



Sleeping on It: The Most Important Activity of a School Day

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"Morning is wiser than evening."
— Russian proverb

Sleep is such a regular and familiar activity that we can easily overlook its powerful presence and influence. When we examine it, however, sleep strikes us as mysterious. Picture us changing into special nightclothes. It is dark outside and we lie down on specially padded platforms. Many of us face heavenward with eyelids shut. In horizontal positions such as this, we spend roughly a third of every day—more when we are young or old, perhaps less in between—unconscious. Our breathing is altered and we pass through rhythmic periods of rapid eye movement. The realm of sleep sits like an enormous, mostly unnoticed elephant in the room of our lives. It has a huge impact on everything we do in our waking hours. In Waldorf schools, which have taken sleep into account since their inception, sleep is more than just resting for the next day; it is a matrix of all learning and teaching.

Sleeping on It

At the heart of Waldorf school methods is the practice of "sleep learning," pursued by both teachers and students. In the evening, as a regular part of preparing the next day's lessons, teachers review their experiences of each of their students and how the lessons went that day. They then carry these reflections and their lesson preparation into sleep—they "sleep on them"—along with all sorts of questions and aspirations for doing well the next day.

Students also conduct reviews, but theirs occur—consciously, at least—during the day. As an integral part of every morning lesson, they

recall and review, and may even discuss the previous day's lesson before proceeding to a new topic. Their experience of new material and activity and their anticipation of the next day's subject—stimulated by some words from the teacher—then follow them into sleep that night. They "sleep on" their impressions. The cycle begins anew the next morning, as they recapitulate and reawaken various aspects in conversation and in the creative activity of their cooperative learning communities.

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A daily rhythm that includes recall, review, and discussion is not just a key feature of a Waldorf school method of teaching and learning, but is, in my mind, the most important event in a school day. Recall and review also constitute the most chal-

lenging parts of a lesson to orchestrate, sustain, and transform artistically, especially as students grow older.

Sleep Learning as a Powerful Force in Building Intelligence

Modern sleep learning research received a real impetus in the early 1950s when Eugene Aserinsky, then a graduate student in physiology, electronically monitored his sleeping eight-year-old son Armond. One night he detected percolating wave patterns, rapid eye movements (REM), and a neural state of alertness even though the boy was still sleeping. Aserinsky's subsequent findings and paper in the journal *Science* set off decades of research on what he called REM sleep (associated with Rapid Eye Movement), the arena in which dreams appear to occur. This mysterious state of "awake sleeping," with slow wave deep sleep (SWS), has been found to be a font of inspiration and inner development.

In spite of all the studies exploring how we sleep, scientists still have to admit a half century later that we do not really know why we sleep. New technologies, such as brain scans, MRIs, and EEGs, and ever more ingenious psycho-physiological experiments, nevertheless have brought this research into an exciting new phase and, perhaps, a new threshold of discovery. In the first eight years of the twenty-first century, a cascade of studies has been converging to build a remarkable picture of how sleep enhances learning. Numerous articles summarize findings with such themes as “Sleeping brain, learning brain,” “Intellect thrives on sleep,” “Practice with sleep makes perfect,” and so on.

For a long time it was thought that sleep primarily enhanced “procedural memory,” which allows us to do repetitive things like knit or play the violin or keep a check book. Recent focus on the more elusive area of “declarative” or “informational” memory of such things as facts, vocabulary, and dates, indicates that this second kind of memory is also aided by sleep and is similarly pre-processed through the part of the brain called the hippocampus. “Sleep after learning aids [declarative] memory recall,” as one study expressed it.¹ The hippocampus is the part of the brain associated with short-term memories. The neo-cortex “tunes in” to the hippocampus’s process and is associated with capacities to judge which short-term memories are useful for long-term memory, skills, capacities, and conscious thought.

