

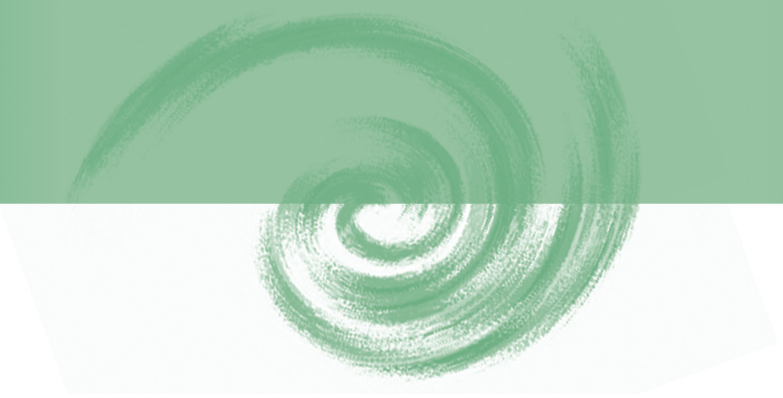


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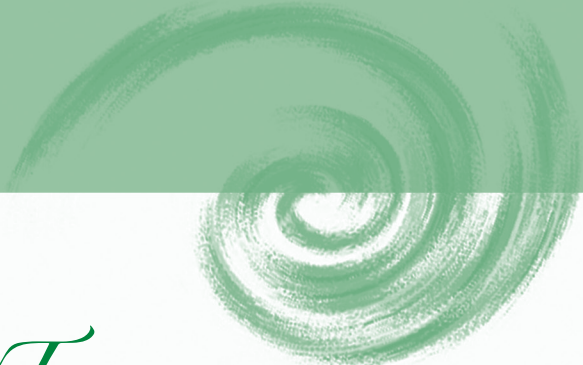
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From the Editor

Elan Leibner

The sense of thinking has long been one of the most puzzling aspects of Rudolf Steiner's teaching about the senses. Sensory input (or percept) is defined as that which we join with concepts, gained through thinking intuition, in order for full cognition to arise. How is it possible to perceive a thought before thinking? Detlef Hardorp explores this mystery, including a fascinating description of the one instance in which we gain concepts directly from other human beings without needing intuitions to facilitate the acquisition of these concepts. His extended essay offers a significant contribution to the study of the senses and will be of special interest to high school teachers working with the higher, cognitive senses.

A trio of articles explores issues related to health and wellbeing. Philip Incao contemplates the role of warmth in allowing the human being's spiritual essence to take hold of healing processes. He describes a historical progression that has led to a significant decrease in "warm" (fever-inducing, acute, usually infectious) diseases and childhood mortality, but that, having swung the pendulum too far in the other direction, has led to the rise of "cold" (and chronic) conditions such as ADD and asthma. One is left with renewed appreciation for the crucial importance of warmth not only as a physical process but as a pedagogical and social principle as well.

Sue Gerhardt writes about brain development during infancy. The studies she describes show from a scientific perspective what good parents and care givers have long sensed: Calm and loving care is not just a "nice" but a critically important factor for the development of the neurological networks that shape behavior later in life. She adds scientific rigor to the importance of the "only real healing force."

Christof Wiechert describes what research has identified as five key areas in the development of resilience in children. It is clear that Waldorf education has been doing much to support resilience, and the research supports essential aspects of Steiner's approach. Though many teachers may be doing the right thing as a matter of course, the more fully conscious we are of the consequences of our work, the more likely we are to do it with conviction and joy.

There is a short article by Sebastian Suggate, who has done empirical research in New Zealand concerning the difference (or none thereof) in reading competence among children who began reading instruction before age 7 or after. He describes conclusive evidence that there is absolutely no measurable difference in ability by age 12. This is the kind of scientific research that can help allay the fears of parents in Waldorf schools that their children are "falling behind."

Michaela Glöckler, a frequent and much-appreciated contributor to the *Research Bulletin*, offers a meditation on the structure and purpose of the Medical Section. As few can, she illuminates the profound spiritual archetypes underlying the structure of the organization she has been leading for the past two decades. Anyone involved in the governance of an anthroposophical institution is warmly encouraged to read this piece. A short description of work with the circle-and-point meditation, written by Rudiger Grimm, a long-time remedial teacher, concludes Dr. Glöckler's article.

Arthur Zajonc is another of the *Research Bulletin's* stalwarts. In an article reprinted from his most recent book, *The Heart of Higher Education: A Call to Renewal*, he offers a comprehensive, integrated, and holistic approach to adult education. Describing in lucid terms how scientific

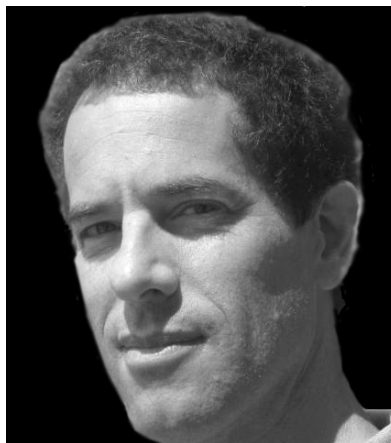
thinking has overcome a reductionist paradigm by learning to ask new kinds of question, he charts a path towards a truly human academia. He and his colleagues, including his co-authors Parker Palmer and Megan Scribner, stand at the forefront of efforts to bring true humanity back into higher education.

Dorit Winter writes a review of *The Age of Wonder* by Richard Holmes. With her customary precision and insight, she describes an author who, through impeccable research, arrives at profound experiences of his own consciousness, as well as the consciousness of his subjects. As would befit an educator of teachers, Dorit also offers practical application of the material from the book for different grade levels.

Finally, I include in this issue a short article suggesting a study methodology for working with

written anthroposophy. This methodology can be used both for individual study and for faculty or college study. It has been refined in courses I have taught over the past three years and leads from a detailed summary of the content of the text, through two intermediate steps, towards meditative contemplation of selected questions or themes.

A personal note: This issue is my first as the new editor of the *Research Bulletin*. I am honored to join the ranks of this publication and invite our readers to send comments and suggestions. Above all, we want the articles published here to be helpful to the practitioners and students of Waldorf pedagogy. My colleagues and I hope that the selections included in this issue will enhance the understanding and practice of Waldorf education.



Elan Leibner



Report from the Co-Directors

David Mitchell and Douglas Gerwin

With the support of an enthusiastic donor, the Research Institute has posted online a broad range of invaluable yet sometimes inaccessible books on Waldorf education. This collection will be of special interest to researchers and other individuals seeking to gain access and download books for research and study. Through the generosity of the Waldorf Curriculum Fund we have, since November 2010, produced 23 additional electronic books. Together with the 30 e-Books already produced, this represents a significant treasure trove of research material available at our Online Waldorf Library (OWL), www.waldorflibrary.org. This web-based resource is accessible free of charge, and we encourage you to visit it frequently. Our online librarian's regular report of activities appears separately towards the end of this issue.

As Co-Directors we have continued to meet, correspond, and collaborate with the leadership of the Pädagogische Forschungsstelle in Stuttgart and the Alanus University in Alfter, outside of Bonn, Germany, as well as research colleagues in Australia and New Zealand. Due to financial constraints we are unable to expand these efforts into a larger scale.

In collaboration with our colleagues at the Pädagogische Forschungsstelle in Kassel, Germany, the Research Institute has produced a book *Topics in Mathematics for the Waldorf High School: 11th Grade*. The English-language edition of this book is available via AWSNA Publications at www.whywaldorfworks.org.

This year's course on "Teaching Sensible Science" got off to a roaring start at the Chicago Waldorf School with 27 participants—the largest group thus far. See Lylli Anthon's report in this *Research Bulletin* for more details. For more

information on this popular course, which over the years has been offered in Waldorf schools across the U.S., please contact Michael D'Aleo at spalight@verizon.net. We are grateful to the Leadership Team at AWSNA and to the Waldorf Educational Foundation for sponsoring this program, which allows class teachers to deepen their understanding and practice of phenomenological observation in the context of the Waldorf science curriculum in grades 6–8.

Work is progressing on the sexual education curriculum and book for grades 4–12 under the guidance of Douglas Gerwin, Director of the Center for Anthroposophy and Co-Director of the Research Institute. Translation of a recently published collection of essays on this subject from German to English has been completed, and several Waldorf high school teachers, as well as professional counselors in this field, are collaborating with Douglas to formulate guidelines for an English-language curriculum to address not only physical and psychological but also the spiritual dimensions of this subject.

On behalf of the Research Institute and the readers of the *Research Bulletin*, we would like to express our gratitude to Stephen Sagarin, editor of our twice-yearly journal who relinquished his position at the *Bulletin* last summer after five years of dedicated service in order to give his full attention—apart from his duties as chair of the Great Barrington Waldorf High School—to the deadline of his forthcoming book for SteinerBooks on Waldorf education. We had a good deal of joy working together with Stephen. His wry humor and provocative thinking—along with fluent style and chiseled editorial pen—brought added clarity and freshness to the *Bulletin*. We wish him well

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and treasure his lasting collegueship. Stephen has agreed to remain as Research Fellow and occasional contributor of articles to the *Bulletin*.

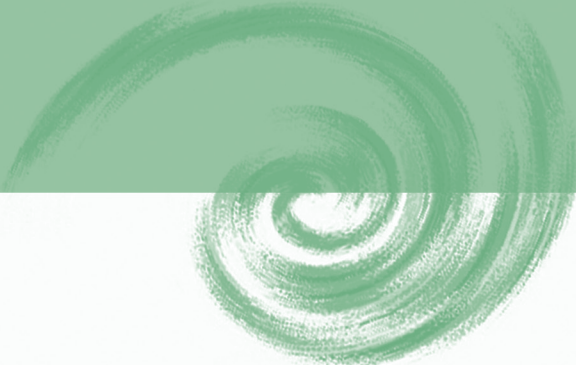
With this edition we are delighted to introduce Elan Leibner as our new editor. For many years a class teacher at the Waldorf School of Princeton, New Jersey, Elan recently spent a year leading the “education course” at Emerson College in Forest Row, Great Britain. At present he is an

active member of the Pedagogical Section Council and serves as teacher educator and consultant to Waldorf schools across North America. Elan, who hails from Israel, is a world traveler who prepared portions of this issue of the *Bulletin* in cafes as distant from each other as Seattle in the Pacific Northwest and Tuscany in Northern Italy. Welcome aboard, Elan—and welcome home!



Douglas Gerwin

David Mitchell



Tending the Flame:

The Link Between Education and Medicine in Childhood

Philip Incao

People are social creatures; just try to remember we need human contact and warmth more than any thing.
– Colorado eighth-grader Kelly Ash, reflecting on the Columbine tragedy.

Education is to light a fire, not to fill a bucket.
– Heraclitus

A social issue is essentially an educational issue and this in turn is essentially a medical issue, but only if medicine is fertilized with spiritual knowledge.
– Rudolf Steiner

Fever is the purifying flame which renews the body.
– Hippocrates

The Tragedy of Hospitalism

I once had a medical consultation with an eight-year-old Waldorf student who had been adopted by her American mother from a Romanian orphanage. The mother recounted to me the intensely moving story of their first encounter. She entered a room full of children and her eyes rested on a tiny waif in a crib who looked to be about eight months old, with no teeth and as yet unable to stand or talk. Their eyes met, the child laughed, and in that moment the mother knew that “this was my child.” Then to her shock she learned that the child was over two years old! “I just took her home and loved her,” she told me, “and all her teeth started coming in and she began standing, walking, and talking!”

What an amazing demonstration of the power of human caring, of human warmth, and of the human spirit itself, I thought at the time. I’ve since learned more fully that this was by no means an isolated example.

In the early 1900s, children in American orphanages and hospitals died at a staggering rate of a mysterious condition that came to be called hospitalism: “a listless wasting away despite adequate food, a weakening of muscles,

loss of reflexes, and greatly increased risk of gastrointestinal and lung infections. For older children, it might take days or weeks for hospitalism to set in, but if they left the hospital they improved drastically within days.”¹

The experts of the day could not understand why these children were dying in great numbers, but exposure to hospital germs was the prime suspect. So children were further isolated from human contact and kept alone in disinfected hospital cubicles designed to be a barrier to germs—and their death rate grew still higher.

Hospitalism lay at the intersection of two ideas popular at the time: a worship of sterile, aseptic conditions at all costs and a belief among the pediatric establishment that touching, holding, and nurturing infants was sentimental maternal foolishness.²

The lethal agent in hospitalism was no germ, but simply the fact that, in addition to being isolated and treated coolly by the hospital staff, children were allowed parental visits for only

two or three hours per week. It wasn't until 1942 that emotional deprivation and loneliness were acknowledged to be the true causes of hospitalism.

Isn't it interesting (and tragic) how an idea that seems self-evident today—that infants and children need warm and loving human contact in order to survive, grow, and develop properly—took so long to be understood and accepted? But that is the usual way human knowledge advances. As Schopenhauer observed, “All truth goes through three stages. First it is ridiculed. Then it is violently opposed. Finally, it is accepted as self-evident.”

A Search for Solid Ground

The forgotten shameful story of hospitalism still has important lessons to teach. In the early 1900s it was an article of faith among physicians that human consciousness and human emotions could have no influence whatsoever on the inner workings of the human physical body. How could they? They are only subjective and non-material. They exist only in the mind, quite apart from our physical body. Or so we imagined.

It is reassuring to find solid ground in our scientific seeking to understand the human being, and for the past 300 to 500 years that solid ground has been the human physical body. Medicine still operates on the assumption that the inner workings of the body are pretty much the same in everyone. When these workings run smoothly we have health, and when they malfunction we have illness. Medicine is based on this assumption and so is popular thinking about health. Illness is a problem of bodily malfunction on the physical level, end of story. In this respect, things haven't changed much since the days of hospitalism.

Perhaps we no longer consider children's need for human warmth and loving human contact to be sentimental foolishness, but we are still a long way from understanding the inner needs of children.

Mainstream medicine and education are still based on the unproven and unjustifiable assumption, really a bias, that human feelings have little or nothing to do with the health of the physical body.

The Canary in the Coal Mine

Like the canary in the coal mine, today's child is in distress. A look at the statistics confirms this. The crudest measure of children's health is their death rate from all causes. In the 1950s American children had one of the lowest death rates in the world. According to UNICEF statistics for 2006, there are now thirty-eight nations where children under five years old have a lower death rate than the rate recorded in the U.S.

This under-five death rate, which UNICEF names on their website “a critical indicator of the well-being of children,” shows that, compared with children in other developed nations, the well-being of U.S. children has been declining since the 1960s.

Now children under five years old in all of Western Europe, as well as in Estonia, Hungary, Poland, Croatia, and Cuba, have lower death rates than do U.S. children.

What are American children dying from? In 1900 most of the deaths in our children were due to inflammatory conditions

such as pneumonia, diarrhea, TB, measles, diphtheria, whooping cough, and scarlet fever. Deaths from acute inflammatory contagious conditions declined in the 20th century with improvements in the standard of living, sanitation, and literacy in the U.S. and other developed nations.^{3,4,5}

By the early 1950s most of the acute inflammatory conditions listed above were less common and far less serious in American children. Sulfa drugs, as well as vaccines for diphtheria, tetanus, and whooping cough, had been developed before World War II and were now starting to be put into more widespread use along with the new

The question at the core of this article is, “What is health, and why has it changed so dramatically in our children in the last hundred years?”

wonder drug, penicillin. Polio, the dreaded scourge of the 1940s and 1950s, fairly soon fell into decline with the advent of the Salk and then later the Sabin polio vaccines. The 1950s, the Eisenhower years, were a time of post-war optimism and prosperity, and also for American children a time of relative good health. We had reached a balance point: The old acute scourges of pneumonia, typhoid, diphtheria, etc., had largely retreated and the new chronic scourges of allergies, asthma, diabetes, and cancer were still relatively rare in children.

Practically unknown in those early post-war years were the now common conditions of autism, learning disabilities, hyperactivity, and attention-deficit disorder. Also largely unknown was the modern tragedy of homicide, suicide, and drug use among children.

A Great Shift in Health

There has been a dramatic shift in all modern industrialized nations: Children no longer die from acute inflammations as much as they suffer from a variety of chronic conditions affecting their immune system (allergies, asthma, diabetes), their neurological system (autism, learning and developmental disabilities), and their behavioral and emotional stability (depression, suicide, violence, and drug use).

It is reasonable to assume there is a spectrum of causes that contributes to these conditions, in specific and non-specific ways, some acknowledged and many as yet unknown or unacknowledged. One of the acknowledged non-specific causes which contributes to stress and distress in today's children is the decline of stability in the American family. According to a 1994 Carnegie report on U.S. children, the percent of children under the age of three living with one parent increased almost fourfold from 1960 to 1990, from 7% to 27%. There are also a number of possible specific causes just now being debated across the country, including vaccine reactions as a cause of diabetes, autism, and asthma; excessive antibiotic use as a cause of allergies and asthma; excessive T.V. and computer use as a cause of behavioral dysfunction

in young children; and exposure to fluoride in water and to mercury and aluminum in vaccines as possible causes of neurological dysfunction.

My purpose in this article is not to debate specific causes, as valid as that debate may be, but to point to the overall trend and to characterize it in such a way as to shed light on the problems children are experiencing today. I've already sketched the overall trend in the U.S. and other developed nations since 1900, but a summary is needed:

1. Children are dying at a lower rate than ever before.
2. Illness and death from acute contagious inflammatory diseases occur at a lower rate in children than ever before. This fact alone is responsible for #1 above.
3. Children have more chronic conditions and more disabling conditions than ever before. *The Medical Tribune* of August 13, 1998, reported a study that estimated 18% of U.S. children suffered a chronic health or behavioral problem which qualified them for special services supported by public programs.⁶ That's almost one in five children. The July 5, 2002, edition of the *Washington Post* reported: "One of every dozen U.S. children and teenagers [ages 5-20]—5.2 million—has a physical or mental disability, according to new figures from the 2000 census that reflect sharp growth in the nation's young handicapped population over the past decade—[in which] special-education enrollment rose twice as fast as overall school enrollment."⁷
4. While certain social conditions like poverty, hygiene, and sanitation have improved, others like family stability, child abuse, violence, and drug use have worsened.⁷

A survey by the Public Health Policy Advisory Board found that of all children between the ages of one and nineteen who died in 1995, 41% died from accidents or unintentional injuries, many of them

alcohol or drug related, a shocking 14% died from homicide, 7% from suicide, 7% from cancer, 5% from birth defects, and 1% from infections.⁸

Although the overall death rate of children has declined very dramatically in all developed nations since 1900, it bears repeating that U.S. children under five years old are still dying at a higher rate today than children in thirty-eight other countries, probably largely due to the worsening social conditions mentioned under #4 above.

In 1995, homicides in the U.S. were the fourth leading cause of death in children one to nine years old, the third leading cause in children ten to fourteen years old, and the second leading cause in adolescents fifteen to nineteen years old.⁹ In a report entitled “A Call to Action,” the blue ribbon Public Health Policy Advisory Board concluded: “The most important threats to American children today lurk in the changing psychosocial fabric of American society and in behavioral and cultural changes not readily amenable to definition by the biomedical models that empowered public health earlier in this century.”¹⁰

A New Paradigm Needed

The message is clear: A new way of thinking and new models are needed, not just for social problems but for education, health, and medicine as well. In a prophetic lecture entitled “Health Care as a Social Issue” given in 1920 and cited at the beginning of this article, Rudolf Steiner speaks to this need. Steiner’s mission was to bring much-needed healing into human culture and social life. Essential to his mission was the renewal of contemporary medical science and education through the application of a new model of human biology and human psychology. Steiner’s model—simple in outline

(though complex in the details)—represented a renewal of ancient Western and Eastern wisdom,

viz. the human being is composed of four concrete realities: spirit, consciousness (soul), life, and body. Only the last, the physical body, is concrete in the material sense, that is, perceptible to our senses and to our scientific instruments. The other three elements of the human being—spirit, soul, and life—are wholly invisible and non-material, but without them the wonderful human physical body would be nothing but a cold, lifeless corpse prone to deterioration and decay. Thus, spirit, soul,

and life are not abstract or vague, but are concrete realities graspable by the human mind and having definite functions and observable effects in the human physical body.

As soon as one begins to study the human being in light of this fourfold model of spirit, soul, life, and body, some helpful answers to very basic questions start to emerge. The question at the core of this article is, “What is health, and why has it changed so dramatically in our children in the last hundred years?”

Based on Steiner’s fourfold model, we could answer this question as follows: Health is the harmonious balance in the rhythmical workings of spirit, soul, life, and body in us, a household in which our spirit should rule, and not another member of our being. Again, this is a simple answer in outline, but very complex in the concrete details.

As to the important question, what is healthy development through childhood, we would answer: It is the free and full unfolding of a child’s individual spirit in the course of time so that this active spirit is unhindered in growing to its full expression and full potential within the child’s soul, life, and body. When a child’s spirit waxes strong and becomes

the master in its own house, then balance, harmony, and health are the results, both in soul and in body. But our spirit is accompanied by a co-worker—the human soul—as unpredictable as the wind! Spirit and soul are linked in their activity like fire and air. When spirit rules, our inner flame burns steadily and quietly, suffusing our mind and our actions with its warmth and light. When soul rules, we are prone to mood swings: from a mighty wind which fans an inferno to a stifling calm which causes the inner flame of our spirit to choke and sputter.

Fire and Ice, Blood and Nerve

These polar opposite forces in the human being were called Yin and Yang in Ancient Chinese wisdom, and Love and Hate in the Ancient Greek philosophy of Empedocles. Steiner called them Sympathy and Antipathy, perceiving them, as the ancients did, as the bipolar primal energy working in the universe and expressing itself in forces of nature like heat and cold, or positive and negative electricity, but also expressing itself in the human being as the primal warm, effusive, expansive energy of our blood and the primal cool, focusing and condensing energy of our nerves, brain, and sense organs. Robert Frost's little gem of a poem "Fire and Ice" offers a succinct poetic picture of these twin primal forces.

Some say the world will end in fire,
Some say in ice.
From what I've tasted of desire
I hold with those who favor fire.
But if it had to perish twice,
I think I know enough of hate
To say that for destruction ice
Is also great
And would suffice.

Based on Steiner's fourfold model, we could answer this question as follows: health is the harmonious balance in the rhythmical workings of spirit, soul, life, and body in us, a household in which our spirit should rule, and not another member of

It is the mastery and discernment of our spirit, working in every system and function of our physical body, which keeps harmony in its household between these mighty opposing powers, our inner Fire and our inner Ice, and our spirit transforms and heals their tendency to destructive excess. The unique composition of Yin/Yang (or Ice/Fire) imbalances that a child has in body and soul by inheritance or destiny will determine the particular illnesses to which that

child will be susceptible. Illness too has a bipolar nature: On the hot side are the acute contagious inflammatory illnesses and on the cold side the chronic degenerative or sclerotic illnesses. These are the twin dangers we must navigate on our life's journey, as between Scylla and Charybdis, between Fire and Ice.

A Great Reversal

Throughout recorded history the fiery acute inflammatory illnesses have always predominated as the chief causes of death because the human constitution always tended to the warm side, thus making us susceptible to inflammations. But in the brief course of the past 100 years, the illness pattern of all previous recorded history has suddenly reversed itself, as we've seen. Now, in all developed nations, the cold illnesses prevail: cancer, heart disease, and stroke in adults; asthma, allergies, cancer, neurological and emotional dysfunction in our children.

What is the deeper meaning of this sudden and profound reversal? From 1900 to the 1950s the health and survival of children improved because the cooling and focusing effect of modern industrial and intellectual civilization made them less susceptible to the acute contagious hot inflammations which up until that time had claimed children's lives. After a brief period of healthy

balance during the 1950s, children's health has worsened since 1960, due to the further intensification of the same cooling and condensing forces which improved their health from 1900 to 1950. We were on the right track, but we overreached the healthy balance point, and the pendulum has rapidly swung to the opposite side.

Through the effects on our children of our modern materialistic and technological culture, especially modern education and medicine, we have brought about a constitutional change in children that has made them more resistant to the life-threatening acute inflammations of the past, but also more vulnerable to the modern life-burdening chronic conditions at the opposite end of the illness spectrum.

Children are indeed the canaries in the coal mine. In their distress they are crying out to us to wake up to the health-weakening and spirit-dampening aspects of modern life so that we will understand how to protect and nurture the delicate growth and unfolding of their individual spirits. This spiritual unfolding is nothing less than a child's entire developmental process. What we call brain development, neurological maturation, and the like are the all-important physical effects resulting from a healthy and balanced spiritual development.

Human Warmth

In the forgotten story of hospitalism, we have seen the devastating effects on children's development that emotional deprivation, a lack of human warmth, can have. But what is human warmth? Is it the 104° Fahrenheit body temperature in our child which frightens us, or is it the caring interest shown to us by a friend which consoles us, or is it the steady burn of enthusiasm which energizes us to carry through an important project? It doesn't

A growing child must find its inner ground, its center of warmth, and from this solid ground seek to connect to other sources of warmth, in an ever-widening circle around itself, from immediate family all the way to God.

take a lot of imagination to see that all three are human warmth. Warmth is the bridge between mind and body, the unique element interconnecting body, soul, and spirit in us.

Like water for fishes, warmth for humans is the indispensable all-pervading medium both within us and among us that supports and nourishes our humanity at every level of its existence.

Through warmth we connect.

