

## **A Report on the 2014 Natural Science Section Annual Meeting**

### **“A Path To Understanding the Imponderable in Nature: Enlivening Our Understanding through Color”**

The 2014 Natural Science/Mathematics-Astronomy Section Meeting was held in Portland, Oregon from December 4<sup>th</sup> through 7<sup>th</sup> at the Studio of Jannebeth Röell and James Lee. A wonderful companionship was fostered as we daily sat around their table enjoying the delicious meals they had prepared in their home adjacent to the Studio—a capability they have gained through years of hosting local study groups. The conference furthered our continuing theme of “inner capacity building” toward a qualitative science, with a special focus this year on the practice of “feeling understanding” as spoken of in the collection of Steiner’s lectures on *Colour*.<sup>1</sup>

Johannes Kühl, Natural Science Section leader at the Goetheanum, opened our proceedings Thursday evening with a public gathering at the Cedarwood Waldorf School for a presentation based on his recent book, *Rainbows, Halos, Dawn and Dusk: the Atmospheric Colors and Goethe’s Color Theory* (Adonis Press). Along with gorgeous photos of rainbows, halos, glories, and coronas in the sky, he brought a suitcase full of diffraction gratings and other demonstration equipment in order for us to experience “that all subjects of optics are approachable via atmospheric color phenomena.” In the end, he brought everything from the archetype of dawn and dusk to the wave-particle duality of light into an overview of the whole in true Goethean fashion—re-weaving the rainbow, one might say. His closing image was of an intense halo complex around a sun low in the sky, appearing as if it were a central cross with two adjacent crosses on the Golgotha hill, indicative of the sacred feeling these atmospheric color phenomena engender.

Friday morning we began our sessions with Jannebeth in the Studio. She had been working intensively on the theme of color with a group in Portland for the past couple years. As an opportunity had arisen, we invited artists to join us in this conference, and several came from up and down the West Coast. This generated an impromptu inter-Sectional

collaboration which was delightful, thoughtful, and full of humor. Through presentations and exercises led by Jannebeth, conversations, painting, and wonderful skits on the qualities of color, we were able to begin to feel the more inner natures of color. Importantly, in our variety of activities we experienced “art” as a research tool.

Jannebeth began our first session showing us her beloved hand-bound copy of Willem Zeylmans van Emichoven’s doctoral dissertation, holding it up to her nose for that familiar 1960s’ photocopy smell. She acquired it when training as a nurse with Dr. Zyelmans’ son-in-law. Combining the quantitative and the qualitative, Dr. Zyelmans had measured the heartbeat of children exposed to different colors as they spoke of how they felt that the color affected them. Jannebeth next introduced us to her art school’s approach to color, characterized by one of her class exercises, an orderly, systematic (rather ‘scientific’) display of hues and values. We then dove into Steiner’s approaches in the *Colour* lectures.

Starting with prismatic color phenomena, we explored the color circle Steiner imagined as a bending of the linear Newtonian spectrum around to meet as magenta (*Colour*, p.38). Johannes pointed out that this resulting “Purpur” of Goethe’s spectrum is also called “Incarnat”—indicative of the baby’s changing complexion from the bluish hue shortly upon cutting the umbilical cord toward the living hue brought on by the first breaths.

After a break, we then turned to Steiner’s scheme of Image colors (*Colour*, p.27), which Jannebeth enhanced with further characterizations from other Steiner sources. This scheme engages questions of the continuous inter-relations of the physical (black), living (green), soul (magenta), and spirit (white).

In the afternoon, Jannebeth led us in a “shout out” on the qualities of how we are affected by Steiner’s particular Lustre colors (blue, yellow, red). After observing our impressions of bouquets of flowers that adorned the studio in either the Image or the Lustre color combinations, we turned to consider seven sheets of the separate Image and Lustre colors displayed in a row along the wall, in order to play a simple drama game. Each person was to reply to someone saying “So, I was right!”

with the reply “That remains to be seen,” but acting and speaking this reply in the particular mood of a given color. Discussion transitioned to harmonious, characteristic, and non-characteristic color combinations, as well as turbidity, brightness, and darkness phenomena, and related subjects.

Because Johannes had to leave for Dornach early the next day, we held our business meeting before dinner. Johannes brought us news of the Goetheanum and last year’s preparation for the upcoming *Evolving Science 2015* conference in Dornach at the end of September.<sup>ii</sup> He hopes to have more participants from the States attend this year. Johannes also informed us that Wolfgang Schad, turning 80 years old this year, had had a stroke a couple months ago. He was unable even to attend Andreas Suchanke’s funeral recently, though he lives only 10 minutes away. It should be noted here that, with funding assistance from the Anthroposophical Society in America, the Section is organizing an international, academic conference to follow the publication by Adonis Press of the English translation of the two-volume second edition of Schad’s *Man and Mammals* later this year.