Added to this growing picture of sleep-enhanced memory are studies on the highly unusual manner in which the hippocampus and neo-cortex process memories. Investigations show that these parts of the brain apparently replay memory data over and over again, recapitulating them in backward order.²

Several other studies have found that sleep enhances learning not just by providing more mental energy for memory—which makes obvious sense—but more significantly by giving the brain

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the “down time” to mysteriously sort out and consolidate the disparate memory data of a day’s impressions and even to reconfigure them into “bigger pictures.” A state of sleep seems to be particularly favorable for brain plasticity, that is, for flexible reshaping of experiences. The new mental combinations that result are then utilized not only in more effective memory, but also in achieving

s spurts and breakthroughs in learning on the day after a night’s processing—or even after naps, as well. In one study, for example, researchers posed mathematical problems in which hidden rules and shortcuts could be discovered. The research team concluded that “sleep inspires insight”:

Insight denotes a mental restructuring that leads to a sudden gain of explicit knowledge allowing qualitatively changed behavior. Anecdotal reports on scientific discovery suggest that pivotal insights can be gained through sleep. Sleep consolidates recent memories and, concomitantly, could allow insight by changing their representational structure. [In our study] we show a facilitating role of sleep in a process of insight. ...More than twice as many subjects gained insight into the hidden [mathematical] rule after sleep [than] after wakefulness, regardless of time of day. ...We conclude that sleep, by restructuring new memory representations, facilitates extraction of explicit knowledge and insightful behavior. ...Sleep more than doubled the probability of gaining insight into the hidden rule compared to wakefulness.³

Sleep thus enriches our minds and entails an activity that is creative, solves problems, and produces new mental syntheses of our inner and outer experiences.

Education as Learning to Sleep and to Breathe Properly

For more than two decades at the beginning of the twentieth century, Rudolf Steiner carried out research on many different facets of sleep and found that this mysterious feature of human behavior is a key to education. The central goal of the method he created is to help children “learn to breathe and to sleep properly.”⁴ For Steiner, sleep is also a breathing—a “breathing out” of the soul at night and a “breathing in” of the soul each morning. The right educational practice can profoundly influence how children breathe on many levels—not just physically, but, more widely, with their senses and feelings and in their interactions with other human beings. Sleep can assist students as they grow older in learning how to more effectively process their daily experiences in sleep. For Steiner, proper rhythms in sleeping and breathing, and in a child’s daily activities in general, are critical to healthy incarnation and development. Universal rhythms are nature’s way of enabling the soul and spirit to gradually and organically grow into the life of the body, take hold of and fit into it. Education, above all, needs to have rhythm at its heart.

Of fundamental significance for learning, according to Steiner, is the ego’s rhythm⁵ from one waking day to the next, with the night’s sleep in between. In this two-day rhythm he observed that what is experienced on the first day continues to “vibrate” in the soul at night. What is more, the soul goes over its experiences and “between falling asleep and waking, the human being actually experiences a kind of reversed repetition of what she or he carried out during the day.”⁶ This recapitulation, he found, has a balancing (*ausgleichend*) effect and helps in the digestion, consolidation, and remolding of experiences into essential learning. Steiner’s description of reversed recapitulation accords with recent studies of hippocampal and neocortical replay in the brain.

In addition to this reversed recollection, according to Steiner, our day’s experiences undergo other complicated transformations in sleep.⁷ The human soul, he claims, traverses “three

states” of unconsciousness⁸ in which it works at learning and at making earthly experiences its own (*aneignen*):

[Experiences] are transformed [into ability and wisdom] by being taken in their immediate form into our sleep each night. ... There the experiences ... are changed into essences. ... If one wants to master or coordinate a series of experiences in a single sphere of activity, it is necessary to transform these experiences in periods of sleep. For example, a thing is best learned by heart by learning it, sleeping on it, learning it again, sleeping on it again.⁹

What is experienced during the day is reviewed, sorted, and prioritized with the most valuable and essential elements metamorphosed into long-term capacities. Above all, through the three stages of sleep, the soul regularly replenishes its three essential forces—willing, feeling, and thinking—with a counterpart of cosmic willing, feeling, and thinking forces that can be tapped only in sleep:

Every night on going to sleep our souls take with them something from daily life. ...[T]he fruit of our experiences ... is transformed during sleep in such a way that it becomes our abilities and capacities. [For example], all our earlier efforts to shape the letters have been transformed [in sleep] into the capacity to write. ... Forces higher than those available in our conscious life become available during sleep; experiences are transformed into faculties and the soul becomes more and more mature. ... We bring out of sleep much more than we brought into it through our conscious experiences. During the day we use up forces by participating in what is going on around us. In the evening we feel fatigue because these forces are exhaust-

ed, and during sleep they are replenished. ...[Sleep] is therefore the source of innumerable forces we need for waking life. ...[T]he [universal] forces which have streamed into [the soul] the whole night long ... [are akin] to its own three inherent forces: ... Will... Feeling... Thinking.¹⁰