We connect to our family, our friends, our teachers, our co-workers, to all humanity, to animals, to plants—in short to the entire universe and all that inhabits it.

A growing child must find its inner ground, its center of warmth, and from this solid ground seek to connect to other sources of warmth, in an ever-widening circle around itself, from immediate family all the way to God. But today's child understandably has great difficulty finding its connection to the world when that world is portrayed by modern science and education as ultimately an arrangement of atoms and molecules devoid of any higher meaning or purpose, and hence devoid of any human or spiritual warmth.

Standing on Solid Ground

This failure to connect, which causes so much dysfunction and quiet despair in our children and all too often horrible violence, stems ultimately from the fact that our culture and our society are missing the boat. The solid ground referred to earlier, which we all need and seek, is not the cells and molecules of our physical body; it is our human warmth. Technology has enhanced many aspects of our lives, but no technology, whether in the form of video screen or loudspeaker, drug or vaccination, can be a source of human warmth. That is why our children are growing inwardly colder.

Physicians can learn marvelous truths from patients, if we have the ears to hear them. Just recently a mother reported to me that her weary, uncomfortable eight-year-old child said to her around 2 a.m. during his third night of fever, “Mom, you know what I need? I need some new ground to stand on.”

If modern education and medicine are to strengthen our essential humanity, they must learn that this solid ground derives from the human spirit, not from the human body. As the ancients knew, the human spirit manifests in warmth, in fire: the fire of love, the fire of enthusiasm, and, in the physical body, that most misunderstood and most feared of all fires—the fire of fever.

The Renewing Flame

Fever remodels and renews the physical body, making it a truer and more responsive instrument of the spirit. How often have mothers told me of the developmental leap in emotional and neurological maturity their child has taken after working through a fever that was not suppressed with antibiotics and anti-inflammatory drugs. And conversely, how often have I seen children, whose inflammations were repeatedly suppressed with these drugs, lose their spark and stagnate in their development.

One of the most effective ways to reverse the increasing cooling and densification of our children’s souls and bodies, and of our own, is to recognize the healing, enlightening, spirit-permeating power of feverish inflammatory illness. Seen truly, inflammation is never the real illness; it is the attempt of our immune system

to permeate our inner density, opacity, and coldness with the spirit’s healing warmth and light. When this attempt is overzealous and threatens our life or functional capacity, we can be very grateful that modern medicine has empowered us with the tools and techniques to suppress and control inflammation.

But we must use that power with discretion. To suppress all inflammation indiscriminately, out of fear and misunderstanding, with antibiotics, vaccinations, and anti-inflammatory drugs contributes enormously to just this condition of spirit-rejecting density of body and soul described in this article. Health, after all, is a state of balance, and we must learn to avoid overreaching that balance with our fear-based and overzealous efforts to conquer illness.

To Heal, Not Suppress

The surging consumer interest in Waldorf education and in complementary-alternative medicine in our country is a sign that our paradigm in education and

in medicine is shifting. Still, what is urgently needed is a widespread awareness of the critical difference between healing an illness and suppressing it. Healing empowers our spirit; suppression cools the spirit’s activity in the body. Repeated suppression may hinder the capacity of our human spirit to express itself in us and may transform our acute illnesses into chronic ones. The spirit renews as well as destroys, and now that we have the power in our technology to block even the spirit’s power, we must acquire the discernment to use that power wisely, or else cause our children and ourselves great suffering.

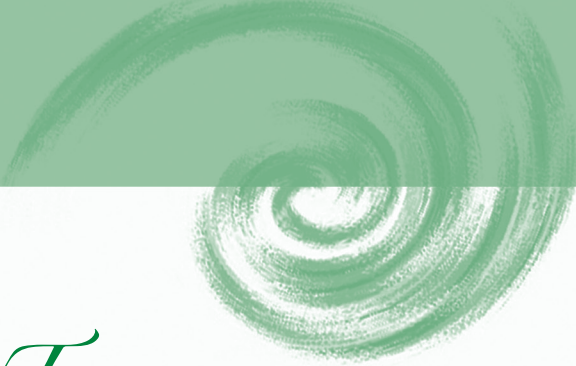
Healing ourselves, our children, and the Earth is one and the same task. To accomplish this will require a revolution in all aspects of modern science, especially so in agriculture, medicine, psychology, education, and parenting. It will require great discernment, courage, and good will. It will require of us nothing less than a practical, down-to-earth embodying of the spirit’s

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Why Love Matters: How Affection Shapes a Baby's Brain

Sue Gerhardt

The case that I want to make is that babyhood is much more important to our lives than many people realize. A lot of the behavior that worries us in later childhood, such as aggression, hyperactivity, obesity, depression, and poor school performance, has already been shaped by children's experiences in babyhood. For those of you who have not studied the scientific literature, this might seem a bit far-fetched. I was rather amazed at just how significant babyhood is when I first undertook the research for my book *Why Love Matters*.

But over and over again, as people look into it, they discover that this really is the case. Just to take one recent example, the World Health Organisation recently published a report from their Commission on the social determinants of health which stated: "Research now shows that many challenges in adult society—mental health problems, obesity/stunting, heart disease, criminality, competence in literacy and numeracy—have their roots in early childhood." They went on to say: "Economists now assert on the basis of the available evidence that investment in early childhood is the most powerful investment a country can make, with returns over the life course many times the amount of the original investment."

The Over-Riding Importance of Early Conditions

The strange fact is that very often the early conditions of our lives have a profound impact on the whole of our development. Let me start by describing how this works with regard to the body and physical health, which might seem more obvious because we can see that nutrition affects the body. The body grows or it does not. It develops healthy organs or it does not. And, actually, the

early development of the body's organs and other systems are affected by the nutrition available at that time. There is a lot of evidence to suggest that birth weight and early nutrition have a big influence on later health such as susceptibility to heart disease, obesity, and Type 2 diabetes. Much of the early research was done by David Barker from Southampton University. He explains the process in terms of the fetus or baby adapting to the conditions in which it finds itself. If those conditions are of under-nourishment, the growing body has to adapt the way it handles sugar and fat, or the way the heart manages blood pressure. These adaptations, as he put it, "tend to have permanent effects on the body's structure and functioning—a phenomenon referred to as 'programming'." The poorly nourished babies have also been found by other researchers to have higher cortisol levels throughout adult life, suggesting that their stress response had been programmed in the womb or in infancy (Seckl & Meaney 2004). As Barker explains, these early adaptations allow the fetus and the baby to survive the immediate dangers of their situation, but have long term consequences—often at the price of a shortened lifespan.

The links between infancy and later health and longevity are already being taken seriously by the European Union (EU). For some years the European Union has been funding an Early Nutrition Programming Project based in Munich (coordinated by Professor Koletzko of the Children's Hospital, University of Munich, Germany), which has been looking at these links. Other major organizations recognize the links too. The World Health Organisation recommends at least six months of breastfeeding to protect the development of a child's immune system.

But my focus is on emotional health, and in particular how the brain systems that manage our *emotional* responses are just as much shaped by early events. They too are “programmed” in a very similar way. Not by food input—although that plays its part in nurturing our biochemical systems—but by the way that a baby adapts to the relationship environment and structures his brain accordingly, in order to survive in the situation in which he finds himself. Just as the baby’s body adapts to a shortage of nutrition, so the brain adapts to inadequate emotional input.

The Human Brain

The human brain is unique. It shares many of the same features as animals’ brains, but it is a kind of extended version. It starts off with a basic reptilian brain based around the brain stem—this is what supports the basic life functions, and this is the first part of our brain to develop, too. Then, as with other mammals, it adds various new capacities (based in the center of the brain) including nurturing abilities. But what really makes humans human is basically the massive post-natal development of the outer layers of the brain, the cerebral cortex. One of the first parts of this layer to develop is the pre-frontal section, which grows extremely rapidly in the first year or two of life. It is an area which is not fully formed at birth but which connects up in response to social stimulation in infancy.

Brain development, or learning, is actually the process of creating, strengthening, and discarding connections among the neurons. These connections are called synapses. There are not many at birth but they sprout rapidly in the first year of life and eventually form neural pathways that connect the different parts of the brain and organize its functions.

The pre-frontal cortex is the area of the brain I am most concerned with. It is what I call the social

brain, which is a shorthand way of referring to a range of areas in and around the pre-frontal cortex. We know from scientific research that this social brain area is activated when we are involved in controlling our emotions, paying close attention to other people and their social signals, thinking about feelings, and having empathy for others. It is the area of the brain that extends out of the more basic instinctive ways of behaving—such as fight or flight reactions—which are based in the amygdala and hypothalamus.

The social brain’s job is basically to organize and supervise those more basic responses. But this human emotional control center does not develop automatically. The social brain develops in response

to the social experiences that a baby actually has. Neural pathways get laid down as a result of actual experiences, so, for example, the baby needs someone to give her an experience of emotions being managed helpfully before she can learn to do these things for herself and manage her own feelings well. Basically, babies learn how to do things through their experiences with other people, not through words or instructions.

They learn how to cope with stress by having an experience of someone being with them and helping them to cope. But they need to have these experiences consistently, over and over again, to lay down the pathways, during the first and second years of life.

As I mentioned earlier, the first year of life is about making connections in the brain. But during the second and third years of childhood that huge tangled mass of connections starts to get “pruned,” on a “use it or lose it” basis. Basically, we keep the pathways that are most used and most useful in our particular social environment—and lose those pathways that have not been used that much. In other words, if as babies and young children we

Basically, babies learn how to do things through their experiences with other people, not through words or instructions.

live with angry, aggressive people, we will keep pathways that help us to be alert to anger and aggression, and if we live with people who are attentive to other people, we will keep the pathways that help us to be attentive.

Biochemical Systems—the Stress Response and the Soothing System

Some of the first pathways to be established in babyhood are the biochemical ones. These biochemical pathways, which I think of as a sort of liquid “grease,” assisting the flow of information around the brain, help the baby to react to his environment quickly and appropriately. In particular, I want to mention *two biochemical systems that are really important for emotional well-being*—I refer to them as the *stress response* and the *soothing system*.

The *stress response* is a very important biochemical system which develops in infancy. It releases the hormone cortisol to generate extra short-term energy to cope with stresses and dangers of all kinds. Once the objective has been achieved, and safety and social equilibrium are restored, the cortisol is dispersed. But in early babyhood, the stress response is not yet fully functional; babies are very vulnerable and easily stressed—particularly by situations that feel unsafe, such as being separated from their mother or a familiar person, or being physically hurt. Babies cannot protect themselves from stress or danger nor can they calm themselves down. They are dependent on an adult to protect and calm them, to quickly disperse their cortisol for them and to help them get back to a stable state. If the adults taking care of them do not manage their states for them, they can become flooded with cortisol without having any way of getting rid of it. Even in toddlerhood, they are still vulnerable, and need to feel that their world is safe and predictable, and that they can rely on others for help when they need it. If babies or toddlers end up being flooded with cortisol on a chronic basis, because the adults looking after them do not respond quickly, do not resolve problems for them, or are, in fact,

perhaps emotionally frightening themselves, the stress system will adapt to that particular human environment, and the baby may develop an unusual cortisol response—high or low baseline levels of cortisol—which can have some very negative effects on him/her.

Let me give you a glimpse of how this might be passed on from parent to child in practice. I had a client who was a violent offender. He had just come out of prison and was building a relationship with his son, wanting desperately to be a good father. However, the way he interacted with his baby son—unpredictably shouting at the baby or laughing at the baby’s distress—was frightening to the baby. If this had continued, the father would have passed on to his son a feeling of not being safe, having to be vigilant and alert to others’ aggression.

When experiences like this go on day after day, they can have lasting effects on the child’s biochemical systems. A child who experiences rough treatment, humiliation, aggression, shouting, and so on, has to adapt psychologically. But this is also happening at a biological level. It is thought that high levels of the stress hormone cortisol are eventually down-regulated and children like this end up with a low baseline cortisol level which has been found to be associated with later aggressive behavior.¹

Most people probably develop a healthy stress response if they have a normal childhood. This gives them a good chance of being able to bounce back after difficulties. It means that they have built resilience to stress. Even though they might be temporarily overwhelmed and start to forget things or lose the ability to pay attention, if they have established a healthy stress response in infancy, they are likely to be able to get back to normal quickly.

It takes quite a lot of stress over a very long period to create any permanent damage in a basically resilient adult (although it can happen). However, when babies are chronically stressed, this can create permanent damage to their systems so that they grow into adults who are not able to

recover quickly from stressful events. They become more vulnerable and sensitive to stress as adults and may seek help in regulating themselves through drugs and alcohol. When adults like my client ignore their children's feelings, laugh at them or punish them, the children basically are not going to be learning how to manage feelings or to regulate their feelings. Another aspect of too much cortisol early on is that it can have a knock-on effect on other biochemical systems—such as the *soothing system* which is based on the neurotransmitter serotonin. When this system is not in good shape, the baby can grow up finding it difficult to stay calm under stress and may become prone to impulsive outbursts and aggression. Low serotonin levels are part of the picture of mood and anxiety disorders, sleep disturbance, and aggression on into adulthood.

I think of these biochemical imbalances as a bit like a physical handicap, a vulnerability which is not necessarily immediately visible, but which can play itself out in later life, even after decades. High levels of cortisol are connected to physical health problems too; in particular research is now demonstrating links with later obesity and heart disease.²

Prefrontal Development

Too much cortisol early on—especially during the first three years when the daily pattern of cortisol is established—can even affect brain structure. In particular, it can damage those areas of the brain that are developing rapidly in the early years because it can be toxic to the development of neural connections just at the time when the connections are being made and the pathways established. Children who are traumatized early on often have reduced brain volumes in a number of areas, especially the prefrontal cortex: Literally, they have smaller brains. In other words, the volume of a child's brain can be shaped by experience; scientific research has shown that a child who is severely neglected physically as well as emotionally can have a dramatically reduced brain size.³

Neglect or stress can seriously affect the social brain, as well as other areas such as the amygdala, the cingulate, and the hippocampus, which are all important for emotional life. The crucial age for prefrontal emotional development is the period from the second part of the first year through toddlerhood, when the medial prefrontal cortex is developing most rapidly and is most susceptible to influence. It becomes functional at around 18 months to two years, by which time the child has become a self—that is, she can recognize herself in the mirror and has acquired the basic capacities for self-awareness and self-control.

The Importance of Positive Experiences

It is just as important to make sure that babies receive positive experiences as it is that they avoid negative ones. The whole process of developing a social brain and developing a strong sense of self is based on the quality of social attention the baby receives. The more pleasurable social experiences the baby has, the *more* this part of the brain connects. The less attention a baby receives, the *less* this part of the brain connects. In the worst cases, for instance some of the most abused Romanian orphans, this area of the brain was virtually a black hole, according to one researcher, Harry Chugani.

Basically, humans have to pass on a social brain. It does not develop automatically, but only as the result of an adult's investing attention in the baby. Babies learn to notice their own feelings when they receive a lot of responses to their feelings from the adults looking after them. Then, in turn, once they have that self-awareness, they can use it to become aware of other people's feelings and to have empathy for others.

It is the same with self-control. The social brain has the potential to influence and control our impulsive reactions arising via the amygdala, reactions such as wanting to hit someone when we are angry with him. However, these inhibitory brain pathways are only laid down if the toddler has the *experience* of adults making firm but kind demands on him to restrain his inappropriate behaviors, and

doing so consistently, over and over again. These capacities are also established very early on indeed. A researcher in the U.S.A., Grazyna Kochanska, has shown that self-control measured at 22 months predicts its presence at ages three and four, and another researcher showed that early self-control is linked to later empathy at age eight (Guthrie 1997). It is a central aspect of social behavior.

In fact, it is not only important for managing behavior, but interesting recent research by Clancy Blair (at Pennsylvania State University) is suggesting that it is this same self-control and self-regulation which underpins academic ability, over and above the child's intelligence. These learned social and emotional abilities make it possible later on in school for children to pay attention to teachers and to learn in other ways.

Basically, the brain is built up through actual experiences. What you put in is more or less what you get out. If we want to produce children who are calm, resilient, capable of empathy and foresight, we need to help parents pass on these qualities by providing a lot of support for early parenting, by which I mean helping parents who are not confident in their parenting, for instance my client. We also need to make it possible for parents to spend a lot of time with their babies and small children, paying lots of attention to their feelings and helping them to manage their behavior.

Poor Early Care Leads to Problems

I cannot include here everything that I talk about more fully in *Why Love Matters*. But I am not just talking about providing the optimum conditions for children's brain development. I also see early development as the key to preventing future social problems. Often, I feel that there is a lack of awareness about the early roots of problems.

For example, I recently read a piece suggesting that bullying at school led to later mental health problems—low self-esteem, depression, and anti-social behavior. Yet the writer assumed that these problems had all started in school with the bullying. He did not seem to be asking why particular children are bullied or how this might be the effect of patterns of behavior established much earlier in life. Actually, bullies rarely target children who have high self-esteem and confidence. They are more likely to target those who already show anxiety and vulnerability.

I would like to briefly outline a few of the ways in which poor early development can play out in later life: For example, babies who live with a depressed mother are at risk of growing up to be depressed themselves; they may develop a hypersensitive stress response and a less active left brain. This is not true of those whose mothers are depressed when their children are older.

Mental health problems such as personality disorders are, in many ways, a manifestation of inadequate early emotional care: people who have not been taught how to manage feelings well or to think about them, who have extreme emotional reactions and who often display a lack of empathy for others.

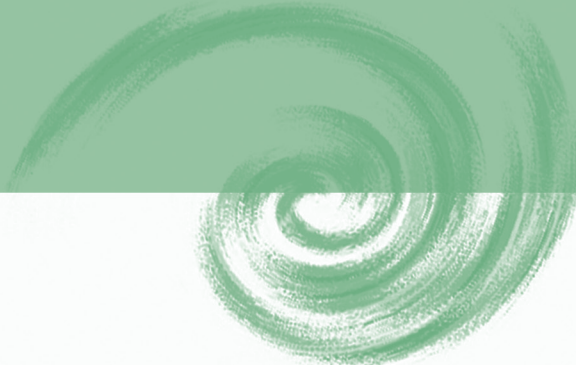
A similar story lies behind anti-social behavior. Children whose parents express hostility, who fail to model how to resolve conflicts or how to maintain self-control often become the offenders of tomorrow. A lack of a warm bond at the age of two tends to predict later anti-social problems (Belsky 1998), whilst, as I have said, a lack of self-control at age two tends to predict it at subsequent ages (Kochanska). Without a warm attentive early relationship, the prefrontal brain is less likely to develop well.

(W)hen babies are chronically stressed, this can create permanent damage to their systems and they grow into adults who are not able to recover quickly

Endnotes

1. For a summary of this research, see Megan Gunnar et al., *Development and Psychopathology* 18, pp. 651–677, 2006.
2. Shonkoff et al. *JAMA*, 2009.
3. Editor's note: Images of brains subjected to emotional stress or neglect can be found at:
<http://www.ecswe.com/publications.php>

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Research into Resilience

Christof Wieckert

Disturbing reports are circulating around the world, always in the murky twilight of so-called “facts.” According to the rumors, or indeed facts, that we are dealing with, a disproportionate number of war veterans are committing suicide on their return to the USA from their tour in Iraq. After the Vietnam War, accounts came in from various sides of soldiers who were able to reenter everyday civilian life only with great effort. People in Europe are also worried about the NATO soldiers’ ability to deal with trauma after they have been deployed on peace-keeping missions abroad.

The question is, how does an individual cope with traumatic or otherwise shattering events in his or her life? This question is just as valid for children as for adults.

Research into these questions is essentially the study of *resilience*: overcoming, processing “insurmountable” experiences, drawing upon the soul’s (mental) power of resistance (*resilire* = to spring back, to rebound). This research arose after World War II when people were faced with the fact that there were those who inwardly overcame their experiences of war or prison and were able to resume a “normal” life once their soul wounds had healed. However, at the same time, there were those who never really overcame these experiences and kept suffering from the trauma of war.

The question arose: On what does this ability to inwardly overcome experiences depend? What makes one child strong in taking life’s knocks, what makes another child react so much more sensitively? From regions where people have been hit by great natural disasters—by contrast with war zones—we hear relatively little about the lasting trauma they endured and how inwardly

they have, or have not, come to terms with them.

Research into resilience has arrived at several conclusions that have considerable significance for educators in particular. The first issue is whether the soul’s power of resistance may be explained by heredity. If the parents have inner strength, is it passed on to their offspring? According to numerous studies this is not the case. Resilience is not inherited.

However, resilience is definitely connected with experiences during the early years of childhood. One researcher thinks it is a matter of the first four or five years while another thinks the whole time of childhood is significant, that is, until the tenth year. Leaving aside these different viewpoints of timing, there is agreement that the soul’s power of resistance, or resilience, is nurtured and developed if children have had the following five experiences:

1. A Reliable, Stable Relationship with One Person

This person does not necessarily need to be the mother, but it is necessary for it to be a single person in the beginning. Later on this person may be joined by others. Neurologists also point out that at the start of life there must be only one person to relate to. Later on a second, followed by a third or fourth person may be added to the child’s circle of relationships—just not in the beginning.

2. An Authoritative Upbringing

This means that the child requires the fundamental experience that others (involved in its upbringing) decide for him/her and that he/she is completely relieved of the need to make decisions. Simply from the experience that others make the

right decisions the child gains a sense of security in life—in other words, trust. This experience cannot be overestimated. Inwardly the child knows, “To begin with, others decide what is good or bad for me, what is right and wrong, healthy and unhealthy.” A deep sense of security arises from the feeling: “I can leave it up to the world to take over; I can rely upon my surroundings in all circumstances.”

3. Learning through Example

This has two aspects. On one hand, a moral quality makes a deep impression: What children experience through the behavior of those around them should be completely compatible with what is demanded of them. If children are forbidden to watch television and the people they relate to watch unlimited amounts of television, the children’s understanding of their surroundings as a totality cracks open. One can add many other examples.

On the other hand, there is something else at stake too. When the Canadian psychologist Albert Bandura discovered the so-called mirror neurons and their activity in the human brain, the interesting question arose whether, generally speaking, children learn primarily with their intellect or from imitation, from “doing it like this.” Bandura argued vehemently that the young child learns from imitating, not through cognition, something he documents impressively through the process of learning to speak.

To date, in the practice of teaching, the idea that children up to the age of ten learn in a more carefree way through imitation than through ceaselessly drumming things into their heads is scarcely to be found. Through the process of learning arithmetic, for example, by developing habits rather than exercising the intellect, the child develops self-confidence as he/she learns “externally.” He/she feels affirmed through the certainty of habit. The research described here—which is derived not from an anthroposophical-anthropological milieu, but from conventional experiment—endorses the statement

by Rudolf Steiner that from around the twelfth year intellectual or cognitive learning takes on more and more significance. Only with Steiner this change in approach to learning is called “becoming capable of forming judgments.” In other words, the learning process is increasingly guided and determined by the child’s own powers of discrimination, no longer by habit.

4. A Qualitative Approach to Time

What is the difference between the morning and the evening for our feeling about life? What is the difference between autumn and spring, summer and winter for our feeling about life? Within a Christian context, how does the Easter festival differ from Christmas? Or within an Islamic context, how, for example, does the sugar festival differ from the beginning of Ramadan? How does the child experience the ordering of time, how do we help it to experience the ordering of time? Here is one quite simple example: When I was still quite young, people in Holland celebrated the Queen’s birthday at the end of spring. This was the season when we used to visit the annual fair and to celebrate the day we would be given cotton candy on a wooden stick. In our minds as children, this cotton candy developed into the quintessence of the celebration of the Queen’s birthday. Many biographies describe rituals linked to the seasons. There is also the simple fact of going to bed. Is it a random activity because we are tired, or is there a small ritual belonging to this moment (when we take our leave of the day) that is entirely different from waking up in the morning?

We can see from the way time is treated in Waldorf kindergartens and schools that these festivals are not celebrated merely for their own sake, but rather out of some developmental insight. Whoever wants to give shape to his or her life, whoever refuses simply to be “lived” by events, has to shape time.

5. A Surplus of Positive School Experiences

This basis for resilience scarcely requires an

explanation. Nonetheless, it ought to be pointed out that still today insufficient attention is paid to the lingering effects of negative experiences suffered during the early years of schooling. Many educational traumas can accompany an individual life-long, wounds of which the school (or the teachers) are often not aware. In other words, whatever basis is laid down for the mood of soul at school plays a key role in the lives of children well into their adult years; it is an important reason for schools and teachers to ask themselves how the pupils are faring. This is by no means to deny that school is a place where pupils need to go through crises. What is at stake is the overcoming of difficulties and whether pupils feel sufficiently accepted by their teachers.

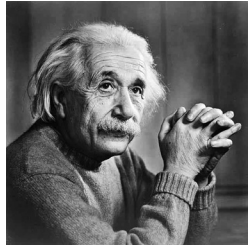
We will have no difficulty, after reading the above account, in recognizing the basic requirements of education; they need to be based on helping the child develop resilience. We are dealing here with only one aspect, however, of resilience. Another aspect concerns the so-called education arising from the experience of emergencies. How do we help children who

have survived natural disasters or war disasters? Nowadays, we know that what enables children to work through trauma more than anything else is art or artistic activity. The hygienic effect of artistic practice has been documented in many places and confirms the healing power that can come from art. *Art needs to become a fully integrated element of every form of education.*

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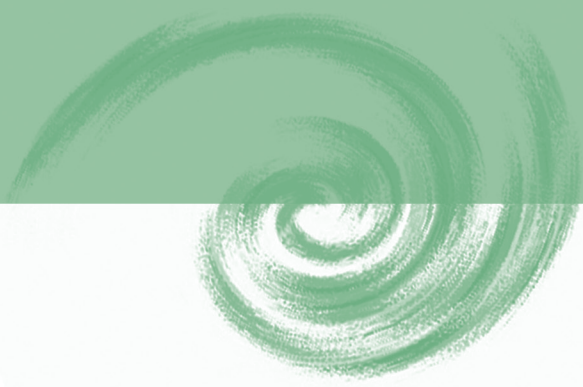


Albert Einstein once spoke directly to what he perceived as the contemporary crisis in US schools.

