

# Science Group of the Anthroposophical Society in Great Britain

## Newsletter – March 2012

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### In Memoriam Michael Friedjung

Michael Friedjung was born on 23 June 1940 in London, where his parents, Viennese Jews, had taken refuge. His father Walter, who was very politically active, had been interned in the concentration camp at Dachau for political reasons, but had been released immediately before the war and was able to get away. His uncle, Bruno Friedjung had, according to him, emigrated to Palestine with his family shortly before. Bruno's son Raphael, Michael's cousin, is the only remaining member of the family and still lives, with his descendants, in Israel. The name Friedjung was known in Vienna, notably because of an ancestor, the historian Heinrich Friedjung. But Michael only learnt of his Jewish origins late in the day . . .

As a child who had a speech impediment, Michael spent part of his early education at the Steiner school in Vienna where his father was already working. We will come back to the effect this had later. He completed his higher education in London, then worked on his thesis on the physics of novae under the tutelage of J. Hazelhurst in Manchester. His thesis was accepted in 1965. From 1966 onwards, his work was published in the Monthly Notices of the Royal Astronomical Society. From 1967, he was in Paris at the Institute of Astrophysics (IAP) supported by what we would now refer to as a post-doctoral grant from NATO, working with Evry Schatzman, who at that time was interested in white dwarves. From 1969 he was given a permanent research post by the Centre National de la Recherche Scientifique and spent the rest of his working life at the IAP.

Michael specialised in exploding stars (also a trait of his own character . . .) working in particular on novae and symbiotic stars. If his interest remained principally in the theory and the physical phenomena, he didn't dismiss observation, and this interest for the given led him to many collaborative programmes, in particular after the launch of the International Ultraviolet Explorer satellite in 1978. His many foreign collaborators (Italians, Croats, Poles, Russians, etc.) visited him regularly, thus contributing to the scientific life of the lab. He worked among other things, on the problem of the Fell lines which led him to develop the Self Absorption Curve Method, one of his major contributions. He published more than 250 articles in the course of his long career: the most recent to date, which is undergoing revision following his death, is a critical discussion of the theories of the evolution of novae, which would have taken up a lot of his energy, and his long 'struggle' with the referee perhaps further undermined his already compromised health.

Throughout his long career, he showed great dynamism and a generous open-spiritedness, which was demonstrated as much in the scientific as in the social realm. No sooner had he

arrived in France than he was taking an active part in the evolution of ideas of May 1968, and in internal debates at IAP, then participating briefly in the *altermondiale* movement in Canada and South Africa. He was a long-serving member of the Conseil de Laboratoire at IAP, organised the first international conference on 'Novae and Related Stars' in 1976 and made an enormous contribution to the organisation of two other conferences: on symbiotic stars at the Observatoire de Haute-Provence in 1981 and on the Problem of Fell in 1986, followed by the International Astronomical Union Symposium No. 103 in 1987 on 'The Symbiotic Phenomenon' and No. 122 in 1989 on 'Physics of Classical Novae'.

A campaigner from his early days at Confédération Française Démocratique du Travail, he was always ready to defend 'just' causes and regularly took part in public demonstrations, just as he did in internal debates on the IAP forum, where he was saddened to see the deterioration in social interaction.

What is less well-known, is his involvement in spiritual debate. Having contact with the Rudolf Steiner school from his earliest years, and through the reading suggested by his father, he became interested in anthroposophy (and incidentally with scientology) during his doctorate years, researching scientific proof of reincarnation. But he very quickly broke with scientology, disheartened by manipulation and financial demands, and became a member of the Anthroposophical Society from 1984. There he found the friendship and human warmth which was missing in his private and, at times, even in his professional life. Always looking for ways to reconcile science and spirituality, he summarised his 'theories' (or should we say 'intuitions') in his book *Putting Soul into Science* published online in 2003.

In spite of his early difficulties, Michael Friedjung was a charming and large hearted human being, attentive to the needs of others. This innocence, which bordered on the angelic, (but was probably not naivety) worked against him, leading him to respond too easily to appeals for help which sometimes came close to exploitation . . . His colleagues remember a clear thinker right to the end, always ready for a discussion: if he followed the conversation in the canteen in silence, or dozed in the front row in seminars, a mischievous look or a precise question quickly showed that he had followed it all.