Sleep is the great shaper of experiences into learned capacities and the great harmonizer of thinking, feeling, and willing into a human balance. Taking this state of unconsciousness into account and working with it constitutes the heart of Steiner's method and curriculum. Children, according to Steiner, only gradually learn to bring a day's experiences effectively into sleep and then fruitfully back into waking life.

However, there is something else [besides breathing] that children cannot yet properly do, and we must address this in order to create harmony between two parts of the human being, between the temporal body and the spirit-soul. The other thing children cannot yet properly do at the beginning of their earthly existence ... is to complete the transition between sleeping and waking in a way appropriate to human beings. At a superficial level we can, of course, say that children sleep quite well. They sleep much more than older people do. They even sleep into life. However, the child is not yet capable of the inner basis of sleeping and waking. Children experience all kinds of things in the physical plane. They use their limbs, they eat, drink and breathe. However, because they experience so much in the physical plane—what they see and hear, and what they do with their arms and legs—when they go from waking to sleeping, they cannot take everything they have experienced physically into the spiritual world, process it there and then bring the results of this work back to the physical plane.

Children's sleep differs from the sleep of an adult. Normally, adults process their waking experiences during sleep. Children cannot yet carry their waking experiences into sleep. Thus, in sleep they settle into the general universal order without taking their physical experience into the universal order. Through proper education, we must bring children to the point that they can carry their experiences in the physical plane into what the soul-spirit does during sleep. As teachers, we cannot give children anything from the higher worlds. What human beings receive from the higher worlds comes to them during sleep. All we can do is use the time children spend in the physical plane to help them gradually become able to take what we do with them into the spiritual world. Then, what they carry in can flow back into the physical world as strength, strength they can bring from the spiritual world to become real human beings in physical existence.¹¹

Up to school age, children's consciousness is relatively dreamy or sleepy and is still in a paradise-like unity with the world. Waking blends into sleep in a kind of natural continuum. Around the first dentition, children generally develop a new memory capacity that generates less dreamy mental images and begins to form and differentiate a deepening inner soul space. Around the ages of 9 or 10, this growing inner world reaches a point at which children feel acutely separate from the world. They see things more graphically and critically and their mental pictures acquire sharper contours. Because they are able to experience themselves as increasingly separate from the world during the day, they are increasingly able in sleep to differentiate and sort out the more vivid aftereffects of daytime experiences. This process is intensified by the fact that their soul body—though not emancipated until around 14—is gestating and gradually forming basic powers of feeling and discernment that will ripen into the capacity for judgment in high school and adult-

hood. The incarnating soul body and ego play a growing role in sleep in sorting out, evaluating, and judging impressions of the day. This is reflected in brain development in that the hippocampus processes immediate experiences that the maturing neo-cortex then helps the soul to form into capacities of the human spirit.

When a young child sleeps, its soul and spiritual members leave the physical sheaths—just as happens to a grown-up person—and they reenter the body during the moment of waking. But in the case of the child there is as yet no great difference between the conscious experiences in the waking state and the unconscious experiences during sleep. Under normal conditions, that is, if no reminiscences of what happened during the day enter the child's world of sleep—and this hardly happens in childhood—the child's life of sleep moves about in spheres lying far beyond the earthly realm. It is from these higher worlds that the active forces are drawn which, during the waking state, work from the brain downwards into the child's entire organism. During the second dentition, certain soul and spiritual forces in the child are released from working entirely in the organic sphere. They begin to assume an independent soul and spiritual character. Between the change of teeth and puberty the child develops a freer thinking, feeling and willing than was the case previously. No longer is it only an imitator, but through its natural feeling for authority, it develops the degree of consciousness necessary for it to make contact with the world. ... As a consequence, more and more experiences from the child's waking state will enter his (or her) soul and spiritual life also during sleep. And to the same extent to which earthly experiences enter its sleeping state, replacing those of the spiritual world, is the possibility given to us teachers to reach the child

between the change of teeth and puberty through our educational endeavors.¹²

Pedagogical Advice

Steiner gives helpful advice in several lectures on how to reach children in this gradual sleep learning process as it evolves from elementary through high school. The first step for teachers is simply to imbue themselves with an ever-expanding awareness of the significance of sleep: "A true teacher is concerned not only with the waking life but also with what takes place during sleep."¹³