This scientist—who described himself as more of a philosopher to his close associates—saw four major tasks ‘which all schools should fulfill.’

Their failure to fulfill them, he said, could lead to a nation’s ultimate loss of freedom.

- A. “The school must firmly establish certain moral and social principles and standards and conduct the character education of youth along their lines.”
- B. “It must develop important intellectual capacities like logical thinking, judgment, art appreciation, creative ability, as well as physical fitness.”
- C. “It must transmit general knowledge and information as skill in routine functions such as reading, writing, arithmetic, and languages.”
- D. “It must impart special knowledge and skill in preparation for a life.”



Reading Research Supports the Waldorf Approach

Sebastian Suggate

About four years ago, I approached my to-be Ph.D. supervisors with an idea: Would they be willing to supervise a quantitative research project investigating whether the earlier-reading state school pupils maintained an advantage in reading over their Rudolf Steiner/Waldorf school peers? To my delight, both Dr. Elizabeth Schaughency and Associate Professor Elaine Reese agreed.

The research initially began with three ages of children (in their first, third, and fifth years of school), in three state, and in three Rudolf Steiner schools in the South Island, New Zealand. After months of working with children in both types of schools, I was frequently struck by the way in which the young five- and six-year-old state school children could work their way through texts, usually quite fluently, whereas the Rudolf Steiner school pupils showed very little interest in doing so. I often wondered how such an initial gap in reading could ever be closed. After the beginning phases of visiting schools and working with the children and teachers, we had collected enough data for reliable preliminary analyses (this particular study was conducted over two full school years, thus the complete findings were some time away). At that early stage in the project, it was still possible to observe that the reading achievement of the Rudolf Steiner school pupils, on average, seemed to “take off” somewhere between grades III and V. I began to second-guess the patterns emerging from the results. Was the sample of Rudolf Steiner school pupils going to be large enough to trust the findings? Or was perhaps one of the classes in the study a “freak” class (e.g., particularly intelligent), skewing the data?

A second study was conceived to firm up the available evidence. This second study focused on a new sample of 11- and 12-year-old Year 7 state school students and grade VI pupils from around New Zealand. The results from this project corroborated those of the earlier study still underway—the state and Steiner school pupils were again reading at a similar level.

By the end of our research project, we had extensive data from around 400 pupils and, after taking account of differences in children’s school and home environments, as well as developmental differences such as language ability, the data robustly suggested that by around age ten, there was no difference in reading achievement between children who had been given early instruction in reading and those who had not.

In order to augment the findings with supporting evidence from other sources, I began to search for published data from well-known international studies (e.g., PISA). To my surprise, such rich data sets had only been quantitatively analyzed and published once before (and in a methodologically problematic manner at that) with respect to looking for an effect of early reading instruction. After I had taken account of differences in countries’ economic, educational, and social development, the analyses found no advantage, by age 15, attributable to beginning formal schooling before age seven.

It was particularly pleasing for me that people involved in early childhood education—according to responses I have received—have taken these findings, by and large, as a relief. Many have felt frustrated by societal pressure to teach young

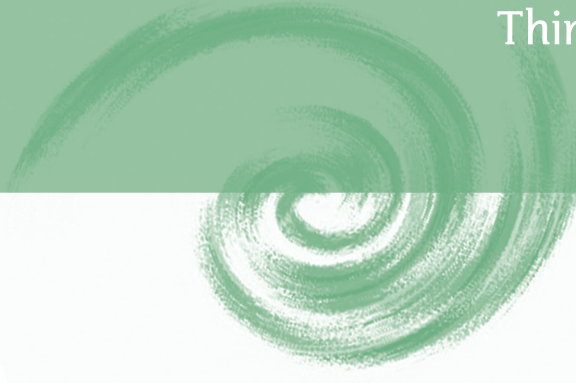
children to read. It is perhaps also fair to mention that national literacy-based standards in education for young children would appear to be empirically questionable as well in the light of this research. Finally, a clear benefit exists for Waldorf education; now empirical data exist supporting the Waldorf approach to reading.

The entire experience has bolstered my conviction that—as Rudolf Steiner repeatedly asserted—with care and rigor, many of the assertions of Spiritual Science can be tested with conventional scientific methodology.

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Thinking and the Sense of Thinking: How We Perceive Thoughts

Detlef Hardorp

Concepts, thoughts can be perceived only where they actually occur, where they are brought forth; otherwise they are not present. And that is through current thinking by a human being.

– Dietrich Rapp¹

How Does Reality Arise?

Reality is supposed to exist somewhere beyond the realm of human cognition. We are said to take cognizance of this reality through sense perception only. Our cognition is said merely to mirror this sense world. In modern times, the tendency has developed to view cognition in this way. How do human cognition and reality relate for Rudolf Steiner? Of what significance is this for us today?

In his foundational works, Rudolf Steiner intensively pursued the question of how *reality arises in the process of cognition*. Rather than devising erudite academic theories, he breached a willed pathway into thinking, from which he sensitively *observed* the activity of cognition, exploring the role of thinking in the process of cognition through introspective (soul) observation. He describes the process of *acquiring concepts through intuitive thinking* in his *Philosophy of Freedom* from increasingly comprehensive vantage points, only to concede one exception on the next to last page of the last chapter in which we “bring concepts over into our own spirit in a pure form,” *unmixed* with conceptual content won through intuition.

Before taking a closer look at this exception, we should turn our attention to the regular process of cognition. How does the human being apprehend the world? What role does perception play therein? What role mental representation and what role conceptual thinking? How does reality arise? Based on introspective (soul) observation, Steiner describes the relationship between cognition and reality in a

remark of 1924 to an early epistemological work from the year 1886 as follows:

Within the inner life of the soul, a content arises which craves external perception as the hungry organism craves food; and in the external world there is a perceptual content which does not bear its essential being in itself but manifests this only when it is united with the soul content through the process of cognition. Thus the process of cognition becomes part of the formation of the reality of the world. The human being participates in the formation of this world-reality through the act of cognition. If a plant-root is unthinkable without the fulfillment of its predisposition in the fruit, so likewise not only the human being but the world itself remains unfinished without the act of cognition. In the act of cognition, the human being does not create something just for himself, but he creatively participates together with the world in making reality manifest. What shows in the human being is ideal appearance; what shows in the perceptible world is sense appearance; only the cognizant inter-working of both brings reality into being.²

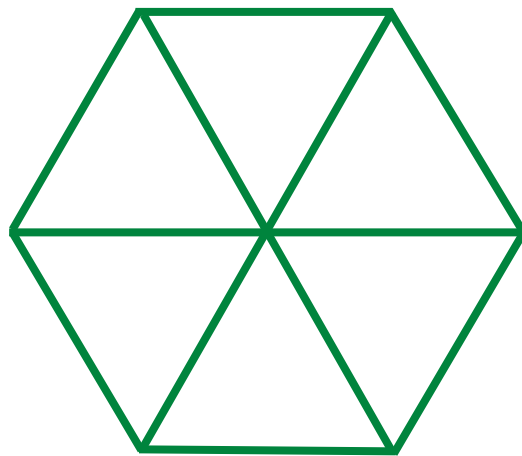
There is no reality to be found through cognition “because it must first be created as reality through cognition.” This realization remained pivotal for Steiner throughout his life.

What Is Sense Perception? What Is Mental Representation?

Now the human being is met by the world of “sense manifestation” fractured into different fields of sense perceptions. The human soul constantly permeates these sense perceptions with concepts, arising from the soul as “manifestation of the idea.” In accord with these concepts, the human being, exercising judgment, brings the different percepts together. Only thus does one-ness come about in our experience of the world. Shortly before the first Waldorf school opened in 1919, Steiner remarked to the future teachers:

And now you can understand exercising judgment as a living process in your own body, which comes about through the fact that the senses confront you with the world analyzed into fragments. The world confronts you with twelve different fragments in what you experience, and through exercising judgment, you bring the elements together, because what is apart does not want to remain apart.³

The human being thus constantly merges sense perceptions into mental representations, which are then experienced as coherent objects in the world. Forming these mental representations requires an activity of the will. This becomes particularly evident when we picture space forms, as the following figure can exemplify:



This can be seen as a three-dimensional cube. Suddenly, however, it can turn into a *different* cube! If we are attentive to the moment when the switch takes place, we notice that it is we who, by the power of our will, engrave the three-dimensionality into the two-dimensional picture. Clearly outlined objects as well as black lines against a white background prompt us to follow the contours with our eyes. Each movement we do, including the movement of our eyes, is perceived through our sense of movement. Due to their spherical shape, the eyes are very special limbs: they move independently of the force of gravity. Now all movements performed by our limbs are acts of will; however, only the movements of the eyes are acts of will performed in a weightless realm. And it is exactly the perception of these acts of will that is most likely to animate us to develop the activity of the will in the weightless realm of *mental representations*. The sense perception of the two-dimensional picture can prompt us to will the three-dimensional representation of the cube. If people's experiences were restricted to the sense world, a cube drawn on a sheet of paper would never be seen. That we can see it nonetheless is due to the fact that people divide the world into space-filling objects by forming *mental representations* and experiencing these self-formed

mental representations in the world. *These mental representations are mistaken for sense perception only to the extent that our own thinking and representing activities are not sufficiently observed.*

When merging the different elements of sense perception into mental representations, the human being is active beyond this realm of sense perception. And here, in this realm of actively formed mental representations that reach beyond sense perception, concepts can emanate; they are “abstracted” out of the mental representations.⁴ Such concepts may well be tied to the sense world. That does not mean, however, that the concepts themselves are content of a sense perception. They simply are *formed in accord with sense perception.*

Where Do Thoughts Come From?

In 1909, Rudolf Steiner for the first time sketched the foundations of a comprehensive overview of the fields of sense perception to members of what was then the Theosophical Society. The title of the lectures⁵ was simply “Anthroposophy,” that is to say, *anthroposophy* as the link between *anthropology* and *theosophy*, as described at the beginning of the first lecture. Steiner then proceeded to describe the ten basic senses of the human being, the last of which he called the sense of concept or the sense of mental representation (later he also called it the sense of thinking or sense of thought). This sense does not empower us to perceive our own thoughts but *the thoughts expressed by our fellow human beings.*

Could it be possible nonetheless that this sense allows us to perceive other thoughts *beyond the thoughts expressed by other people?* Could it be

that we grasp the concepts of outer world objects through a sense of concept as Steiner understood this sense?

What first weighs against this idea is that then the anthroposophical approach to sense perception would diametrically oppose the epistemological foundations of anthroposophy itself: Concepts arise from within the soul, whereas all sense manifestation streams in from the outside, engaging the soul. In his *Philosophy of Freedom* of 1894, Rudolf Steiner calls

the arising of concepts within the soul “intuition.” There, the sense of concept is not mentioned. Did Steiner discover the sense of concept later on, with the consequence that his earlier, radical epistemological approach grew more moderate by allowing some concepts of outer world objects to be perceived nonetheless by the senses? Under which circumstances is a thought a perception of the concept or thought sense? Under which circumstances does it originate in one’s own thinking or memory? I’d like to focus on the questions I’ve just raised and, in particular, attempt to contribute toward the understanding of concept-, thinking-, and thought-sense.

When Are Concepts not Acquired through Intuition?

In the fourth of the five “Anthroposophy” lectures about the senses, a few days after mentioning the sense of concept or thought for the first time, Rudolf Steiner spoke extensively about the relationship between the outer world and the thoughts by which people grasp the objects of the outer world conceptually. He started as follows:

People would become increasingly isolated from one another in the sense world if the sense of concept or thought wouldn’t make it possible to reconnect thoughts directly, from one person to the other. A person who is not himself in the process of evolving

The human being must indeed think within himself. Objects don't think for us; they don't show us the thoughts from without, but rather we must bring the thoughts toward the objects. That is the great secret, one is inclined to say, of the relation of human thought to the outer world. No thoughts approach the human being through sense organs. If the sense organs themselves have irregularities, sensory illusions can easily occur. Whereas in normal life, the senses do not err, the mind, which cannot put itself in relationship to objects, can err. It is the first member of the human being that can err, because its activity is dammed up within the brain and this activity cannot reach out. What follows from this? It follows that it is quite impossible for people to have thoughts about the outer world that are right if we do not have an inner disposition which allows right thoughts to arise within us. Never—as can be seen from this—could the outer world provide people with right thoughts if the right thoughts would not well up inside us. It can provide them with right sense perception. Yet sense perceptions cannot think. A thought, however, is prone to error, and the human being must have the inner strength for the veracity of the thought.⁶

How far, then, is it justified to speak of a sense of thought or concept at all? Cognition occurs when the right concept arises within us and unites with the percept. There is only one exception to this, when concepts cannot arise within us: that is when we perceive our fellow human being, whose I, in its uniqueness, gives birth to freely begotten thoughts in the sense realm. I cannot grasp, in my own thinking, the germinating moment of these freely begotten thoughts of other people, because I am not you. I must silence my own thinking in order to sufficiently become you.

Toward the end of the last chapter of his *Philosophy of Freedom* of 1894, Rudolf Steiner already described the necessity of the sense of concept for the emergence of freedom within humanity:

Cognition consists in linking a concept with a percept through thinking. For all other objects, the observer must penetrate to the concept by means of his or her own intuition. Understanding a free individuality is exclusively a question of bringing over into our own spirit in a pure form (unmixed with our own conceptual content) those concepts by which the individuality determines itself. People who immediately mix their own concepts into any judgment of others can never attain understanding of an individuality.⁷

In the sense world, it becomes possible to think freely begotten thoughts. This would split humanity; people would become increasingly isolated from one another in the sense world if the sense of concept or thought wouldn't make it possible to reconnect thoughts directly, from one person to the other.

What Is Perceived Via the Sense of Thought?

We can best become aware of the necessity of the sense of thought when perceiving the *freely begotten* thoughts of the other human being, but of course this sense doesn't perceive only *those* thoughts. Through the sense of thought (or sense of concept or mental representation or thinking), I can perceive, while listening without interference of my own concepts and my own judgment, how the other person forms thoughts into personal, individualized mental representations. Everybody's thoughts are initially imbued with his or her own mental representations. Each thought has its own shading, its own nuance of feeling, its own degree of sparkling intensity, according to how its author

mentally represents the thought. Now the more *strength for the accuracy* of thought is brought forth, the deeper thinking breaks through to the *universality* of concept. As we universalize the personal content of our thoughts, the universal strength of thought becomes individualized. The way in which thought content becomes universal increasingly bears the signature of the “I.”

In order to be able to perceive, in its immediacy, *the way in which* a thought is coined by a human being incarnated in the sense world—be it the coining of everyday thoughts or the coining of nascent individualized free thought—his fellow human being needs the sense of thinking, thought, or concept. This sense in fact allows people developing between birth and death to grow into the body of the social organism. It is not the concepts of the objects of the outer world that penetrate the human being through his sense of concept, but the concepts which live in the *inner world* of the other person that manifest themselves through this sense.

Concepts are sense-perceptible only to the extent that other people bring them to manifestation. This is why children put their never-ending questions to everyone around them. The child himself must also meld sense perception with the corresponding concepts out of his own discerning thinking activity. The child doesn’t begin by bringing forth concepts out of his own thinking; he first develops his own thinking through the concepts taken in from the people around him.⁸

It is an innate gift of the child to be able to take in concepts in their immediacy through the sense of concept. The young child cannot but immerse himself in his human surroundings with love and devotion. The stronger the personal discerning power of thinking develops, the more problematic it becomes for the sense of thinking. Personal

Devotion towards the other being is in particular nurtured by deliberately silencing one’s own thinking, no matter how wise it may be.

thinking awakens one’s self to self-awareness; this self-awareness is at first egocentric. The thinking of the egocentric self, however, does not tolerate the selfless devotion that is prerequisite for the sense of thinking. Therefore this sense only functions when the egocentric self falls into deep sleep, thus not impairing perceptual ability. The only reason we don’t take notice of our thinking’s deep sleep is simply that *our* consciousness is completely filled with the *other person’s thoughts*. While listening, my *own* thinking intermittently wakes up slightly

from its immersion in the thoughts of the *other* in order to mentally incorporate the other being’s thoughts into my thought organism. To the extent that the mind awakens, the perception of the sense of thinking recedes. These moments of “blackout” regarding the thinking gestures of the other person, which are due to our *own* thinking activity, are sometimes experienced as gaps in consciousness during a conversation: You just manage to notice that the other has just said something, without, however, perceiving any of his thoughts (because you yourself were engaged in thinking). At best you bridge the gap by trying to bring the last spoken words to consciousness out of the lingering resonance of word-recollection, in order to quickly make sense of them out of your *own* thinking.

What Occurs When Listening?

Rudolf Steiner’s most precise description of how it is possible to “bring over” concepts (unmixed with our own conceptual content) via the sense of concept is found in the first appendix to the second edition (1918) of his *Philosophy of Freedom*. During the act of perception through the sense of thinking, the other person’s thinking is momentarily taken over into my spirit as if it were my own. While perceiving another personality, I am compelled, as a thinking being, “to

extinguish my own thinking as long as I am under its influence, and to put its thinking in the place of mine. I then grasp its thinking in my thinking as an experience like my own. I have really perceived another person's thinking."⁹

It is then primarily the *individualized* way of coining or forming of concepts by the other person that I experience.¹⁰ Steiner continues:

...It is a process lying wholly within my consciousness and consisting in this, that the other person's thinking takes the place of mine. Through the self-extinction of the [outer, bodily] sense appearance [of the other person], the separation between the two spheres of consciousness is actually eliminated.^{11,12} This expresses itself in my consciousness through the fact that while experiencing the content of another person's consciousness I experience my own consciousness as little as I experience it in dreamless sleep. Just as in dreamless sleep my waking consciousness is eliminated, so in my perceiving of the content of another person's consciousness the content of my own is eliminated. The illusion that it is not so comes about only because in perceiving the other person, firstly, the extinction of the content of one's own consciousness gives place not to unconsciousness, as it does in sleep, but to the content of the other person's consciousness, and secondly, the alternations between extinguishing and lighting up again of my own self-consciousness follow too rapidly to be generally noticed.¹³

Eight years earlier, Steiner had phrased it as follows in the fragment of his book *Anthroposophy*: "What we can experience within our own soul as a concept, we can also receive as revealed from an external being. ... With the concept that lives within another human being, we perceive what lives, soul-like, within ourselves."¹⁴ It lives soul-like within

ourselves because the thinking of the other is of the same nature as our own thinking and because it is "brought over into our own spirit in a pure form" in the moment of thought perception, "unmixed with our own conceptual content."¹⁵

The quality of social discourse now depends decisively on how a person "awakens" from this "bringing over," this "deep-sleep" listening activity.¹⁶ Because the child acquires his self-consciousness through the development of his self-centered personality, the waking-up moment is connected with an aggressive self-assertion. When he slackens, the child again "falls asleep," as it were, into the thoughts of the other being. Insofar as a person does not take his social development consciously in hand, this will remain so into adulthood.

Through self-observation in adulthood, however, we can become conscious of the inherent anti-social nature of this waking-up of our personality to its own thinking. If, out of this awareness, you dampen your own personality, a foggy state of mind ensues, excluding yourself from playing an active role in any social setting. At the threshold of awakening, one stands *unavoidably* between a deep sleep of devoted listening and the anti-social nature of thinking.

How Does Listening Interact with Thinking?

It can happen that when listening intently to another person, one *experiences* and fully understands the lively depiction of this other person's thoughts in all their richness and depth. However, shortly thereafter one may remember the richness, the depth, the vitality of the lively depiction of the thoughts, but may find oneself hard put to reproduce their content. An autonomous understanding is something quite different from the immediacy of understanding while perceiving with the sense of thinking. During the latter, thoughts blossom between speaker and listener, momentarily living into the listener's organism of concept,¹⁷ still carried by the speaker's power of thought: The other's thinking is active instead of one's own. Whether or not we are then able to reproduce the

other's thoughts out of our own power of thinking depends on our ability to think the thoughts independently.

After abandoning oneself to the other person's thinking for a while, the effect of the thought perception on your own life organism, this rooting of foreign thoughts in your organism of concept, can be felt increasingly as an intrusion, arousing one's own thinking in defense. When consequently one expresses one's own thinking activity through words or gestures, the whole process begins anew, now with reversed roles. This is how a rapid alternation between extinguishing and relighting of your own self-consciousness comes about.

This alternation can come to life in a variety of ways, in particular by training my thinking, while awakening, to be less influenced by my personality. The more universal my thinking, the longer it can remain devoted to the foreign thought, out of which it then unfolds its own strength while awakening. Immediately, though, we are liable to revel in the strength of our own thinking, therefore unable to properly "fall asleep" into the other thinking again. A proper rhythm must develop between one's own thinking activity and devout, dedicated listening. When that happens, the conversation can rise into a shared realm of spiritual and soul intimacy. This kind of conversation nourishes souls. It constitutes the building material out of which social art arises.

It is, however, possible that the development of our self-centered thinking (our intellectuality) weans us so radically from the surrounding world that we are no longer able to assimilate foreign thoughts through the sense of thought. It is not surprising that, in an age of "cool" self-centeredness, the willingness to "fall asleep" into the thoughts of another person, to think them as if they were our own, declines considerably. Here a certain unity with the surroundings still protects the child, as it can't do otherwise than experience the thoughts around it most intently, long before it is able to think them independently. The adult, in particular after having undergone an intellectual training (and who has not in this day and age?), is in danger

of shutting himself up in his own thoughts to the degree that his disposition as a truly social being wanes. He then constantly expresses his own thoughts; when he doesn't express them, he thinks them. He is no longer capable of truly listening.

When strengthening your own thinking, it is likewise necessary to strengthen the other pole: devotion toward what is not "I." Only then can the anti-social nature of exercising judgment be integrated into the social organism. Devotion towards the other being is in particular nurtured by deliberately silencing one's own thinking, no matter how wise it may be; otherwise it is like light reflecting on the surface of water, impeding sight from penetrating into the water's depths.

We develop full individuality by lucidly and willfully strengthening our thinking. Consciously caring for developing devotion towards other people builds community. These two poles are interdependent: the deeper we penetrate one, the deeper we can enter into the other. Neglecting one weakens both: If we spin ourselves into the cocoon of self-referential thinking, the sense of thought becomes obscured and can no longer take in foreign thoughts.

How Do We Perceive Concepts While Reading?

Under which circumstances is a thought a perception of the concept (or thought) sense; under which circumstances does it originate in one's own thinking or memory? This question was asked and dealt with in the first part of this essay regarding the nature of *listening*. Is *reading* different from listening in this regard? How do we perceive concepts while reading?

We can speak of sense perception "whenever cognition comes about without involvement of reason, memory, and so forth."¹⁸ Rudolf Steiner proposes precisely this necessary condition to delineate sense perception when introducing the sense realm beyond the sense of hearing in the fragment of his book *Anthroposophy*.

Now while reading, I am constantly dependent on my reasoning mind; without it, I would experience mere words and not understand the weaving of thoughts behind them. It is only through the power of my own thinking and mental representations that I can perceive thoughts when reading. To be sure, I form these thoughts based on the sense perception of what is written; however this does not mean that the thoughts are contained, sense perceptibly, in what is written. When reading a book, I can work myself through to thoughts only by means of a lucid mind that is capable of thinking. Here the perception of thoughts is *supersensible*.

Exactly the opposite is the case when perceiving via the sense of concept (or sense of thought or thinking): I can perceive nothing through this sense while my reasoning mind stays awake. In order to perceive the thoughts of my fellow human beings in their immediacy, my own reasoning mind must be willing to fall asleep, so that during the act of perception via this sense I can live devotedly within the thinking power of the *other*. Rudolf Steiner once characterized the field of perception of the sense of thinking as follows:

...When I perceive a word, I do not as intimately connect with the object or with the external being as when I perceive the thought through the word. At this stage, most people cease to make any distinctions. But there is a distinction between perceiving the word, the meaningful sound, and the veritable perception of the thought behind the word. You can also perceive a word, after all, when it has been separated from the thinker through a phonograph or even through writing. However, while in a living connection with the being who is forming the word, to transpose myself directly through the word into the thinking and

Reading thus becomes the starting point of a conscious advance into the supersensible worlds

mentally representing being, this requires a sense that goes deeper than the usual word sense, this requires the sense of thinking, as I would like to call it. And an even more intimate relation to the outer world than through the sense of thinking is given to us through that sense which enables us to feel with another being in such a way as to feel at one with this being, to sense it as one senses oneself. That is the sense of I: *through the thinking, the living thinking which the other being turns towards me*, I perceive the “I” of this other being.¹⁹

“Word” and “thought” should not be taken too literally. In the sense of Steiner, the realm of perception of the sense of tone²⁰ or word encompasses all of human body language, including all expressed gestures of the soul insofar as they are perceived in their immediacy.²¹ Facial expressions of a human being also show the stirrings of the soul, including the person’s thinking, which can be perceived by the sense of thought accordingly; insofar as the “I” comes to expression in the soul, it can be perceived by the sense of “I.” Being together in silence with another human being can thus also provide a field of perception for these three upper senses.²²

The sense of concept enables one to “dive into another being ... through sensing what lives in that being as concept.”²³ When (sensorially) delving into another “I,” first its stirrings of thoughts are perceived (as sense perception), before awakening, enriched, to one’s own thinking. While *reading*, the order is reversed: We must first awaken to our autonomous thinking before the thoughts of the other can be perceived (now super-sensibly!).