Apart from an anthology of English swear-words that he will have helped to spread around France, he finished just in time what could be considered his intellectual legacy: his work finally translated into French as *Insérer de l'âme dans la Science*, and the article on the theory of novae, which is in the course of being published in *Astronomy & Astrophysics*. He passed away in Paris on 22 October 2011 after a brief period in hospital, just when he was already in a hurry to get back to his work . . . because, as he would always conclude, 'More research is needed!' *Michel Dennefeld, with help from Roberto Viotti, Juan Zorec, and the recollections of many others.*

### 'Michael has left for the stars'

Michael was a researcher in astrophysics, everyone who knew him knew that. But in so far as he felt misunderstood, it was perhaps that many people did not realise that his interest in science was not just a passion like any other. We had many exchanges on this subject over the course of the past 15 years, as our research paths crossed in certain respects. And what I

would like to bear witness to here, is his commitment to science not as a hobby but, as a condition of our humanity and our spiritual evolution. It seems to me that Michael's particular destiny can help in understanding what today's humanity faces in its difficulties between science and conscience, and by which paths, each in our own way, we can be called upon to give expression to the new alliance between scientific enquiry and spiritual evolution.

In recalling Michael, many people will think of his profoundly atypical and unusual side. Yet there was also a part of him which was almost universal, as if he showed us each an aspect of ourselves. This quality was that of our destiny as human beings caught in the birth of science. In this constantly renewed battle, Michael engaged with particularly forceful intensity with the enigma which characterises modern science in search of itself. For him 'putting soul into science' wasn't simply supplementing science with soul, or inventing a science alongside 'the' science. It was to introduce a truly philosophical and moral awareness at the very heart of science.

For Michael, the existence of conscious beings in the world of physics was not a theory but the fruit of authentic experience. It was even absolutely concrete. For example, let's take the case of electricity. We spend our time pressing buttons but without knowing what really happens when we do, and so we live with the illusion that we can affect things without them changing themselves or us. But actually it's not the case: quantum physics gives support to the idea that there is no existence separate from things. For Michael, present day science included contradictions which will not be scientifically resolved without taking into account awareness and the life of the soul. This also means that science is itself the condition of its own transcendence. Michael was thus always on the lookout for opportunities in the latest advances of science which would allow us to take these questions further.

He would often say 'I can't bring myself to just believe'. If we keep scientific questions separate from our spiritual aspirations, then the world – and what we do in it – cannot have any genuine coherence or consistency. Scientific enquiry is not only a required path for going beyond simple faith, but also the absolute condition for our genuine participation in the world. It's because science is just such a concrete condition that the soul must be able to bind itself to science, to 'ensoul it', to love it. In order to do that, first of all we must get rid of our fear of science, but also overcome the feeling of solitude which follows such a choice. In recalling in precisely what way Michael suffered from this solitude, we can perhaps gauge what each human being will have to go through in order to acquire a scientific awareness.

We can also understand why Michael's research community also held such an essential place in his life; it was the very heart of his engagement with the world. Towards the end, he was very concerned about the way in which his colleagues throughout the world would be informed that he was dying. It was his greatest concern apart from being able to finish his final tasks. Undeniably, this community has enabled him to develop his original ideas and so to bring about his contribution of the soul to science. (Without doubt, astrophysics offers a quite exceptional work context, sadly not every scientific community takes such a generous point of view.)

His task accomplished, Michael has left for the stars. Drawing on the last of his strength, his most important work was completed according to his wishes. His colleagues abroad were informed thanks to a list which he had compiled several months before. Their regard for him was unanimous. For them Michael was a great astrophysicist and an outstanding colleague, sometimes explosive but always good humoured; a

being out of the ordinary in his sensitivity, goodness, intelligence and competence, a remarkable soul, and also, for many, a great friend. As Edward Sion, a colleague from the United States, expresses it 'The breadth of his intelligence was as impressive as its depth. He marched through life and its challenges to the beat of a different drum and always remained a unique individual of profound humanitarian concerns. We have lost someone very special'.  
*Sylvie Pouteau*

## News

### ***Archetype and Science Forum now online***

As there continues to be occasional interest in these two Science Group journals which have ceased publication, and sometimes orders are received for all back issues, they have been made available for free download as PDFs on the Science Group's web site at <http://www.science.anth.org.uk/>.

