

Special Courses at Schumacher College

Schumacher College is situated in the estates of Dartington Hall, Totnes, Devon. The college runs several short term courses that are interdisciplinary in their approach and content and last for two to three weeks.

The college describes itself (in its prospectus), as an international centre for ecological studies; true, all their courses have an ecological element, if not outright emphasis in the learning programmes. The founding objective of the college, established in 1991, was to find ways and means of bringing together scholars and learners to explore and explicate the meaning of life and what imbues a wholeness to it. It does not remain at a philosophical plane; but hard core facts, principles, experiences and enquiry all mingle to examine the relationship between human society and the earth, the values that are fast disappearing.

The course I attended was of three week duration, titled, *Qualitative Life-Sciences* and taught by Brian Goodwin and Margaret Colquhoun. This course essentially had two underlying objectives:

One – where we explored the dynamic processes of life that seem to generate an emergent order, responsible for evolution of diverse forms, as opposed to the reductionist view of life, where everything is governed by genes, organisms being mere vehicles for gene expression.

Two – to combine conventional scientific analysis with participative scientific methodology originating with Goethe, that emphasises attentiveness to qualitative inner experience and the process of understanding.

These two objectives blended well with one another in trying to understand the intricate relationship that exists between the components of a diverse system. Does order emerge out of chaos? Computer models of ant colonies and heartbeat, mathematical calculations of population growth, Belousov-Zhabotinsky reaction etc. were studied as existing evidence in support of the hypothesis that complex systems – be they at the level of genes, organisms, populations, society or ecosystems – tend to move towards chaos; systems living at the edge of chaos generate a certain order.

Along with this rigorous scientific analysis (of which I have outlined only a small part above) we moved into another realm of study. Starting with the thin line of division between life and non-life, we observed patterns of growth in plants and our relationships with them. Thus the distribution pattern of the nettle, diversity of plants belonging to the buttercup family, growth patterns in Ash etc. were studied in a manner that made plant study meaningful. As a biology teacher I found the methodology emphasising Goethean principles refreshing and enjoyable.

Doubtless the course content brought up a number of questions, both at the philosophical and practical levels, which led to some lively and interesting discussions. As the course participants were from different fields of study and professions, some of them non-scientific, these exchanges of ideas, views and perceptions whetted one's appetite for enquiry.

Schumacher College is considering converting this course into a full fledged Masters programme in Holistic Science. Under Brian Goodwin who is an excellent teacher, it will be well worth the study.

Geetha Iyer, teacher in Rishi Valley School, Madanapalle, was a teacher participant in the Schumacher College programme.

Gaia Theory and Living Systems, with Stephan Harding and Lynn Margulis: this was a two week course, meant as an introduction to Gaia Theory, its impact on our present view of the planet, and the roles played by micro-organisms in Gaian regulation, with reference to their evolution, biochemistry and ecology. We also had a one day visit from James Lovelock, the man who formulated the Gaia theory and later developed it with Lynn Margulis.

In essence, the Gaia theory states that both the geological (e.g. atmosphere, hydrosphere, surface sediments) and the living components

of the earth behave as a single, integrated, well-regulated system. Traditionally, the environment has been seen to affect the biota on the planet but not vice-versa; what the theory says is that life regulates the environment too the metabolism, growth, production and removal of gases, ions and organic compounds by the sum of biota leads to a regulation of temperature, acidity, and atmospheric composition.

During the first week, we studied Gaian feedback loops that play a major role in the regulation of the oxygen levels in the atmosphere and the average global temperature, and also had the opportunity to experiment with the 'daisyworld' computer model. In the second week, we focused on the role of bacteria and protists in the Gaian scenario, and studied their interactions with each other which lead to symbiotic complexes.

Interestingly, Schumacher College itself closely resembles a 'self-regulating system'! The visiting students all share in the work that needs to be done to keep the place running; cleaning, dusting, and cooking. The sense of community is a strong one, and *academic* work is well-balanced by physical activity. The small size of the College is a great asset, as it gives an informality to the learning process.

Keshav S Mukunda was a student participant in the programme.