When I read what has been written in a book, I face someone else’s thoughts in a similar way to the manner with which I face nature. I realize:

Here beings acted creatively, but I myself face only the accomplished work. These condensed gestures allow me to surmise that this work arose out of life-imbued creativity. However, within the realm of sense perception, I can never reach the creative beings because they themselves are no longer present in the condensed gestures of the accomplished work that I behold.

In the written text, the complete content is there; I must simply learn to read it. I can learn to read it only by exercising my thinking activity, so that it itself forms the language. While reading, I retrace the gestures inwardly and experience their movement. The willing activity of my thinking must make them flow so that my thinking can grasp the *unifying impulse* of the movement—the un-manifest thought. While reading, I am not on a par with a thinker. I am confronted with mere letters—dead, petrified signs of former thinking activity; I break through to the thinking activity, which condensed itself into these letters and words, only when, out of my own willful thinking, I cause the words to flow again and thereby the thoughts to resound. “The reader comprehends because he himself fills the given text with meaning. ...And not only does thinking make connections, but a power which arguably gives thinking its impulse to do so: the imagination,” writes Michael Bockemühl in his excellent essay “Reading and Comprehension.”²⁴ I understand what I read only to the extent of what I am able to grasp through my *autonomous thinking*. Apart from that, I can merely parrot words.

Do I Read When Listening?

Now I can also listen to someone present in an uncommitted fashion by “reading” the words he utters as if they were written in a book, instead of paying attention to his thinking. Persons with a dysfunctional sense of thinking in fact cannot listen in any other way. They hear sequences of

words that they then try to connect and to enliven into thoughts out of their *own* thinking activity. If I listen in this way while the other speaks, I will be able to understand him in a way, although he will never feel understood. The unifying meeting of beings (through the sense for the “I” of the other), for which the percept of the sense of thinking becomes permeable and which resonates with each perception of the sense of thinking, is circumvented when “reading” the words of a speaker, because the sense of thinking is bypassed altogether (which also disables the sense for the “I” of the other). When listening in this way, people do not *truly* meet. A conversation of this sort is not “more invigorating than light.”²⁵

When listening to audio recorded or radio broadcast language, much more content of perception is given sensorially than while reading: The remote speaker who is transmitted via a loudspeaker conveys his intonation, his cadence of speech, etc., as carrier of a whole world of soul.²⁶ Through accentuation in the flow of speech, a particular understanding can be induced in the listener. A content so communicated is thus sensorially richer and easier to understand

than when read. Precise soul observation will not, however, fail to notice that when listening to someone on the phone or to canned speech, the thoughts of the speaker are not perceived with the same immediacy as when people meet face to face, in spite of an empathy for the other “I” that can still be conveyed purely on the level of phonetic tone. In fact you need to continuously follow the thoughts

of the other inwardly in *full waking consciousness*. It is hardly possible to sensorially “fall asleep” into the thoughts of the other while being spoken to on the phone or when listening to canned speech.

A certain relationship of beings can nonetheless occur while telephoning. Sensorially, insofar as the

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“I” of the listener perceives “a tone coming from the other I” and empathetically “lives in that tone, and therefore in the other I” (cf. the quote at the end of the last endnote). Furthermore, a relationship can also connect to an inner image if one carries an inner image of the other human being with whom the indirect communication is taking place. This relationship of beings is not sensorial, however. It arises by turning our attention inward. In case of sense perception through the sense of thinking and the sense of “I,” our attention is outward bound. It is even easier to realize that, within the process of reading, an encounter of beings is not mediated by the human sensory organism, but by our own supersensible thinking and feeling. When reading, I can notice how the thought, which is petrified in the written text, quivers slightly when touched by the will-power of my thinking and so begins to delicately resound within my own thinking. It resounds to the degree that I form the thought anew.

The wider my comprehension of the interconnections of inner threads that manifest through the text, the more my own thinking—in the will-quality of the “I”—becomes the bearer of the being who created the written work I behold. Reading thus becomes the starting point of a conscious advance into the supersensible worlds of the spirit.

Thoughts in a book can, however, be set into such solid clusters of mental representations that they are no longer able to resound. The petrified thoughts have passed under the threshold of possible reanimation. They may never have been alive in the writer himself. In that case only dead mental representations, schematically combined, are rigidly strung together through associations of words. In both cases, my thinking cannot perceive any thoughts.

Conclusion

The only source bringing forth thoughts that is also able to manifest its essence in the world of wrought work²⁷ is the human being. Without human thinking

as “the translator that interprets the gestures of experience,”²⁸ inorganic nature manifests none of the concepts by which it can be grasped; these concepts—along with all meaning—must arise from within the human being. Organic nature manifests its concepts to the degree that the human being ascends to supersensible perception of these concepts in an act of cognition wherein thinking not only acts as “translator [of] the gestures of experience” but itself becomes experience.²⁹ The germinating moments of thinking experienced in this way are to be found only in the world of becoming, not in the world of finished form, towards which the human sense organization is directed.

The source of perception from which our own thinking wells is intuition. This source is of a supersensible nature. The source of perception for the one and only life of concepts which can express its being in the world of otherwise finished form is the sense organ of the sense of concept or thinking which, directed towards the wrought world, is the source of perception for the germinating moments of thinking of another human being.

Resources

1. Rapp, Dietrich. Sense of Concept – Sense of Mental Representation – Sense of Thinking. Concerning the sheaths of its uncovering. In *Die Drei* 11/1986.
2. Steiner, Rudolf. *A Theory of Knowledge Based on Goethe's World Conception*. (From the first note to the new edition of 1924. Retranslated by the author, with some segments taken from the translation of Olin D. Wannamaker.) Anthroposophic Press, 1968.
3. Steiner, Rudolf. *Allgemeine Menschenkunde*. August 29, 1919. Passage translated by the author.
4. Scientific concepts are generally formed in this way. Concepts can also be “condensed” or “individualized” to mental representations through sense perception. In particular, ethical and moral representations are formed in this way. Cf. Steiner, Rudolf. *Intuitive Thinking as a Spiritual Path: A Philosophy of Freedom*. Hudson, NY: Anthroposophic Press 1995.

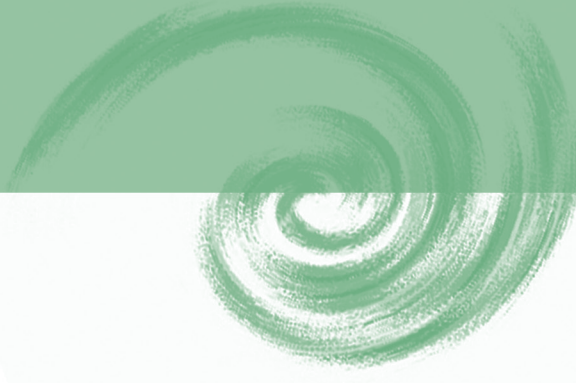
5. The first four were published in *Anthroposophie, Psychosophie, Pneumatosophie* (translated as *Wisdom of Man, of the Soul, and of the Spirit*), the fifth lecture in *Kunst und Kunsterkenntnis* (translated as *The Nature and Origin of the Arts*). The content of these lectures was meant to appear as a written book; Steiner managed to write only a fragment (which was first published in 1951 under the title *Anthroposophie. Ein Fragment aus dem Jahre 1910*, published in English in 1996).
6. Translated by the author. A translation of *Anthroposophie, Psychosophie, Pneumatosophie* (Vol. 115 in the Bibliographic Survey, 1961) was made by Samuel and Loni Lockwood from the original German edition published in 1931, which was later drastically revised when better stenographs of the first set of lectures turned up. The translation was supposedly “carefully checked against the later edition of 1965, published by the Rudolf Steiner Nachlassverwaltung, in which complementary material derived from additional transcripts located since 1931 was incorporated,” and “minor alterations in keeping with the new material” were made to the Lockwood translation “where necessary,” as noted in the 1971 Anthroposophic Press edition of this translation. The passage cited in this essay was, however, not an accurate translation of the text in the later edition.
7. Steiner, Rudolf. *Intuitive Thinking as a Spiritual Path: A Philosophy of Freedom*. Hudson, NY: Anthroposophic Press, 1995, p. 229, translation by Michael Lipson.
8. More precisely: Thinking develops in conjunction with progress in the development of kinesthesia (self-movement). Kinesthetic ability gets “nourishment that pours forth from within” through the sense of concept (cf. the lecture by Rudolf Steiner “Human Spirit and Animal Spirit” of Nov. 17, 1910).
9. Translation of this and the following quote by Michael Wilson.
10. A concept is individualized by the way it gets mentally represented. As already mentioned, when Rudolf Steiner spoke about the sense of thinking or concept the first time, he also called it sense of mental representation (*Vorstellungssinn*). Cf. lecture of October 26, 1909 in the “Anthroposophy” lectures.
11. Michael Wilson here uses the word “overcome” (Michael Lipson the word “suspend” in his translation). We have translated the German *aufgehoben* as “eliminated.”
12. In the eighth lecture of *The Study of Man* on August 29, 1919, Rudolf Steiner describes the “vibration of the soul” between “abandon to the other” and “inner defense” as basic gestures of the sense of “I” and refers to his characterization of this sense in the new edition of his *Philosophy of Freedom*. In fact, there he mainly describes the “vibration of the soul” as basic gesture of the sense of thinking. The sense of thinking and the sense of “I” are obviously different aspects of one sense continuum with the same alternating basic gesture. It can be viewed as one sense realm, but also as two. The statement that “the separation between the two spheres of consciousness is actually eliminated” clearly refers to the sense of “I,” which borders on the sense of thinking and resonates within it. Insofar as thoughts are presently being begotten by a thinker, it is always possible to direct the attention more toward the begotten thoughts or toward the begetting thinker. There is thus a gradual transition from the sense of thinking to the sense of “I.” The basic gesture of oscillation between sympathy and antipathy can have very different qualities, even up to the point that the realm of “I” and the realm of the other amalgamate into a common realm, reaching beyond sympathy and antipathy.
13. Steiner, Rudolf. *Intuitive Thinking as a Spiritual Path: A Philosophy of Freedom*. Hudson, NY: Anthroposophic Press, 1995, first appendix to the 1918 edition.
14. Steiner, Rudolf. *Anthroposophy (A Fragment)*, 1996, p. 94ff.
15. From the previously cited last chapter of Steiner’s *Intuitive Thinking as a Spiritual Path: A Philosophy of Freedom*, written 24 years before the just cited in-depth remarks from the first appendix to the new edition of 1918. Steiner’s discovery of the sense of concept became a life-long theme of research.
16. Regarding social discourse, compare Steiner’s lectures of December 6 and 12, 1918, in *Social and Anti-Social Forces in the Human Being* and the first lecture to the delegates conference on February 27, 1923 in *Awakening to Community*.
17. Cf. chapter 7 of the book in endnote 14.
18. *Ibid*, p. 92.
19. Cited from the lecture of August 12, 1916, contained in *The Riddle of Humanity*, translated by John F. Logan. London: Rudolf Steiner Press, 1990. Logan has a mistake at the end of his translation of this paragraph, where he incorrectly attributes the

“living thinking,” through which the “I” of the other is perceived, to the perceiver, whereas Steiner is speaking of the living thinking of the perceived. The paragraph has been largely retranslated by the author.

20. The German *Laut* is here translated by “tone” (which should always be thought of as ensouled), and the German *Ton* by “sound,” consistent with the English translation of *Anthroposophy* (*A Fragment*).
 21. For this distinct sense realm, see in particular the well-documented work of Peter Lutzker, *Der Sprachsin. Sprachwahrnehmungen als Sinnesvorgang*. The book was translated into English, but the English manuscript was never published.
 22. Together with the sense of hearing, the senses of phonetic tone or word, concept, and “I” are often called “upper senses.”
 23. Cf. endnote 14, p. 95.
 24. “Lesen und Verstehen,” published in *Lesen im anthroposophischen Buch. Ein Almanach*, Verlag Freies Geistesleben, 1987.
 25. Goethe, Johann Wolfgang von. *The Green Snake and the Beautiful Lily*, a fairy tale.
 26. A listener reacts to the articulated structure of words with precisely synchronized movements that correspond to those of the speaker (this is called “entrainment”). This was studied by William S. Condon. “One of the most significant and unexpected results [for Condon as well] of this unique study of the relation between speech and movement was the realization that not only is there a continual and exact coordination of a speaker’s movements with his or her own speech, but that the listener moves in precise synchrony to the articulatory structure of the speaker’s speech almost as well as the speaker does.” Furthermore, “no synchronization was found with non-speech sounds. It has also been shown that a two-day-old American infant was capable of entraining to Chinese speech while at the same time not showing a synchrony of movement with tapping sounds and disconnected vowel sounds. These results were also duplicated when tape recordings were used.” This is how Peter Lutzker summarizes the experiments of William S. Condon and L.W. Sander, which were published in the magazine *Science* in 1974. Cf. Peter Lutzker: *Der Sprachsin. Sprachwahrnehmungen als Sinnesvorgang*, 1996, S. 44. (Lutzker’s book was originally written in English, but only published in a translated German version.
- The quotation above is taken from the author’s unpublished English manuscript.) In a hand-written fragment of a text that was printed under the heading “Regarding Listening and Speaking” by the publisher as an appendix to the book *Anthroposophy. A Fragment* (p. 205 of the 1996 edition), Steiner delineates the perception of a sound of a lifeless object from an empathetic listening to a phonetic tone from a human being. After a longer exposition, he concludes “that in the case of human tone, the listener imparts his or her ‘I’ to the ‘I’ of another, while in the case of a sound of a lifeless object, the ‘I’ is imparted only to the sound itself.” Prior to this passage, he had written about the mystery of empathy with the “I” of another and described it as follows: “We sense our own ‘I’ in the ‘I’ of the other. If we then perceive a tone coming from the other ‘I,’ our own ‘I’ lives in that tone, and therefore in the other ‘I.’ ”
27. Steiner, Rudolf. *Anthroposophical Leading Thoughts*, leading thought no. 112. The German *Werkwelt* is there translated as “accomplished Work” instead of “world of wrought work.”
 28. Steiner, Rudolf. *The Theory of Knowledge Implicit in Goethe’s World Conception*, also translated as *The Science of Knowing*. Spring Valley, NY: Mercury Press, 1988. Chapter II: Thinking and Perception.
 29. Steiner, Rudolf. *Goethean Science*. Spring Valley, NY: Mercury Press, 1988.

Translated by Elisabeth Hardorp and the author.

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Outline of a Study Methodology

Elan Leibner

Introduction

Study is expected of faculty and college work in Waldorf schools. Most schools incorporate studies into various meetings, and it is generally understood that the study is meant to be a tool for ongoing professional development to deepen the faculty's understanding of anthroposophy, of the curriculum, and of children taken individually or as a class. When successful, the study portion of meetings is enlivening and satisfying.

All too often, however, the study can fall short of its promised potential. The reading of texts, in particular, feels like a slog through molasses. The hours following the end of school are not ideal for a first encounter with demanding texts, and the discussions, if they happen at all, may not reach far beyond a surface understanding of the material. An unintended consequence of a poor study may be an aversion to the material among the faculty, particularly those who have not previously experienced a fulfilling study during the course of their teacher preparation.

Over the past few years, I have had the good fortune to lead studies of basic pedagogical texts (such as Rudolf Steiner's *Study of Man*) and some other anthroposophical literature in various settings. From the successes and failures of these studies, a basic approach has emerged, which I offer here in the spirit of research into effective practices.

Study Sequence

In the studies I have led with practicing or prospective teachers, we have taken up the text in a sequence of four phases:

1. **Summary.** Every participant reads (silently) through the text until a theme seems to have

been presented more or less fully to the reader. This usually requires reading between one paragraph and two pages. The student (as the participating teacher will from now be designated) then writes a paraphrase of the content of the theme in his/her own words, condensing the text to about 10-20% of its original length. The best summaries are written as if the writer is the original speaker, and not in the third person (not "Steiner says" but the content itself). When done well, this phase by itself is immensely helpful. Rather than "sleeping into" the content, as so often happens when one reads a demanding text, one is forced to move back and forth between reading and thinking, and thinking and writing. This "breathing" rhythm, in as much as it works through the rhythmic system, encourages comprehension to emerge. Further, the summary remains a reference resource for the student who prepared it. Since it is time-consuming, this phase may take a faculty or college several meetings to complete. However, once a section has been summarized, it will not take a student long to pick up the thread of thought when s/he returns to the text. Alternatively, the person leading the study may divide the text into sections (according to themes) ahead of time and assign each participant one section to summarize. In this approach, the group can have the whole lecture or text summarized quickly, but, of course, each person will have read and summarized only a section of the whole.

A summary of the first five pages in *Balance in Teaching*, Lecture 1, is added at the end of this article as a sample. It is not practical to add the original text here, but it can be downloaded for free from the archive section of Steinerbooks.org.

2. **Movement of the Themes.** Each student identifies (in writing, in the same notebook used for the summary) the main themes of the text s/he previously summarized. Each theme is identified in a few words, following the author's sequence. The participants then share their sequences, making changes or additions to their own work if they so desire. It is not necessary for everyone to agree on what should be considered the movement of the themes, but others' perspectives can be helpful. A variation on this phase, suggested to me by Douglas Gerwin, has each participant articulate one summary segment while linking his/her summary to the one offered previously by another participant. Now each student tries to "see" the whole text (lecture or section of a book) as a movement of themes. By repeating the series of themes in one's mind a few times, a sequence emerges that was previously only dimly sensed. By knowing where the text is "heading," the student can see connections and thereby learn not only from the details but also from the artistic construction of the text as an entirety. This phase brings the text into movement, giving the student a bird's-eye view of the whole. It allows a new mobility to grow in the thinking of each participant. Parts of the text acquire a new significance through their connection with the totality, much as a second reading of a novel gives a context for individual events and personalities that one could have easily missed at the first reading. A conversation at this point is often brimming with new ideas and insights. This phase can also be repeated at the completion of the entire text, so that a similar large viewpoint can grow of how the whole text is, in a sense, one statement.
3. **Artistic Transformation.** Each student transforms one or all of the themes (depending on how the group wishes to proceed) into an artistic representation. This can be an image, a stanza of poetry, or a visual form (drawing/painting). Poetry and images work particularly well for meetings, since they do not require props or changes in the physical space, but any artistic "language" is fine. (It is entirely conceivable that movement, music, or sculpture work equally well, but I have not experienced those and therefore do not include examples of them here.) This phase calls upon the student to give the ideas within the text a new vestment, incorporating his/her relationship with those ideas more clearly into the foreground. It is usually a lively and energizing step. If each student transforms all of the themes into artistic representations, s/he will have an artistic rendering of an entire lecture. If the group divides the lecture or text so that each student works with one theme, then the group as a whole will have that complete artistic rendering by the end of this process. Groups can be playful with this phase, experimenting with different approaches to keep the surprising and engaging explorations lively.
4. **Question Leading to Contemplation.** Each participant picks a theme that speaks particularly strongly to him/her, and tries to articulate a genuine question in relation to that theme. It is not easy to find true questions. Seemingly simple ones often work the best. One should avoid asking questions that are meant to set the stage for one's knowledge to shine forth and seek instead for those questions that leave the group in an open, not-knowing state. If successful, this phase opens the door to new insights, gained through a period of quiet contemplation. Questions can be held inwardly, captured in a representative word or sound, and then eliminated altogether for short periods, leaving behind a receptive attentiveness as a vessel for new "drops of light." They can be shared, preferably in a quiet, contemplative mood. The actual contemplation can be undertaken in the group or left for each one to practice at home. If the group has a working relationship with contemplative periods during

meetings, then it can take up one theme and have everybody approach it contemplatively at the same time, or have a contemplative period during which each member engages with his/her individual question.

As mentioned earlier, this methodology is offered in the spirit of research into effective practices. I welcome reflections or suggestions as to its efficacy.

Summary Sample

Balance in Teaching, Lecture 1 (pp. 1–5)

Teachers must have a deep feeling for the nature of the esoteric. Much of what will make an educator effective has to be guarded as a sacred possession within the circle of the faculty. [It is not to be discussed in public.]

Education is concerned with cultivating the three soul forces of the next generation; those have to be prepared for accomplishing the tasks of the future. Humanity brought itself to its present (1920) state of misery because it has made itself dependent on the mode of thinking that originated in the West. Herbert Spencer is a representative of this mode, whose influence on education has led to the precise opposite of what education should entail.

Spencer wants the instruction of children to be a preparation for future specialization (as a scientist, e.g.), but that is exactly the worst possible approach to education. Future specialization is in essence a question of talent, that is, of karma. The education of children should be geared towards the essential humanity of all children, not towards the karmic gifts of a few. In fact, a teacher would be educating better if s/he tried to make sure that a child **WOULD NOT** be able to specialize in a given field of instruction.

When a specialized training is considered an appropriate preparation for teaching, then the teacher cuts a comic figure in front of the class. In fact, education should be its own specialty, and training in science is not a preparation for pedagogical work.

The confusion between pedagogy and research originated in the universities and has made its way down through the high schools into the elementary schools.

Reference

Steiner, Rudolf. *Balance in Teaching*. Great Barrington, MA: SteinerBooks, 2007.

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When we are teaching the children about plants and animals in our grade-school lessons, we could hardly imagine a greater mistake in our method of education than to treat the subject as an introduction to the studies which would be required to enable the child later to become a botanist or zoologist. If, on the contrary, we could have arranged our lessons so that our way of teaching about plants and animals would hinder the child in question from becoming a botanist or zoologist, then we would have acted more wisely than by following [the scientific] principle, for no one should become a botanist or zoologist through what he learns in grade-school; that he can become only through his special gifts, which are revealed by his choice of vocation and which would be sure to appear during his life if there is a true art of education. Through his gifts! That is, if he has the gifts necessary for a botanist, he can become a botanist; and if he has the gifts necessary for a zoologist, he can become a zoologist. That can only be the result of the gifts of the child in question, which is to say: predetermined karma. This must come about through recognizing that this child has the makings of a botanist and that another child has the makings of a zoologist. It must never be the result of making our grade-school lessons in any way a preparation for special scientific activity.

– Rudolf Steiner
Balance in Teaching
SteinerBooks, 2007



The Founding Intentions

Spiritual Leadership, Current Work, and the Goals of the Medical Section

Michaela Glöckler

The tasks of the School of Spiritual Science are rooted in what Rudolf Steiner perceived as a “spiritual influx” into the rising tides of materialism during the last third of the nineteenth century: “A revelation of the spirit was opened up for mankind. Not from any arbitrary earthly consideration, but in obedience to a call resounding from the spiritual world; not from any arbitrary earthly consideration, but through a vision of the sublime pictures given out of the spiritual world as a modern revelation for the spiritual life of mankind—from this flowed the impulse for the anthroposophical movement.

This anthroposophical movement is not an act of service to the earth. This anthroposophical movement in its totality and in all its details is a service to divine beings, a service to God. We create the right mood for it when we see it in all its wholeness as a service to God.”¹

These words state clearly that the founding of the Goetheanum as an independent school for anthroposophy was an initiative that Rudolf Steiner intended to facilitate practical divine service in daily life. Not only those who practice the vocation of priest, but every member of a profession can learn to feel responsible in his or her actions towards a real, divine-spiritual world. Spirituality is not just a matter for religion, but also for science, art, and for how people lead their daily lives.

With such an endeavor, Steiner harkens back to the most ancient mystery traditions. The word *mysterium*, which can be translated as “secret,” denotes the search for a spiritual path and a temple that remained secret until one had found what one sought or strove for. Steiner and his colleagues

conceived of the Goetheanum as a place to facilitate such seeking and finding in contemporary times, so that each interested person could find an inner path of development fitting for his profession, fruits of work and study within the specialist Sections of the School would address contemporary issues and foster further cultural development of individuals, and support could be given to collegiate collaboration and community building.