The *Archetype* PDFs have been made from the original layout files used for the print edition of the journal. Consequently they are large, but printable potentially at the original quality by whoever downloads them.

The Science Group is missing archive copies of Science Forum Numbers 3, 7 & 8. If you have copies of these to spare, please get in touch with David Heaf (contact details at the end of this newsletter). If required, the Group will refund postage and the purchase price.

## Meeting Report

### **UK Group of the Science Section, 11 November 2011, Elmfield School, Stourbridge**

The Science Section for members of the School of Spiritual Science who are taking responsibility for the scientific work has been meeting twice a year in autumn and spring.

1. A free rendering of lesson 19 of the class was given by Nick Thomas.

2. We remembered Mike Friedeberg who had been a regular member of the group's meetings. The meeting took place on the exact anniversary of his funeral. His many qualities and interests were recalled with affection. We spoke about his deep work in science and education and of his many-sided endeavours to bring human experience and scientific understanding together.

3. We then took up a question which Mike Friedeberg had raised in our meeting in October 2010 only two days before his death. This led us to consider the actual issues involved in modern physics from a spiritual perspective, particularly quantum theory and relativity.

4. Judyth Sassoon then gave an exceedingly stimulating presentation of 'Convergence Theory' in Zoology using many detailed examples from a wide range of animals. She invited us to grapple with the issues connected to this to try to understand the approach and mindset of mainstream writing on this subject and their further ramifications. Very interesting discussions ensued which led to further questions which Judyth undertook to present at the next meeting in 2012.

5. Notice was given of the science group conference in February 2012 in Stourbridge and a list of possible speakers mentioned.

6. It was agreed to ask the treasurer of the Section to meet the cost of maintaining Lawrence Edward's website (which has so far been covered by Nick Thomas) for one year pending a longer term solution. The cost is about £60 p.a.

7. It was agreed to meet as a Section in about a year's time but no date was chosen.

If you are interested in attending Section meetings, but do not normally receive notification of them, please contact Alex Murrell, 26 Arundel Drive, Rodborough, Stroud, GL5 3SH. Tel: 01453 766484 Email: alexandermurrell (at) hotmail.com.

## Meetings

### Projective Geometry

A small group meets weekly in Brighton, currently on Mondays, to explore the laws of the space underlying physical and living forces.

Themes for the Autumn term are: Harmony, Polar Systems and Imaginary Elements.

Please contact Paul Courtney on 01273 557080 or 07903 961390 or at PaulRC (at) btinternet.com for further details.

### Research Group

The next meeting in Buckfastleigh of the Research Group will be in October of this year.

The themes will probably include:

1. Electromagnetism in the environment
2. Light

Please see the next issue of this newsletter for dates. Group contact: Paul Courtney, PaulRC (at) btinternet.com, 1 Surrenden Road, Brighton, East Sussex, BN1 6PA. Home: 01273 557080 Mobile: 07903 961390.

## Courses

### History and Philosophy of Projective Geometry

Saturday 10 March 2012, 9 am to 6 pm at Rudolf Steiner House, London.

Given by Nick Thomas. Part of a series of courses on projective geometry, this event is open to anyone with a basic understanding of projective geometry.

Nick Thomas was an electrical engineer in the Royal Air Force before embarking on research into projective geometry. He is the author of *Science Between Space and Counterspace*.

Cost: £35.00. Enquiries: Tel: 0208 663 8936. Email: juanna.ladaga (at) gmail.com.

### Workshop in Projective Geometry

Saturday 9 June 2012, 9 am to 6 pm at Rudolf Steiner House, London.

Given by Paul Courtney. Part of a series of courses on projective geometry, this event is open to everyone.

Paul Courtney is a maths teacher who runs a weekly class in projective geometry in Brighton.

