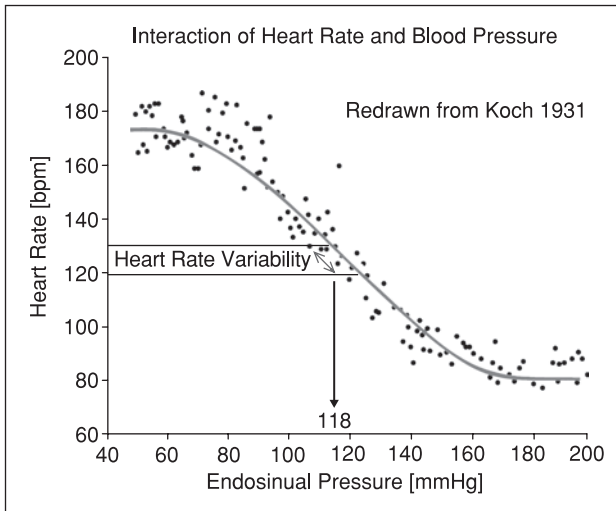


Fig. 6. Example of a physiological feedback loop with its normal value close to the point of inflection of the sigmoid system characteristics. The relation between blood pressure in the carotid sinus and heart rate is shown. Heart rate variability very likely acts as a search parameter, varying continuously to search for the optimal position on the regulation curve. Regulation is most sensitive at the point of inflection, which also represents the normal value of systolic blood pressure (adapted from [48]).

acting in our body and the symphonic orchestra playing the tune of our life (Figure 6). This has consequences for an understanding of health and its maintenance. As early as the 1930s, the extract of the pineal gland, the source of the circadian hormone melatonin, was used as a remedy against cancer with surprising success [55]. Even today, melatonin contained in the pineal gland is considered to be helpful against certain tumors. There is strong evidence that the observed sleep quality improvement and beneficial immunological effects of melatonin [56] are only present if melatonin is administered in the evening [57], thereby improving also the amplitude of circadian rhythmicity. Many new

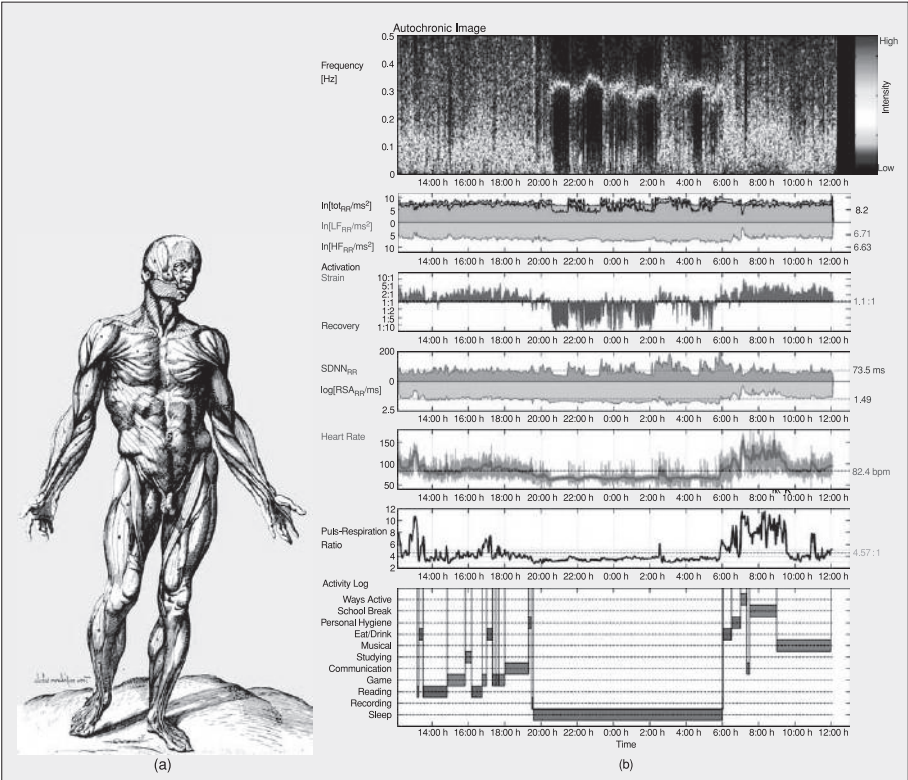


Fig. 7. (a) The physical anatomy of the human body has been described and investigated scientifically since the work of Andrea Vesalius. (b) Medical science has only recently become aware of the complex patterns of body rhythms accessible, e.g., by spectrogram analysis of long-term heart rate recordings (autochronic image). Body rhythms display distinct times of chaos (mainly during the day) and order (during well-slept nights). They are orchestrated horizontally, e.g., by the circadian clock, which conducts the temporal order of different organs as well as vertically, by the rhythmic interaction of parameters such as respiration and circulation. These become visible in the 4:1 integer ratio of the pulse-respiration quotient [(b), green line] achieved during sleep and during periods of rest. [(a) from [54]].

achievements of applied chronobiology, such as the application of medication in a timed fashion, give us an inkling that the future medical profession will increasingly utilize the human rhythms to support their therapies [58]. Playing in harmony with the body's orchestra is obviously not only more graceful and charming but also more effective than just playing loud.

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Agenda

Forthcoming Pedagogical Section Conferences and Events at the Goetheanum, 2012

2012

September 21 – 23, 2012

Allgemeine Menschenkunde, 10. Vortrag

October 19 – 21, 2012

Pädagogische Tagung zum Thema:
Künstlerischer Unterricht als Resonanz-
boden für das Ich – vom Wesen des Kindes
und Jugendlichen zwischen Vergangenem
und Zukünftigen

October 28 – 30, 2012

Conference for Extra Lesson (in german)

2013

January 18 – 19, 2013

Conference for Swiss Teachers
(in german and french)

February 15 – 17, 2013

Meditative Practice (in german)

April 1 – 6, 2013

International Conference for Foreign
Languages