Steiner therefore outlines the following tasks of the School at the Goetheanum: “Since the School of Spiritual Science cannot be a college or university in the normal sense, it will not

attempt to compete with these in any way or be a substitute for them. What one will be able to find at the Goetheanum, however, which is not to be found at ordinary universities, is esoteric deepening of knowledge. People will be able to receive there something that the soul seeks in its quest for knowledge. This quest for knowledge can be something universally human. The General Section will exist for those who have only the universally human need to find the paths of the soul towards the world of spirit. The other Sections will endeavor to indicate paths whereby those who wish to orient their lives in accord with a specific scientific, artistic or other vocation can do so. Thus every seeking human being will find at the ‘Goetheanum School’ what he wishes to strive for, depending on the particular circumstances of his life. In other words, the School does not aim to be a purely academic institution, but a purely human one; but at the same time it should be able to fully engage with the esoteric needs of the scientist and the artist.”²

**Rudolf Steiner intended
to facilitate practical
divine service in daily life.**

The Threshold to the Spiritual World

Already in a public lecture given in Stuttgart on May 1, 1919,³ Rudolf Steiner states how necessary it is to come to recognize that the thresholds of birth and death are transitions leading into spiritual forms of human existence, to which earthly life is directly related. He describes how a person's happiness in life and his capacity to withstand crises are dependent on the extent to which he can become aware of this fact. Those who live in an awareness that the spiritual world—in the form of life after death and before birth—actually exists develop different values and perspectives on earthly life. One learns to live daily life with more mindfulness in all of its details and to acknowledge responsibility for one's own actions towards oneself and one's guiding spirit. If we do not become aware of this fact, we lose insight into the meaning and purpose of life, as well as into the precious nature of every moment granted us to develop ourselves and our work for others. Cultivating "threshold consciousness" on the other hand, in professional life and in social interaction, awakens each person's experience of meaning and sense of responsibility for the developmental context in which he stands and gives life value and orientation. At the same time, much is also "unveiled" in the sense of an "apocalypse," that is, as revelation. Consciously approaching the spiritual world gives life meaning but it is also a serious matter. It is simultaneously uncomfortable and beautiful, in the same way as are truth and self-knowledge.⁴

In the esoteric tradition, the three decisive steps for preparing the conscious individual crossings of the threshold are called the trials by fire, water, and air.⁵ Formerly, at the time of the ancient mysteries, these trials or tests could be undergone only in the form of initiation rituals in a temple. Today, inner and outer circumstances of life require most of us to experience them. Life itself has become a mystery, the meaning and developmental opportunities of which have to be uncovered. The initiation experiences arising from these circumstances pertain to our life of cognition, feeling, and will.

- In the fire of honest self- and world-knowledge, the self-deception with which one unconsciously wants to protect oneself and others from uncomfortable truths is burned away (the fire trial).
- In the crisis of trust that very often follows a severe disappointment in oneself or another person, one can experience the quality of the trial by water, in which "nothing upholds you." In the face of the deep uncertainty associated with this—the falling away of recognition, support, and encouragement from within and without—one can develop further in a healthy way only by deriving one's motives for action entirely out of the matter at hand. Personal sympathies can and must fall silent. The love for an action rooted solely in the matter at hand sustains us, even if we are otherwise floundering, without firm ground under our feet.
- The quality of the trial by air, in contrast, concerns a capacity that the modern human being especially needs if he or she wishes to act in a culturally creative and healing way. Here we must not only educate ourselves to be truthful to ourselves and others (the fire-trial process) and develop a capacity for human understanding or love (the water-trial process), but also, in particular, we need a capacity for moral intuition;⁶ we need an ability to make the right decision in the specific situation at hand. For this, courage, tolerance, and unconditional love of freedom are needed.

These three new ways of handling thinking, feeling, and will—even if we initially practice them only in a tentative way—make the dynamics of social interaction into a developmental space for all. They are also the capacities or attitudes towards life that connect the spiritual and sensory worlds, facilitating a conscious crossing of the threshold to the spiritual world.

Moral Techniques for Social Commitment and the Tasks of the Goetheanum

In the face of the social deficiencies that so commonly arise today, it is important to detail the social skills that are required of us:

1. In the spiritual/cultural sphere, we need to develop individualism and personal commitment—what one might call spiritual entrepreneurship.
2. In the sphere of rights, we need clear structures for reaching agreements and opportunities to reflect on the forms of work in which we are embedded, so that we can optimize them for the benefit of all.
3. In the economic-social sphere, the prime need is for a culture of acknowledgement of what is done, of what each individual can contribute with his or her specific gifts and capacities.

When these three primary needs of modern human beings are taken into account, we can meet what is “difficult” in social life in a constructive way. The creative development of all can replace the chaotic drifting apart of individuals’ intentions. To initiate a schooling oriented towards this, on December 27, 1923, during the Christmas Conference, Steiner outlined three possible forms of community building—two with a horizontal structure and one that vertically crosses and connects them.⁷ The working forms characterized by horizontal lines are those of the General Anthroposophical Society and the School of Spiritual Science with its three classes (see sketch: I, II, III) of which Steiner himself was only able to establish the First Class in its first division.

The “vertical” community building in the Section context is rooted in an inner attitude to accomplish daily work out of spiritual responsibility. This requires the autonomy and fraternal stance that can be learned in the forms of work of the Anthroposophical Society and the School. In the statutes of the General Anthroposophical Society as conceived by Steiner,⁸ the working

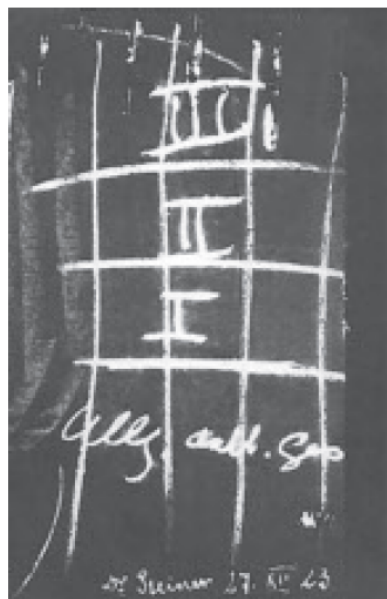
forms of this Society are entirely founded on each individual’s initiative. Every member is accorded the autonomous right to join a working group or to form a group with others that has a local or thematic focus (GA 260, p. 43). In the School of Spiritual Science, on the other hand, there are no statutes describing the rights and duties of members. Steiner calls this the “soul of the Anthroposophical Society” (GA 260, p. 161). To become a member of the School, no admission test is required nor is any testimony of one’s capacity, such as is otherwise normally expected in order to enter a university. Nor is any member’s contribution stipulated, as is the case in the Anthroposophical Society. Three conditions of entry are given which one affirms—both to oneself and to the School collegium (the group of Section leaders)—that one will strive to fulfill as a binding commitment:

- To pursue the anthroposophic path of development independently and with commitment.
- To “stay connected” with the other School members.
- To be a representative of the anthroposophic cultural impulse “in all details of life.”⁹

These three conditions give each individual a clear orientation and create the coherence necessary for forming working contexts, or “communities of free spirits.”

How Can a Christian Style of Leadership Succeed?

On January 1, 1924, at the end of the Christmas Conference for the new spiritual foundation of the Anthroposophical Society and the School, Louis Werbeck expressed the thanks of the participants, calling Rudolf Steiner “you great, pure human brother” and asking him for his “fatherly blessing” for further work in the Anthroposophical Society.



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Rudolf Steiner's sketch explained at the Christmas Conference of 1923/24 to clarify the working forms of the Anthroposophical Society, School of Spiritual Science and the Sections

Steiner replied as follows: "... My dear friends, what has taken place here is something, I know, that I was allowed to say, for it was spoken with full responsibility and in upward gaze to the spirit who is there and should be and will be, the spirit of the Goetheanum. In the name of this spirit I have allowed myself to speak things that could not have been uttered so forcefully if not uttered with upward gaze to the spirit of the Goetheanum. And so let me accept these thanks from you on behalf of the spirit of the Goetheanum, for whom we wish to exert ourselves, and strive and work in the world."¹⁰ This is at the same time clear acknowledgement of the "vertical succession" in which Steiner included himself as the inaugurator of anthroposophy.

As little as he himself wished to receive thanks from others for his work, but rather to pass this on to his source of inspiration, just as little did he value it when people cited his authority in terms of "horizontal succession." A "Christian style of leadership" takes its lead from the Pauline attitude, "Not I but Christ in me" (Letters of St. Paul). But this is an attitude of "vertical succession." Anthroposophy aims to be a path whereby the

human being achieves independent spiritual knowledge and insight. In the field of science this is possible by spiritualizing thinking and developing it further meditatively. In the artistic sphere, we can do so by drawing on the artistic elements of composition, such as building materials, forms, colors, tones, words, and movements so that spiritual qualities can become manifest.¹¹ In practical life, on the other hand, as much of this spiritually grasped and longed-for spirit can be realized as individuals are each able to integrate it into their work and the way they live their lives. Of these three forms of manifestation of spiritual realities, art has advanced the furthest. It can fashion images and revelations of what is "perfect." It is hardly surprising, therefore, that Rudolf Steiner spoke often and in such a moving way about the nature of the Dornach building and its central sculpture, the "Representative of Humanity." Over nine meters high, the statue shows Christ striding between the powers that seek to divert human beings from their path: Lucifer as the radiant spirit of hubris, and Ahriman as the power-conscious spirit of conformity and de-individualization.

When construction of the first Goetheanum was starting, at the inauguration of the artist studio on June 17, 1914, Steiner said: “. . . but then, when all is ensouled by this spirit whom I wish to invoke with these words in this room this evening, when everything that rises above this hill through our work is filled with this spirit of love, which at the same time is also always the spirit of authentic art, then from this hill and what stands here there will radiate out into the world the spirit of peace, the spirit of harmony, the spirit of love.”¹² To let this spirit inspire us in the realm of medicine and in the organs of the anthroposophic medical movement is the great ideal of anthroposophic medicine.

Heart Function as a Guiding Image

The guiding picture for the leadership culture of the Goetheanum, in particular for the Medical Section with its therapeutic task, is the heart function of the human being. Steiner confirms this task everywhere in his work, for instance when he says, “The inmost principle of anthroposophic endeavor is love for the human being.”¹³ “We can only make what we say and hear into the proper point of departure for the development of the anthroposophic cause if our heart’s blood is capable of beating for it.”¹⁴ And, at the end of the Christmas Conference, his words sound like a Whitsun blessing: “And so, my dear friends, bear your warm hearts, in which you have laid the foundation stone for the Anthroposophical Society, bear these warm hearts into the world for strong, potent and healing work.”¹⁵ “And so the heartfelt ties which you can form with the Goetheanum will be something which, especially as physicians, can profoundly help you in the task you have really set yourselves.”¹⁶

Steiner had a very clear perception of the connection between phenomena of social misery in his time—poverty, the upsurge of racism, abuses of power, violence—and an education that was

Life itself [is] a mystery, the meaning and developmental opportunities of which [are] to be uncovered.

remote from the spirit, making it inadequate for developing freedom and responsibility. He regarded the social question as a pedagogical one. When the first Waldorf school was founded in Stuttgart, he insisted that education must have a therapeutic orientation that would always serve individual development and focus on the child’s developing health.

Thus the pedagogical question becomes a medical-therapeutic question. Ultimately, though, as Paracelsus saw it, the medical question is the question of the “only true medicine,” love. The human heart perceives in a differentiated way—physiologically, emotionally, and spiritually—what is happening in the organs and systems of the whole organism. It is from the heart that the whole receives its impulses, and every single organ and function receive the heart’s blood as needed to meet their individual requirements. It is only in the heart that the particular potential, capacities, needs, and stresses of individual organs are reflected, along with the needs of the whole. In the way the heart functions—its archetypal mediation between periphery and center and between the nerve-sense system and the metabolic-limb system—the heart is a profound and archetypal image of a Christian social culture and quality of leadership.

Counter-Images of a Humane Approach to Leadership

The French revolutionary politician Robespierre stands as a historic example of thinking that, in pursuance of the ideals of liberty, equality, and fraternity, lost touch with the heart. Where this occurs, guiding pictures and ideals turn into an ideology in which many become emotionally subordinate and dependent on one charismatic personality—in spiritual terms on inspirations emanating from Lucifer. Ahrimanic inspirations are at work where this ideological orientation

is compounded by the enforcing of will and an external imposition of power and authority. As a result, various types of totalitarian systems and authoritarian styles of leadership arise that are characterized by the use of both ideological and material/practical compulsions as a means of power, including the use of financial shortages to achieve certain goals. Common to both luciferically and ahrimanicly inspired social cultures is the greater or lesser restriction of individual freedom to think, hold opinions and act, along with heartless and inhumane elements in relations and agreements. We can protect ourselves against the fascination of Lucifer through love for the realities of life: "Those who take spiritual science seriously are not concerned with battling about different professions of belief but instead they wish to pursue serious work in all areas of practical life."¹⁷ We can protect ourselves against the dangers of Ahriman by respecting each person's individual freedom: "The individual first had to separate from his associations and connections so that the social element could be realized out of the individual."¹⁸ Organizing one's own modes and structures of work in as conscious and healing a way as possible for social interaction is therefore the core task of the Medical Section and the professional associations and institutions affiliated with it.

The Working Principles Conceived by Rudolf Steiner and Their Guiding Image

The principle of interlinked collaboration:

How can the Anthroposophical Society, the School, the anthroposophic movement, and the public work together constructively? Steiner gave a guiding image for this in the blackboard sketch described above. He described as follows the working attitude necessary for realizing this guiding image: "It is very important that we acquire the outlook according to which we do not believe we have the right to give people anything other than what they demand, that we do not have a right to place ourselves

above others to whom we wish to present or give something. We must rid ourselves of the habit of assuming a didactic or campaigning stance, so that we can really make insight and understanding the founding element of life in the Anthroposophical Society."¹⁹

Heart culture lives from insight into needs and necessities. It creates structures and institutions so as to serve these needs and necessities as best as possible. Thus Steiner allows the forms of collaboration he proposes to interpenetrate each other in his sketch of the social structure for the anthroposophical work. The vertical element stands at the center, however, as a fundamental orientation for each individual who feels an obligation towards one or several Section impulses in his work. This vertical element stands for the *anthropos*, the upright human being, whose insight gives him the strength to turn his heart forces right and left towards various work contexts of anthroposophic life, but also upward to inspiration from the spiritual world, and downward, by standing within the demands of life with all his personal, professional, and social human development.

The principle of individuality:

In the statutes and statute discussions of the Anthroposophical Society at the Christmas Conference of 1923/24, Rudolf Steiner presented the social structure of the School of Spiritual Science, Anthroposophical Society, and the anthroposophic medical movement in a differentiated way. The Anthroposophical Society is underpinned by a democratic-republican gesture: All members have the right to set themselves goals in a local area or sphere of activity, to found contexts of work and lay down the particular statutes for such an organization. These individual goals and statutes should not contradict those of the Anthroposophical Society. Here the full scope of the principle of individuality applies.

The principle of fraternity in spiritual community:

The School of Spiritual Science is structured according to the principle of spiritual fraternity: The spiritual bond is formed by three conditions that regulate the various forms of collaboration.

The principle of representation and service:

The anthroposophic medical movement, like the other Sections, is conceived as a service-providing community. The School of Spiritual Science should focus on making the findings of anthroposophic spiritual research available for fraternal collaboration and community, for moral and religious life, and for artistic and cultural life in general.²⁰ Central to this is the Rosicrucian maxim: "An action performed from goodness of heart is one in which the person who performs it does not pursue his own interest but that of his fellow human beings. Such an action can be called morally good."²¹ "And at all times complete harmony must prevail between external life and initiation."²² "Instructions [of good spiritual teachers] lead either to good results or to nothing."²³ "They are concerned with the development and liberation of all beings, both human and companions of human beings."²⁴

The principle of flexible structures:

The anthroposophic medical movement, for example, with all its different work contexts, has to adapt continually to growing demands. Where a hierarchy of capacities is needed, this will be set up. Where all are needed and should be involved, democratic arrangements will be made. Otherwise, tasks can be mandated for a defined period, new bodies created, and structures that are no longer needed can be dissolved according to need. All the modes of work developed or suggested by Rudolf Steiner were flexible answers to questions or needs of the time. This principle assures developmental openness, so as to counter stagnation in the social domain and chaotic phenomena of upheaval and dissolution.

Meditations for Those Working in the Field of Curative Education and Social Therapy

– Rüdiger Grimm

The Curative Education Course contains a series of meditative exercises for deepening one's own inner manner of working with questions and problems relating to curative education and the nature of the human being. The point-circle meditation, which stands at the center of these exercises, was first elaborated by Rudolf Steiner close to the end of the course, in lectures 10 and 11.²⁵ This exercise enables us to meditatively experience and discover the fundamental, polar relationships between the forces which form the human organization and which continually recur as a formative principle in the Curative Education Course. An instance of this can be seen in the polar images of compulsively reproducing the same repeated ideas, on the one hand, and the incapacity, on the other, to recall even the simplest daily experiences. Curative educational insight and deeds thus arise from a process of convergence between external observation, insight into the nature of the human being, the inner recreating and envisaging of constitutional processes, conscious work on the form of relationships, and the development of individual caretaking for people in need of special care. The inner activity involved in the point-circle meditation encompasses several elements by means of which polar experiences can be stimulated and deepened.

Practicing it in the evening and morning means that it engages with differing states of consciousness. In the evening a contemplative awareness arises as we recall the past day and release ourselves from its events and experiences, which can now be formed into inner pictures in retrospective review. In the morning, on the other hand, we enter the individual space of our actions, which we are likely to picture in a goal-oriented way, and yet these actions may result and be co-determined by what comes to meet us. The polar situation in which we live can be experienced

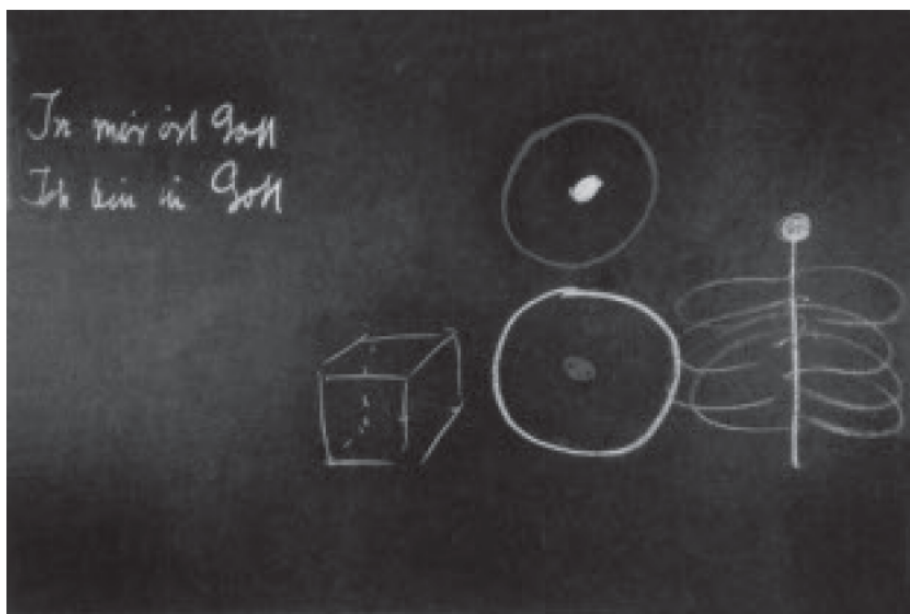
meditatively at the transitions between sleeping and waking.

A second polar element is practiced through the form dynamic of point and circle, or through the inner exercise of centripetal and centrifugal movement. In our mind's eye the point at the center of the circle expands towards its circumference, while at the same time the peripheral circle element concentrates towards the point center. The linked evocation of blue and yellow likewise accentuates the greatest possible contrast of color spaces—of space-creating-withdrawing impressions, on the one hand, and emerging-luminous ones, on the other.

Two meditative phrases enable us to live into the depth of these processes: to experience the activity that gives rise to consciousness in the evening not just as a reflection of day consciousness but as the presence of a spiritual reality in which divine thoughts can fill human awareness: “In me is God.”

In the dawning consciousness of morning, on the other hand, we can experience how, in acting, our will activity touches and affects not only a world of objects but at the same time also a divinely created world in which we encounter each other with our individual destinies and dispositions: “I am in God.”

Inner flexibility can arise from ongoing practice of this meditation, harmonizing the transitions between states of consciousness in us: between waking thinking and sleeping will. As a “professional meditation” it enables us to acquire experiences that are, ultimately, indispensable for work in curative education: a schooling of mindfulness, of devotion to the world of the senses and its often unexpected pointers to key opportunities for perceiving another being. It also creates a space for trusting in our own capacity to be able to act with full presence of mind in the moment and for trusting with courage in the hidden dimensions of our own being.



The point-circle meditation in the Curative Course
—“In me is God, I am in God.”

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Penetration into the phenomena of the world is brought about by a power flowing through the activity of thinking itself—the power of love in its spiritual form. There are no grounds here for the objection that to discern love in the activity of thinking is to project into thinking a feeling, namely love.

– Rudolf Steiner
The Philosophy of Freedom
Steiner Press, p.119



Attending to Interconnection

Living the Lesson

Arthur Zajonc

How does one see a painting whole? Or the human mind? Or an ecosystem? Or for that matter, the educational project itself? We are well schooled in “seeing them” into parts—into brushstrokes, neurons, and molecules—or seeing the university apart into departments, disciplines, and specializations. What kind of attentiveness will enable us to see a true whole? What is the pedagogy for beholding interconnectedness as a primary reality and not a derived one? What are the implications of a deep experience of interconnection for knowing, teaching, learning, and life? What would be gained if, as the Dalai Lama says, we were to cultivate “a deep sense of caring for others, based on a profound sense of interconnection?”¹ It is perhaps difficult to appreciate how extensive the changes would be if this integrative viewpoint were fully embraced in higher education. The conventional view that privileges a single reductive perspective is so pervasive that undoing its effects will be difficult, but if we were to succeed, then the fragmentation of our education and our lives would be healed. Simultaneous with our experience of self would be the powerful complementary experience of human interdependence, of what Desmond Tutu calls *ubuntu*: “I exist because of you.”

Emerging Wholes

Since Galileo, science has had a bias towards simplification for the very sensible and practical reason that it was all it could handle. Nothing is

Context trumps consistency. The context in which we examine light fundamentally shapes the phenomenal manifestation, as well as our conception of light in that context.

wrong with this as long as the limitation of the method is not projected onto reality, limiting it. If all you have is a thermometer, then everything is a temperature. But we now know that analysis of climate, the human nervous system, economics, and ant colonies, to mention only four examples, resists such simplification. To understand them with any subtlety requires that we embrace their inherent complexity and work with it. Until the last few decades, the exclusive method of studying complex systems was to break them down into fundamental parts and then to connect neighboring parts by means of simple forces. The forces between these distinct parts bind them into

wholes. The whole is a mere amalgam of conjoined parts that has no ontological standing of its own. The solar system, in this view, comprises a star (the Sun), planets, asteroids, comets, and the like, all held together by the force of gravity acting between them. The atom likewise consists of a nucleus and surrounding electrons bound together by an electromagnetic force. This lens is then extended to chemistry, biology, and the human being.

The parts are considered to be “real,” as are the forces that make connections between the parts, but the whole—be it a mineral substance, plant, animal, or human—is a kind of chimera. While such a view is useful in many instances, we now know it to be fundamentally mistaken. Two scientific developments—entanglement and emergence (as well as common sense)—have made this conception of the world obsolete.

The first breakthrough came when physicists were able to attend to two things at once. This may sound simple, but to simultaneously measure the subtle properties of two or more quantum particles required a significant increase in resources and experimental sophistication. The simplest experiment of this type was first suggested in 1935 by Einstein, Rosen, and Podolsky,² but it had to wait until the 1980s for a definitive test.

Light not only has the properties of intensity and color, but it can also have an internal orientation. If thought of as a wave, then the vibration can be up

and down or side to side. These two different orientations of vibration are called polarizations.

When physicists measured the correlations between the polarizations of photon pairs, the patterns in the data could not be explained by any classical conception of light. (The quantity measured is a complex correlation function for the probability of simultaneously detecting two photons at a particular polarization angle relative to one another.) The results were astounding, not because they required a new physical theory (quantum theory was adequate to the task), but

because of their ontological implications. Here was a potent metaphysical experiment, and it demonstrated convincingly that the understanding we had of wholes as merely parts juxtaposed and bound together by forces was wrong. In a crucial manner, when two particles interact, they form an inseparable whole and the very attributes by which we would normally distinguish the one from the other become, as physicists term it, “entangled.”³ The two particles form a whole that is as real as the parts. Parts are no longer privileged.

I think it symbolic that wholes showed themselves only when physicists learned to attend

to two things at once. The old practice of attending first to one thing (planet or particle) and then to another fragmented the world into parts. We were unconsciously practicing a particular kind of attention. The universe was and is a whole, but the method by which we chose to observe the universe fragmented it, and we mistakenly assumed our method gave us a true reflection of reality. In the process of learning how to attend to the whole, we learned that the experimental context and our kind of attention are highly significant: They cannot be excluded as inconsequential. As

Scientists now recognize that the qualities that emerge in complex systems are often not able to be reduced to the parts that make up the system. Hydrogen and oxygen are the elemental gases that make up water, but the “wetness” of water is an “emergent property” of the system not reducible to hydrogen and oxygen.

we have seen already, our method of inquiry shapes, in part, only in the phenomena themselves, and it is these phenomena to which we have access. If we attend to separate parts, that is what we see. If we are interested in wholes and devise an experimental method suited to that interest, then wholes show themselves. This is no mere relativism or pure constructivism, but rather an example of the world’s richness that reveals itself in stages in response to us and our properly posed questions.

The best known physics example of the relationship

between question and phenomenon is wave-particle duality. If the question we pose is, “Where is the photon?” then light shows itself as a particle. If, however, we do not ask, “Where?” but allow for an ambiguous trajectory for light, then the resulting observed interference pattern can best be understood in terms of light as a wave. These contradictory manifestations of light—first particle and then wave—arise in response to the experimental arrangement, which itself is the embodiment of a question. Classically considered, wave and particle are mutually exclusive concepts, but in quantum mechanics each aspect arises within

a distinct measurement context and so it is entirely appropriate to that specific context. Context trumps consistency. The context in which we examine light fundamentally shapes the phenomenal manifestation, as well as our conception of light in that context.