Johannes freely held the Seventeenth Class Lesson that evening and we had our conversation on the Lesson and theme first thing Saturday morning. One very important comment was made in our final review, that it now could be understood how valuable it is to have a conference solely with those who have made a commitment to the School for Spiritual Science. The quality of our work had moments of working at this level. On the other hand, some wondered whether—excluding the Lesson itself—tactful treatment of Class material in our discussions might not be a fruitful avenue of introduction to the School and to Section work for others not yet members of the School who share our interests and concerns. This is an ongoing conversation.

We finished the morning with Jannebeth leading us in a painting exercise suggested by the “colour method” of artist, Beppe Assenza.<sup>iii</sup> In unpremeditated abstract patterns we were to juxtapose specific combinations of two Image and one Lustre color and to feel how the different combinations affected us.

After lunch, John Barnes led a discussion of imagination and methodology in qualitative science. We touched not only upon Goethe's sensory-moral nature of color, but considered how Goethean participation in phenomena in general puts the scientist in a personal stance, one might even say in a moral position, with regard to one's "subject." Such participatory methodologies can be a valuable complement to conventional, value-free "objective" science—reminiscent of E. F. Schumacher's distinction between "science of understanding" and "science of manipulation" in his book, *A Guide for the Perplexed*.

We did touch upon mainstream science as well. Our newly-discovered non-visual photoreceptor system was mentioned, by which "blue" wavelength light stimulates brain alertness and "orange-red" light allows sleepiness. These physiological effects upon our circadian rhythm, cognitive performance, and mood<sup>iv</sup> could perhaps be considered another aspect of Goethe's "sensory-moral effects" of color.

Then when the oft-repeated notion that the ancient Greeks, in speaking of the "wine red sea," could not see "blue" was brought to light, the vision scientist in attendance had to take umbrage at any bald-faced literal acceptance of such a statement. Our initial considerations about physiology, language, and the evolution of consciousness were taken up after the meeting in an email thread among the attendees, with reference to Arthur Zajonc's more nuanced treatment of this notion in his *Catching the Light*.<sup>v</sup> That thread will be uploaded to the Section website along with other study material.<sup>vi</sup>

Saturday evening we each gave presentations according to assignments Jannebeth had given us. We first read stories from a child's point of view incorporating all the Image and Lustre colors, which we had composed as homework overnight. Then we enjoyed some of the fruits of our work, sharing wonderfully creative characterizations of the colors by coming up with a variety of poetry, drama, music, eurythmy and mime. There were insightful works of impromptu artistic gifts as well as hoots and hilarity. Yet here again, more than solely to please the soul, art served as a modality of research as well.

Sunday morning we concluded, artists and scientists alike, with consideration of the nature of Section and inter-Section work, further discussion of Goethean and conventional methodology, and appreciation of the discipline of scientific practice as well as the value of artistic capacities. Marveling at the depths of our subject that yet remain unfathomed, we felt we had moved from awe the first evening with Johannes to awe at our creative artfulness the night before, all in the loving hospitality of James and Jannebeth's home and Studio.

"Art as a viable research tool" was a key theme of earlier meetings in Portland with Jannebeth, working to investigate the formative forces expressed in leaf and flower through drawing and other media. This theme has been a component of our approach ever since in other venues with others guiding our work, as for the past few annual meetings our subject has progressed from the physical to the etheric to the astral and to the human being last year.<sup>vii</sup> Now Jannebeth led us masterfully, once again, as a company of researchers in participatory exploration of our colorful, soulful world, aiming for that "feeling understanding" Steiner spoke of, which is brought to life and concrete experience by an artistic sensibility.

*Barry Lia, together with the planning committee: James Lee, Jannebeth Röell, Jennifer Greene, Andrew Linnell, and John Barnes.*

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<sup>i</sup> Page numbers to follow refer to the second edition of 1996 (reprinted 2008) of *Colour: Three lectures given in Dornach 6 to 8 May 1921 with nine supplementary lectures given on various occasions*, Rudolf Steiner Press.

<sup>ii</sup> <http://science.goetheanum.org/topics.6875.0.html?&L=1>

<sup>iii</sup> <http://lucianobalduino.it/method.html>

<sup>iv</sup> e.g., Chellappa et al. (2014) *Proceedings of the National Academy of Sciences* 111:6087-6091.

<sup>v</sup> Arthur Zajonc (1993) *Catching the Light: the entwined history of light and mind*, Bantam Press, pp. 13-18. [The phrase is also rendered "wine-dark sea."]

<sup>vi</sup> <http://www.naturalsciencesection.org/>

<sup>vii</sup> 2010, Chicago, "Building Capacities—a Study of the Spherical and Radial Principles in the Human and Animal Organisms with a focus on Horns and Antlers," with Michael Holdrege and Gary Banks; 2011, Water Research Institute, Blue Hill ME, "Experiencing Moving, Forming and Rhythm In Water Flow: An Approach to the Fluid Event of Water," with Jennifer Greene and David Auerbach; 2012, Chicago,

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“The Threefold Principle in the Human and Animal Organism with a focus on Recursion: Cultivating Metamorphic Thinking,” with Mark Riegner; 2013, The Nature Institute, Ghent NY, “The Supersensible within the Sensible: Experiencing the Inner Qualities of Animalness and Humanness,” with Craig and Henrike Holdrege.