Cost: £35.00. Enquiries: Tel: 0208 663 8936. Email: juanna.ladaga (at) gmail.com

## Review

*Metamorphosen im Pflanzenreich* by Peer Schilperoord  
Stuttgart: Verlag Freies Geistesleben, 2011, ISBN 978-3-7725-1391-5, 183 pages, hardback, richly illustrated in colour. In this book Peer Schilperoord brings new perspectives to the phenomena and idea of the metamorphosis of plants. In 1790 Goethe published his classic book on *Metamorphosis of Plants* that laid the groundwork for a dynamic approach to the study

of plant morphology. Since then many plant morphologists working within the academic world—Goebel, Troll, Arber, Kaplan, Hagemann, and others—have been deeply influenced by Goethe's approach. There has also been the stream of Goethean biologists—Grohmann, Bockemühl, Suchankte, Kranich, and Goebel, for example—who have worked outside of academia and have been, additionally, inspired by Rudolf Steiner's work in their efforts to understand botany in dynamic terms. One of the main contributions of Schilperoord's book is to bring these two streams into connection with each other.

This book is both comprehensive and technical. To make one's way through the descriptions and arguments is no easy task; from this perspective it is a book for specialists—those familiar with botanical terminology and with Goethean morphology. It would have profited greatly from a glossary of technical terms and from an index.

To portray the metamorphosis of the flowering plant in a detailed way, Schilperoord draws heavily on the extensive studies of plant development by Hagemann. The reader is able to gain a picture of how germinal embryonic tissues in the plant develop into differentiated organs (such as leaves). Schilperoord also shows how the relations between the livermosses, ferns, gymnosperms, and angiosperms can be viewed as a taxon-transcending metamorphosis. He then discusses metamorphosis within the angiosperm flower and includes a separate chapter on wheat. The final chapter is devoted to methodological considerations revolving around Goethe's notion of *anschauende Urteilskraft* (the power of perceptive/intuitive discernment).

Within botany there is a long and complex history of discussion about what the 'fundamental organ' or organs of the plant may be and how the idea of fundamental organ is to be understood. Schilperoord leads the reader into the controversies and different points of view. Goethe is well-known for his statement that the plant is 'forwards and backwards leaf'. The question is: what did he mean by the term leaf or by calling it the true 'Proteus' in the plant? Many minds have struggled with this. In any case, I think it is fair to say that Goethe inaugurated a pathway that leads the study of botany out of the realm of static structures and idealized forms into the understanding of the plant as a dynamic unity that lives by bringing itself to expression in ongoing transformation. But staying-in-process is difficult for the modern mind. We want to grasp, and, in grasping, concepts die into abstractions or become reified into physical things. This is the dilemma. Schilperoord shows the shortcomings of a 'basic organ theory' and is not at all hesitant in his critique of other views. At times Schilperoord seems held captive by the same limitations that he argues against. For example, he speaks about the difficulty of deriving certain organs from one another (e.g. the anthers from the foliage leaf), but the whole intent of the dynamic morphology he wants to achieve is to move beyond the idea that one part can be derived from the other. Rather, it is about gaining the *Anschauung* (inner beholding) of the formative principle that members itself into the different concrete organs of the plant. It's about the movement from the created to the creative, from the product to what is productive. As Schilperoord himself



emphasizes, 'The different formative processes that describe how nature sculpts should be in the foreground, not the models' (p. 54).

Schilperoord introduces the idea of morphological polarity and *Entzweiung*, which essentially means the membering of a unity into two polar structures in development. Interestingly, Goethe—in a short outline that was found among his papers after his death—mentions this process as being fundamental to understanding metamorphosis. Schilperoord elaborates on the concept and sees the process of *Entzweiung* occurring, for example, in the original differentiation of the plant into root and shoot poles and again into the polar floral organs of stamen and carpel (the carpels form the pistil). He shows that polarization is a key and largely overlooked generative aspect of plant metamorphosis. It provides greater insight into the nature of plant dynamics. *Craig Holdrege*

## Publications

### In Context, The Newsletter of the Nature Institute

**No. 26, Fall 2011:** Main articles: Promising themes in molecular biology, *Steve Talbott*. Phenomenon illuminates phenomenon: white oak and sugar maple, *Craig Holdrege*.