The second scientific development that supports the overthrow of reductionism is emergence. If we turn in our imagination to walk along a lively forest stream, or if we listen to a Mozart aria we know well, it seems clear that our life is not made up of atoms and neurons but of a dense, rich array of meaningful experiences. What is the relation between the parts so often at the center of the scientists' attention and the experience of wholes that occupy the rest of us? While the fact of quantum entanglement is a principled block to reductionism, a second scientific realization grants added weight to the status of wholes. Briefly put, scientists now recognize that the qualities that emerge in complex systems are often not able to be reduced to the parts that make up the system. Hydrogen and oxygen are the elemental gases that make up water, but the "wetness" of water is an "emergent property" of the system not reducible to hydrogen and oxygen.

In a seminal paper aptly titled "More Is Different," the Nobel physicist Philip Anderson stated, "At each level entirely new properties appear. ... Psychology is not applied biology, nor is biology applied chemistry. ... We can now see that the whole becomes not merely more, but very different from the sum of its parts."⁴ Nobel physicist Robert Laughlin put it another way: "We live not at the end of discovery but at the end of Reductionism, a time in which the false ideology of human mastery of all things through microscopics is being swept away by events and reason."⁵ Reductionism is, indeed, a false ideology. While we surely learn a great deal by attending to microscopic parts, we must be careful not to fall in love with the myopic view that mode of analysis offers. We must complement it with an equal attention to relationships and wholes. Only

then will we truly behold the painting, appreciate the mind, and understand the complex reality that is the ecosystem. Only then can we arrive at a pedagogy that sees students as whole and complex beings and educates students with an eye to this reality.

In summary, I have used science to expand our worldview beyond a reductive materialist ontology in two ways.⁶ First, Einstein's relativity and quantum mechanics both undermine objectification and support a relational view of reality in which phenomena are co-created by the observer and the world. Second, through entanglement and emergence, physics offers evidence for an ontological holism that grants wholes a standing long denied them. Parts are no longer privileged. These two realizations are essential to a proper philosophical infrastructure for higher education.

Pedagogies of Experience and Interconnection

Nearly every subject area in the academy has attempted to make itself over into a "science" by adopting its own version of the worldview and methods of the old physics of objectification and disconnection. Along the way, the education of the whole human being in community and the cultivation of his or her humanity seem to be increasingly forgotten for the sake of scientific simplification. If we take Laughlin and others seriously, then these fields need to reconceive themselves according to a postreductionist paradigm in which lived experience, connection, and complexity are given far more attention. Every field will also benefit from adopting ways of teaching and learning that are in closer alignment with the relational and integrative view of reality we now possess. In this regard, consider economics, health care, and medical education.

Economics has long objectified the human being, reduced to an idealized *homo economicus*, a hypothetical rational actor who maximizes his or her utility function (which mathematically represents the preferences of the consumer). In

addition, our relationships to fellow members of our community are reduced to the limited concept of the market. With these two abstractions of the human being and communal relations, economics performs its analysis. While a useful formal model, classical economic theory of this kind has come in for heavy criticism and much modification. As in physics, the simplifying assumptions of classical economics were made because economic theory could not handle the complexities of the real world. But are humans really rational economic actors? Economics experiments show we are not. Understanding this opens us to other important questions to consider, such as, Is market behavior the only or best way to gauge preferences, or might we allow for thoughtful, patient introspection concerning the root causes of suffering and happiness? Does the market really offer an accurate and comprehensive valuation of community, or might we allow for forms of fellowship that elude economic objectification?

In economics as in other fields, the limitations of its methods are projected onto reality, truncating our image of self and community in ways that ultimately are not only wrong but pernicious. Real people and their lives disappear behind the equations, and the densely interconnected world in which we live is replaced by a more tractable limited system of competing individuals and corporations that produce and consume. Objectification and impersonal economic transactions come to not only dominate our models but also infect our views of each other and the natural world.

The failure of traditional economics to account for what are called “externalities” is a symptom of its tragic neglect of the interconnectedness we have been considering. For example, the additional health and environmental costs caused

by the pollution associated with production are “externalized,” which is to say they are not borne by manufacturers but by the populace and the environment. Impacts on the environment and community are obvious if one has a worldview that acknowledges the dense interconnections between human activity, environment, and health. Instead, classical economics neglects them. “Ecological economics” or “natural capitalism” is an emerging alternative to classical economics that explicitly rejects the way in which neoclassical theory treats externalities.⁷

The critique goes deeper. In his book *The Dismal Science*, Harvard professor of economics Stephen Marglin characterizes economics as “hobbled by an ideology in which these tensions [between individual and whole, between self-interest and obligation to others, between material and spiritual health] are replaced by a set of pseudo-universals about human nature.”⁸ Doing so simplifies the modeling but at great cost. Marglin goes on to

provide a foundational critique that reaches beyond the inclusion of externalities to the very ways in which community—necessary to a good life—is systematically undermined by markets that replace personal ties with impersonal market transactions. He shows that the effects of this process on well-being and the quality of life are large and negative.

Further problems arise in economics because of its impoverished view of the human being. Two examples will help make clear what I mean. The first is the Ultimatum Game, which economic researchers are now using to explore the limits of the basic assumptions of neoclassical economics, those assumptions being that *homo economicus* always acts rationally and in his or her own self-interest.⁹ In this model, emotions, altruism, fairness, community, and so on have no real place in the economic calculations. In

In economics as in other fields, the limitations of its methods are projected onto reality, truncating our image of self and community in ways that ultimately are not only wrong but pernicious

the Ultimatum Game I receive a day's wages from someone with the condition that I give you some portion of what I received. If you keep the portion I give you, then the division of money between us is settled. If you do not keep the portion given, then both of us forfeit the money. According to standard economic calculations, since something is always better than nothing, you will keep whatever amount I give you, otherwise you (and I) lose the money. Taking whatever is given is the rational, self-interested thing to do. Experiments show, however, that in all cultures if the amount given is below about 25 percent, you will refuse the offer. Irrational factors or violations of self-interest are at play.¹⁰ Why are we not surprised by the result? Because we too would reject a demeaning offer, no matter what the economists say.

The second recognized failure of neo-economic theory is the "tragedy of the commons." Our survival as a species depends fundamentally on such common resources as air that is suitable to breathe, water that can be drunk, fish in the sea, soil that will grow crops, and so on. But if fishermen, farmers, and other workers act rationally and purely in their self-interest, then the neoclassical economic calculation predicts the collapse of fish stocks, the disappearance of water, and so on. Without someone acting on behalf of everyone, without a selfless sense for the whole, the tragedy of the commons will take place. But societies do step back and regulate fishing, water rights, and air quality on behalf of the community and future generations. Such acts as these are not part of the traditional economic calculus. The significance of this failure was recently underscored by the Nobel Prize committee when they awarded the 2009 Nobel Prize in Economics to Elinor Ostrom for her work on the tragedy of the commons.

With these and other groundbreaking economic studies in behavioral economics, wellness studies, and game theory, we are beginning to see the incursion of a more phenomenological and nonreductive approach to the understanding of people's economic life. Through these approaches

the actual economic behavior of human beings is studied instead of presumed or idealized behavior. These are complemented by psychological and neuroscientific studies, which are also opening new ways of thinking about economics.

Enlarging our view of the human being and enriching our relations to the world we inhabit will change not only the content of our courses but our pedagogy as well. Three examples can stand for many. At the University of Southern Maine, professor of economics Vaishali Mamgain offers a course on neoclassical economics and happiness in which she not only reviews research on this topic but asks her students to work reflectively with questions such as these:

- What are the causes and conditions that make you happy?
- Who is it that is experiencing happiness?
- Are happiness and pleasure the same thing?

Political philosopher David Kahane at the University of Alberta draws his students into the deep moral issues around allocation of resources by asking students to examine their own choices. With great sensitivity, he then invites them to view in a sustained way the image of an African mother burying her child who has died from an entirely preventable illness. Kahane notes that the cost of a latté is equal to rehydration therapy for five children. Both Mamgain and Kahane seek to join textbook material with the experiences and inner observations of their students. Students are explicitly asked to bring themselves into the material and to offer thoughtful comments based on introspection.

Frank Maddox is an award-winning economics professor at Oxford College of Emory University who teaches in a similar way. He uses a variety of strategies to make vivid the realities of poverty and wealth, industrial and craft production, and consumption. For instance, after his students have studied standard economic theory in which consumers are modeled as maximizing utility, he

gives them an unusual assignment. They are asked to go to a store like Wal-Mart® or McDonald's® and note the expressions, actions, and so on of the people there. Students are to observe, without judgment, anything that will help them gauge the degree of consciousness shoppers give to what they are doing. Then Maddox asks the students to observe themselves in the same way, again without judgment. How attentive are they to what they are doing at any moment? What would it mean for us if we were more aware of our consumption? He calls it mindful consumption, and he asks what it might mean to replace maximizing utility with mindful consumption. At the end of the semester Maddox's economics students all present their Interbeing Projects. Interbeing is a term taken from the Buddhist teacher Thich Nhat Hanh that emphasizes the interconnectedness of all things. Students select a consumer good or service and then research some aspect of its production, becoming more conscious of their connections and responsibilities to it. Maddox teaches economics not only with interconnectedness in mind but as an experience for his students.

In the same vein, author Daniel Goleman in his book *Ecological Intelligence* makes a compelling case for the huge environmental and social benefits that would occur if we practiced mindful consumption, especially when the technologies become available to support us in this practice at the point of purchase.¹¹ For example, in an early version of such a technology, the foundation Nature & More rates hundreds of products and profiles producers and their social and environmental practices, all available on its website.

As the second example of the benefits of the relational and integrative view of reality, consider health care and medical education. In the United States, our approach to medicine has increasingly become a reductive science married to a for-profit economic model that is fast approaching collapse. The questions of the quality of care for the whole person and the education of the whole physician seldom rise to the top of the agenda. Instead, cost analyses and technique pervade the system and

threaten to overwhelm the idealistic motives that draw most medical and nursing students to the profession. At every step, caring for those who are ill and suffering is made increasingly difficult by a system at odds with itself. I hardly need describe the dangers of a truncated biomedical model that sees the human being purely as a collection of organs, blood levels, and test results. Good medical education and health care do not require such a view; in fact, it seems obvious that a fully integrative view is called for.

For several years I taught an interdisciplinary course that studied, among other topics, the human body in art and science. We worked equally with the anatomical drawings of Leonardo da Vinci and the scientific study of the heart by Andreas Vesalius and William Harvey. The capstone experience was a trip to the anatomy lab of the University of Massachusetts Medical School in Worcester, which was run by the remarkable teacher and anatomist Sandy Marks. When Marks first began teaching, anatomy classes had historically been taught as a grisly, even macabre, boot-camp experience. Early on he noted that some of his best students were dropping out of medical school as a result. His own sensibilities, as well as conversations with students in his class, led him to a total overhaul of the gross anatomy class.

Now the first day of class begins with readings and conversations about death. For many students the cadaver they will dissect is their first direct encounter with mortality. It often raises fears and memories of those they have lost. Marks makes time and space for these recollections and feelings. He then introduces the students to their "first patient." No longer taken from the state's unclaimed dead, each body has been donated to the medical school, some coming with personal letters or poems expressing the wishes of the deceased. He read one to us: "May that life force that ran in me shine forth once more and pass to you the knowledge and the power that help sustain the miracle of life."¹² In this class, each medical student takes the body apart layer by layer, learning its

miracles, but now it is done with respect and ever mindful of the gift. At the conclusion of the class, relatives of the deceased are invited to a closing ceremony in the medical school courtyard at which the students express in words, music, and poetry their deep gratitude for the gift of the body they studied.

Sandy Marks passed away in 2002. The last group of students he taught composed and read this poem at his memorial service:¹³

I sat in tears and you told me about dying.
I watched in horror as you took the death from
another's body.
I lost myself on my way to your office, but when
I got there, you had found me.
Knowledge, you offered us. Humor, you
provided for us. Humanity, you required of us.
Stability, you granted us.
Instant, unwavering stability.
We watched, listened, spoke, heard, laughed,
feared, cried, refused, overcame, denied, and
responded.
And with a wink and a nudge of your elbow,
you calmed the eruption of emotional chaos.
We learned. And with a wink and a nudge of
your elbow, you made it clear why.
— Nicole LeBoeuf, UMMS Class of 2006

Our day at the anatomy lab recapitulated in miniature the medical school experience, from the meeting with death and dissection to the conversations about loss and love. It was an amazing and moving experience for our Amherst College students, one they never forgot. They experienced a profoundly ethical form of education in which knowing and caring were united.

In pedagogies of experience and interconnections, we are often challenged by the worldview and values of those we meet. Those

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we meet can think, feel, and act so differently than we do. Such experiences awaken us to our own culture, mores, and behavior, and this is especially so when our engagement with other communities is in service to them. In response to a request from us, Alma Blount describes an educational program that connects communities and the classroom in important ways. Working with people who hold conflicting values in a democratic society brings the realities of

leadership and politics to life. Service Opportunities in Leadership (SOL), sponsored by the Hart Leadership Program in the Terry Sanford Institute of Public Policy at Duke University, is an intensive yearlong program for undergraduates that combines academic study, service to communities, and critical reflection. In writing about the program, Blount asks her students rhetorically,

What are the highest goals of this class?
Informed by scholarship and the ideas of
your classmates, you will arm yourself
emotionally and intellectually to enter
a new culture prepared to serve and to
reflect critically on your experience there.
We will ask you to think deeply about how
to approach the inevitable value conflicts
you will face as you cross the borders of
new organizations and cultures. We will
ask you to examine your own religious and
cultural values and preconceptions. We will
challenge you to explore how you can, over
time, become a fully engaged citizen of your
own society.

Alma Blount's effort is another example of how we can deepen learning in the classroom through experiences beyond its walls.

Interdisciplinarity and Intentional Teaching

We can choose the way we teach. The teachers profiled in this chapter have each sought ways to give body and soul to the otherwise abstract concepts and depersonalized practices of their discipline. They have sought ways of inviting students to make use of their own experiences by pausing to quietly question, reflect, feel, and write. As the students go on to become engaged citizens, doctors, economists, and even consumers, that habit of pausing, reflecting, honoring, and acting morally will serve them and our society.

Sandy Marks and his students reformed their anatomy lesson, making the laboratory at once an educational and a sacred space that welcomed all of who they were: body, mind, and spirit. Might we not do likewise?

When we do, the ripples are likely to go far beyond our individual classrooms. Is it any accident that Jon Kabat-Zinn began his revolutionary work in mindfulness-based stress reduction down the hall from Sandy Marks? Every bold integrative initiative in higher education will find its echo because we are in the company of others who will respond in their own unique way to our honest efforts at cultivating humanity.

In recent decades another way of striving to innovate in higher education has been through efforts at interdisciplinary teaching and research. Those involved have sought to bring disparate areas of learning together to illuminate each other, and much has been gained in the process. I have relished the many interdisciplinary courses I have taught over thirty years with colleagues from across the campus: Romanticism and the Enlightenment, The Imagined Landscape, Eros and Insight, to name a few. These courses brought me together with brilliant scholar-teachers from whom I learned and was enriched. In such classes students

saw firsthand the ways in which every issue begs to be addressed from multiple directions. Few issues are adequately treated from a single disciplinary perspective, and the lively engagement of two or more colleagues who tackle an issue, text, or historical period demonstrates this truism again and again.

At first, love seems to have little to do with knowledge and our understanding of how it works, but if we set aside romantic love for the moment, is it not true that we come to know best that which we love most?

While interdisciplinary teaching brings much to learning, it is not by itself necessarily truly integrative. Most often it is a case of simple juxtaposition. The scholars each bring their expertise and place their contribution beside that of their colleagues. The students are left with the difficult task of synthesizing the parts into a whole on their own. For these classes to be truly integrative, faculty need to exemplify integrative understanding through the ways in which they connect diverse

fields into a comprehensive integrated whole.

For example, Princeton psychologist Daniel Kahneman was awarded the 2002 Nobel Prize in Economics for his development of prospect theory, which concerns decision making in the face of risk. Kahneman made a seminal contribution to economic theory without ever taking a single course in the field of economics. He and his colleagues worked across disciplinary boundaries, bringing psychology and economics into a profoundly fruitful integration. Harvard Nobel economist Amartya Sen has reached out the other way to include a very wide range of non-economic factors into his economic analysis, including individual and societal values, human development, and the rights of individuals. Originality does not respect disciplinary divisions.

Each semester students take courses across the curriculum, especially if they are in liberal arts colleges, that support a broadbased education. They should be encouraged to bring all of who

they are and what they know into each class. When in a literature class studying, for example, Keats's conception of "negative capability" ("when man is capable of being in uncertainties, mysteries, doubts without any irritable reaching after fact & reason"¹⁴), students might well draw on understandings and experiences of this capacity from areas as diverse as psychology, religious studies, quantum logic, and Goedel's incompleteness theorem. Poets are not the only ones who deal in uncertainties, mysteries, and doubts. With this simple realignment, we shift our focus from the technical understanding of a literary reference to students' whole learning; we thereby become interested in students in their entirety not merely as budding literary scholars. Cross-disciplinary initiatives are needed if we are to prepare our students to meet the real problems our society faces. No one field has all the answers because real issues possess multiple dimensions.

By welcoming the whole student into our classes, unfamiliar aspects of who they are and what they care about suddenly come into view. What are the heartfelt questions they struggle with? Are they too scared to acknowledge the hopes and aspirations they harbor for their lives and for this world? If they fail to voice them in the safety of a college classroom, will they ever dare to live their aspirations later? And what if we would reciprocate by revealing unfamiliar aspects of ourselves? Too often we hide in our specializations when, in fact, our interests, experiences, hopes, and understandings are far broader than we let on. In brief, we should do far more to support both students and faculty who strive to combine depth of knowledge in a special area with breadth and integration. Working with such contradictory intellectual gestures may well be the hallmark of great innovation, and our pedagogies should strive to foster the capacity to sustain and use contradictions to their fullest.

The solitude of specialization often reflects a wider disconnection from others. Classroom culture reinforces that disconnection, not only

between teacher and student but also between students. Patricia Owen-Smith wondered why "life in the academy has been consistently alienating and lonely" for her. Gradually she came "to understand that the academic world of higher education has been structured in such a way so as to normalize and promote alienation. Under the guise of academic freedom and professional autonomy, we close our classroom and office doors physically and metaphorically." Upon realizing this, Owen-Smith set about changing the culture of her classroom. In her case, she introduced a period of listening to music at the start of each class, with the encouragement to be still and to "go within." She felt awkward at first, but slowly the students warmed to the innovation, bringing in their own music and appreciating the time of stillness and the journey within. In her description for us, Owen-Smith writes:

As we neared the end of the semester the structure of the class had changed from a group of individuals reluctantly gathered together for study to a community of friends and partners who were creating a space of introspection, quiet, and respect for the process of study and the development of self. ...It has been a decade since this initial introduction of contemplative music and I cannot envision a classroom without music. Semester after semester, I watch with delight as we take a journey together, a journey whereby we hear our souls, breathe in silence, cherish stillness, and learn from one another in the most enduring ways. Our journey is a dance, a conversation, a celebration of the heart, and a sacred moment in the process we call "education."

With each additional view of a landscape, we enrich our appreciation of its character and beauty. With each added intimacy, we come to know a person better and more fully. No one view contains the whole truth, but by moving among and between

a myriad of them we may gain an intimation of a truth which lies forever beyond our grasp. Such is the living work of integrative teaching and learning to which the university in its entirety should be dedicated.

Such synthetic efforts need to be supported within our universities and colleges. Yet if they are truly integrative, they may well be contrary to the traditional departmental structure of the academy, whose power and reluctance to change we should not underestimate. Much would be gained by fostering a university culture that simultaneously values disciplinary specialization and truly integrative research and teaching. That is, while we rightly value the specialized knowledge of each separate discipline, we should give encouragement to scholars who step outside their specialization to integrate novel areas into their research and teaching. To this end, we need to find ways to promote conversations around issues that draw together diverse voices, viewpoints, and competencies. We recognize that starting such conversations requires boldness.

Enriching Epistemology, Fostering Imagination

The wish to comprehend leads us to develop methods of inquiry directed toward reliable knowledge. If the methods we possess are fragmentary or partial, then our knowledge will be likewise. In this way we see that an expanded ontology requires an enriched epistemology. The richness of the world will not reveal itself by a single means of inquiry. Not only are many questions required, but they must be posed and explored in different ways, each one of which illuminates the world from another direction, inner as well as outer.

Expanding our ontology and enriching our epistemologies in the ways I have indicated is, in my view, a requirement for any future philosophy of education that will give us the integrative education our students and our world sorely need.

Let us return to and dwell a little longer on the illusive human capacity of imagination so central to a vital and genuine university. Ralph Waldo Emerson described imagination as profoundly participatory: a knowing by becoming. “Imagination,” he wrote, “is a very high sort of seeing, which does not come by study, but by the intellect being where and what it sees.”¹⁵ The intellect of the inquiring individual shifts the locus of its activity from itself into the other. Through imagination, the mind finds a way of living for a time beyond itself, becoming “where and what it sees.” As Palmer has already mentioned, Evelyn Fox Keller characterized biologist Barbara McClintock’s method as “learning by identification” so that the object she was studying (maize) became a subject.¹⁶

The epistemology of imagination rejects objectification and distancing and instead practices what we might term subjectification and intimacy. This is McClintock’s “intimacy that does not annihilate difference.” It is a patient, contemplative method that seeks “to hear what the material has to say to you,” and through which one achieves “a feeling for the organism.” In an address to young Harvard biology students, McClintock urged them to “take the time and look,” but as her biographer Keller rightly

commented, today “the pace of research seems to preclude such a contemplative stance.” Yet it is precisely this contemplative stance that is essential to an integrative and imaginative education within our contemporary culture of teaching and learning.

For these reasons I view the practice of *contemplative inquiry* as an essential modality of study complementary to the dominant analytic methods now practiced in every field.¹⁷ I see contemplative inquiry as the expression of *an epistemology of love* that is the trueheart of

higher education. *Epistemology* means “theory of knowledge,” or how we know what we know. At first, love seems to have little to do with knowledge and our understanding of how it works, but if we set aside romantic love for the moment, is it not true that we come to know best that which we love most? To make this method clearer, I will distinguish seven stages in the epistemology of love.

The first stage is respect. We cannot take the ethical orientation of research for granted. We should consciously adopt a positive ethical orientation toward our object of study. What is the quality and character of our interest in what lies before us? Do we respect the integrity of the other, be it a poem, a plant, or a patient? In his *Letters to a Young Poet*, Rilke suggested that the highest we can offer another is to “stand guard over their solitude.”¹⁸ When we truly respect the integrity of the other, we “border and protect” them, Rilke suggested, even while we seek to know them more completely.

The second stage is gentleness. In his own scientific investigations, the poet Goethe, like McClintock, sought to practice what he called a “gentle empiricism [*zarte Empirie*].”¹⁹ If we wish to approach the object of our attention without distorting it, then we must be gentle. By contrast, the empiricism of Francis Bacon spoke of extracting nature’s secrets under extreme conditions, of putting her to the rack. An epistemology of love rejects such methods.

The third stage is intimacy. Conventional science distances itself from nature and, to use Erwin Schroedinger’s term, *objectifies* nature.²⁰ Under this view, science disengages itself from phenomena for the sake of objectivity. Contemplative inquiry, by contrast, approaches the phenomenon delicately and respectfully, but it does nonetheless seek to become intimate with that to which it attends. We can still retain clarity and balanced judgment close-up, if we remember to exercise restraint

and gentleness. The new science makes clear the implications of such intimacy in its account of observation.

The fourth stage is vulnerability. In order to know, we must open ourselves to the other. In order to move with and be influenced by the other, we must be confident enough to be vulnerable, secure enough to open ourselves to the being and becoming of the unknown. A dominating arrogance will not serve. We must learn to be comfortable with not knowing, with ambiguity and uncertainty. Only from what may appear to be weakness and ignorance can the new arise.

The fifth stage is participation. Gentle and vulnerable intimacy leads to participation in the unfolding phenomenon before us. Outer characteristics invite us to go deeper. We move and feel with the natural phenomenon, text, painting, or person before us, living out of ourselves and into the other. Respectfully and delicately, we join with the other, while maintaining full awareness and clarity of mind. In other words, an epistemology of love is experientially centered in the other, not in ourselves, in Emerson’s language “the intellect being where and what it sees.” Our usual preoccupations, fears, and cravings work against authentic participation.

The sixth stage is transformation. The last two characteristics, participation and vulnerability, lead to a patterning of ourselves on the other. What was outside us is now internalized. Inwardly we assume the shape, dynamic, and meaning of the contemplated object. We are, in a word, transformed by experience in accord with the object of contemplation. The individual is developed, or we could say is sculpted, through the above practices.

The lineage of education as transformation dates back to at least as far as the Greeks. In his book *What Is Ancient Philosophy?* the French philosopher Pierre Hadot writes that for the

ancient philosopher, “the goal was to develop a *habitus*, or new capacity to judge or criticize, and to transform—that is, to change people’s way of living and seeing the world.”²¹ Simplicius asked, “What place shall the philosopher occupy in the city? That of a sculptor of men.” Or as Merleau-Ponty has put it, we need to relearn how to see the world.²² In an essay on science, Goethe gave voice to a potent pedagogical principle: “Every object well-contemplated opens a new organ of perception in us.”²³ Echoing Goethe’s view while commenting on McClintock, Evelyn Fox Keller remarks that “a motivated observer develops faculties that a casual spectator may never be aware of.”²⁴ The innate capacities for imaginative cognition that are everyone’s common inheritance are animated and developed through the patient practice of an epistemology of love.