Further: The effectiveness of teaching comes from the thoughts the teacher has had during the entire time of his or her existence and brings into the classroom. A teacher concerned with developing human beings affects the students quite differently from a teacher who never thinks about such ... thoughts ... as the cosmic meaning of the breathing process and its transformation through education, or the cosmic meaning of the rhythm between sleeping and waking.¹⁴

Second, with the mysteries of sleep in mind, teachers can benefit from engaging in continual observation, research, and practice that take the effects of teaching and sleep into account. Above all, according to Steiner, they need to notice how what they bring to the children on one day plays into the children's consciousness and seeks expression and engagement the next day.

Let us assume ... that the children are listening to a story you tell them, or that they are looking at a picture you drew for them on the blackboard, or that they are looking at a diagram of an experiment, or that they are listening to a piece of music you play for them. ... [W]hat you are inserting into the children in a roundabout way through the physical [body]—be it through the eyes, the ears, or the comprehending intellect—everything that is thus placed into the

children very soon assumes a quite different form of life. The children go home, they go to bed, they go to sleep. ... What you did with the children ... continues [outside their life and physical bodies and] in the soul body and the ego [which have lifted off into] a quite different environment. They experience something that can be experienced only during sleep, and everything you taught the children participates in the experience. The effects of the lesson that remain in the soul body and ego are part of the experience during sleep. ... The children will present to you on the following morning the results of what they experienced between falling asleep and waking.

... Everything that has been impressed on them continues during sleep to vibrate in them. Ego and soul body actually repeat—in the more intricate and spiritualized way peculiar to their nature—what they experienced. ... They repeat all of it. And what they thus experience during sleep, this the children take with them to school on the following day. The children incorporate the experience into their life and physical bodies, and we have to reckon with that. Considered in totality, the human being presents an extraordinarily complicated structure for us to come to terms with in our lessons.¹⁵

Having to reckon with and accomplish a positive influence on this day-to-day process becomes a teacher's primary intuitive quest. On the one hand, how are we to engage children in wholesome activities so that these experiences "vibrate" to good effect in sleep? On the other hand, how, on subsequent days, are we to "draw out" the insight and fruits of this consolidation and transformation to the benefit of each child?

The effects of artistic activity are particularly illuminated by Steiner's example of how eurythmy affects sleep:

Let us consider a child who is doing eurythmy. The physical body is in movement, and the movements of the physical are transferred to the life body. ... [T]he activities of the physical and life bodies are impressed on [the astral body and ego]. Soul body and ego then separate during sleep and connect the impressions to spiritual forces that are quite different. On the following morning, soul body and ego return the impressions to the life and physical bodies. We can then see a remarkable harmony between that which was received from the spiritual world during sleep and what the life and physical bodies experienced during eurythmy. The effect shows itself in the way the sleep experiences adjust to what was prepared and carried out on the previous day. It is only in this complementing of the physical nature and life by the spiritual that we can see the special healing element of eurythmy. Indeed, spiritual substantiality is brought to the human being upon awakening in the morning after a day including eurythmy.¹⁶

Steiner similarly describes the effects of geometry and form drawing:

Geometry [including form drawing] ... harmonizes with every part of the human being. ... By virtue of its own inherent vibrational forces [our body of formative life forces] ... has ever the tendency to bring to perfection and elaborate what has been brought to it. ... During sleep [it] continues supersensibly to [vibrate and] calculate, continues all that it has received from arithmetic [geometry and form drawing]. ... For example, we draw some figure on the blackboard ... and indicate the beginning of a symmetrical line. Then we try to make the child realize that the figure is not complete and by every possible means to get the child to complete it out

of himself. In this way we activate an inner active urge. ...The child will wake in a life body—and a physical body also—inwardly and organically stirred into activity. He will be full of life and vitality. A true teacher is concerned not only with the waking life but also with what takes place during sleep. In this connection it is important to understand certain things that happen to us all now and again. For instance, we may have pondered over some problem in the evening without finding a solution. In the morning we have solved the problem. Why? Because the life body, the body of formative forces, has continued its independent activity during the night. In many respects waking life is not a perfecting, but a “disturbing” process. ...What is to be striven for ... is to assist the continued activity of the etheric body during sleep.¹⁷

