

offering teachers a perfect opportunity to engage their students in an amazing experience of discovery and learning through colour.

The Teachers Conference will be held August 30 and 31, to give teachers an opportunity to explore the different aspects of the exhibition in depth, with expert guidance, and to experience in particular the natural symmetry, polarity and complementarity that can be discovered in colour.

The conference will be of special interest to all Waldorf teachers as well as to those specializing in Art and Science. It is a splendid example of the open scientific attitude which is a unique feature of the Waldorf Curriculum.

It is an opportunity to practice ways of thinking that retain a direct connection with our sensory experience, as is the original meaning of the word *aesthetic*. It will also provide a context to the central importance of Goethe in the pioneering phase of Rudolf Steiner's work.

We hope that colleagues and groups of colleagues will be able to come to this unique event. Concessions are available for groups and individuals. (Via the Steiner Schools Fellowship Website : <https://www.steinerwaldorf.org/steiner-teachers/professional-development>) We are hoping that schools support attendance of the event with their teacher training and professional development budgets.

Contact: For further details or to book a place please email ifg@rmlt.org.uk To find out more please visit the website www.experiencecolour.org

Steiner Forschungstage—Steiner Research Days 28th–30th September, 2018 at the Glasshouse, Stour- bridge.

Since 2005 a group of students and young academics have been meeting twice a year to discuss how to do research on Steiner in a way that has academic rigour on the one hand and an openness to the ideas of Steiner on the other. These gatherings have been primarily for presenting research projects relating to Steiner and discussing research methods. A common characteristic has been mutual interest for other people's research as well as openness for undogmatic and critical thinking. The next meeting will be held at the Glasshouse in Stourbridge. This meeting will coincide both with Michaelmas and the *experience COLOUR* exhibition, designed in Dornach by Matthias Rang and Nora Löbe. Therefore, although there will be a wide range of presentations, we will be focusing on the topic of colour and the transformation of our scientific worldview.

www.experiencecolour.org
www.steinerforschungstage.net

All are welcome. Entry is free.

To register or more information contact:

Troy Vine: drvine@gmail.com

Events at the Goetheanum, Switzerland 2018

There are the conferences and events planned by the Science Section throughout 2018, in both English and German.

For more details see

<http://www.forschungsinstitut.ch/en/conferences-colloquia/conferences-events/>

Projective Geometry in Brighton

A small group meets weekly in Brighton, currently on Mondays, to study projective geometry as an example of pure (i.e. sense-free) thinking and as a model for physical and living forces.

Please contact Paul Courtney on:

44 (0)1273 382789 (landline)

44(0)7903 961390 (mobile).

Email: paulr.courtney@live.com

Projective Geometry in Gloucester/Bristol area

We would like to start a regular group practicing projective geometry for teachers and others interested. Please contact Simon Charter to register interest.

(email. simon.charter@live.co.uk, tel. 01453 882114).

Grants

Science and Mathematics Group Funding: Call for Applications

We are pleased to announce that small grants are available to members of the Science and Mathematics Group. We can contribute to projects and travel costs (e.g. to conferences). Please contact the treasurer Simon Charter, with a brief proposal outline and a breakdown of costs.

simon.charter@live.co.uk, 01453 882114.

Publications

Review of “Anthroposophy and Science” by Peter Heuser

“Anthroposophy and Science” is a remarkable state-of-the-art milestone in exploring the relationship of natural science with spiritual science as originally represented by Rudolf Steiner (1861-1925). The book reflects the author's a high standard of scholarship and reviews the latest concepts in physics, chemistry, biology, genetics, medicine, neurobiology, psychology, philosophy of mind or cognitive science, anthropology and epistemology, all in their relationship to anthroposophy. To write an up to date overview of one of these fields is a significant task, but to provide a comprehensive overview of them all is a magnificent achievement of a very high order.

The reductionist materialistic world view not only characterises conventional natural science, but our current whole world culture and understanding. To penetrate this thinking and really explore alternatives I found exciting and even disturbing! I became aware of how deep this reductionist science sits in my own consciousness, in spite of 50 years study of anthroposophy.