Editor: Steve Talbott. Single copies of *In Context* are available free of charge while the supply lasts. Contact details: The Nature Institute, 20 May Hill Road, Ghent, NY 12075. Tel: +1 518 672-0116. Fax: +1 518 672 4270. Email: info (at) nature-institute.org. Web: <http://natureinstitute.org>. The Nature Institute's online *NetFuture* newsletter is available at <http://netfuture.org>.

### Elemente der Naturwissenschaft

**No. 95, 2011:** Unintended phenotypic effects of single gene insertions in potatoes – assessing developmental dynamics and leaf morphology *Ruth Richter, Jos van Damme & Johannes Wirz*. Transgene Tomaten aus der Grundlagenforschung – unbeabsichtigte phänotypische Reaktionen auf ein Markergen, *Ruth Richter, Agnes Schätzl & Johannes Wirz*. Ethik des Werdens – Mensch und Naturreiche, *Renatus Ziegler*. Wärme in der Natur – Wärme im Menschen. Auf der Suche nach Entsprungen, *Andreas Dollfus*.

Editorial board: Johannes Wirz (editor-in-chief), Ruth Richter, Johannes Kühl, Barbara Schmocker.

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Cost: Annual subscription (2 issues, including postage): €30.- / CHF 40.-. Single issues: €18.- / CHF 25.- ISSN 0422-9630.

A list of the contents of back issues is available at <http://www.science.anth.org.uk/eleminde.htm>.

### Mathematisch-Physikalisch Korrespondenz

**No. 247, Winter 2011/2012:** Das Subjekt-Objekt-Problem in der Quantenmechanik und der Äther- und Materiebegriff Steiners, *Peter Gschwind*.

Subscriptions are SFr 50/€30 per year. Edited by Prof. Dr. Peter Gschwind, Mathematisch-Physikalisches Institut, Benedikt Hugiweg 18, CH-4143 Dornach, Switzerland. Tel: +41 61 701 5968. Email: p.p.gschwind (at) intergga.ch.

### Jupiter – Astronomy, Mathematics and Anthroposophy

**Volume 6(1), September 2011:** Main articles: Das Lemniskatenbahnsystem, Teil 2, *Roland Schrapp*. Plus details of publications and a forum.

Editor-in-Chief: Oliver Conrath, Section for Mathematics and Astronomy, Goetheanum, Postfach. CH-4143 Dornach/Switzerland. Tel: +41 (0)61 706 4220, Fax: +41 (0)61 706 4223, Email: mas (at) goetheanum.org.

Publisher: Verlag am Goetheanum, Postfach 131, CH-4143 Dornach, Switzerland. Subscription: Annual subscription € 30.- / CHF 50.- ISSN 1661-8750.

### Wasserzeichen

**Nr. 34 (2011):** Celebrating 50 years of the Institute's existence with a report on its 50<sup>th</sup> anniversary conference and items on its achievements and its co-workers.

Price €3.00 per issue. Free to sponsors.

Editors, Georg Nitsche & Andreas Wilkens, Institut für Strömungswissenschaften, Stutzhofweg 11, D-79737 Herrischried, Germany, Tel: +49 (0)77 64 9333 0, Fax +49 (0)77 64 9333 22. Email: sekretariat (at) stroemungsinstitut.de. Internet: [www.stroemungsinstitut.de](http://www.stroemungsinstitut.de).

## Treasurer's report

Science Group accounts summary for 2011: Income £371.67 (Subscriptions, £303.51; Archetype, £43.30; Other, £24.86). Expenditure £310.96. Balance at 31.12.11: £2,833.50.

## Membership

The Group has 49 subscribers. The membership subscription is £5 (UK), £6 (Europe) or £7 (elsewhere).

We welcome the following new members: Robert Eburn (Hampshire, UK); Don Frymyer (PA, USA); Iain Trousdell (E Sussex, UK).

Members who do not subscribe by direct payments from their bank receive one reminder of a due subscription.

## 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 20<sup>th</sup> August 2012.

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