Through form drawing, a child performs a process that her life body then continues to perform to greater perfection in sleep. Her life forces are challenged and healthily invigorated in a creative fashion.

Here is another example from singing and making music:

When we let a child sing, the essential activity is that of the life body. The astral body must strongly adapt to this activity and [then take] it into the spiritual world. The soul body returns, and what it brings back again expresses itself in effective healing forces. We may say that in eurythmy we have a force that mainly affects the health of the child's physical body, while in singing a force expresses itself that mainly affects the child's mechanism of movement and, through movements, then again the health of the physical body. ...[The children] take [the singing experience] into the spiritual world during sleep. On the

following day we let them listen to music—we let them listen to rather than make music. What was done on the previous day is then consolidated in the listening to music—an extraordinary healing process. You can see that under ideal conditions—that is, a curriculum structured to adapt to the conditions of life—we can affect the children's health in an extraordinary way.¹⁸

Here, Steiner gives specific pedagogical advice on how to add a daytime counterpart to carry further sleep's consolidation of the experience of singing and music. He recommends that making music on one day be complemented by listening to music on the next. Performance experience comes first and then sensory discernment and reflection come next. This principle of reversal or inversion of outer action to inner experience can be applied to other activities as well.

Steiner gives further indications on how to reckon with the transformative effects of sleep on other subjects. In physics, for example, he advises that a teacher sequence two days of lessons so that a teenager's life processes are taken into account. He recommends that the teacher first make an experiment so engaging that:

The whole of the human being is occupied [and] is asked to make an effort. ...I then draw the children's attention away from the instruments I experimented with and repeat the various stages. Here I am appealing to their memory of the direct experience. During such a review or recapitulation—without the presence of the apparatus, purely in the mind—the rhythmic system is especially enlivened. After having engrossed the whole of the human being, I now appeal to the rhythmic system, and to the head system, because the head naturally participates during recapitulation. The lesson can then be concluded. ... I dismiss the children. They go to bed and sleep. What I activated in the whole of their being,

then in their rhythmic system, now during sleep continues to live in their limbs when soul body and ego are outside the physical body. Let us now regard what remains lying on the bed, what allows the content of the lesson to keep on working. Everything that has developed in the rhythmic system and the whole of the human being now streams upward into the head. Pictures of these experiences now form themselves in the head. And it is these pictures that the children find on waking up and going to school. ...When the children arrive at school on the following morning they have, without knowing it, pictures of the previous day's experiments in their heads, as well as pictures of what—in as imaginative a way as possible—I repeated, recapitulated after the experiment. ...And I shall now reflect on yesterday's lesson in a contemplative way. Yesterday I experimented, and in reviewing the experiment I then appealed to the children's imagination. In today's lesson I add the contemplative element. In doing so, I not only meet the pictures in the children's heads, but also help to bring the pictures into their consciousness. ...On th[is second] day, we discuss the previous experiment, contemplate it, reflect on it. The children are to learn the inherent laws. The cognitive element, thinking, is now employed. ...If I were to immediately start with a new experiment, without first nourishing them with the cognitive, contemplative element, I would again occupy the whole of their being, and the effort they would have to make would stir up these pictures; I would create chaos in their heads. No, above all, what I must do first is consolidate what wishes to be there, provide nourishment. These sequences are important; they adapt to, are in tune with, the life processes.¹⁹

By having students briefly recapitulate the experiment in their imaginations on the first day, a teacher helps students start a process of mental picturing and consolidation that will rhythmically and emotionally affect what happens in their sleep. According to Steiner, a student's experience of an experiment streams up at night from limbs and heart, from the whole body, into picture-forming in the head. The next morning, the teacher builds on the mental consolidation and metamorphoses of the night. Students bring their evolving mental pictures to consciousness in a review or discussion and take hold of them cognitively in words. New insights arise as students engage in contemplation of what they have experienced. They practice discernment in thinking and come to their own judgments and concepts. By coming back in this way to the same subject they have slept on, they anchor new knowledge and new capacities in their souls more firmly and organically. The progression here is from whole body experience and action, through rhythm and repetition, to contemplation and concept development—from limbs to heart to head.