The fundamental realisation expressed in Steiner's Philosophy of Freedom, is that world reality meets us through the combination of sense perception and thought. A modern philosopher Nagel points to the realisation that the world is intelligible and includes human beings with intelligence. (*Nagel, T. 2012 Mind and Cosmos. Why the Materialist Neo-Darwinian Conception of Nature is Almost Certainly False. Oxford University Press, Oxford.*) So intelligence has a double part in existence. The realisation that the universe is lawful and potentially understandable is implicit in ordinary science. So thought and the

laws of nature are part of the natural world. Thought itself is not a physical object. Steiner equates thought, intelligence and spirit. In which case we can say that spirit is the foundation of the material world and every layer of existence including the phenomena of life, sentient beings (animals) as well as human beings who think about the world.

As the starting point of knowledge (epistemology) is thought and perception, theories of sensory physiology or neuroscience have no primary role in epistemology, as they are themselves the products of thinking and sense perception. Neither can atomic theory be assumed to be a primary reality, (based on non-perceptible atoms) which often used in science as a basis for rejecting the prime reality of perception.

A fundamental and recurring theme of the book is the way Peter Heuser considers the various levels of complexity in the world. He points out that with higher levels of complexity new characteristics and lawfulness emerge which would not be predictable from the most complete knowledge of the characteristics of the constituent parts. Indeed many of the characteristics of the parts disappear or are “sublated” in the more complex structure. The simplest physical and chemical example is water H₂O a combination of hydrogen and oxygen. Detailed knowledge of hydrogen and oxygen he says would never lead to a prediction of the characteristics of water and the laws of hydrodynamics. So the qualities of water cannot be reduced to the qualities of its component parts in spite of the fact that without hydrogen and oxygen water could not exist.

At a more complex level proteins in living organisms although composed of a series of amino acids, have characteristics which cannot be extrapolated from knowledge of the amino acids and their sequence. For example their tertiary structure which is critical to their functioning as enzymes cannot be predicted from the amino acids and their sequence alone. So on the one hand, new properties emerge – the concept of *emergence* and on the other the properties of the components to a significant degree submerge or are *sublated* in the qualities of the new structure and its functioning.

Historically a Swiss Physician Troxler 1780-1866 (Beethoven’s physician) observed that behind the sense perceptible phenomena of life was a real but not directly perceptible something, behind feelings a real not directly perceptible soul (Seele) and behind human self-conscious thought a real not directly perceptible spirit (Geist). He attempted to sketch out a medical anthropology that would understand development, physiological functions and pathological processes as not simply physical interactions but as the expression of a harmonious or disharmonious interaction of material-physical, bodily-living, soul and spiritual forces in an organ or organ system. He went on to predict that in future a new sense was needed to develop, for the reality that stands behind life phenomena and the development of cognition of soul and spirit. He called such cognition anthroposophy as distinct from anthropology. A name with Steiner would subsequently use for his perceptions and researches. Troxler gave an opening address at the opening of the University of Bern where he became the first professor of philosophy. Biographically, I found it interesting that Peter Heusser shared one of the first chairs in Integrative Medicine with responsibility for the subject of Anthroposophic Medicine at this same University of Berne.

The work is referenced as expected of an academic publication and points to advances in natural science that make sense of

many of Steiner’s puzzling statements as well as the many way anthroposophy can holistically contextualise and make sense of the findings of natural science. It also provides a rational and philosophical framework that can integrate conventional and complementary approaches to medicine.

Michael Evans

Membership

Note from the Treasurer and Membership Secretary. The subscription for membership of the Science Group (including receipt of Newsletter) stands at £10 per year. If you have not already done so, please update your standing orders and let me know when this is done.

Our account is "The Science Group"
Sort code: 20-23-97
Account No. 90800007 with Barclays.

Membership subscription is £10 (UK), £12 (Europe) or £14 (elsewhere). For all membership and subscription queries please contact Simon Charter, simon.charter@live.co.uk, 01453 882114.

Next Issue

This newsletter is issued to members in March and September each year. Copy for the next issue should reach the editor at the address below by 20th August 2018.

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Disclaimer: The opinions expressed in the published reports and articles are the authors’ own and do not necessarily reflect the views of the Editor or members of the Science and Mathematics Group of the AS of GB.

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