The seventh stage is imaginative insight. The ultimate result of contemplative engagement as outlined here is, as Goethe might have called it, organ formation, which leads in turn to imaginative insight born of an intimate participation in the course of things. In Buddhist epistemology this has been called “direct perception”; among the Greeks it was called *episteme* and was contrasted to inferential reasoning. Knowing of this type is experienced as a kind of seeing, beholding, or direct apprehension, rather than as an intellectual reasoning to a logical conclusion.²⁵ It is the moment of creative insight which every scientist, scholar, and artist recognizes as the axis around which their work turns but which cannot be produced on demand. Simone Weil termed it “grace.”²⁶ In his journal Emerson conjoins artistic and scientific creativity by the illuminating remark, “Never did any science originate, but by a poetic perception.”²⁷

While insight is the guide of wise action, its accomplishment requires restraint. We must pause to reflect before speaking, quietly engage the issue inwardly before acting, open ourselves to not knowing before certainty arises, and so we live for a time in the question before the answer emerges.

Only under such conditions can the imagination work; recall Keats’s negative capability. In *East Coker* T. S. Eliot describes the need for open awareness without expectation: “Or when under ether, the mind is conscious but conscious of nothing—/ I said to my soul, be still, and wait without hope.” Poetry, indeed all art as well as all science, flows from such restraint.

In a paper written during her first year at Amherst College, Annie Handler struggled to hold the tension between knowing and loving that resolves itself in an epistemology of love. Already at eighteen Annie longed to learn, longed to embrace equally both the sciences and the arts. In her final paper for the first-year seminar “Eros and Insight,” she wrote:

This true nourishment of the mind and body is often mistaken with a false nourishment of material objects; however, when looking at Marguerite Porrete’s words “love Love and do as you will,” it is clear that the true nourishment of life and living is a love of knowledge—knowledge of the arts and sciences. No other nourishment is as capable of sustaining life as these two, for the fusion of knowledge and passion for the arts and sciences ultimately lead to a state of immortality, and as Diotima reveals [in Plato’s *Symposium*], reaching a state of immortality is a state for which all humans aspire.

Annie has worked as an intern in the National Institutes of Health for the last four summers doing research on Parkinson’s disease and the brain. And yet she refuses to isolate the science she does from the art she loves. In a recent e-mail to me, she wrote, “‘Eros and Insight’ has given me the greatest gift any science researcher could ask for—the perspective that allows me to simultaneously see the art in nature and the possibilities for incorporating that art into the research of science.”

So, we come full circle. What began in respectful wonder flows back as insightful and harmonious action in the world and human society. Modestly, we recognize that our knowledge is a reflection of our means of inquiry and the context of our question, and we realize that by attentively circling our subject we enrich our understanding. Traditionally distinct disciplines begin to interweave. Confronted by the problems of the environment, we weave together the insights of science, economics, politics, communication, and even the arts. Each contributes to the fullness of our understanding and the pragmatics of action. Expanding our ontology and enriching our epistemologies in the ways I have indicated is, in my view, a requirement for any future philosophy of education that will give us the integrative education our students and our world sorely need.

Awakening Compassion

As Parker Palmer rightly observed, the final crucial stone in the infrastructure of integrative education derives from the principle, “Every epistemology, or way of knowing, as implemented in a pedagogy, or way of teaching and learning, tends to become an ethic, or way of living.” We believe that ethical thinking and action are supported by integrative teaching and learning. Compassionate action is fostered in students when they learn not only with the intellect but also with the heart. As I have attempted to show, an epistemology of love bridges the divide between intellect and feelings, between objectivity and participation. Once knowing activates our feelings, we are moved to action. We move from being a bystander to being a neighbor or friend. Our intimate understanding of others and their needs prompts compassionate action.

We find an instance of exactly this in the program initiated by Judy Goodell and Joan Avis from the University of San Francisco. They note that like so many other universities with noble mission statements, “the motto of USF is ‘educating hearts and minds to change the world.’ ” Putting these fine words into action, Goodell, Avis, and

their students started an educational initiative in the Mayan town of Tekit in the Yucatán which sought to support the education of Mayan youth through high school. As they describe it,

The program was designed to meet the educational needs and development of the whole person. We believed from the outset that education of the mind, heart, and spirit must unfold concurrently for meaningful change to occur. Yet even we were amazed at what began to take shape as teachers and learners opened themselves to deep engagement in the circles of each other’s lives.

Through their description of the project, one senses the pedagogical power that helping others brings with it. Words like *meaning*, *values*, and *purpose* lose their abstract philosophical ring when we are aiding others. The capacities we have cultivated are finally put to real, ethical use, and we are motivated to learn more and become more human for the sake of others. Such engagement is one of mutual benefit; an ethical action, rightly taken, invites a reciprocal generosity that can appear in unexpected ways. Integrative education embodies the principle of reciprocity. In the words of Goodell and Avis,

Delivering an integrative educational program in a different culture requires a willingness to participate in community ritual events and story making; it is with curiosity, joy, and gratitude that we have done so. It is part of the rich legacy of our own learning. Integrative participatory education is reciprocal. When one heart, mind, and spirit connects to another, both become teacher and learner, and both are changed.

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Arthur Zajonc is professor of physics at Amherst College, where he teaches physics and the history of science. His research interests include laser spectroscopy and atomic physics. He is the author of several books such as *Catching the Light*. For many years he chaired the Anthroposophical Society in North America. He has worked extensively with the Dalai Lama and was instrumental, together with his wife Heide, in starting the Hartsbrook School, a Waldorf school near Amherst, MA.

Review of *The Age of Wonder* by Richard Holmes

by Dorit Winter

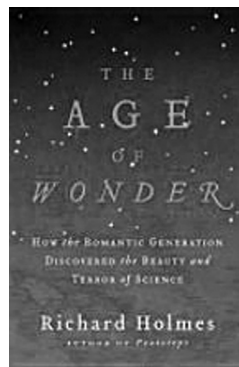
Richard Holmes has written a book that can serve Waldorf teachers as a model for scintillating biography. From it we can learn how to integrate the life of the character into the context of his time, how to find the telling detail, how to stitch the research into a seamless whole, and, perhaps most enviably, how to weave the lives of the characters into a fabric that gives rise to the signature pattern of an age. But then, Richard Holmes is a much-lauded biographer. He has taken biography and biographical research to a whole new level. For although his research is academically impeccable, what interests him as biographer is the possibility of making the life of the subject experiential for the reader. Holmes relies on word-picture and story, and he relishes the function of imagination in bringing his subjects to life. He would have made a terrific class teacher.

So, for the Waldorf teacher, there is, first of all, the sheer exhilaration of marvelous story telling. There is also the story itself, which is the dawn of the era in which science and scientist were finally prized apart, surely a topic of compelling interest for any Waldorf teacher. It is the story of how the “scientific method,” i.e. reproducible results under laboratory conditions, became the radically new yardstick. For the early “scientists”—the word first emerges on page 450 of the story¹—involvement, passion, conviction, enthusiasm, and their own personal discernment were still the measure by

which they worked. Their biographies and their achievements are indistinguishable. Thus Holmes’s story provides a brilliantly detailed exposition of the final, dramatic, and inexorable moment before the modern mindset, epitomized by Darwin, took hold. Lastly, the story of the *Age of Wonder* allows the author, a prize-winning scholar of Romantic poetry, to explore the qualities, the nuanced implications of the imaginative leaps, the search

for Imaginative Truth, which the early scientists attempted. Holmes’s own poetic sensibility,² so firmly rooted in scholarship, has led his inquiries into the sources of imagination, whether among the poets or among the scientists, to the edge of spiritual science.

Holmes, who was born in 1945, wrote his first prize-winning biography, *Shelley: The Pursuit*,³ in 1974. But then, tellingly, he wrote *Footsteps, Adventures of a Romantic Biographer*, in which he literally tracks a number of writers and poets across the landscapes of Europe and Great Britain. The name Holmes has attached to these physical methods—his attempts to go where his subjects have been and to do what they have done—is “footstepping!” Holmes had tentatively begun footstepping in the late 1960s with inquiries into Stevenson, Mary Wollstonecraft and Chatterton. But it was in the writing of the Shelley biography that he adopted its principles in earnest and completely gave himself up to the book to the point of sleeping on an army camp bed “as if I were on a military campaign.”⁴



In *Footsteps*, Holmes writes a “biography of biography.” He is already watching himself as he treks through the physical and emotional landscapes of his subject. This consciousness soul awareness reaches a high point in his masterful two-volume biography of Coleridge,⁵ in which Holmes does justice to one of the most underrated thinkers of modern times.

It is a brilliant, evocative and extremely perceptive and discerning book, much more than a biography. It is a treatise on a power of observation comparable to Leonardo’s. What Coleridge actually noticed was life itself, life as in life force.

And Holmes, like Owen Barfield,⁶ recognizes this singular contribution. Holmes is, clearly, conscious of consciousness. After reading these two volumes about Coleridge, I wrote a piece about Coleridge’s Imagination. Yes, with a capital “I”.⁷ In that article I pointed out that Holmes is actually tracking the growth of Coleridge’s imagination into Imagination. And, while doing so, Holmes is watching his own consciousness as it accompanies the shift in Coleridge’s consciousness of consciousness. As the previously quoted review of *Age of Wonder* notes:

Holmes has written about how “empathy is the most powerful, the most necessary, and the most deceptive of all biographical emotions.” But for him, biography has always been a “personal adventure of exploration and pursuit,” and it is in this spirit that he has entered the world of 18th-century science.⁸

Indeed, it is the controversial “empathy” which makes Holmes’s biographies such masterpieces of Waldorf presentation. Needless to say, Holmes has as many pages as he wants, and a main lesson, or even a sequence of them, is time-bound, so Holmes can afford as many details and as much narrative as he wishes, whereas the teacher needs to be more concise. Nevertheless, the choice of Holmes’s details is exemplary, his choice always in the service of the bigger picture, in this case, nothing less than the era

in which science, as such, originated in the context of Romantic idealism. Again, it serves our purpose to quote Holmes:

But the generation I’ve written about genuinely wanted to explain their ideas to a larger audience. They don’t just publish papers, they give interviews and they give lectures. They also mixed with artists and thinkers and they talked together and argued and got excited about things. In so doing they junked the notion of the two cultures, and the work of these scientists fitted in remarkably well with my previous work on Romanticism.⁹

Because Holmes is so expertly rooted in the Romantic “artists and thinkers,” he effortlessly embeds the rise of science in contemporary culture. Holmes is keen to show us the biographical (we might say “karmic”) connections between the great poets, whom he knows so well, and the early men and women of the new science. Thus, allusions to the Romantic poets abound. Here are a couple:

Quoting Byron: The Night is also a religious concern; and even more so, when I viewed the Moon and Stars through Herschel’s telescope, and saw that they were worlds.¹⁰

Or on Keats’ celebrated sonnet “On First Looking into Chapman’s Homer,” in which the poet compares himself to the explorer, Cortez: Keats likens his own discovery of Homer’s poetry to the experience of the great astronomer and the great explorer finding new worlds. Physical vision—one might say scientific vision—brings about a metaphysical shift in the observer’s view of reality as a whole. The geography of the earth, or the structure of the solar system, are in an instant utterly changed, and forever. The explorer, the scientific observer, the literary reader, experience the Sublime: a moment of revelation into the idea of the unbounded, the infinite.¹¹

The subtitle of the book is *How the Romantic Generation Discovered the Beauty and Terror of Science*. A list of chapter titles will provide the main cast of characters. Possible main lesson topics for which these chapters could provide lively details are suggested in parentheses.

1. Joseph Banks in Paradise (7th grade explorers; 8th grade geography)
2. Herschel on the Moon (6th grade astronomy, 7th grade exploration/astronomy, 7th grade physics, 8th grade industrial revolution/invention)
3. Balloonists in Heaven (6th, 7th, or 8th grade geography/cartography, 7th or 8th grade chemistry)
4. Herschel Among the Stars (see 2) (also: high school 12th grade: philosophy or Transcendentalism)
5. Mungo Park in Africa (8th grade geography/cartography)
6. Davy on the Gas (7th or 8th grade chemistry, 8th grade biography)
7. Dr. Frankenstein and the Soul (8th grade short story but more likely high school literature)
8. Davy and the Lamp (6th grade geology, 7th or 8th grade chemistry)
9. Sorcerer and Apprentice (high school history of science)
10. Young Scientists (high school history of science)

The book in its entirety could profitably be taken up in high school, in the context of the study of biography as a literary form or as part of the Romantic Poetry block. It would make fine background reading for a study of the Transcendentalists. Chapters 8, 9, and 10 could inspire high school physics; chapters 6 and 8 would make fine background reading for high school chemistry, as would 9, which is principally about Faraday. Because the book goes into considerable detail about the construction and invention of apparati (William Herschel's forty-foot reflector telescope and the "Davy Lamp" stand out) as part of the achievement of the inventors, *The Age*

of Wonder is a must have for any background reading to the history of science. There is so much excitement in these descriptions, any teacher would have to get enthused.

Although their names don't appear in the list of chapter titles, several women, in particular William Herschel's younger sister Caroline, are finely portrayed. Holmes has a knack for bringing all the characters to life, but his "empathy" for Caroline's position provides us with a previously unsung heroine and a very dramatic story. Mary Shelley is also given her due as a writer of great prescience. Her *Frankenstein* is raised from cliché to literary and contemporary cultural achievement.

The book is written by a born writer, with a writer's gift for framing the thought or the picture in captivating prose. Not for nothing has Holmes been recognized by many prestigious prizes.¹² But it is grounded in thorough scholarship, and the Cast List, Bibliography, and References at the end of the book are useful.

It would be a grave act of omission on my part were I not to point out the obvious, namely, that *The Age of Wonder* is a cornucopia of stories tailor-made for the 7th grade main lesson on Wish, Wonder and Surprise. Or, as I point out in my "little green book,"¹³ *Wonder, Wish and Surprise*, better called simply Language Arts or Creative Writing. Wonder, as the threshold between the subjective and the objective, is exactly what "The Art and Science of Teaching Composition" is about. It brings many anthroposophical concepts to bear on that threshold between subjective and objective, where the 7th grader is so casually teetering. In his introduction, which begins with the magnetic words, "In my first chemistry class, at the age of fourteen, I successfully precipitated a single crystal of mineral salts,"¹⁴ Holmes sums it all up: "Romanticism as a cultural force is generally regarded as intensely hostile to science, its ideal of subjectivity eternally opposed to that of scientific objectivity. But I do not believe this was always the case, or that the terms are so mutually exclusive. The notion of wonder seems to be something that once united them, and can still do so. In effect there

is Romantic science in the same sense that there is Romantic poetry, and often for the same enduring reasons.”¹⁵

A couple of Holmes’ examples can illustrate that unity.

The early astronauts [balloonists] suddenly saw the earth as a giant organism, mysteriously patterned and unfolding, like a living creature. (p.161)

It [Herschel’s paper, ‘Astronomical Observations relating to the Construction of the Heavens’] presented the universe as a living, growing, organic entity, with all nebulae belonging to one enormous extended family! Above all, Herschel’s studies of nebulae and the general ‘construction of the Heavens’ demonstrated how Copernicus’ rejection of an earth-centred universe had long been superseded by contemporary science. Not only a sun-centred galaxy, but even a cosmos centred on the Milky Way itself, had to be rejected. This implies an enormous psychological, even spiritual shift in outlook. (p. 205)

The final chapters of the book meticulously trace the evolution of consciousness of the premier scientist of his day, Humphrey Davy, who, after a brilliant career, ended his days in solitude and ill health. He kept journals. He wrote. And Holmes follows Davy’s mind as it begins to float out past the conventional barriers of sense-bound phenomena. This was the very threshold which Coleridge, as Holmes well knows, confronted, and so what Coleridge thought and what Humphrey thought are tracked in consort. Davy and Coleridge were friends (a story in itself, as Holmes makes clear). Davy was a poet as well as man of science; Coleridge, the great poet, felt himself to be, more and more, a man of science. Men of enormous intellect and highly individualistic modes of thought, they each found their way to a similar,

and eventually disparaged, position in the great Vitalism debate which ushered in the starkly materialistic view of life in which we find ourselves today. “Was the eel nature’s voltaic battery, and did it hold a clue to Vitalism?—a question which would come to haunt Davy.” (p.356) “Coleridge’s position remained that the ‘life principle’ certainly did exist, but had nothing to do with physiology.” (p.322) It was not “mechanistic.” Says Holmes of Coleridge: “He felt that the new poetry and the new science were so closely entwined that they must somehow merge!” p.274) While of Davy Holmes reports:

Davy also referred frequently in his later lectures to comparisons between the poetic and the scientific imagination. In 1807 he wrote in terms that would be echoed both by Coleridge and by Keats: “The perception of truth is almost as simple a feeling as the perception of beauty; and the genius of Newton, of Shakespeare, of Michael Angelo, and of Handel are not very remote in character from each other. Imagination, as well as the reason, is necessary to perfection in the philosophic mind. A rapidity of combination, a power of perceiving analogies and of comparing them by facts, is the creative source of discovery.” (p.276)

Isn’t this a fine rendering of two of the tenets of Waldorf pedagogy, namely, to perceive through analogy and to clothe science in beauty?

Holmes, with his exquisite two-volume biography of Coleridge, his poetic sensibility, and his thrill at the rise of science through such men as Davy, a genius of early chemistry, appreciates the resonances, we might say, the karma between the two:

Davy’s notebooks for this period also suggest a new pattern of philosophical speculation, almost approaching German *Naturphilosophie*. Some of his observations would have been recognized by Coleridge:

“The aspirations for immortality are movements of the mind similar to those which a bird makes with its wings before they are furnished with feathers.” (p.357)

As I was reading the book, it seemed to me that there were many instances in which this understanding of the oneness of art and science was Holmes’s subtext, his message. What makes his message so remarkable is the scholarship by which he arrives at it. Like two of his subjects, Davy and Coleridge, Holmes himself is applying a quality of living thinking to his material. His scholarship is enlivened by Imagination, or something close to it, and that is what makes this book (like all of Holmes’s biographical studies) so potent. The early scientists, whose efforts pre-dated the term “scientist,” still saw the universe as One. They still could relate to “The Cosmos as Artist.”¹⁶ For them, “cosmos as artist” meant “cosmos as scientist.” This awareness still fueled the “great Vitalism debate” with which the *Age of Wonder* ends.

Resources

1. “For the Romantic scientists, with a robust belief in the ‘argument by Design,’ there was no immediate contradiction between religion and science: rather the opposite.” Richard Holmes, *The Age of Wonder* (New York: Random House, 2008; New York: Vintage Books, 2010), p. 450.
2. His first publication was a book of poetry, *One for Sorrow*, 1970.
3. Somerset Maugham Prize.
4. This article appeared on p.12 of the review section of the *Guardian* on Saturday, September 27, 2008. It was published on guardian.co.uk on Saturday, September 17, 2008.
5. Samuel Taylor Coleridge, *Early Visions*, Penguin Books, 1989; Coleridge, *Darker Reflections*, Harper Collins, 1998.
6. Owen Barfield, *What Coleridge Thought* (Middletown, CT: Wesleyan University Press, 1971).
7. Dorit Winter, “Glimmers of Truth,” *The Golden Blade*, 2000 (Forest Row, England, 1999).
8. See endnote #4.
9. Ibid.
10. *Age of Wonder*, p. 205.
11. *Age of Wonder*, p. 207.
12. Holmes’s major works of Romantic biography include: *Shelley: The Pursuit*, which won him the Somerset Maugham Award in 1974; *Coleridge: Early Visions*, which won him the 1989 Whitbread Book of the Year Prize (now the Costa Book Awards); *Coleridge: Darker Reflections*, the second and final volume of his Coleridge biography which won the Duff Cooper Prize and the Heinemann Award; and *Dr. Johnson and Mr. Savage*, concerning the friendship between eighteenth-century British literary figures Samuel Johnson and Richard Savage, which won the James Tait Black Prize. In 1992 he was awarded the Order of the British Empire (*Wikipedia*).
13. Dorit Winter, *The Art and Science of Teaching Composition* (Fair Oaks, CA: AWSNA, 1998).
14. *Age of Wonder*, xv.
15. *Age of Wonder*, xvi.
16. Rudolf Steiner, *Man as Symphony of the Creative Word*, CW 230 (London: Rudolf Steiner Press, 1970). See especially Lecture 1.

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Reports from Current Projects of the Research Institute

Report on Teaching Sensible Science

by Lylli Anthon

This past February marked the beginning of the fourth round of the “Teaching Sensible Science” course. For a week starting on February 18, the Chicago Waldorf School hosted the first of three one-week intensives to explore the richness of the Grades 6–8 Waldorf science curriculum. This course also strives to give teachers a living relationship to the sciences, as its task in this present age of consciousness is to help individuals connect to the world.

The February session—the largest ever cycle of this course—was filled to the brim with 27 earnest participants, mostly from the Midwestern states, but also from schools as far away as San Francisco, New York, and three in Canada. The members of the group were class teachers ranging from Grade 3 to Grade 8, several with many years of experience.

Michael D’Aleo, an engineer and high school science teacher at the Waldorf School of Saratoga Springs, along with the Research Institute, organized this course with the help of the Chicago Waldorf School and a grant secured by AWSNA from the Waldorf Educational Foundation.

Michael took the group through a process which, in the way it presents the sciences and awakens our senses, allows us to know the world directly through our own experience. Habitual thinking can hamper this wakefulness, partly because the Latinization of our language prompts its structure to do our thinking for us. Noun-like qualities have consequently adhered to activities such as visual, acoustic, thermal and other phenomena, removing the possibility of our building a relationship between ourselves and the world we live in. We need to recover a sense-based science that places us within our experiences and builds a

connection between the outer world and ourselves. Becoming more conscious of our own process of perception reconnects us to our environment.

If in our mind’s eye we track the child back to a time before its birth, we experience the child coming from wholeness and gradually awakening to its separateness from the surrounding world. The child slowly becomes aware “I am I.” Being born into the world and becoming self-aware are necessary for the unfolding of what Rudolf Steiner called the consciousness soul. We become aware of the outer and the inner, object and subject—indeed, all aspects of the world that have become separated. Our task in this age is to make them whole again.

This new way of thinking asks us to take the wakefulness we have in the outer world and bring it into ourselves, making our awakened being resonate with what is around us. At that moment we become one with the outer world—we resonate with it in the rhythmic part of our being. What happens within and without thus become resonating harmonics and we are now fully awake and conscious. We become objects to ourselves in the way Steiner described this process to workers at the Goetheanum in a lecture reprinted in Otto Palmer’s helpful guide, *Rudolf Steiner on His Book The Philosophy of Freedom*.

The opportunity exists to be fully present in this world, and so doing we can overcome feelings of alienation and separateness. Instead we can reconnect with that same world of wholeness, a world of ideas from which we emerged at birth. In the words of the poet David Whyte, “Put down the weight of your aloneness and ease into the conversation.”

The lessons in the science classes are approached in this way: The whole is separated and then through the process described above made whole again. It is not the thoughts that are enlivened by these methods, but the activity of thinking itself.

The development of demonstrations and experiments is like the development of new thinking—we take in an impression of the world, we still ourselves inwardly so that it can resonate as a feeling, and then we take the final step of finding a relationship to it or an affirmation of the whole that is truthful beyond our own selves.

Michael led the course with the help of Gary Banks—an engineer, class teacher and high school science teacher—and Lylli Anthon, a long-time class teacher. Barbara Richardson, a seasoned eurythmist and coordinator of Foundation Studies at the Center for Anthroposophy, took us through exercises in eurythmy as a way of supporting our work and exploring the nature of experience and collaboration. Our mornings were filled with epistemological discussions facilitated by Michael, followed by eurythmy exercises with Barbara. In the afternoons with Gary and Lylli we explored the experiments that form the heart of the physics curriculum. Contributions to the chemistry curriculum were offered in several evening sessions with Gary.

The first step in this approach to science is to facilitate the student's connection to phenomena in the natural world, while holding back the idea or concept we intend the students to grasp. This experience leaves them with questions. We then provide the students with the opportunity to describe what they saw and then to find relationships among the phenomena that could be truthful for others, or relationships that are truthful beyond their own individual experiences.

On our first morning together we were each asked to plunge our hand, up past our wrist, into a bag of ice cubes and then leave it there for two minutes. We later began to share the sensations we felt and any personal experiences we had as our

hands remained in the ice. After much discussion we tried to describe the relationship of our hands to the icy medium which was common to all, relationships transcending our own personal ones. We were all able to experience that coldness invaded us as our warm hand became cooler. The changing sensation was the basis of the experience. We spoke at length about living in the sensation and avoiding words like “heat” and “cold,” nouns that speak of these sensations as things. We tried to live into the activity and sense it as a change and not as a “thing” that had noun-like attributes.

The beginning, middle, and end must all be related as elements of an entire movement. If the perception is preceded by the feeling or thinking, then the whole movement dissolves into disharmony. If the perception is not broad enough, then the feeling and thinking has no possibility of experiencing the fullness of this movement. (Michael D'Aleo)

Thus we all strengthened our understanding of why in the science lessons we must strive not to be merely teaching a concept of the physical world to the students, but to aid them in discovering essential aspects of being human. We are helping the students connect to the world.