Such a sequence during the day mirrors aspects of what transpires in sleep itself—recapitulation, memory consolidation, and insight and concept formation. It has its reflection in the organic progression in the brain of the raw memory of experience being processed first in the hippocampus and then subjected to the faculty of judgment and conscious thinking focused in the neo-cortex. This meaningful sequence is nourishing to the mind and soul and avoids “creating chaos in [students'] heads.” Before going on to a new experiment and experience, the soul wants more deeply to digest and come to terms with what it has been mulling. A rhythm of action, contemplation, and new action is in keeping with life processes, and vibrates healthily in the soul in sleep. This rhythmic learning and teaching, breathing and sleeping, is salutogenic, that is, health producing.

Steiner applied this salutogenic sequence also to history teaching:

I give the children the mere facts that occur in space and time. The[ir] whole being is again addressed just as during a [physics] experiment, because the children are called upon to make themselves a mental picture of space. We should see to it that they do this, that they see what we tell them, in their minds. They should also have a mental picture of the corresponding time. When I have brought this about, I shall try to add details about the people and events—not in a narrative way, but merely by characterization. I now describe and draw the children's attention to what they heard in the first part of the lesson. In the first part, I occupied their whole being; in the second, it is the rhythmic part of their being that must make an effort. I then dismiss them. When they return on the following day, they again have the spiritual photographs of the previous day's lesson in their heads. I connect today's lesson with them by a reflective, contemplative approach—for example, a discussion on whether Alcibiades or Mithridates was a decent or an immoral person. I shall allow the three parts of the threefold human being [willing, feeling, thinking] to interact, to harmonize.²⁰

For Steiner, taking sleep and life processes into account goes beyond good school practice. It is key to enabling what is truly human to incarnate in each child through the balancing of thinking, feeling, and will. Working with sleep is critical to the healthy birth of human beings as free, creative individuals who are capable of independent thinking, heartfelt judgment, and morally responsible action:

The examples I have given you [from physics, history, and other subjects in relation to sleep] will illustrate the path our teaching must take if it is to connect to life conditions, to life impulses, in a

healthy way. We cannot be satisfied simply with mediating facts. ... We must see the human being in his or her totality, as a being who is also extremely active during sleep. ... [I]f we ignore the fact that the content of our lessons continues into sleep, develops further during sleep, we will have the quite definite effect of making the human being into a robot, an automaton. We could, indeed, venture to say that today's education is in many respects an education not toward humanness but toward the most obvious type of human automaton—namely, the bureaucrat. Our children are trained to become bureaucrats. Such people are no longer really human. They are fixed, they have an existence, they are finished. The human being is lost, is concealed behind the label. We have an appointment with an officer, be it a clerk or barrister, and it matters little who the actual person behind the label is.²¹

Lest we be overwhelmed by all the research, Steiner pointed out that the details of the sleep process are incredibly complicated and that a teacher cannot possibly know of all that is transpiring, nor need to, in order to teach and work fruitfully with the rhythms of sleep. Discoveries in neuroscience and other fields can confirm what teachers do out of pedagogical insight and instinct, but they cannot teach us how to teach. We best do that through meditation and sleeping on how best to serve the children in our care. In addition to who we are ourselves as teachers and developing human beings, it is our deeper meditative efforts that make our method and curriculum work.

Endnotes

- 1 S. Gais and Lucas Born, *Sleep After Learning Aids Memory Recall* (2006), www.learnmem.org/cgi/reprint/13/3/259.pdf. See also: N. Axmacher and others, *The Role of Sleep in Declarative Memory Consolidation: Direct Evidence by Intracranial EEG* (2007), www.cercor.oxfordjournals.org/cgi/content/abstract/18/3/500.
- 2 See www.nytimes.com/2006/12/18/science/18memory.html. See also: "Coordinated memory replay in the visual cortex and hippocampus during sleep," D. J. & M. Wilson. *Nature Neuroscience* 10, 100–107 (2007) and www.nature.com/neuro/journal/v10/n1/supinfo/n1825_S1.html.
- 3 Wagner, Gais, Haider, Verleger and Born, *Sleep Inspires Insight* (2006), see www.nature.com/nature/journal/v427/n6972/abs/nature02223.html.
- 4 R. Steiner, *Foundations of Human Experience*, (1996), pp. 40–44.
- 5 See M. Kranich (1992, p. 23). Waldorf teachers work with four main rhythms: Waking up each day is an "ego rhythm," as is the "sun rhythm" of Waldorf school main lessons that happen day after day. The weekly rhythm of such subjects as painting and modeling can be experienced as a "soul rhythm," the monthly rhythm of block unit studies is a "life body" rhythm, and the annual rhythm of seasons and festivals is a "physical body rhythm."
- 6 R. Steiner, *Geistige Zusammenhaenge in der Gestaltung des menschlichen Organismus*, CW 218, p. 272, cited in S. Leber 1996, pp. 85–86.
- 7 Trying to gain insights into and a comprehensive overview of the sleep process was, for Steiner, "some of the hardest scientific investigations of the spirit." See *Esoterische Betrachtungen karmischer Zusammenhaenge*, CW 236, p. 258. Cited in Leber 1996, p. 87.
- 8 Stefan Leber correlates Steiner's three conditions of sleep, as well as imagination, inspiration, and intuition, with the stages of sleep investigated by researchers today (REM, SWS, etc.). See his *Der Schlaf und seine Bedeutung: Geisteswissenschaftliche Dimensionen des Un- und Ueberbewussten (Sleep and Its Meaning: Dimensions of Un- and Superconsciousness in the Light of a Science of the Spirit)*, Freies Geistesleben, 1996. This study is an excellent source of most, if not all, of Steiner's findings on sleep in the light of modern research.
- 9 Steiner, 1983, *Metamorphoses of the Soul*, p. 59.
- 10 Steiner was ahead of his time in recognizing "multiple intelligences." In addition to thinking or head intelligence, he investigated heart or emotional intelligence, and will-developed or limb-based, hands-on intelligence. The Waldorf school method strives to balance and harmonize these three intelligences.
- 11 Steiner 1996, *The Foundations of Human Experience*, pp. 41–42.
- 12 Steiner 1986, *Soul Economy and Waldorf Education*, pp. 223–24.
- 13 Steiner 1972, *A Modern Art of Education*, p. 156.
- 14 Steiner 1996, *The Foundations of Human Experience*, p. 43.
- 15 Steiner 1996, *Education for Adolescents*, pp. 46–48.
- 16 Ibid, p. 48.
- 17 Steiner 1972, *A Modern Art of Education*, pp. 154–157. In sleep the life body continues to vibrate with the experiences of a child's less-than-perfect efforts at what could be called "challenge drawings." It is stimulated to repeat, perfect, and harmonize them in a more ideal form in another dimension and thus exercise and strengthen its powers, powers that are also the basis of memory and health. Interestingly, as Robert Stickold, of

Harvard Medical School, points out, "You learn things in pieces and then sleep smoothes them out." Steiner speaks of the "evening out (*ausgleichende*)" effects of sleep. See <http://www.revolutionhealth.com/conditions/sleep/sleep-basics/sleep-health/memory>.

18 Steiner 1996, *Education for Adolescents*, pp. 48–49.

19 Ibid, pp. 50–51.

20 Ibid, pp. 52–53.

21 Ibid, pp. 57–58.

References

- Kranich, M. *Die Bedeutung des Rhythmus in der Erziehung, (The Meaning of Rhythm in Education)*, Stuttgart: Verlag Freies Geistesleben, 1992.
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- . *Der Schlaf und seine Bedeutung: Geisteswissenschaftliche Dimensionen des Un- und Ueberbewussten*, untranslated (*Sleep and Its Meaning: Dimensions of Un- and Superconsciousness in the Light of a Science of the Spirit*), Stuttgart: Freies Geistesleben, 1996.
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