We also spoke at length about how to present the lessons so the class is able to live into the experience of the phenomena. To achieve this it is important for teachers to perform the experiment for themselves before doing it with their students. When it then comes to the lesson, the less said the better. No introduction of the phenomena should be given beyond creating the conditions for observation—watching, listening, and inner stillness—so that the students are able to figure out as much as possible for themselves. A teacher's warm interest in the phenomena creates a further condition for mindful observation by the students.

During the afternoons we had lots of practice in how to best review the experiments from the previous day. The nightly sleep is an important

element in the cycle of discovery, as is the verbal re-creation of what was done the day before. The review needs to be kept alive as a will activity, so that it becomes a dynamic social element for the class. Michael asked us to craft our lessons in such a way that the students develop inner relationships to the phenomena extending beyond the conditions we have described in each experiment. There was much discussion about the wording used to sum up the experiments, such as relationship,

concept, or conclusion. It is our responsibility not to fix concepts, but to plant the seeds for the new thinking.

After one very full week we adjourned—some to stay on for the AWSNA regional teachers conference in Chicago, with Michael as the keynote speaker, others to return home. All were left with a feeling of anticipation for our next session coming up in June—a feeling, as David Whyte puts it, that “everything is waiting for you.”

Report on the Online Waldorf Library

by Marianne Alsop

The Online Waldorf Library continues to help facilitate research and answer questions on a wide variety of topics. During the past few months teachers, teacher education students, and parents of children in Waldorf schools in South Africa, the UK, Sweden, China, Pakistan, Italy, Argentina, Mexico, and North America have frequented the OWL site for research and reading materials.

Recent topics of interest include: nutrition, plays for the lower grades, the twelve senses, the handwork curriculum, teaching geometry, transition time verses and poems for use in nursery and preschool, the science curriculum, adapting fairy tales to public school programs, and home schooling resources and questions. Interest in our website has grown steadily since its creation in 2001 and we now welcome over 1,000 visitors weekly.

The area of our website that draws the most visitors is the Online eBooks, which are available to anyone who has Adobe Reader X (a new and important free upgrade) installed on their computer. There are now over 70 eBooks available including these new additions:

- *Rudolf Steiner's Observations on Adolescence* edited by David Mitchell and Christopher Clouder
- *Adventures in Parenting* by Rachel Ross
- *Developing the Observing Eye* by Cynthia Murphy-Lang
- *Genesis of Waldorf High School* edited by Douglas Gerwin
- *Modelar (Modeling)* by Arthur Auer, translated into Spanish
- *Plays for Puppets and Marionettes* collected by Bronja Zahlingen

as well as several others.

To find our eBooks, go to the Focus Search page and click on Online Book under Resource Type.

Recent additions to our Journals page include *Waldorf Journal Project #17* edited by David Mitchell entitled "From Images to Thinking," and also *Waldorf Science Newsletter* Volume 17, number 27. The OWL features all the back issues of *Gateways*, the journal of the Waldorf Early Childhood Association. Issue #59, Fall/Winter 2010 is now available online as well as all issues dating back to 1995. All back issues of the *Research Bulletin* may also be accessed. Direct links to *Lilipoh*, *In Context*, *Net Future*, and other journals are all on the Journals page.

The Online Waldorf Library invites your questions and comments and appreciates your interest and support!

Visit

www.waldorflibrary.org

Indices: Waldorf Journal Projects #1–17

Waldorf Journal Projects

Purpose: The Waldorf Journal Projects is a joint initiative of the Waldorf Curriculum Fund and AWSNA Publications. The goal is to find untranslated articles from abroad and make them available to a worldwide, English-speaking audience. Two editions are prepared each year. The articles are selected, translated, edited, and posted electronically with hard copy available from AWSNA Publications. They are drawn from but not limited to journals in Norway (*Steinerskolen, Libre*), Sweden (*På Skole, ROSE, Karlstad University Press*), Germany (*Erziehungskunst, Flensburger Heft, Freunde Newsletter*), Switzerland (*Journal of the Pedagogical Section at the Goethanum*), Great Britain (assorted publications including *New View* and *The Golden Blade*), South Africa (*The Beating Drum*), New Zealand/Australia (*Journal for Waldorf/Rudolf Steiner Education*), and Brazil. David Mitchell from AWSNA is in charge of selecting, editing, and printing each edition.

Waldorf Journal Project #1

as published in the book

The Dynamic Heart and Circulation by Craig Holdrege

The Heart: A Pulsing and Perceptive Center

by Craig Holdrege

The Polarity of Center and Periphery in the

Circulatory System by Heinrich Brettschneider

The Physiology of Circulation: A Reappraisal

by Hermann Lauböck

A Dynamic Morphology of the Cardiovascular

System by Wolfgang Schad

Patterns in the Evolution of the Heart and

Circulatory System by Christianne Liesche

The Embryonic Development of the

Cardiovascular System by Matthias Wörnle

Waldorf Journal Project #2

Children and Pedagogical Issues

The Making of a Teacher by Henry Barnes

Child Development – Conception to Birth:

Embryology from an Anthroposophical

Perspective by Bruno Callegaro, M.D.

Early Childhood Today: Wish and Reality

by Walter Riethmüller

The Kindergarten Child by Peter Lang

Creating a Meadow for Childhood: Education

for a New Millennium

What Do Young Children Need Today?

by Sally Schweizer

Psychology and Early Years Learning: Affirming

the Wisdom of Waldorf by Richard House

Children's Questions by A. C. Harwood

Non-Verbal Education: A Necessity in the

Developmental Stages by Michaela Glöckler

Child Observation and Study by Michaela

Glöckler, M.D.

Some Aspects of Child Study Work in Faculty Meetings: Points for Observation in Child Study by Magda Lissau
 Overview of Childhood Characteristics by David Mitchell
 Encountering the Individuality of a Child by Walter Riethmüller
 Tell Me a Story: The Narrative of Active Learning by Martyn Rawson
 Sleep as a Task of Waldorf Education by Peter Loebell
 The Effect of Lunar Nodes on Human Biography: Our Hidden Plan by Susanne Donato
 The Adolescent Years by L. Francis Edmunds

Waldorf Journal Project #3

Challenges on the Path to Child Development

Life's Anxieties – Life's Opportunities: Anxiety and Its Importance to Inner Development
 Two Essays by Pietro Archiati and Felicitas Vogt
 Sleep Disturbances and Healthy Sleep by Christa-Johanna Bub-Jachens
 Nutrition: Modern Food: Is It Really Future-Oriented? by Petra Kähne
 Food and Nutrition: What Nourishes Our Children? by Petra Kähne
 The Feet Reveal the Human Will by Norbert Glas
 Hearing: Door to the Soul and Spirit around Us, with a Look at Technological Media by Heinz Buddemeier
 The Unfolding of Sexuality by Mathias Wais
 Puberty and Its Crisis: Educational Help in Overcoming Difficulties by Dr. Johannes Bockemühl
 Drug Addiction: The Wake-up Call of Our Times by Felicitas Vogt
 Education Seen as a Problem Involving the Training of Teachers by Rudolf Steiner

Waldorf Journal Project #4

Foundations for a Healthy Life

Play and the Life of Toddlers by Elk Blattman
 Play and Its Significance for Healthy Development by Rudolf Kischnick
 Does Life Have a Meaning? Destiny and Reincarnation by Walther Bühler

Overstimulation – “I Have No Time” by Walther Bühler, Alfred Schütze, and Rudolf Treichler
 The Restless Child – Advice for Parents and Teachers by Johannes Bockemühl
 Sugar – the Sweet Addiction by Otto Wolff
 Sunlight and Our Exposure to It by Lueder Jachens
 The Healing Power of Lively Thought by Walther Bühler
 The Healing Power of Prayer by Hans-Werner Schroeder
 The Emergence of Development in Goethe's Sense of Time by Frank Teichmann
 Osiris and Isis by Jørgen Smit
Osiris and Isis, a Play by Jørgen Smit

Waldorf Journal Project #5

Evaluation, Homework, and Teacher Support

The Quest for Wholeness in the Waldorf Curriculum by Erhard Fücke
 What Wants to Emerge? by Claus-Peter Röh
 Evaluating, Judging, Testing, and Learning by Robert Thomas
 The Role of Evaluation and Examinations within Waldorf Education within Different Age Groups by Martyn Rawson
 Endings or Openings? Graduating or Launching? by Rüdiger Iwan
 Learning Autonomously, Disinterest Instead of a Thirst for Knowledge by Thomas Jachmann
 How Meaningful Is Homework? by Telse Kardel
 When Is Homework Necessary? by Walter Kraul
 Homework – Obligation or Free Task by Dietrich Wessel
 The Art of Conversation: Speaking, and Silence by Heinz Zimmermann
 Saint Michael in the Midst of Everyday Life: an interview with Gudrun Koller by Thomas Stockli
 Angels and Star Children: An Excursion to Their Workshop by Thomas Stockli
 Examples of Children's Tapestries by Gudrun Koller

Waldorf Journal Project #6

Shaping One's Life and Forming the World

Social Conflict and the Sub-Natural Forces by Friedrich Glas
 Craft and Morality by Dr. Thomas Weihs
 Empathy by Dr. Thomas Weihs
 Youth Guidance and Empathy by Anke Weihs

Organology and Physiology of Learning Aspects of an Educational Theory of the Body by Wolfgang Schad
Thoughts on the Idea of Evolution compiled by Arthur Auer
Three Kinds of Milk: A Tale from the Swiss Alps by Conrad Englert-Faye
Waldorf Education in South Africa by James Pewtherer
A South African Elegy by Magarethe Mehren
Encouragement for Sculpture by Peter A. Wolf
Memories of a Former Waldorf Student by Magarethe Mehren
Section from Memories of a Former Waldorf Student in Germany by Magarethe Mehren

Waldorf Journal Project #7

Musings from Norway

The Path through Life by Karl Brodersen
Time: Rudolf Steiner's Contribution to a Modern Mythology by Jacob Qualburg
The Michaelic Human Being: an Interview with Sven Øle Lorentson
The Playful Human Being by David L. Brierly
Six – An Important Year by Astrid Sunt
Reality and Joy in the School Garden by Linda Jolly
What's Inside Here? Some Thoughts about Children and the Inner Nature of Wood by Lars Wegge
About Seeing with the Heart by Arne Ågaard
The Role of Old Age in the Course of One's Life by Karl Brodersen
The Development of the Human Being through the Great Cultural Epochs by Conrad Englert-Faye

Waldorf Journal Project #8

Teaching History Through the Grades

A Phenomenological Approach to the Subject of History by Oddvar Granly
Fairy Tales and Legends by Jens Bjørneboe
Through the Golden Forest by Leif Wårenskjold
Francis of Assisi by Dan Lindholm
What about the Old Testament? by Dan Lindholm
Moses by Karl Brodersen
Sparta and Athens by Jørgen Smit
The Romans by Christian Faye Smit

Jeanne d'Arc, an Enigmatic Figure in the Middle Ages by Jørgen Borgen
I and the Others, Strengthening a Seventh Grader's Relationship to the World through History and Geography by David Brierley
Modern History in Light of the Renaissance and the Industrial Revolution by Svein Bohn
The Ninth Grade and the French Revolution by Hans-Jørgen Hoinaes
The Minute Man, An Aphorism of the True American Spirit by Wolfgang Schuster, M.D.

Waldorf Journal Project #9

Teaching Science Through the Grades

A Study of the Element "Water" by Christian Faye Smit
Water as the Medium for Life by Jørgen Smit
Goethe's Theory of Color by Tørrger Holtsmark
Zoology and Mythology by Jens Bjørneboe
Chemistry in Grades Seven to Nine by Jan Haakonson
Astronomy: The Forgotten School Subject by Sven Bohn
The Starry Heavens and Our Self by Jørgen Smit
Teaching Biology in a Human Context by Graham Kennish
Aesthetic Knowledge at a Source for the Main Lesson by Peter Gутtenhöfer
Adolescents – Their Relationship to the Night and the Senses in Connection with Their Own Development by Peter Glasby
Thoughts on Information and Communication Technology by Florian Oswald

Waldorf Journal Project #10

Morality and Ethics in Education #1

Education and the Moral Life by Rudolf Steiner
Education of the Will as the Wellspring of Morality by Michaela Glöckler
Human Development and the Forces of Morality: Aspects of an Anthropology of Moral Education by Ernst-Michael Kranich
Conscience and Morality by Karl Brodersen
The West and East in Us by Jørgen Smit
Reincarnation and Pedagogy by Valentin Wember
Moral Imagination by Oscar Borgman Hansen
The Christmas Mystery and the Knowledge of Evil by Dr. Hermann Poppelbaum
Evil and the Well-Intended by Oscar Borgman Hansen
Crafts and Morality by Dr. Thomas Weihs

Waldorf Journal Project #11

Morality and Ethics in Education #2

- Forces Leading to Health and Illness in Education
by Rudolf Steiner translated by René Querido
- Transformative Education and the Right to an Inviolable
Childhood by Christopher Clouder
- The Human Self by Karl Brodersen
- The Free and the Unfree Spirit by Edward Warren
- Recapitulation (Recall) in the High School Main Lessons
by Ken Power
- The Odyssey of Conscience* a book by Henning Andersen
reviewed by Oddvar Granly
- War and Peace and Moral Imagination by Oskar Borgman
Hansen
- The Power of Moral Education – Geography
by Christof Goepfer
- Ethics and the Perspective on Nature
by Oskar Borgman Hansen
- The Being of the Internet by Sergei Prokofieff

Waldorf Journal Project #12

Research into Childhood

- Rhythm and the Learning Process by Dirk Cysarz
- Novel Methods of Researching Learning
by G nter Haffelder
- The Advantage and Disadvantage of Brain Research for
Pedagogy by Christian Rittelmeyer
- The Symphony of Life: Importance, Interaction, and
Visualizing of Biological Rhythms by Maximilian Moser
- Observations on Neurological Development
compiled by David Mitchell
- Seven “Myths” about the Social Participation of Waldorf
Graduates by Wanda Ribeiro and Juan Pablo
de Jesus Pereira
- Study of Waldorf Graduates in Denmark by Troels Hansen

Waldorf Journal Project #13

Educating the Will

- Awakening the Spiritual Powers of the Head:
Educating the Will by Christof Wiechert
- Wake up Your Headspirit: At Eye Level by Tobias Richter
- Awaken the Spirit of the Head: Pyramids and Stars
by James Pewtherer
- Man’s Will Is His Kingdom of Heaven by Hartwig Schiller

- Artistic Activity – Individual Resonance – New Paths
by Claus-Peter R h
- Bringing the Will into Thinking in Adolescence
by Betty Staley
- Learning Is a Royal Path to Freedom by Hartwig Schiller
- Rhythm as a Source of Regeneration by Dirk Cysarz
- Art: Awakener of Consciousness, Humanizer for Society
by Van James
- The Push for Early Childhood Literacy: A View from
Europe by Christopher Clouder
- Childhood Falls Silent by Dr. Rainer Patzlaff
- Painting and the Child by Caroline von Heydebrand

Waldorf Journal Project #14

Darwin

- What Makes Human Beings Human? by J rgen Smit
- Darwin’s Incomplete Understanding of Death
by Wolfgang Schad
- Darwin Suffered from Darwinism by Wolfgang Schad
- What Is Goetheanism? by Trond Skaftnesmo
- Body Movements are Invisible Thinking
by Erik Marstrander
- The Hippopotamus and the Eagle by Trond Skaftnesmo
- Close Contact with the Earth: an Interview with Linda Jolly
by Eli Tronsmo
- Physics Lessons that Start with the Human Being
by Geir  yen
- The Power of Observation in Literature Lessons
by Tom Horn
- Insight into Human Nature/ Anthroposophy and Modern
Brain Research by Helge Godager
- Think Globally and Act Locally by Holger Bauman
- Music – An Endangered “Species” by Magne Skrede
- Performing Arts Versus Degrading Speech
by Magne Skrede
- From Crisis to Cooperation by Sylvia Fuehrer
- Productivity and Receptiveness – How Do We Work
Together on the School Organism?
by Karl-Martin Dietz

Waldorf Journal Project #15

The Deeds of Michael: A Collection of Tales and Legends

INTRODUCTION

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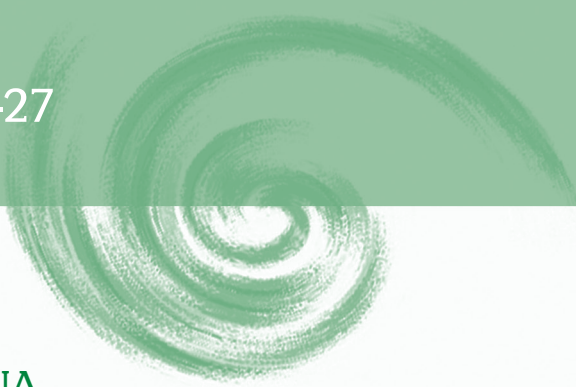
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AWSNA

Waldorf Science Newsletter

Index of Past Issues

Waldorf Science Newsletter edited by David Mitchell © AWSNA Publications

Purpose: This newsletter is published once each year and is dedicated to developing science teaching in the Waldorf schools. Teachers are invited to pose questions, seek resource material, discuss experiments, write about their classes (successful and not very successful), and investigate phenomena. The editor also translates relevant science articles from Waldorf periodicals from around the world. The following past editions are available from:

AWSNA Publications
458 Harold Meyers Rd
Earlton, NY 12058

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Volume 1, #1

Partial contents – Acoustics in Grade 6; Teaching about Alcohol in Grade 8 Chemistry; The Chemistry Curriculum: The Debate over Teacher Demonstration vs. Student Experimentation; Spiritual Aspects of 20th Century Science; Overview of the Waldorf Science Curriculum; Water; Characteristics of the Major Sugars; Goethe's Meditation on Granite; Book Reviews; Humor; Poetry; Conferences; and Sample Experiments

Volume 1, #2

Partial contents – The Characteristics of Drugs; Eratosthenes Revived; The Golden Number; Educational Guidelines for a Chemical Formula Language; The Properties of Acids and Bases; Walter Lebedörfer on Chemistry; Biology in the 11th Grade; What Is Home?; The Waldorf Environmental Curriculum; Environmental Education; Women in Science; Book Reviews; Humor; Poetry; Conferences; and Sample Experiments

Volume 2, #3

Partial contents – Grade 12 Physics – Von Mackensen; Biology Teaching in the 11th Grade; Euclid's Algorithm; The Logos and Goethean Observation; Nature Education; Aristotle's Taste Spectrum; Book Reviews; Humor; Poetry; Conferences; and Sample Experiments

Volume 2, #4

Partial contents – Current Research; Strange Theories; Science Education and Wonder; The Human Earth; Steiner's Counterspace Examined; The Cow; Language and the Book of Nature; Book Reviews; Humor; Poetry; Conferences; and Sample Experiment

Volume 3, #5

Partial contents – Book Reviews; First Lessons in Astronomy; Steps in the Development of Thinking (Power of Judgment); Computer Science and Computers in the Waldorf School; Technology; Computers in Education; Some Characteristics of the Computer; Computers and Consciousness; Experiments

Volume 3, #6

Partial contents – Space and Counter Space; New Eyes for Plants; Experiments of Academia dell Cement; Physics and Chemistry in the Grades; Goethean Science Credits; Chemistry Workshop; Table of Important Salts; Goethe's Scientific Imagination; To Infinity and Back in Class 11; π and Trigonometry; Science in the Waldorf Kindergarten; A Note on Pascal's Triangle; Experiments

Volume 4, #7

Partial contents – The Message of the Sphinx; Honey; Cell Cosmology; Einstein's Question; What Is Goethean Science?; Prototype Computer Program; River Watch as a Classroom Activity; Thoughts on Curriculum Standards; Comments on Building a Waldorf School; Experiments

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Volume 5, #9

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Volume 5, #10

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Volume 6, #11

Partial contents – A Chemistry of Process; Sponges and Sinks and Rags; How to Read Science; Experiences and Suggestions for Chemistry Teaching; Experimentation as an Art; Biographies – Dmitri Mendeleev, Joseph Priestley, Marie Curie; Destructive Distillation; Experiments

Volume 6, #12

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Partial contents – Waldorf High School Research Papers; Inside the Gulf of Maine; How Do Atomistic Models Act on the Understanding of Nature in the Young Person?; The House of Arithmetic; Origami Mathematics; Sixth Grade Acoustics; Sixth Grade Kaleidoscopes; Tricks with Mirrors; The Flour Mill and the Industrial Revolution; Web Gems; Understanding Parabolic Reflectors; The Capacitor; Oscillation and Waves; Crystal Radio; Qualifications for High School Mathematics Teaching

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Volume 10, #19

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Universe; Teaching Sensible Science; Mug on a Glass: An Optics Demonstration for Grade Seven; Chemistry Challenge for Grade Eight; On Being an Insect; Surveying and Mapping: An Attempt to Integrate New and Emerging Technologies into the Class 10 Curriculum

Volume 13, #23

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Volume 14, #24

Partial contents – Books of Interest; Robotics; A Seventh Grade Fresco Project; A Pinhole Camera Project for the Seventh Grade; Other Projects for Elementary Physics Classes; The Aurora Borealis; Phenomenological Science Equipment; The Karma of Calculus–Involving Isaac Newton and Gottfried Leibniz; Award Winning Photos of Nature and Animals; Humor

Volume 15, #25

Partial contents – Books of Interest; Doing Phenomenology in Science; The Western Screech Owl; Sea Turtles Use Earth's Magnetic Field to Navigate; The World's Biggest Bug; Tree Talk; The Phenomenology of Colored Shadows; Analemma; Photos from Hubble; Mechanics in 7th Grade Physics

Volume 16, #26

Partial contents – Books of Interest; Going through, Taking in, Considering: A Three-Phase Process of Learning as a Method of “Teaching in Main Lesson Blocks,” The Geometry of Life: Toward a Science of Form; Phenomenology: Husserl's Philosophy and Goethe's Approach to Science; First Approach to Mineralogy; Growing Salt Crystals; The Beauty of Slime Molds; An Interview with Daniel Pink; Mutualism between Elk and Magpies; Symbiotic Relationships

Volume 17, #27

Partial contents – Books of Interest; Points to Consider When Teaching Science; A Brief Overview of the Waldorf High School Mathematics Curriculum; Some Fun Facts of Physiology; The Imaginary in Geometry; Volcanism; Hydromonochord: Visualizing String Vibrations by Water Swirls; Return of the Sun after the Darkest Days; Experiments



About the Research Institute for Waldorf Education

The Research Institute for Waldorf Education is an initiative working on behalf of the Waldorf school movement. It receives support and guidance from the Pedagogical Section of the School of Spiritual Science and financial support through the Association of Waldorf Schools of North America (AWSNA), the Midwest Shared Gifting Group, the Waldorf Schools Fund, the Waldorf Curriculum Fund, and private donors through the Rudolf Steiner Foundation.

The Research Institute was founded in 1996 in order to deepen and enhance the quality of Waldorf education, to engage in serious and sustained dialogue with the wider educational-cultural community, and to support research that would serve educators in all types of schools in their work with children and adolescents.

The Research Institute has responded to the call for research as a top priority of the Waldorf school movement by becoming a supporting organization of AWSNA and by co-sponsoring research projects with the Association and with the Pedagogical Section.

We support research projects that deal with essential contemporary educational issues such as the role of play in early childhood, attention-related disorders, trends in adolescent development and innovations in the high school curriculum, survey of Waldorf graduates, learning expectations and assessment, computers in education, the role of art in education, and new ways to identify and address different learning styles. The Research Institute has sponsored colloquia and conferences that have brought together educators, psychologists, doctors, and social scientists. We have published a *Research Bulletin* twice a year for the last decade, and we are developing and distributing educational resources to help teachers in all aspects of their work.

We sponsor the Online Waldorf Library: www.waldorflibrary.org, whose mission is to make available contemporary writings on Waldorf education, and we host our own site: www.waldorfresearchinstitute.org, where up-to-date research is posted.

The Research Institute is a 501(c) (3) tax-exempt organization and gratefully accepts donations.

Summary of Activities Supported by the Research Institute

Projects

The following projects are in process or have been undertaken by the Research Institute:

Teaching Sensible Science Seminars
Sexual Education Grades 4–12
Survey of Waldorf Seniors
Waldorf High School Research Projects

Books and Papers

The following books and papers were printed by the Research Institute and are available from AWSNA Publications

- *Topics in Mathematics for the 11th Grade*
- *Tapping the Wellsprings of Health in Adolescence*
- *New Approaches to Teaching Grammar*
- *Developmental Signatures: Core Values and Practices in Waldorf Education for Children Ages 3–9*
- *Education, Teaching, and Practical Life* by Rudolf Steiner
- *Survey of Waldorf Graduates, Phase I*
- *Survey of Waldorf Graduates, Phase II*
- *Survey of Waldorf Graduates, Phase III*
- *Effects of High-Stakes Testing on Children*

Subject-Specific Colloquia, 2000–2010

Chemistry
Mathematics
Computer and Information Technology
English
United States History
Life Science and Environmental Studies
World History – Symptomatology
Physics

Proceedings for all of the above are available from AWSNA Publications at:

www.whywaldorfworks.org.

Resource Development

Online Waldorf Library, a website of resources for Waldorf education

Themes in Waldorf Education, compilation of Rudolf Steiner's indications on teaching language arts and mathematics
Education, Teaching, and Practical Life by Rudolf Steiner
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